

The 5th Young Researchers Conference



The 4th industrial revolution ...
are we Ready ?

7-8 th April 2018

Suez Canal University, Ismailia, Egypt



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About The Young Researchers Committee

About the Young Researchers Committee

The YRC was established in March 2012 upon a decree from Prof. Mamdouh Ghorab - Vice President for Postgraduate Studies and Research Affairs at that time, and now he is a president of Suez Canal University. He sent an invitation to all the Suez Canal University faculties for all recently returned young researchers from abroad who was awarded their Ph.D.

The young researchers were committed to the idea of helping in developing a good system for the scientific research sector in Suez Canal University, and their ultimate goal was to transfer the skills they acquired abroad to their university.

With time and with the success of the idea, members of the committee began to increase, where researchers from all faculties of the Suez Canal University joined the committee for volunteer work aiming.



Young Researchers Committee

Conference Committees & Administrative Members



Prof. Mamdouh Ghorab
Suez Canal University President
YRC Founder



Prof. Magda Hagra
Vice President for Postgraduates and
Research Affairs Conference Chairman



Mrs. Hoda Farag
University Assistant Provost
Conference Secretary



Dr. Zaynab Oof
Faculty of Medicine
YRC Coordinator



Dr. Fatma Amin
Faculty of Science
Conference Coordinator

<http://yrc2018.weebly.com>



Organizing Committee

Dr. Yasmin M. Hassan	Faculty of Science, SCU
Dr. Amr El-Kelish	Faculty of Science, SCU
Dr. Mohamed Abdel-Daim	Faculty of Veterinary Medicine, SCU
Dr. Noha Adel Mahgoub	Faculty of Agriculture, SCU
Dr. Nehal Abdel-hamid Kamel	Faculty of Science, SCU
Dr. Ahmed Rifaat	Faculty of Pharmacy, SCU
Dr. Esraa Mohamed	Faculty of Computers and Informatics, SCU
Dr. Ahmed Elgamal	Faculty of Arts & Humanities, SCU
Dr. George Michel	Faculty of Arts & Humanities, SCU
Dr. Chahira Abdallah	Faculty of Arts & Humanities, SCU
Dr. Tamer H. Hassan	Faculty of Pharmacy, SCU
Dr. Shadeed Gad	Faculty of Pharmacy, SCU
Dr. Samah Mohamed Elaidy	Faculty of Medicine, SCU
Dr. Asmaa Abu-bakr	Faculty of Nursing, SCU
Dr. Sara Zaky	Faculty of Dentistry, SCU
Dr. Mahmoud Diab	Faculty of Medicine, SCU
Dr. Khalid A. Alsabahy	Faculty of Medicine, SCU
Dr. Mariam M. Hassan	Faculty of Medicine, SCU
Dr. Inas Uthman	Faculty of Medicine, SCU
Mrs. Hend M. El Shabrawy	University Assistant Provost Office
Mr. Amr Salama	University Assistant Provost Office



Plenary Speakers



Prof. Mamdouh Ghorab
President of Suez Canal University, Egypt

Talk Title: The 4th Industrial Revolution ... Are We Ready?

Bio:

Prof. Mamdouh Ghorab is the current president of Suez Canal University. He obtained his PhD in Pharmaceutics from Cairo University, Egypt (1994). He held his M.Sc. from Cairo University (1991), Egypt and B. Pharm from the same college (1987). His research interest is Pharmaceutics. He was awarded the State Encouragement Prize in medicine (2003) and was the responsible for the pharmaceuticals, and chemistry projects officer in the Science and Technology Department Fund (STDF) (Ministry of Higher Education and Scientific Research) in (2009). Prof. Ghorab was selected in many leadership positions: chairman of the department of pharmaceutics and industrial pharmacy (2003), vice-dean for community and environmental affairs (2004), vice-dean for postgraduate studies and scientific research affairs (2007) and dean for college of pharmacy (2011), Suez Canal University.



Dr. Maghawry Shalaby Ali
Chief of the Economic Group,
Technical Office of the Minister of Trade and Industry

Talk Title: Challenges of the 4th Industrial Revolution, Policies and Mechanisms to get ready

Bio:

Dr. Maghawry Shalaby Ali was born in Egypt in 1966. In 1988, he graduated from Zagazig University, Benha Branch, Dept. of economics. He obtained his Master's Degree in an international economy from Zagazig University (1997), and Ph.D. in economics, Faculty of Commerce, Ain Shams University in (2004). He now works as the chief of the Economic Group, The technical office of the minister of trade and industry. He has an extensive experience as an economic researcher working for the ministry of economy and foreign trade from 1992 to 1996. In 2013, he worked as an economic consultant and manager of research and information center at the council of an industrial chamber, Kingdom of Saudi Arabia. From Jan. 2017 till now, He is a member of the United Nations team for Trade and sustainable development. Dr. Maghawry was also a chairman of the scientific committee for the Middle East

economies forum and the role of the private sector organized by the International Monetary Fund and the International Bank and the Council of Saudi Arabia Chambers in 2013. He is also a member of Egyptian Committee of political economy, Legislation and Statistics. He was awarded the State Encouragement Prize in economic and legal sciences, international relations branch in (2005) on his book entitled: “*Economic Dimensions for Egypt’s Foreign Policy*”.



Dr. Mohamed Sayed Ahmed Saeed
Economic Researcher at the Economic Group
Technical Office of the Minister

Talk Title: Future Government in light of the 4th Industrial Revolution

Bio:

Dr. Mohamed Sayed Ahmed Saeed was born in Egypt 1980. He studied and obtained his BA degree in Agricultural Sciences from the Faculty of Agriculture, Cairo University (2002). In 2009, he got a higher diploma in Agricultural Economy, Faculty of Agriculture, Al-Azhar University. In 2015, Mohamed got his Master's Degree of Agricultural Sciences in the field of agricultural economy. He is now doing his PhD in the field of agricultural economy at the Faculty of Agriculture, Ain Shams University. Dr. Mohamed now works as an economic researcher at the Economic Group, Technical Office of the Minister of Industry, Trade and Small Industries. He started his career as a production engineer at Al-Salam factory for foods manufacturing, and an agricultural engineer and executive manager at Yathreb for Agricultural projects and visibility studies from 2002 to 2004. He worked in the industrial and medical field as a researcher from 2004 to 2006. From 2006 to 2014, he worked as a technical researcher specialized in economic information security, and as a diplomatic portfolio officer at the Ministry of Industry, Trade and Small Industries.



Engineer/ Ahmed Fekry
Head of e-Learning Center of Excellence
Information Technology Institute, Smart Village, Cairo, Egypt

Talk Title: E-Learning: New Trends and More

Bio:

Eng./Ahmed Fekry is a biomedical engineer who holds a BSc. in Biomedical Engineering. He also obtained an ITI Diploma in E-Learning. Ahmed also has an extensive experience in e-learning technologies. He started his career in 2007 working as worked as technical manager for training & development, E-Learning Center of Excellence, Information Technology Institute (ITI). Then in 2009, he worked as an e-content developer in Dublin, Ireland. From 2014 till now, he has been working as head of e-Learning Center of Excellence, ITI. Ahmed shows a deep interest in e-learning, having knowledge of e-Learning Concepts. Regarding his personal skills, Ahmed is able to work under pressure and independently. He is able to do various other duties related to e-content development. He is also possessed of excellent communication and writing skills.

The 4th Industrial Revolution in Suez Canal University



Ass. Prof. Hesham Abdulla
Dept. of Microbiology, Faculty of Science, SCU

&

Ass. Prof. Sahar EL-Shatoury
Dept. of Microbiology, Faculty of Science, SCU

**Talk Title: Biological system for treatment of waste water
from agro-food industries**

Bio:

Dr. Hesham Mohamed Abdulla is an associate Professor of Microbiology, Botany Dept., Faculty of Science, Suez Canal University. He is also the Manager of Suez Canal University Centre for Environmental Studies and Consultation (CESC). His research interest is in environmental microbiology, wastewater management, and bio-deterioration of art works.

Bio:

Dr. Sahar EL-Shatoury is an Associate Professor of Microbiology, Botany Dept., Faculty of Science, Suez Canal University. His research interest is in wastes and wastewater bio-treatment / recycling, and microbial natural products from Actinobacteria taxonomy.



Ass. Prof. Essam Rashed¹ & Dr. Hoda Yousry²

1. Ass. Prof. Faculty of Informatics & Computer Science, BUE
2. Lecturer of Medical Genetics, Faculty of Medicine

Talk Title: Egyptian Precision Medicine Era

Bio:

Dr. Essam Ali Hammam Ahmed Rashed was born in 1976, Ismailia, Egypt. He obtained his PhD in Computer Science from Graduate School of Systems and Information Engineering, University of Tsukuba, Japan in 2010. He obtained his M.Sc. in Computer Science, Faculty of Science, Suez Canal University, Egypt in 2002, and his B.Sc. in Scientific Computing in 1998 from the same institution. He started his career as an Assistant Lecturer, Suez Canal University in 2002, then in 2006 as a Researcher, University of Tsukuba, Tsukuba, Japan. In 2007, he was a Research fellow and Ph.D. Candidate, University of Tsukuba, Tsukuba, Japan, then in 2010, he was a Postdoctoral Research Fellow, University of Tsukuba, Tsukuba, Japan. From 2015 to 2016, he was a visiting researcher, University of Tsukuba, Tsukuba, Japan. Now, he holds two positions: an Associate Professor at The British University in Egypt (BUE), Cairo, Egypt, and an Associate Professor at Suez Canal University, Ismailia, Egypt. His research interests are in computed tomography, image processing and analysis, medical imaging, iterative methods, optimization problems.

Bio:

Dr. Hoda Yousry Abdallah was born in 1980. In 2003, she got her bachelor degree in medicine, Faculty of Medicine, Suez Canal University. She obtained her Master degree in medical genetics in 2010, and her PhD degree in medical genetics in 2016 from the same institution. Also, she obtained a diploma of health professions education in 2013. She started her career in Suez Canal University as a demonstrator in Genetic Unit of Histology and Cell Biology Department, Faculty of Medicine in 2005. In 2010, she was an assistant lecturer in Medical Genetics in Genetic Unit of Histology and Cell Biology Department. Now, she is a lecturer in Medical Genetics in Genetic Unit of Histology and Cell Biology Department, and Coordinator of Molecular Biology Unit, Center of Excellence in Cellular & Molecular Medicine, Faculty of Medicine. In 2016, Dr. Hoda was selected to be a director of the information and technology Unit, Faculty of Medicine, Suez-Canal University. Although, she is a graduate of medical school, Dr. Hoda is really interested in the fields of human development and scientific research. In 2011, she was awarded a national Prize from “Life makers organization” founded by Dr Amr Khaled, in the sector of scientific research for a project named “Planning for Egypt’s future in scientific research sector”.

Talk Title: Smart Home for People with Disabilities



Islam Mahran

**Undergraduate, faculty of
science, SCU**



Maryam Omar

**Undergraduate, faculty of
science, SCU**



Amany Talat

**Undergraduate, faculty of
science, SCU**



Ahmed Adel

**Undergraduate, faculty of
science, SCU**



Conference Program



The Fifth Young Researchers Conference (YRC2018)
The 4th Industrial RevolutionAre we Ready?
Suez Canal University, Ismailia, Egypt 7-8 April 2018



DAY-1				
7 April 2018	Reception	Main Hall	Front Hall	Restaurant
09:00-10:00	Registration			
10:00-10:30		Opening Ceremony		
10:30-11:00		Plenary (P1)		
11:00-11:30		Plenary (P2)		
11:30-12:00		Plenary (P3)		
12:00-13:00				Tea Break
13:00-13:30		Plenary (P4)		
13:30-14:30			Poster (S1)	
14:30 – 15:00				Lunch
15:00 – 16:00			Poster (S2)	



The Fifth Young Researchers Conference (YRC2018)
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DAY-2	Reception	Main Hall	Front Hall	Restaurant
8 April 2018				
08:30-9:00	Registration			
9:00-10:30		<i>The 4th Industrial Revolution in Suez Canal University</i>		
10:30-12:30		<i>The Gate to the Fourth Industrial Revolution: Grant Writing Workshop</i>		
12:30-13:00				Tea Break
13:00-14:00			Poster (S3)	
14:00-15:00		Closing Ceremony		



The Fifth Young Researchers Conference (YRC2018)
The 4th Industrial RevolutionAre we Ready?
Suez Canal University, Ismailia, Egypt 7-8 April 2018



Conference Program		
<i>First Day - Saturday 7 April 2018</i>		
09:00 –10:00	Registration	Reception
10:00 – 10:30	Opening Ceremony	Main Hall
10:30-11:00	<p style="text-align: center;">Plenary Lecture (P1) The 4th Industrial Revolution, Are we Ready? Prof. Mamdouh Ghorab President, Suez Canal University (SCU), Egypt Chairs: Prof. Samy Hashem & Prof. Magda Hagra</p>	
11:00-11:30	<p style="text-align: center;">Plenary Lecture (P2) Challenges of the 4th Industrial Revolution, Policies and Mechanisms to get ready Dr.Maghawry Shalaby Ali Chief of the Economic Group, Technical Office of the Minister of Trade and Industry Chairs: Prof. Atef AbouElNour & Dr.Essam Rashed, Dr.Fatma Amin</p>	
11:30-12:00	<p style="text-align: center;">Plenary Lecture (P3) “E-Learning: New Trends & More” Engineer. Ahmed Fekry Head of e-Learning Centre of Excellence, Information Technology Institute, Ministry of Communications Chairs: Prof. Tarek Rashed & Dr.Zaynab Oof</p>	
12:00-13:00	Tea Break	Restaurant
13:00-13:30	<p style="text-align: center;">Plenary Lecture (P4) Future Government in light of the 4th Industrial Revolution Dr. Mohamed Sayed Ahmed Saeed Economic Researcher at the Economic Group Technical Office of the Minister</p>	Main Hall

Chairs: Prof. Magda Hagra & Dr. Afaf Atia		
13:30-14:30	<p>Poster Session (S1)</p> <p>Chairs: Prof Magda Hagra, Prof.Wafaa Abdel Azim, Prof. Ibrahim Fares, Prof. Hanan Kamal, Prof Abdel-Hamid Osman, Prof. Nagwan Abd el-Aziz, Prof. Ismail Salama, Prof. Ahmed El Sakka, Prof. Yasser Al Wazir, Prof. Randa Abdel Salam, Prof. Abd Elkarim Abo Eisha, Prof. Fayez Semida, Prof. Abd Elmonem Zayed , Ass.Prof. Hesham Abdulla, Ass.Prof. Mohamed Abdel Rahman, Prof. Walid El Kamash, Prof. Tamer Mansour.</p> <p>PS-1: STUDYIN THE LEVEL OF CYTOCHROME P4502J2 GENE EXPRESSION IN BREAST CANCER <i>Salwa Soliman, Biochemistry Department, Faculty of medicine, Suez Canal University</i></p> <p>PS-2: ASSOCIATION BETWEEN 14,15 EPOXYEICO-SATRIENOIC ACID LEVEL AND BREAST CANCER <i>Salwa Soliman, Biochemistry Department, Faculty of medicine, Suez Canal University</i></p> <p>PS-3: INSULIN-LIKE GROWTH FACTOR 2 BINDING PROTEIN 2 GENE POLYMORPHISM IN PATIENTS WITH TYPE 2 DIABETES MELLITUS IN ISMAILIA CITY –EGYPT <i>mohammedhajar, Department of Biochemistry, Faculty of Medicine, Suez Canal University</i></p> <p>PS-4: EXPRESSION PATTERN OF MICRO-RNA 181A IN CHRONIC MYELOID LEUKEMIA PATIENTS IN SUEZ CANAL UNIVERSITY HOSPITAL <i>Amira Elkorashi, Department of Clinical and Chemical Pathology, Faculty of Medicine, Suez Canal University.</i></p> <p>PS-5: PATTERN OF ACUTE CORONARY SYNDROMES AMONG YOUNG EGYPTIAN PATIENTS RELATED TO RISK FACTORS <i>Fouad Ahmed, Cardiology department, Faculty of Medicine,Suez Canal University & Sana'a University, Sana'a, Yemen.</i></p> <p>PS-6: CHEMICAL AND BIOCHEMICAL STUDY TO EVALUTE THE ANTI-OXIDANTS AND FREE RADICALS IN OBESE PEOPLE <i>Rana Salah El Dien, Department of Chemistry, Faculty of Science, Suez Canal University</i></p>	Front Hall

	<p>PS-7: CHEMICAL AND BIOCHEMICAL ESTIMATION OF THE ACTIVITY OF SUPEROXIDE FREE RADICAL <i>Fatma Alt *, Department of Chemistry, Faculty of Science, Suez Canal University</i></p> <p>PS-8: RASPBERRY KETONES PROTECT AGAINST CYCLOPHOSPHAMIDE-INDUCED PULMONARY TOXICITY IN MICE <i>Marwa Tarek Mohammed, Pharmacist, Directorate of Health, Ismailia, Egypt</i></p> <p>PS-9: HPLC STUDY FOR SIMULTANEOUS DE TERMINATION OF SEVEN ANGIOTENSIN II RECEPTOR BLOCKERS IN THEIR PHARMACEUTICAL PRODUCTS WITH DIFFERENT STATIONARY PHASES <i>Khalid Marghany*, Ministry of Health, Directorate of Health Affairs, Ismailia Health Administration, Egypt</i></p> <p>PS-10: EMERGING ROLE OF LONG NON-CODING RNA (ROR) IN CELLULAR REPROGRAMMING AND PROGNOSIS OF RENAL CELL CARCINOMA <i>Marwa Hosny, Department of Medical Biochemistry & Molecular Biology, Faculty of Medicine, Suez Canal University.</i></p> <p>PS-11: SYNTHESIS OF SOME NOVEL QUINOLINONE DERIVATIVES WITH ANTICIPATED ANTICANCER ACTIVITY <i>Marwa Khalil*, Central Laboratory, Faculty of Agriculture, Suez Canal University</i></p> <p>PS-12: SYNTHESIS OF SOME QUINOLINONYLGLYCYL/B-ALANYL HYDRAZIDE DERIVATIVES WITH POSSIBLE ANTICANCER ACTIVITY <i>Marwa Khalil*, Central Laboratory, Faculty of Agriculture, Suez Canal University</i></p> <p>PS-13: PHYSICOCHEMICAL CHARACTERIZATION FOR THE DESIGN AND FORMULATION OF MIXED POLYMER-LIPID NANOPARTICLES AS A DRUG DELIVERY SYSTEM <i>SadeqThamarani*, Department of Pharmacy, Faculty of Medicine and Health Sciences, Thamar University, Yemen</i></p> <p>PS-14: QUALITY BY DESIGN OPTIMIZATION OF A FAST LIQUID-LIQUID MICROEXTRACTION PROCEDURE FOR DETERMINATION OF TRIMETHOPRIM AND SIX SULFONAMIDES IN WATER SAMPLES <i>Hatem Mokhtar, Methodology and stability department, R&D, Medical Union Pharmaceuticals Co., Abu Sultan, Ismailia 41617, Egypt</i></p>	
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	<p>PS-15: RENOPROTECTIVE EFFECT OF BIOCHANIN A AGAINST CISPLATIN-INDUCED NEPHROTOXICITY IN MICE <i>Faiha Suliman, 1Department of Pharmacology and Toxicology, Faculty of Pharmacy, Suez Canal University, Ismailia, Egypt.</i></p> <p>PS-16: EFFECT OF PRESSURE ULCER GUIDELINES ON NURSES' PERFORMANCE AND PATIENTS' OUTCOMES <i>Fatma Elmansy, Medical Surgical Department, Faculty of Nursing, Suez Canal University</i></p> <p>PS-17: NURSES' KNOWLEDGE AND PRACTICE REGARDING PRESSURE ULCER PREVENTION AND MANAGEMENT <i>Fatma Elmansy, Medical Surgical Department, Faculty of Nursing, Suez Canal University</i></p> <p>PS-18: DETECTION AND MOLECULAR CHARACTERIZATION OF SOME VIRUSES RESPONSIBLE FOR RESPIRATORY PROBLEMS IN CHICKEN FLOCKS IN EGYPT <i>Mona Salim, Department of Avian and Rabbit Medicine, Faculty of Veterinary Medicine, Suez Canal University</i></p> <p>PS-19: PATHOGENICITY, MOLECULAR CHARACTERIZATION OF CHICKEN INFECTIOUS ANEMIA VIRUS IN ISMAILIA PROVINCE. <i>Doaa Selim, National laboratory for Veterinary Quality Control on Poultry Production, Animal Health Research Institute, Ismailia, Egypt</i></p> <p>PS-20: ZONOTIC IMPORTANCE OF SALMONELLA IN SHEEP AND GOATS <i>Hanan Hawwas, Department of Hygiene, Zoonoses and Animal Behaviour, Faculty of Veterinary Medicine, Suez Canal University</i></p> <p>PS-21: MOLECULAR CHARACTERIZATION OF FIELD STRAINS OF INFECTIOUS BURSAL DISEASE VIRUS IN SUEZ CANAL GOVERNORATES IN EGYPT. <i>Amro Hashish, National laboratory for veterinary quality control on poultry production, Animal Health research institute.</i></p> <p>PS-22: COMPARATIVE SENSITIVITY OF AGPT, REAL-TIME RT-PCR AND CONVENTIONAL RT-PCR FOR THE DETECTION OF INFECTIOUS BURSAL DISEASE VIRUS IN BROILERS FARMS. <i>Amro Hashish, National laboratory for veterinary quality control on poultry production, Animal Health research institute.</i></p> <p>PS-23: EFFECACY AND SAFTY OF SOME COMMONLY USED INSECTICIDE AGAINST RABBITS MANGE <i>Rasha Alawseia, Pharmacology Department, Faculty of Veterinary Medicine, Suez Canal University</i></p>	
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	<p>PS-24: EFFICACY OF CUPRESSUS AND MORINGA EXTRACTS AS AN ALTERNATIVE ACARICIDAL AGENTS AGAINST MANGE IN RABBITS <i>Rana Azab, Pharmacology Department, Faculty of Veterinary medicine, Suez Canal University,</i></p> <p>PS-25: CLINICOPATHOLOGICAL STUDIES ON THE EFFECT OF SOME ANTIBACTERIAL MEDICINAL PLANTS IN BROILERS <i>Marwa Mabrouk, Animal Health Research Institute, Department of Clinical Pathology, Ismailia</i></p> <p>PS-26: PHENOTYPIC AND GENOTYPIC CHARACTERIZATION OF E.COLI ISOLATED FROM FARM ENVIRONMENT AND POULTRY WITH REGARD TO VIRULANCE GENES AT ISMAILIA PROVINCE <i>Sara Aboelil, National laboratory for veterinary quality control on poultry production, animal health research institute, Ismailia</i></p> <p>PS-27: ASSESSMENT THE MYCOLOGICAL AIR QUALITY OF INTENSIVE CARE UNITS IN SUEZ CANAL UNIVERSITY HOSPITAL <i>Soha Ibrahim, Botany Department, Faculty of Science, Suez Canal University, Ismailia, Egypt.</i></p> <p>PS-28: MICROBIOLOGICAL QUALITY OF READY TO EAT MEAT MEALS AT ISMAILIA CITY <i>Yathreb Alsayed, Directorate of Veterinary Medicine ,Faculty of Veterinary Medicine, Suez Canal University, Ismailia, Egypt</i></p> <p>Ps-29: FACTORS AFFECTING BIODEGRADATION OF CRUDE-OIL BY MARINE ACTINOMYCETES ISOLATED FROM EL-TEMSAH LAKE, ISMAILLIA, EGYPT <i>Samy Salem Soliman AbuDraz, BotanyDepartment, Faculty of Science, Suez Canal University, Ismailia, Egypt</i></p> <p>PS-30: PROTECTIVE EFFECT OF ARTEMISIA SANTONICA AND ORIGANUM SYRIACUM EXTRACTS IN MICE EXPERIMENTALLY INFECTED WITH SCHISTOSOMA MANSONI: PARASITOLOGICAL AND HISTOPATHOLOGICAL ASPECTS <i>Mona Henedak, Zoology Department, Faculty of Science, El -Arish University, North Sinai, Egypt.</i></p> <p>PS-31: BIOCHEMICAL STUDIES ON THE EFFECTS OF ARTEMISIA SANTONICA AND ORIGANUM SYRIACUM EXTRACTS IN EXPERIMENTAL SCHISTOSOMIASIS MANSONI INFECTED MICE</p>	
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	<p><i>Mona Henedak, Zoology Department, Faculty of Science, El -Arish University, North Sinai, Egypt.</i></p> <p>PS-32: HEAVY METALS POLLUTION IN WATER AND THEIR IMPACT ON (CLARIAS GARIEPINUS) MUSCLES FROM DIFFERENT AQUATIC ENVIRONMENTS AT ISMAILIA PROVINCE, EGYPT <i>Menna Helal, Animal Production and Fish Resources Department, Faculty of Agriculture, Suez Canal University, Ismailia, Egypt</i></p> <p>PS-33: SOME REPRODUCTIVE ASPECTS OF THE INDIAN SCAD DECAPTERUS RUSSELLI INHABITING THE GULF OF SUEZ <i>Asmaa Fiekry, Marine Biology Department, Faculty of Science, Suez Canal University, Ismailia, Egypt.</i></p> <p>PS-34: POTASSIUM ADSORPTION CHARACTERISTICS OF THREE DIFFERENT TEXTURED SOILS <i>Mona Ahmad, Agriculture Research Center, Soil Conservation and Improvement Department, Soil, Water and Environment Research Institute, Giza, Egypt.</i></p> <p>PS-35: INFLUENCE OF HA-COATED NANO-ZINC OXIDE COMPOSITE ON POTASSIUM ADSORPTION IN DIFFERENT SOILS <i>Mona Ahmad, Agriculture Research Center, Soil Conservation and Improvement Department, Soil, Water and Environment Research Institute, Giza, Egypt.</i></p> <p>PS-36: GENETIC VARIABILITY AND GENETIC ADVANCE OF MAIZE GENOTYPES (ZEA MAYS L.) UNDER SALINITY CONDITIONS <i>Mohamed Emam, Agronomy Department, Faculty of Agriculture, Suez Canal University, Ismailia, Egypt</i></p> <p>PS-37: COMBINING ABILITY OF SOME MAIZE INBRED LINES AND THEIR CROSSES UNDER SALINITY CONDITIONS <i>Mohamed Emam, Agronomy Department, Faculty of Agriculture, Suez Canal University, Ismailia, Egypt</i></p> <p>PS-38: INFLUENCE OF SOME WATER CHEMICAL PROPERTIES ON THE SOLUBILITY OF PHOSPHATE SALTS <i>Mohamed Ibraheim Atwa, Soil and Water Department, Faculty of Agriculture, Suez Canal University, Ismailia, Egypt</i></p> <p>PS-39: EFFECT OF PHOSPHATE SOLUBILIZING MICROORGANISMS ON PLANT GROWTH AND SOIL ENZYME ACTIVITY</p>	
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14:30 – 15:00	Lunch	Restaurant
15:00 – 16:00	<p style="text-align: center;">Poster Session (S2)</p> <p>Chairs: Prof. Abdel-Hamid Osman, Prof. Abd Elkarim Abo Eisha, Prof. Magdy Elashry, Prof. Farid Tantawy, Prof. El-Arabi Shendi, Prof. Mona Kaiser, Prof. Sabry El-Korashy , Prof. Ibrahim Ali, Ass.Prof. Ahmed Boraie, Ass.Prof. Essam Rashed, Ass.Prof. Rania Helmi, Dr. Mohamed Abd el-Salam.</p> <p>PS-45: VIRULENCE ASSOCIATED GENES OF AVIAN PATHOGENIC ESCHERICHIA COLI ISOLATED FROM COLISEPTCEMIC BROILERS CHICKEN FLOCKS AT ISMAILIA GOVERNORATE <i>AsmaaAbdelatife, National laboratory for veterinary quality control on poultry production, animal health research institute, Ismailia, Egypt.</i></p>	Front Hall

	<p>PS-46: ISOLATION AND IDENTIFICATION OF FAMILY ENTEROBACTERIACEA IN BIRDS OF PREY (RAPTORS) <i>DoaaAhmed, National laboratory for veterinary quality control on poultry production, animal health research institute, Ismailia, Egypt</i></p> <p>PS-47: CORRELATION BETWEEN SERUM RESISTIN AND ESTROGEN LEVELS IN FEMALE RATS FED ON HIGH CARBOHYDRATES LOW FAT (HCLF) DIET <i>Samar Abd El-Aziz, Department of physiology, Faculty of Veterinary Medicine, Suez Canal University, Ismailia, Egypt.</i></p> <p>PS-48: EVALUATION OF SOME IMMUNOMODULATORS ON BROILER GROWTHPERFORMANCE AND IMMUNITY. <i>Ahmed Wahdan, Pharmacology Department, Faculty of Veterinary medicine, Suez Canal University, Ismailia, Egypt.</i></p> <p>PS-49: RELATIONSHIP BETWEEN SERUM RESISTIN AND ESTROGEN LEVELS DURING PHASES OF ESTROUS CYCLE IN NORMAL CYCLING FEMALE RATS <i>Samar Abd El-Aziz, Department of physiology, Faculty of Veterinary Medicine, Suez Canal University, Ismailia, Egypt</i></p> <p>PS-50: PHYTOCHEMICAL SCREENING AND ANTIOXIDANT PERFORMANCE OF POMEGRANATE WHOLE FRUIT EXTRACT <i>Ohoud Marie, Biochemistry department, faculty of science, Suez Canal university, Ismailia, Egypt</i></p> <p>PS-51: PHYTOCHEMICAL SCREENING AND ANTIOXIDANT PERFORMANCE OF OLIVE LEAVES EXTRACT <i>Ohoud Marie, Biochemistry department, faculty of science, Suez Canal university, Ismailia, Egypt</i></p> <p>PS-52: MICROBIOLOGICAL ASSESSMENT OF SOME EDIBLE MOLLUSCS <i>Fatma Mohamed, Central lab, Faculty of Veterinary Medicine, Suez Canal University, Ismailia, Egypt</i></p> <p>PS-53: HEPATOPROTECTIVE EFFECT OF MORINGA OLEIFERA EXTRACT ON LEAD INDUCED DNA DAMAGE IN RATS <i>Areeg Reda, Chemistry Department, Animal Health Research Institute, Ismailia, Egypt</i></p>	
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	<p>PS-54: EFFECT OF EXPERIMENTAL COPPER DEFICIENCY ON CARDIAC COPPER CHAPERONE GENE EXPRESSIONS AND THEIR IMPACT ON HEART FUNCTIONS IN SHIBA GOATS. <i>Ahmed Mandour, Laboratory of Veterinary Physiology, Tokyo University of Agriculture and Technology, Tokyo183-8509, Japan, Department of Veterinary Medicine (Internal Medicine), College of Veterinary Medicine, Suez Canal University, Ismailia, Egypt.</i></p> <p>PS-55: PETROLEUM GEOCHEMICAL CHARACTERIZATION OF GHARIBON OIL FIELD, EAST BENI SUEF BASIN, EASTERN DESERT, EGYPT. <i>Ahmed Mohamed, Geology Department, Faculty of Science, Suez University, Suez, Egypt</i></p> <p>PS-56: GEOTECHNICAL ASSESSMENT OF SOIL FOR URBAN PLANING, ISMAILIA GOVERNORATE, EGYPT <i>Amira Zaki, Geology Department, Faculty of Science, Suez Canal University, Ismailia, Egypt.</i></p> <p>PS-57: ASSESSMENT OF WATERLOGGING FEATURE ALONG SUEZ GOVERNORATE AREA USING REMOTE SENSING AND GEOGRAPHIC INFORMATION SYSTEM TECHNIQUES <i>Ranem Ibrahim, Geology Department, Faculty of Science, Suez Canal University, Ismailia, Egypt</i></p> <p>PS-58: FLASH FLOOD ASSESSMENT AND WATER MANAGEMENT IN 10th OF RAMADAN WATERSHED AREA, EGYPT <i>Norhan Gouda, Geology Department, Faculty of Science, Suez Canal University, Ismailia, Egypt</i></p> <p>PS-59: GEOMORPHIC INDICES AS A SIGNATURE OF ACTIVE TECTONIC IN WADI GHWEIBA BASIN, NORTHWEST GULF OF SUEZ, EGYPT <i>Ahmed Almoazamy, Egyptian Mineral Resources Authority, Cairo, Egypt</i></p> <p>PS-60: GEOMORPHIC INDICES AS AN INDICATION FOR ACTIVE TECTONICS IN WADI BEDA BASIN <i>Ahmed Almoazamy, Egyptian Mineral Resources Authority, Cairo, Egypt</i></p> <p>PS-61: DRY WELLS ANALYSIS OF SUDR OIL FIELD, GULF OF SUEZ, EGYPT <i>Ahmed Albrkawy, Geology Department, Faculty of Science, Suez Canal University, Ismailia, Egypt</i></p>	
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	<p>PS-62: INTEGRATION OF SEISMIC AND PETROPHYSICS TECHNIQUES TO STUDY HYDROCARBON POTENTIALITY AT SAURUS FIELD, WEST DELTA DEEP MARINE, MEDITERRANEAN SEA, EGYPT. <i>Dina Mokhtar, Geology Department, Faculty of Science, Suez Canal University, Ismailia, Egypt</i></p> <p>PS-63: NEW 3D STRUCTURE MODEL MIOCENE SUCCESSION IN BELAYIM LAND FIELD, GULF OF SUEZ, EGYPT <i>Ahmed Shahat, Petrobel Petroleum Company, Cairo, Egypt</i></p> <p>PS-64: ASSESSMENT OF RADIOLOGICAL HAZARDS IN WASTES ASSOCIATED WITH OIL PRODUCTION FIELDS <i>Mahmoud Amin, Physics department, Faculty of science, Suez Canal University, Ismailia, Egypt</i></p> <p>PS-65: GRAPHENE OXIDE-MNO₂ NANOCOMPOSITES FOR SUPERCAPACITORS <i>Asmaa Hassona, Physics department, Faculty of science, Suez Canal University, Ismailia, Egypt</i></p> <p>PS-66: THICKNESS EFFECT ON OPTICAL CHARACTERISTICS OF COPPER ACETYLACETONATE THIN FILMS <i>Ahmed El-Mahalawy, Thin Film Laboratory, Physics Department, Faculty of Science, Suez Canal University, Ismailia, Egypt</i></p> <p>PS-67: DIELECTRIC PROPERTIES OF ALPHA-SEXITHIOPHENE (A-6T) NANOPARTICLES THIN FILMS <i>Fatma Amin, Thin Film Laboratory, Physics Department, Faculty of Science, Suez Canal University, Ismailia, Egypt</i></p> <p>PS-68: OPTICAL ANALYSIS OF ALPHA-SEXITHIOPHENE (A-6T) THIN FILMS AS A FUNCTION OF THICKNESS <i>Fatma Amin, Thin Film Laboratory, Physics Department, Faculty of Science, Suez Canal University, Ismailia, Egypt</i></p> <p>PS-69: CONTROLLING ELECTRICAL SYSTEMS USING PHYSICAL FEATURES OF HUMAN BODY <i>Islam Abd El-Ali, Physics Department, Faculty of Science, Suez Canal University, Ismailia, Egypt</i></p> <p>PS-70: OPTICAL CHARACTERIZATION OF ORGANIC - INORGANIC NANOCOMPOSITE MEMBRANE <i>Amira Abullah, Physics Department, Faculty of Science, Suez Canal University, Ismailia, Egypt</i></p> <p>PS-71: RARE MEDICINE-ANDROID APPLICATION <i>Abdelrahman Amin, Department of Computer, Faculty of Science, Suez Canal University, Ismailia, Egypt</i></p>	
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	<p>PS-72: ISLANDING DETECTION METHOD BASED ON COMBINED DISCREET FOURIER TRANSFORM AND LOGISTIC REGRESSION TECHNIQUE <i>Ahmed Elsayed, The Arab Contractors Company, Ismailia Sector, Egypt.</i></p> <p>PS-73: PREDICTING LENGTH OF STAY IN INTENSIVE CARE UNIT FOR STROKE PATIENTS USING RANDOM FOREST CLASSIFICATION TECHNIQUE <i>Merhan Abd Elrazek, Computer and Control Department, Faculty of Engineering, Suez Canal University, Ismailia, Egypt</i></p> <p>PS-74: PREPARATION OF SOME BENZOTRIAZIN DERIVATIVES AND STUDY OF THEIR BIOLOGICAL ACTIVITY <i>Mostafa Abd El-salam, Chemistry Department, Faculty of Science, Suez Canal University, Ismailia, Egypt</i></p> <p>PS-75: BINDING OF LEVOTHYROXINE TO BOVINE SERUM ALBUMIN USING FLOURESCENCE MEASUREMENTS <i>Ahmed Ibrahim, Chemistry Department, Faculty of Science, Suez Canal University, Ismailia, Egypt</i></p> <p>PS-76: SYNTHESIS AND CHARACTERIZATION OF SOME NEW BENZOTHIOPHENE DERIVATIVES. <i>Magdy Hammad, Chemistry Department, Faculty of Science, Suez Canal University, Ismailia, Egypt</i></p> <p>PS-77: APPLICATIONS OF NANO HYDROXYAPATITE PREPARED FROM BIO - WASTE MATERIALS IN REMOVAL OF LEAD IONS FROM AQUEOUS SOLUTIONS <i>Ahmed Nusseir, Chemistry Department, Faculty of Science, Suez Canal University, Ismailia, Egypt</i></p> <p>PS-78: STUDIES ON THE BINDING AFFINITY OF HUMIC ACID TOWARDS Cu^{2+}, Zn^{2+}, Pb^{2+} AND CD^{2+} <i>Ashraf Saber, Chemistry Department, Faculty of Science, Suez Canal University, Ismailia, Egypt</i></p> <p>PS-79: NANO-TECHNOLOGY TECHNIQUES FOR HUMIC ACID-NANO-ZINC OXIDE COMPOSITE. <i>Ashraf Saber, Chemistry Department, Faculty of Science, Suez Canal University, Ismailia, Egypt</i></p> <p>PS-80: SPECTROMETRIC IMPEDANCE OF POLYACRYLAMIDE IONIC LIQUID FOR CORROSION RESISTANCE OF CARBON STEEL PETROLEUM PIPELINES IN 1M HCl <i>Halah El Nagy, Chemistry Department, Faculty of Science, Suez Canal University, Ismailia, Egypt</i></p>	
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<p>PS-81: ONE-POT, FOUR COMPONENTS SYNTHESIS OF 4, 6-DISUBSTITUTED 3-CYANO-PYRIDINE-2-ONES WITH ANTICIPATED BIOLOGICAL ACTIVITY <i>Sara Gebriel, Department of Chemistry, Faculty of Science, Suez Canal University, Ismailia, Egypt</i></p> <p>PS-82: SYNTHESIS OF NEW 3-CYANO-4, 6-DIPHENYL-2-SUBSTITUTED PYRIDINE DERIVATIVES <i>Sara Gebriel, Department of Chemistry, Faculty of Science, Suez Canal University, Ismailia, Egypt</i></p> <p>PS-83: NEW FLUORESCENT PROBE FOR DETECTION OF CIPROFLOXACIN DRUG IN HOSPITAL WASTEWATER <i>Taissir Khalil, Chemistry Department, Faculty of Science, Suez Canal University, Ismailia, Egypt</i></p> <p>PS-84: NEW PROBE FOR FLUORESCENCE DETECTION OF CHLORFENVINPHOS <i>Manar Baiuomy, Department of Chemistry, Faculty of Science, Suez Canal University, Ismailia, Egypt</i></p> <p>PS-85: A NOVEL LUMINESCENT POLYMETHYL METHACRYLATE-TERBIUM-METHYL-3-ALLYL-2-HYDROXYBENZOATE FOR FLUORESCENCE SENSING OF CADMIUM. <i>Manar Baiuomy, Department of Chemistry, Faculty of Science, Suez Canal University, Ismailia, Egypt</i></p> <p>PS-86: NEW LUMINESCENT PROBE FOR DETECTION OF ACENAPHTHENE <i>Mariam Abdel-Hadi, Chemistry Department, Faculty of Science, Suez Canal University, Ismailia, Egypt</i></p> <p>PS-87: NEW LUMINESCENT PROBE FOR DETECTION OF NICKEL <i>Mariam Abdel-Hadi, Chemistry Department, Faculty of Science, Suez Canal University, Ismailia, Egypt</i></p>	
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The Fifth Young Researchers Conference (YRC2018)
 The 4th Industrial Revolution, Are we Ready?
 Suez Canal University, Ismailia, Egypt 7-8 April 2018



Conference Program

Second Day - Sunday 8 April 2018

08:30 –9:00	Registration	Reception
	The 4th Industrial Revolution in Suez Canal University Chairs : Prof. Mamdouh Ghorab, Prof. Magda Hagra, Dr.Zaynab Oof & Dr. Fatma Amin	
9:00-9:30	1- Biological system for treatment of wastewater from agro-food industries Ass. Prof. Hesham Abdulla & Ass. Prof. Sahar EL-Shatoury Ass. Prof of Microbiology, Faculty of Science, SCU 2- Egyptian Precision Medicine Era	Main Hall
9:00-9:30	Ass. Prof.Essam Rashed ¹ , Dr.Hoda Yousry ² ¹ Ass.Prof. Faculty of informatics and Computer science, BUE ² Lecturer. Faculty of Medicine, SCU	
10:10- 10:30	3-Smart Home for People with Disabilities Islam Mahran, Maryam Omar, Ahmed Adel & Amany Talat Undergraduates, Faculty of Science, SCU	
10:30-12:30	<i>The Gate to the Fourth Industrial Revolution: Grant Writing Workshop</i> - Finding the right fit. -The basic components of writing and submitting a project proposal. - What funders really want to know. - Tips for successful grant writing.	Main Hall
12:30-13:00	Tea Break	Restaurant

Poster Session (S3)		
13:00-14:00	<p>Chairs: Prof. Abdy M. Elkady, Prof. Wael Amer, Prof. Wael Abdel Aziz, Ass.Prof. Mohamed Ezzat, Ass.Prof. Mohamed Nadim, Prof. Nadia Maher, Prof. Faten Hamdy, Prof. Ahmed Zaky, Prof. Mustafa El-Baz, Prof. Medhat Saleh, Ass. Prof. Randa Abdelaleem, Prof. Radwa Omar, Ass. Prof. Hanan Mahmoud, Ass. Prof. Noha Elassy.</p> <p>PS-88: THE EFFECT OF DENTIN TREATMENT WITH DIFFERENT CROSSLINKING AGENTS ON THE SEALING ABILITY OF ETCH AND RINSE ADHESIVE SYSTEMS <i>Amr Ghonaim, Operative department, Faculty of Dentistry, Suez Canal University</i></p> <p>PS-89: THE EFFECT OF DIFFERENT DENTIN TREATMENT ON MICROSHEAR BOND STRENGTH OF SCOTCHBOND UNIVERSAL ADHESIVE <i>Amr Ghonaim, Operative department, Faculty of Dentistry, Suez Canal University</i></p> <p>PS-90: THE REGENERATIVE EFFECT OF CHITOSAN / NANOHYDROXYAPATITE MEMBRANE IN TREATMENT OF PERIODONTAL INTRABONY DEFECTS. <i>Naema Ali, Department Oral Medicine and Periodontology, Faculty of Dentistry, Suez Canal University.</i></p> <p>PS-91: THE EFFECT OF CHITOSAN MEMBRANE ON PERIODNTAL HEALING OF THREE WALL INTRABONY DEFECTS. <i>Naema Ali, Department Oral Medicine and Periodontology, Faculty of Dentistry, Suez Canal University.</i></p> <p>PS-92: EFFECT OF DIFFERENT PULP CAPPING MATERIALS ON DOGS'DENTAL PULP TISSUE HEALING <i>Mai Ragab, Faculty of Dentistry, Suez Canal University</i></p> <p>PS-93: PROSPECTIVE EVALUATION OF POST OBTURATION PAIN IN SINGLE CONE VERSUS LATERAL COMPACTION OBTURATION TECHNIQUES IN SYMPTOMATIC AND ASYMPTOMATIC TEETH <i>Nasr Rashad, Department of Endodontics, Faculty of Dentistry, Suez Canal University</i></p> <p>PS-94: HEALING OF PERIAPICAL LESION IN TEETH OBTURATED WITH DIFFERENT TECHNIQUES AND LENGTHS (RADIOGRAPHIC ASSESSMENT)</p>	Front Hall

Nasr Rashad, Department of Endodontics, Faculty of Dentistry, Suez Canal University

PS-95: AN EVALUATION OF DIODE LASER AS ADJUNCTIVE TO SCALING AND ROOT PLANNING IN THE TREATMENT OF CHRONIC PERIODONTITIS

Eman Yehia, oral medicine and periodontology department, faculty of dentistry, Suez Canal University

PS-96: COMPARATIVE STUDY OF THE EFFECT OF NANO-HYDROXYAPETITE BONE GRAFT WITH COLLAGEN MEMBRANE OR PRF ON THE OSSEOINTEGRATION OF DENTAL IMPLANT IN PERIODONTALLY AFFECTED

Rasha Afifi, Oral medicine and periodontology department, faculty of dentistry, Suez Canal University

PS-97: RADIOGRAPHIC ASSESMENT FOR OF THE EFFECT OF NANO-HYDROXYAPETITE BONE GRAFT WITH COLLAGEN MEMBRANE OR PRF ON THE OSSEOINTEGRATION OF IMMEDIATELY PLACED IMPLANT IN PERIODONTALLY AFFECTED SITES

Rasha Afifi, Oral medicine and periodontology department, faculty of dentistry, Suez Canal University.

PS-98: EFFECT OF SILVER NANOPARTICLES VERSUS MINOCYCLINE ON INDUCED PERIODONTITIS IN RATS

Ahmed Shraki, Oral medicine and periodontology department, faculty of dentistry, Suez Canal University,

PS-99: EFFECT OF DIFFERENT SCANNING METHODS ON MARGINAL GAP AND INTERNAL FIT OF CEREC/FABRICATED ALL CERAMIC CROWNS.

Lina Elashry, Crown bridge Department, Faculty of dentistry, Suez Canal University

PS-100: EFFECT OF SMOKING AND DIFFERENT BEVERAGES ON COLOR STABILITY OF THERMOPLASTIC AND HEAT CURE ACRYLIC RESIN DENTURE BASE MATERIALS (AN IN VITRO COMPARATIVE STUDY)

Esraa Youssef, Removable Prosthodontics Department, Faculty of Dentistry, Misr University for Science and Technology (MUST),

PS-101: RELIABILITY OF CONE BEAM COMPUTED TOMOGRAPHY AND PANORAMIC RADIOGRAPHS IN PREDICTING INFERIOR ALVEOLAR NERVE INJURY AT THIRD MOLAR SURGERY

	<p><i>Mayada Eldesouky, Oral Radiology Department, Faculty of Dentistry, Suez Canal University.</i></p> <p>PS-102: THE EFFECT OF NANOCRYSTALLINE HYDROXYAPATITE BONE GRAFT WITH OR WITHOUT COLLAGEN MEMBRANE ON THE CLINICAL PARAMETER <i>Mohamed Tantawy, Oral Medicine & Periodontology Department, Faculty of Dentistry, Suez Canal University</i></p> <p>PS-103: THE EFFECT OF NANOCRYSTALLINE HYDROXYAPATITE BONE GRAFT WITH OR WITHOUT COLLAGEN MEMBRANE ON BONE DENSITY <i>Mohamed Tantawy, Oral Medicine & Periodontology Department, Faculty of Dentistry, Suez Canal University</i></p> <p>PS-104: EFFECT OF MINI IMPLANTS VERSUS CONVENTIONAL IMPLANTS AS ABUTMENTS FOR COMPLETE MANDIBULAR OVERDENTURE ON POCKET DEPTH AROUND THE IMPLANTS. <i>Mona Ghazy, Faculty of Dentistry, Suez Canal University</i></p> <p>PS-105: EFFECT OF MINI IMPLANTS VERSUS CONVENTIONAL IMPLANTS AS ABUTMENTS FOR COMPLETE MANDIBULAR OVERDENTURE ON BONE CHANGES AROUND THE IMPLANTS. <i>Mona Ghazy, Faculty of Dentistry, Suez Canal University</i></p> <p>PS-106: EFFECT OF ORGANIZATIONAL CULTURE ON PERFORMANCE BASED ON CAMERON AND QUINN MODEL (CVF) IN EGYPTIAN HOTELS <i>Ahmed Elnagar, Hotel studies department, Faculty of Tourism & Hotel Management, Suez Canal University, Ismailia, Egypt</i></p> <p>PS-107: TQM PRACTICES IN HOSPITALITY INDUSTRY AND THEIR EFFECT ON PERFORMANCE: A LITERATURE REVIEW <i>Ahmed Elnagar, Hotel studies department, Faculty of Tourism & Hotel Management, Suez Canal University, Ismailia, Egypt</i></p> <p>PS-108: A TASK-BASED PROGRAM TO DEVELOP SOME STUDY SKILLS OF SECONDARY EFL LEARNERS <i>AmanySaber, Curriculum & Instruction Department, Faculty of Education, Suez Canal University, Ismailia, Egypt</i></p> <p>PS-109: LEARNING STYLES-BASED ACTIVITIES FOR DEVELOPING PRIMARY PUPILS' ENGLISH SPEAKING SKILLS <i>Noura Mahmoud, Faculty of Education, Suez Canal University, Ismailia, Egypt</i></p>	
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PS-110: A TASK-BASED ENGLISH PROGRAM FOR DEVELOPING CAREER AND EMPLOYABILITY SKILLS OF EFL STUDENTS AT SUEZ CANAL UNIVERSITY

Ahmed Elgamal, Department of EFL Curriculum and Instruction, Faculty of Education, Suez Canal University, Ismailia, Egypt

PS-111: STEM EDUCATION: A WINDOW ON A NEW CONTRIBUTING TO THE INDUSTRIAL REVOLUTION

Mohamed Atiqe, Department of Comparative Education and Educational Administration, Faculty of Education, Suez Canal University, Ismailia, Egypt

PS-112: THE EFFECTIVENESS OF A DEVELOPED UNIT IN SOCIAL STUDIES IN LIGHT OF THE AIMS OF SUSTAINABILITY DEVELOPEMENT TO DEVELOP WATER AWARENESS OF PREPAROTRY SCHOOLERS.

Mahmoud Elgendy, Department of Curriculum & Instruction, Faculty of Education, Suez Canal University, Ismailia, Egypt

PS-113: الطرق و المنشآت الدينية المطلة عليها في العصر المملوكي

محمود إبراهيم، قسم دراسات السياحة، كلية إدارة السياحة والفنادق، جامعة قناة السويس، الإسماعيلية، مصر

PS-114: أثر الأحوال الاقتصادية على العمارة في العصر المملوكي بمدينة القاهرة (923-648هـ/1250-1517م)

محمود إبراهيم، قسم دراسات السياحة، كلية إدارة السياحة والفنادق، جامعة قناة السويس، الإسماعيلية، مصر

PS-115: أثر إستراتيجيات التسويق الداخلي على أداء المطارات حالة دراسية مطار شرم الشيخ الدولي

زكيا السيد أبورفاعي، قسم دراسات السياحة، كلية إدارة السياحة والفنادق، جامعة قناة السويس، الإسماعيلية، مصر

PS-116: أثر العلاقات الداخلية و الخارجية للعاملين على جودة خدمات المطارات بالتطبيق على مطار شرم الشيخ الدولي

زكيا السيد أبورفاعي، قسم دراسات السياحة، كلية إدارة السياحة والفنادق، جامعة قناة السويس، الإسماعيلية، مصر

PS-117: السياحة العلاجية كأحد الأنماط البديلة خلال وقت الأزمات في مصر

ميرفت حسين محمد حساني خليل، ماجستير الدراسات السياحية، قسم الدراسات السياحية، كلية السياحة والفنادق، جامعة قناة السويس، الإسماعيلية، مصر

PS-118: تنشيط سياحة المهرجانات والمناسبات الخاصة في محافظة الإسماعيلية

ندا محسن فريد أحمد عبد الفتاح، قسم الدراسات السياحية، كلية السياحة والفنادق، جامعة قناة السويس، الإسماعيلية، مصر

PS-119: نحو نظام رقابي متكامل للتدقيق الداخلي في مؤسسات التعليم الجامعي: دراسة ميدانية في جامعة تكريت

	<p>باسم رشيد علي، قسم علوم الحاسوب، كلية علوم الحاسوب والرياضيات، جامعة تكريت، صلاح الدين، العراق</p> <p>PS-120: محددات الشمول المالي واثره علي جودة الأصول لرفع كفاءة الأداء في البنوك: هبة خليل، تمهيدي ماجستير قسم محاسبة كلية التجارة جامعة طنطا</p> <p>PS-121: تحليل المضمون في مناهج البحث المعاصر في المحاسبة: هاجر عمر، تمهيدي ماجستير قسم محاسبة كلية التجارة جامعة طنطا، مصر</p> <p>PS-122: تصميم برنامج تقني للمراجعة الداخلية لحساب درجة المخاطر الائتمانية للمنشأة للمساهمة في عملية التقييم المستمر لعملية إدارة المخاطر الائتمانية هبة الله وجدي الشاذلي، قسم محاسبة كلية التجارة جامعة طنطا، مصر</p> <p>PS-123: دور المعلومات المحاسبية الالكترونية والمحوسبة في دعم صناعة القرارات على المستوى الكلي واثرها في جودة الاداء نانسي الشبراوي، قسم محاسبة كلية التجارة جامعة طنطا، مصر</p> <p>PS-124: تأثير التقنية السحابية والبيانات الكبيرة على كفاءة وفاعلية التدقيق الخارجي باستخدام النظرية المجذرة محمد نمر، قسم محاسبة كلية التجارة جامعة طنطا، مصر</p> <p>PS-125: عوامل النجاح الحاسمة لنظام محاسبي يتواءم مع نظام انتاجي رشيد مرن: أحمد سمير محمد، قسم محاسبة كلية التجارة جامعة طنطا، مصر</p> <p>PS-126: أثر الثورة التكنولوجية الحديثة على مبادئ الحوكمة للشركات المساهمة: سعاد صلاح الدين سالم الدريني، قسم محاسبة كلية التجارة جامعة طنطا، مصر</p> <p>PS-127: تصور مقترح لتحسين الأداء الإداري للهيئة العامة لتعليم الكبار بمصر في ضوء بعض المداخل الإدارية الحديثة دولت حامد، مدير إدارة القنطرة شرق لتعليم الكبار بفرع الإسماعيلية، مصر</p> <p>PS-128: فاعلية استخدام أنشطة مراكز التعلم في تنمية الذكاء الأخلاقي لدي طفل الروضة مروة عطيتو، قسم مناهج وطرق تدريس، كلية التربية، جامعة قناة السويس، الإسماعيلية، مصر</p> <p>PS-129: تطبيقات الإصلاح التربوي بمؤسسات رياض الأطفال في كندا واستراليا: إمكانية الإفادة منها في مصر عبير علي، باحث دكتوراه بقسم التربية المقارنة والإدارة التربوية، كلية التربية، جامعة قناة السويس، الإسماعيلية، مصر</p>	
14:00-15:00	Closing Ceremony	Main Hall



Poster Session (S1)



Poster Session (S1)



PS-1: STUDYING THE LEVEL OF CYTOCHROME P4502J2 GENE EXPRESSION IN BREAST CANCER

FAISAL S¹, ELSERAFY T¹, TAG ELDIN L¹, BADRAN D¹, FATHY H¹.

Biochemistry Department¹ and Surgical Oncology Department², Faculty of Medicine, Suez Canal University, Ismailia, Egypt.

ABSTRACT: Cytochrome 450 (CYP) 2J2 converts arachidonic acid to 4 isomeric epoxyeicosatrienates (EETs). EETs had been related with cardiovascular disease, diabetes and several cancer diseases. On the contrary, the distribution in tissue and role of 2J2 in human breast carcinogenesis remains uncertain in Egypt. The aim of the study was to determine the level of CYP2J2 gene expression level in BC tissues and to determine the association between it and BC different grades and stages. Breast cancerous and noncancerous tissues were obtained from 25 breast cancer female patients in surgical Oncology Department of Suez Canal University Hospital from June 2015 to December 2016. The CYP 2J2 gene expression level in breast tissue was determined by real time polymerase chain reaction (RT-PCR). The mean fold change of CYP 2J2 gene expression was 3.91 fold higher in cancerous than non-cancerous breast tissues but this was statistically insignificant. No association was found between the level of gene expression and breast cancer different stages, grades or hormonal receptor state. The study shows that there is no significant association between cytochrome P4502J2 and sporadic breast cancer in our population.

KEYWORDS: Cytochrome P450 2J2, Breast cancer, Gene expression.

INTRODUCTION

Breast cancer (BC) is the most commonly diagnosed cancer and cause of cancer deaths in women in the developed and developing countries worldwide. The pathogenesis of breast cancer involves interaction between environmental factors and inherited genetic susceptibility factors with the relative importance of each ranging from strongly genetic or strongly environmental (1). Human Cytochrome 2J2, catalyzes the oxidation of arachidonic acid into four isomers of epoxyeicosatrienoic acid (5,6-EET; 8,9-EET; 11,12-EET; and 14,15-EET) (2). Various studies demonstrated the valuable and previously unknown roles of CYP2J2 and its EET products in carcinogenesis. CYP2J2 expression is elevated in human malignant tumors, such as esophageal, liver, colorectal, breast, and lung cancers, and high levels of EETs are detected in urine and of patients with such cancers [3,4]. However, characteristics and role of 2J2 in BC remains poorly understood in Egypt. We conducted a descriptive study to investigate 2J2 gene expression in human BC tissue, adjacent noncancerous tissue.

OBJECTIVES

The study was conducted to detect the level of CYP2J2 gene expression in BC tissues and to determine the association between it and BC different grades and stages.

METHODS

25 breast cancer female patients were collected from surgical oncology department of Suez Canal University in Ismailia city from 2015 to 2016. Patients selected were those who surgically treated by either radical or modified

radical mastectomy. Fresh cancerous and noncancerous samples were obtained 5 cm away from the tumors for paired to serve as breast tissue controls. Total RNA was extracted from tissue by RNeasy Mini Kit (Qiagen), and then RNA was converted to cDNA with the Quantiscript reverse Transcription kit (Qiagen, Germany). The qRT-PCR amplification involved the QuantiTect SYBR Green PCR Kit (Qiagen) and One Step PCR (Applied Biosystem). GPDH was used as internal control. The quantification was performed using comparative CT method and relative expression of CYP2j2 was normalized to their corresponding normal control tissue.

RESULTS & DISCUSSION

1. The fold change of CYP 2J2 ranged between 0.01-21.71 with mean 3.91 fold higher expression in cancerous than noncancerous breast tissues but this was statistically insignificant (Figure 1).
2. The study did not show any significant association between the level of CYP2J2 gene expression and BC different grades, stages or hormonal receptor state (Table 1).

Table (1) shows relation between CYP 2J2 gene expression and BC pathological parameters

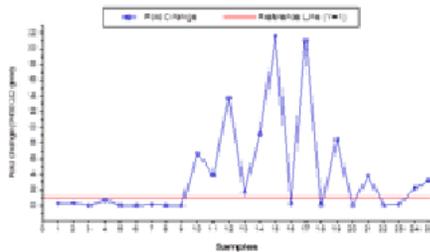


Figure (1). Fold change of CYP 450 2J2 Gene.

Variable	Fold expression of CYP2J2 gene		P Value
	Median	IQR	
Grade	1	0.74	0.736
	2	1.26	
	3	0.19	
Stage	IIA	0.23	0.919
	IIB	2.01	
	IIIA	1.61	
	IIIC	1.23	
ER	Negative	0.05	0.092
	Positive	1.93	
	Unknown	0.09	
PR	Negative	0.06	0.276
	Positive	1.93	
	Unknown	0.09	
HER2	Negative	0.30	0.564
	Positive	3.57	
	Unknown	0.15	

The cytochrome P450 expression in breast cancer had been evaluated by many previous studies using a range of investigative techniques. We found that CYP 2J2 gene expression level was insignificantly higher in cancerous tissue than noncancerous ones and this can be explained by the small sample size or possibility of contamination between the samples. This finding was consistent with Murray et al., 2010 (5) who found that CYP2J (98.6%) was one of the P450s that frequently displayed no immunoreactivity. On the other hand, both Jian et al., 2009 (6) and Wei et al. 2014 (7) confirmed that 2J2 gene is overexpressed in BC tissue. Also, there was no significant association between the gene expression level and BC different grades, stages or hormonal receptor state. Small sample size can explain such insignificant association. This finding was consistent with Murray et al., 2010 found that there was no association between CYP2J2 and tumor grade, ER or PR receptors. It was somewhat in agreement with Wei et al. 2014 who found that protein level was correlated with size of tumor and its grade and no detected relationship was observed with lymph-node metastasis, or hormonal receptor state.

CONCLUSION

Our study found that there is no significant association between cytochrome p450 2j2 and sporadic breast cancer in Egypt.

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PS-2: ASSOCIATION BETWEEN CYTOCHROME P4502J2 GENE EXPRESSION AND BREAST CANCER

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ABSTRACT:

INTRODUCTION Cytochrome 450 (CYP) 2J2 converts arachidonic acid to 4 isomeric epoxyeicosatrienes (EETs). EETs had been related with cardiovascular disease, diabetes and several cancer diseases .On the contrary, the distribution in tissue and role of 2J2 in human breast carcinogenesis remains uncertain in Egypt.

OBJECTIVES: To determine the level of CYP2J2 gene expression level in BC tissues and to determine the association between it and BC different grades and stages. **METHODS:** Breast cancerous and noncancerous tissues were obtained from 25 breast cancer female patients in surgical Oncology Department of Suez Canal University Hospital from June 2015 to December 2016. The CYP 2J2 gene expression level in breast tissue was determined by real time polymerase chain reaction (RT-PCR). **RESULTS:** The mean fold change of *CYP 2J2* gene expression was 3.91 fold higher in cancerous than non-cancerous breast tissues but this was statistically insignificant .No association was found between the level of gene expression and breast cancer different stages, grades or hormonal receptor state. **CONCLUSIONS:** The study shows that there is no significant association between cytochrome *P4502J2* and sporadic breast cancer in our population.

KEYWORDS: Cytochrome *P450 2J2*, Breast cancer, Gene expression

INTRODUCTION

Breast cancer (BC) is the most commonly diagnosed cancer and cause of cancer deaths in women in the developed and developing countries worldwide. The pathogenesis of breast cancer involves interaction between environmental factors and inherited genetic susceptibility factors with the relative importance of each ranging from strongly genetic or strongly environmental (1). Human Cytochrome 2J2, catalyzes the oxidation of arachidonic acid into four isomers of epoxyeicosatrienoic acid (5,6-EET; 8,9-EET; 11,12-EET; and 14,15-EET) (2). Various studies demonstrated the valuable and previously unknown roles of CYP2J2 and its EET products in carcinogenesis. CYP2J2 expression is elevated in human malignant tumors, such as esophageal, liver, colorectal , breast, and lung cancers, and high levels of EETs are detected in urine and of patients with such cancers [3,4]. However, characteristics and role of 2J2 in BC remains poorly understood in Egypt. We conducted a descriptive study to investigate 2J2 gene expression in human BC tissue, adjacent noncancerous tissue.

OBJECTIVES

The study was conducted to detect the level of CYP2J2 gene expression in BC tissues and to determine the association between it and BC different grades and stages.

METHODS

25 breast cancer female patients were collected from surgical oncology department of Suez Canal University in Ismailia city from 2015 to 2016. Patients selected were those who surgically treated by either radical or modified radical mastectomy. Fresh cancerous and noncancerous samples were obtained 5 cm away from the tumors for paired to serve as breast tissue controls. Total RNA was extracted from tissue by RNeasy Mini Kit (Qiagen), and then RNA

was converted to CDNA with the Quantiscript reverse Transcription kit (Qiagen,Germany). The qRT-PCR amplification involved the QuantiTect SYBR Green PCR Kit (Qiagen) and One Step PCR (Applied Biosystem). GPDH was used as internal control. The quantification was performed using comparative CT method and relative expression of CYP2j2 was normalized to their corresponding normal control tissue.

RESULTS & DISCUSSION

- The fold change of CYP 2J2 ranged between 0.01-21.71 with mean 3.91fold higher expression in cancerous than noncancerous breast tissues but this was statistically insignificant (Figure 1).
- The study did not show any significant association between the level of CYP2J2 gene expression and BC different grades, stages or hormonal receptor state (Table 1).

Table (1) shows relation between CYP 2J2 gene expression and BC pathological parameters

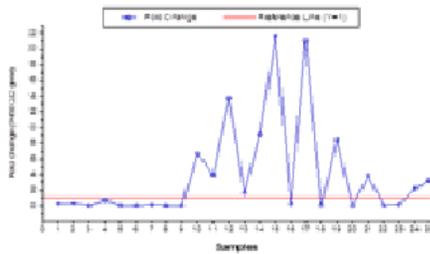


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The cytochrome P450 expression in breast cancer had been evaluated by many previous studies using a range of investigative techniques. We found that CYP 2J2 gene expression level was insignificantly higher in cancerous tissue than noncancerous ones and this can be explained by the small sample size or possibility of contamination between the samples. This finding was consistent with Murray et al., 2010 (5) who found that CYP2J (98.6%) was one of the P450s that frequently displayed no immunoreactivity. On the other hand, both Jian et al., 2009 (6) and Wei et al. 2014 (7) confirmed that 2J2 gene is overexpressed in BC tissue. Also, there was no significant association between the gene expression level and BC different grades, stages or hormonal receptor state. Small sample size can explain such insignificant association. This finding was consistent with Murray et al., 2010 found that there was no association between CYP2J2 and tumor grade, ER or PR receptors. It was somewhat in agreement with Wei et al. 2014 who found that protein level was correlated with size of tumor and its grade and no detected relationship was observed with lymph-node metastasis, or hormonal receptor state.

CONCLUSION

Our study finds that there is no significant association between cytochrome p450 2j2 and sporadic breast cancer in Egypt.

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PS-3: INSULIN-LIKE GROWTH FACTOR 2 BINDING PROTEIN 2 GENE POLYMORPHISM IN PATIENTS WITH TYPE 2 DIABETES MELLITUS IN ISMAILIA CITY –EGYPT

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ABSTRACT: Genome-Wide Association Studies (GWAS) identified new genes associated with Type 2 Diabetes Mellitus (T2DM) which have been replicated in several ethnic populations and yielded in consistent results. Our study aimed to validate the association between Insulin Growth Factor 2 m-RNA Binding Protein 2 (IGF2BP2) gene variant (rs4402960) and Type 2 Diabetes Mellitus in Egyptians. Our study included 76 unrelated diabetic patients and 76 controls who were genotyped by Polymerase Chain Reaction - Restriction Fragment Length Polymorphism technique (PCR-RFLP). Age, sex, blood pressure, Body Mass Index (BMI) and Waist Circumference were recorded, and biochemical measurements of fasting blood glucose, lipid profile, serum fasting insulin and IGF2BP2 protein levels were analyzed. For rs4402960 polymorphism of IGF2BP2 gene, the variant T allele was associated with T2DM (OR=1.82, 95% CI=1.137-2.930, P=0.0128). The frequency of (G/T+T/T) genotypes vs. G/G genotype was significantly higher in type 2 diabetes mellitus patients than in controls (64.5% vs. 54.0% and 35.5% vs. 46.0%, respectively), (P=0.013). These associations remained significant under all genetic models. The IGF2BP2 gene polymorphism (rs4402960) associate with Type 2 Diabetes Mellitus in Egyptian population.

KEYWORDS: Type 2 diabetes mellitus; Single nucleotide polymorphism; IGF2BP2.

INTRODUCTION

Diabetes is one of the most common metabolic disorders in the world and its prevalence in adults has been increasing in the last decades. The estimated global prevalence of diabetes among adults will be 8.8%, affecting 425 million adults in 2017 and will increase to 9.9%, and 629 million adults by the 2045 [1]. IGF2BP2 belongs to a family of IGF2 mRNA-binding proteins that play an important role in embryogenesis and pancreatic development. In addition, IGF2BP2 can regulate transcription of Insulin Growth Factor 2 (IGF2), which in turn is involved in development and insulin function [2]. Several variants of IGF2BP2 gene were investigated for association with T2DM, of which polymorphism (rs4402960) and polymorphism (rs1470579) were most extensively studied. The association of both IGF2BP2 variants appears to be ethnic dependent, evidenced by the strong association of rs4402960 variant with T2DM in Japanese, Chinese, Swedish, Danish, French, and Austrian populations, but not in Koreans, Norwegian and Indian populations. Furthermore, an association of one, but not the other IGF2BP2 variant with T2DM was reported for Chinese and French populations. The studies of IGF2BP2 rs 4402960 polymorphism showed strong association with T2DM in Lebanese, Tunisian and Moroccan populations [3-5]. Therefore, the potential role of this polymorphism in etiology of T2DM will be investigated in this study.

OBJECTIVES

The aims of this study were to assess the frequency of Insulin-like growth factor 2 binding protein 2 (IGF2BP2) gene polymorphism (rs4402960) in patients with T2DM resident in Ismailia city, to determine the association between Insulin-like growth factor 2 binding protein 2 (IGF2BP2) gene polymorphism (rs4402960) and T2DM risk factors, and to determine the association between IGF2BP2 gene polymorphism (rs4402960) and concentration of IGF2BP2 protein in T2DM.

METHODS

This case-control study included 76 unrelated diabetic patients and 76 controls. 1-Fasting Blood Glucose (FBG) ,Total Cholesterol (TC), Triglycerides (TG), High Density Lipoprotein Cholesterol (HDL-C) and Low Density Lipoprotein Cholesterol (LDL-C) were assayed on Novaspec II analyzer (Biochrom, UK) . Serum Insulin and IGF2BP Protein were assayed on Stat Fax 2100 Microplate Reader(Awareness Technology, Inc. ,USA).

2-Genotyping of IGF2BP2 SNPs Genomic DNA was isolated from EDTA-K2 whole peripheral blood using QIAamp DNA extraction kit (Qiagen Hilden, Germany) according to the manufacturer's protocol . DNA quantity and purity was determined using NanoDrop ND-1000 spectrophotometer V3.1 (Thermo Fisher Scientific Inc. Wilmington, USA).Genotyping of IGF2BP2 polymorphisms was performed with the polymerase chain reaction - restriction fragment length polymorphism (PCR-RFLP) assay ; PCR thermocyclers : Applied Biosystems Veriti 96-Well Thermal Cycler (Thermo Fisher scientific Inc, USA) and Electrophoresis apparatus .

RESULTS & DISCUSSION

1-Clinical and biochemical characteristics:

Body mass index (BMI), blood pressure, fasting blood glucose, total cholesterol, triglyceride, HOMA-IR, and IGF2BP2 protein were also significantly increased in T2DM patients compared to controls. However, mean of HOMA-β% and HOMA-S% were significantly decreased in the T2DM patients compared to controls.

2-Genotyping analysis and allelic frequencies:

The frequency of the IGF2BP2 rs4402960 T risk allele was significantly higher in T2DM patients compared to healthy controls (OR=1.82, 95% CI (1.137- 2.930), P=0.013). The frequency of T/T genotype versus (GG+G/T) genotypes was significantly higher in T2DM patients compared to controls (22.4% vs. 77.6% and 5.3% vs. 94.7%, respectively), (P=0.002). This association remained significant under additive (P=0.003) and co-dominant (P=0.009) genetic models. T2DM patients with (GT+TT) genotype of rs4402960 variant of IGF2BP2 gene had significantly higher fasting blood glucose levels and significant reduction of HOMA-β% compared to T2DM patients with GG genotype.

The IGF2BP2 is one of the genes identified through GWAS to be associated with type 2 diabetes mellitus, which has been repeatedly confirmed among different ethnic populations. While many studies confirmed the association of rs4402960 variant of IGF2BP2 gene with T2DM [6], other studies reported no association between this SNP and T2DM [7].

CONCLUSION

The current study provided that IGF2BP2 gene polymorphism (rs4402960) may be associated with the risk of the development of T2DM among Egyptians in Ismailia governorate. Therefore, IGF2BP2 gene polymorphism (rs4402960) may be considered as an independent genetic risk factor among type 2 diabetic patients.

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PS-4: EXPRESSION PATTERN OF MICRO-RNA 181A IN CHRONIC MYELOID LEUKEMIA PATIENTS IN SUEZ CANAL UNIVERSITY HOSPITAL

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Department of Clinical and Chemical Pathology, Faculty of Medicine, Suez Canal University.

ABSTRACT: *MicroRNA-181 (miR-181) was known to have a role in the development and differentiation of immune cells and myeloid series. Low expression levels of miR-181a has been detected in many types of leukemia, including B-cell chronic lymphocytic leukemia and acute myeloid leukemia. However, the expression and role of miR-181 in chronic myeloid leukemia (CML) still unknown. In this study, the expression levels of miR-181a was detected in 30 CML patients and their levels compared to 30 apparently healthy volunteers. The miR-181a expression in CML patient was significantly downregulated when compared to normal control. The expression of miR-181a was relatively measured by highly standardized one-step RTq-PCR system normalized to reference gene and subsequently the $2^{-\Delta\Delta Ct}$ method was applied.*

KEYWORDS: *MiR-181a, Chronic Myeloid Leukemia, expression level, PCR.*

INTRODUCTION

MicroRNAs (miRNAs) are a class of tiny conserved noncoding RNAs of approximately 22 nucleotides. which have a role in regulation of gene expression and modulate varies biological processes [1]. Like coding genes proteins, miRNA can be classified into families and the association between their structures and functions can be learnt from many sequence arrangements in miRNA families. Several members of miRNA family are varied in 1–2 nucleotides only. MiR-181 family are generally expressed in 70 species and different human cancers. MiR-181 family have 4 members (miR-181a, miR-181b, miR-181c and miR-181d) [2]. The miR-181a expression was observed to be down-regulated in K562 CML cells, showing that this down-regulation of miR-181a might play an vital role in leukemogenesis. The Ras like protein A (RalA) was known to be the target of miR-181a which represents a downstream molecule in Ras (Rat sarcoma virus homologue) signaling pathway of Bcr-Abl which plays a vital role in CML[3].

OBJECTIVES

In this study, the main objective is to assess expression of miR-181a in CML patients and comparing it is level to normal control subjects.

METHODS

Peripheral blood samples (1 ml) on EDTA tubes were collected from the studied groups, then total RNA extraction from leukocytes was done by using total SV RNA extraction kit (Promega, USA). RNA concentration for each sample was measured by Nanodrop to dispense appropriate volume at PCR amplification step. Amplification and detection done by GoTaq® 1-Step RT-qPCR System (Promega, USA) which is used for RNA analysis using a protocol of 1step reverse transcription-quantitative PCR (RT-qPCR). The relative expression was normalized to reference gene (U6) and quantification of PCR data was achieved using the comparative Ct method. The formula used for this method was ($2^{-\Delta\Delta Ct}$).

RESULTS & DISCUSSION

CML patients was found to have statistically significant lower expression levels of miR-181a relative to normal control group ($p < 0.001$). Most of CML patients 90% ($n=27$) showed miR-181a downexpression with down fold change range from 1.9 down to 2500 most of them were in chronic phase of the disease and only 10% ($n=3$) were overexpressed with up fold change 1.2, 12.4 and 18.6 all of them were in accelerated phase. In many studies the expression level of miR-181a was found to be downregulated in CML patients and this down-regulation of miR-181a might have a vital role in leukemogenesis [3,4].

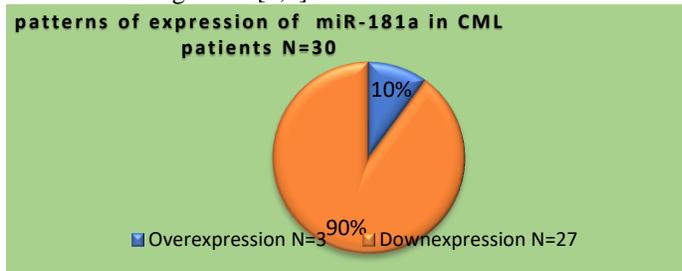


Figure (1): Distributions of patterns of expression of miR-181a in CML patients (n=30)

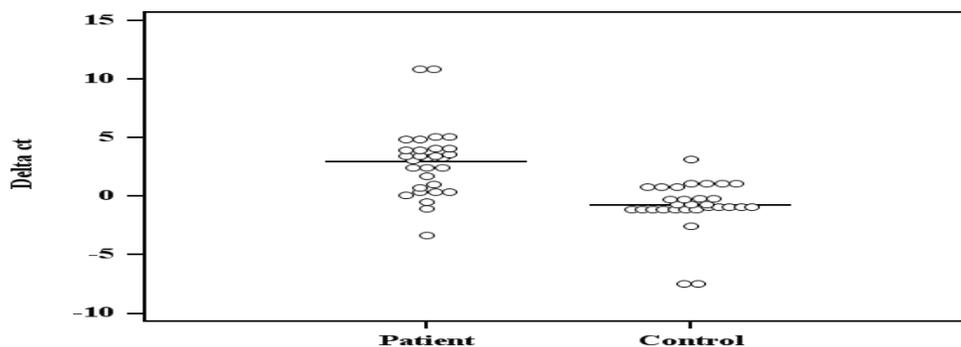


Figure (2): Expression of miR-181a: comparison of normalized Cts (Delta Ct= $Ct_{miR-181a} - Ct_{u6}$) between the two studied groups ($p < 0.001$):

A single spot was the normalized delta Ct value of miR-181a of each one in studied groups. Lines in the middle were the mean delta Ct value.

CONCLUSION

This study supports the findings of previous literatures in that expression of miR-181a levels was significantly downexpressed in patients with CML. Disease progression may affect miR-181a expression which may be used as prognostic biomarker but further studied is needed.

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PS-5: PATTERN OF ACUTE CORONARY SYNDROMES AMONG YOUNG EGYPTIAN PATIENTS RELATED TO RISK FACTORS

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ABSTRACT: *Acute coronary syndromes (ACS) is relatively uncommon in young adults as compared to the older population. Our objective was to study the pattern of the ACS in patients ≤ 45 years-old and related risk factors, admitted to Suez Canal Hospital, Cardiology department. This was a retrospective study that enrolled all consecutive patients ≤ 45 years-old admitted for ACS to hospital from February 2015 to December 2017. Data were collected and analyzed according to the risk factors and pattern of ACS. All risk factors, chronic illnesses, and the pattern of ACS were assessed. We enrolled 1033 patients admitted with ACS, only 70 patients (6.77%) were ≤ 45 years-old (mean ± SD: 40.9 ± 4.37 years). Seventy patients were males representing (85.7 %). ACS patterns were: ST elevation myocardial infarction (STEMI) (62.85%), non-ST elevation myocardial infarction (NSTEMI) (20%) and unstable angina (17.15%). Anterior wall STEMI constituted 61.3% of all STEMI. Smoking, physical inactivity, obesity and family history of coronary artery disease (CAD) were more frequent in young ACS. There is a very high prevalence of smoking among those patients (72.8%), nearly half of them (45.09%) were hashish smokers, while 10% were drug abusers. Family history of premature CAD was 51.4% and most of them (80%) were physically inactive. More than 2/3rd were overweight or obese (75.7%), while 48.5%, 40% and 38.5% of them had, hypertensive, diabetes mellitus and dyslipidemia respectively. The most common symptom at presentation was chest pain (97.1%). ACS in young adult Egyptians are not uncommon (6.77%). STEMI is the most frequent ACS pattern, mainly anterior STEMI. They are predominately males, smokers, obese, physically inactive and had family history of premature ACS.*

KEYWORDS: *Acute Coronary Syndrome, Young Egyptian Patients, Risk Factors Of ACS.*

INTRODUCTION

Acute coronary syndrome (ACS) refers to a spectrum of clinical presentations ranging from those for ST-segment elevation myocardial infarction (STEMI) to non-ST-segment elevation myocardial infarction (NSTEMI) or in unstable angina [1]. ACS is the leading cause of mortality worldwide and by 2020, will be the leading cause of disability [2]. Current estimates from various epidemiologic studies indicate the prevalence of coronary heart disease (CHD) to be 7%-13% in urban [3] and 2%-7% in rural [4] populations. Although individuals younger under 40 to 45 years old range from 2 to 10% in light of studies directed from various nations around the world [5]. And under than 40 years of age account for only 3% of all patients with coronary artery disease, they are not completely immune from CAD [6] Environmental factors include obesity and dietary choices. Genetic contributions are usually due to the additive effects of multiple genes, though occasionally may be due to a single gene defect such as in the case of familial hypercholesterolemia [7]. Smoking is associated with about 54% of cases and obesity 20%. Lack of exercise has been linked to 7-12% of cases [8]. Cigarette smoking is the single most alterable risk factor contributing to premature cardiovascular morbidity and mortality. It is estimated that as many as 30% of all coronary heart disease deaths can be attributed to cigarette smoking [9].

OBJECTIVES

The aim of this work was to study the pattern of ACS among young Egyptian patients related to the risk factors to improve the care of ACS.

METHODS

This is a retrospective study that enrolled all consecutive patients ≤ 45 years-old admitted for ACS to hospital from February 2015 to December 2017. Data were collected and analyzed according to the risk factors and pattern of ACS. Included the personal history (age, gender, working and special habitus), symptoms and signs (chest pain, diaphoresis, vomiting, syncope and cardiogenic shock), ECG (heart rate, ST segment character, LBBB, T wave and another included), cardiac enzymes. ACS types with excluded the stable angina and age more than 45 years old.

RESULTS & DISCUSSION

We enrolled 1033 patients admitted with ACS, only 70 patients (6.77%) were ≤ 45 years-old (mean \pm SD: 40.9 \pm 4.37 years). Sixty patients were males representing (85.7%). ACS patterns were: ST elevation myocardial infarction (STEMI) (62.85%), non-ST elevation myocardial infarction (NSTEMI) (20%) and unstable angina (17.15%). Anterior wall STEMI constituted 61.3% of all STEMI. Smoking, physical inactivity, obesity and family history of coronary artery disease (CAD) were more frequent in young ACS. There is a very high prevalence of smoking among those patients (72.8%), nearly half of them (46%) were hashish smokers, while 10% were drug abusers. Family history of premature CAD was 51.4% and most of them (80%) were physically inactive. More than 2/3rd were overweight or obese (75.7%), while 48.5%, 40% and 38.5% of them had hypertensive, diabetes mellitus and dyslipidemia respectively. The most common symptom at presentation was chest pain (97.1%). This is in accordance with study showed Another study included 1,116 consecutive patients with ST-segment elevation acute myocardial infarction (STEMI) were studied between March 2013 and February 2015 at India with mean age of the patients was 26.3 years. Risk factors were smoking (78.5%), family history of premature coronary artery disease (CAD) (46.8%), obesity (39.1%), physical inactivity (38.7%) and stressful life events (29.6%). The most common symptom and presentation was chest pain and anterior wall myocardial infarction (AWMI) in 94.8% and 58.8%, respectively.¹⁰

CONCLUSION

ACS in young adult Egyptians are not uncommon (6.77%). STEMI is the most frequent ACS pattern, mainly anterior STEMI. They are predominately males, smokers, obese, physically inactive and had family history of premature ACS. They had high prevalence of diabetes mellitus, dyslipidemia and hypertension. Intensive control and treatment of these risk factors is required to prevent ACS in this young population.

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PS-6: CHEMICAL AND BIOCHEMICAL STUDY TO EVALUTE THE ANTI-OXIDANTS AND FREE RADICALS IN OBESE PEOPLE

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ABSTRACT: Obesity is considered a serious nutritional problem, as it elevates risk of morbidity and mortality worldwide due to several Pathologies, including; hypertension, dyslipidemia, type 2 diabetes, coronary heart disease, stroke, non-alcoholic fatty liver disease, osteoarthritis, obstructive sleep apnea, and endometrial, breast, prostate, and colon cancers. WHO declared that at 2014, 42% of the world population were overweight or obese [1]. Obesity is the accumulation of body fat that may impair health and affect quality of life. Recent evidence claims that oxidative stress could be the mechanistic link between obesity and related complications. clinical and animal studies have demonstrated that obesity is coupled with altered redox state and increased metabolic risk. Reactive oxygen species (ROS) such as superoxide ($O_2^{\cdot-}$), hydrogen peroxide (H_2O_2), and hydroxyl radical (OH^{\cdot}) are normally maintained at non-toxic levels through an efficient antioxidant defense system.

KEYWORDS: Obesity, Oxidative stress, Reactive oxygen species(ROS), Antioxidant.

INTRODUCTION

Obesity is a condition in which excess body fat accumulate to a certain extent tha have negative influence on health. current classification of obesity is based on the Body Mass Index (BMI), where BMI over 25 kg/m² is index of overweight and a BMI or ≥ 30 is considered obese. Many health risks have been attributed to obesity which can lead to various metabolic disorders, such as Type II diabetes, cardiovascular disease. evidence support that obesity is a state of chronic oxidative stress, although it is not completely understood if alteration in redox balance is a trigger rather than a result of obesity [2 – 4]. Oxidative Stress refers to a significant imbalance between RO(N)S generation and antioxidant production (in favour of ROS), causing excessive oxidative damage [5]. Reactive oxygen species (ROS) include superoxide ($O_2^{\cdot-}$), hydrogen peroxide(H_2O_2), hypochlorite (ClO^-), and hydroxyl radical (OH^{\cdot}). mitochondria are the major site of intracellular ROS production, due to electron leakage along the respiratory chain; also, they can also be produced from other sites such as, endoplasmic reticulum, lysosomes, and cytosolic enzymes. At low concentrations, ROS exert a various biological effects, including immune-mediated defense against pathogenic microorganisms and intracellular signaling; conversely, high levels of these reactive species can cause damage to DNA, lipids, and proteins, thus leading to sever tissue injury and cell death, To maintain the appropriate levels of ROS, tissues possess antioxidant molecules that act to minimize free radical cytotoxicity. Endogenous antioxidant compounds include, glutathione,ubiquinone and urate ; furthermore, some proteins (ferritin, transferrin, lactoferrin,) act as antioxidants, as they bind and isolate transition metals that may start oxidative reactions. Antioxidant enzymes are superoxide dismutase (SOD), glutathione peroxidase (GPx), glutathione reductase, catalase, and NAD(P)H:ubiquinone oxidoreductase (NQO1). thus further studies are needed to understand their mechanism of action and effect on human health.

OBJECTIVES

Many studies have shown that obesity play a huge role in development of different dieases. In this study we aimed to test hypothesis regarding the correlation between the activity of ROS (represented by measuring hydrogen peroxide

(H₂O₂) concentration) in addition to assessing levels of antioxidant (indicated by measuring catalase enzyme activity) and their relation to obesity.

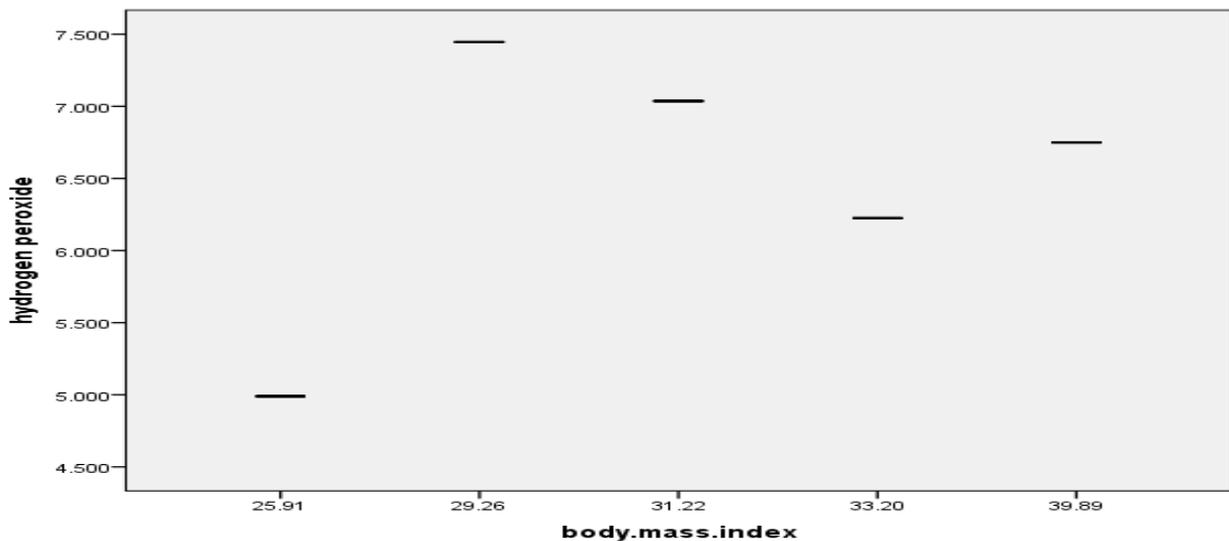
METHODS

25 obese persons (BMI \geq 30) were enrolled and 25 matched controls with normal body mass index (another 50 subjects will be added for total study of 100 person). H₂O₂, catalase activity and blood glucose level were determined by commercial kits. Exclusion criteria comprised the presence of type 1 or type 2 diabetes, hypertension and chronic diseases.

RESULTS & DISCUSSION

The concentration of H₂O₂ was significantly higher in obese subjects compared to people with normal BMI. A positive correlation between catalase activity and H₂O₂ concentration was identified. H₂O₂ also showed a positive correlation with body mass index ($r = 0.35-0.63$ and $P = 0.037$). Further results will be cleared at the end of the study. Animal studies have shown that deficiency of catalase causes systemic dyslipidemia in mice regardless of diet. In obese wild type mice H₂O₂ production is increased in adipose tissue, and pharmacologic lowering of H₂O₂ improved increased insulin sensitivity. To the best of our knowledge no studies were conducted on human to try to understand relation between obesity and reactive oxygen species.

Table1: showing positive correlation between H₂O₂ and body mass index



CONCLUSION

These findings show that even in the absence of hypertension, diabetes mellitus, renal and liver diseases there was an increase in hydrogen peroxide concentration and decrease in catalase antioxidant activity which supports the tested hypothesis that there is strong correlation between abnormal levels of reactive oxygen species, antioxidant activity and obesity.

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PS-7: CHEMICAL AND BIOCHEMICAL ESTIMATION OF THE ACTIVITY OF SUPEROXIDE FREE RADICAL

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ABSTRACT: Obesity is a chronic disease that is defined as an increase in the fat accumulated in the body. Adipose tissue is not a triglyceride organ, but studies have shown that white adipose tissue that store lipids is a producer of certain bioactive compounds called adipokines. These adipokines induce the production of reactive oxygen species (ROS) that cause direct or indirect damage in different organs generating a process known as oxidative stress (OS) that is involved in pathological processes as obesity. In our study, it is hypothesized that obesity is a risk factor for lipid peroxidation and decrease the activity of antioxidants. OS biomarkers such as malondialdehyde (MDA) is a product of peroxidation of poly unsaturated fatty acids (PUFAs). In general lipid peroxidation can be described as the process under which oxidants as free radicals attack lipids containing carbon-carbon double bonds as (PUFAs).

KEYWORDS: obesity, reactive oxygen species, oxidative stress, lipid peroxidation, antioxidants.

INTRODUCTION

Obesity is a nutritional disorder that is characterized by abnormal or excessive fat accumulation. Obesity is defined as body mass index greater than 30 ($BMI \geq 30$). The American medical association has recognized the obesity as an independent disease. The World Health Organization (WHO) has classified obesity as a leading risk factor due to its tight association with several pathologies as (metabolic syndrome, type 2 diabetes, fatty liver disease, cardiovascular disease, certain forms of cancer, and gynecological pathologies), thus reducing life expectancy and quality of life [1]. Over feeding, high carbohydrate meals and high-fat stimulate specific signaling pathways, oxidative stress and inflammation in different cell types [5-3]. Oxidative stress is the imbalance between free radicals or reactive oxygen species and antioxidants [4]. Free radicals are very highly reactive molecules with unpaired electron that quickly binds to the nearby molecule, while the Reactive Oxygen Species are oxygen containing molecule either have or have not unpaired electron but are highly reactive in tissues [5]. Low concentrations of ROS and free radicals are necessary for cell function and cell redox status while their high concentrations cause damage to (DNA, proteins, lipid constituents and carbohydrates) and compromise cell function [5]. A simple technique for measuring the biomarkers or the end products of free radical mediated oxidative processes is often used to estimate oxidative stress as malondialdehyde (MDA) that is widely used as an indication for the lipid peroxidation damage [6]. The major antioxidant enzymes include superoxide dismutase (SOD) that converts $O_2^{\cdot -}$ to H_2O_2 . The SOD antioxidant works to protect the cell against ROS and free radicals [7].

OBJECTIVES

The purpose of the study is to estimate the level of lipid peroxidation and antioxidant activity. Therefore, they are assessed by measuring the concentration of Malondialdehyde (MDA) and the activity of copper-zinc superoxide dismutase (Cu-Zn SOD) activity in white blood cells.

METHODS

In total, 25 obese volunteers with no chronic disease, diabetes or hypertension (body mass index ($BMI \geq 30$ kg/m²) and 25 healthy control volunteers of BMI (19-25m²) were enrolled in the study (another 25 obese and 25 controls will

be added for total study of 100 volunteers), so that 5 ml venous blood was withdrawn from the volunteers to do the study.

In order to test the study hypothesis, we measured lipid peroxidation using the concentrations white blood cells malondialdehyde (MDA) and the activity of copper-zinc superoxide dismutase (Cu-Zn) SOD using colorimetric method for both.

RESULTS & DISCUSSION

It is shown that obesity is associated with an increase in the endogenous lipid peroxides [9]. The increased lipoprotein oxidizability is due to decreased antioxidants content or enhanced oxidant challenge. In obesity the decreased antioxidant activity of skeletal muscle, which may protect against lipid peroxidation is observed [10]. When the production of reactive oxygen species exceeds the antioxidant capacity of the cell, oxidative stress results in lipid peroxidation. Lipid peroxidation is a free radical generating process which occurs on every membranous structure of the cell. In this study, it is supposed that obesity is associated with lipid peroxidation thus, the concentration of MDA in white blood cells will be significantly higher in obese volunteers compared to those with healthy BMI. Cell contains both enzymatic and non-enzymatic antioxidants that work together to get rid of ROS and other oxidants [8]. In this study, it is found that volunteers with healthy BMI have significantly higher (Cu-Zn SOD) than obese volunteers who have low in the antioxidant activity. As a result of obesity, the activity of antioxidants is reduced so this cause progressive tissue damage, that may eventually lead to atherosclerosis, cancer and other diseases.

CONCLUSION

From the results, it is suggested that even in the absence renal, diabetes or liver disease obesity can decrease the activities of the body's antioxidants and enhance systematic oxidative stress. As a result, it is indicated that obesity is associated with endogenous lipid peroxide. MDA is an indicator for lipid peroxidation that decrease as weight decreased and increase in the obese subjects.

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PS-8: RASPBERRY KETONES PROTECT AGAINST CYCLOPHOSPHAMIDE-INDUCED PULMONARY TOXICITY IN MICE

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ABSTRACT: Cyclophosphamide (CP) was found to have a potential toxic effect on lung tissues. Raspberry ketones (RKs) are natural antioxidant chemicals from red raspberries (*Rubus ideaus*). They are commonly used for weight loss and obesity. The current study aimed to evaluate the possible protective effects of RKs against lung toxicity induced by cyclophosphamide. Mice were allocated into 6 groups, (1) Saline group, (2) Cyclophosphamide group: mice received a single intraperitoneal dose of cyclophosphamide (150 mg/kg), (3-6) groups: mice were pretreated orally with different doses of Raspberry ketones (25, 50, 100, and 200 mg/kg) for 14 consecutive days, respectively, before the administration of an intraperitoneal dose of CP (150mg/kg). Mice were then sacrificed under anesthesia, then lungs were removed for histopathological and biochemical investigations. A single dose of CP markedly altered the levels of some oxidative stress and inflammatory biomarkers in lung homogenates. However, pretreatment with RKs modulated these changes significantly. Exposure of mice to cyclophosphamide resulted in diffuse alveolar damage which was manifested by apparent hyalinization of membranes, thickening of inter-alveolar septa and proliferation of type II pneumocytes. Pretreatment with RKs attenuated cyclophosphamide-induced histopathological changes of lung tissue in mice. Accordingly, antioxidant properties and anti-inflammatory effects of RKs are suggested to play a role in protection against pulmonary toxicity.

KEYWORDS: Cyclophosphamide, Raspberry Ketones, Pulmonary Toxicity.

INTRODUCTION

Cyclophosphamide is a chemotherapeutic agent that is commonly used in the treatment of a variety of human neoplasia, alkylating agent, and immunosuppressive therapy [1]. Several mechanisms were shown to be involved in CP-induced pulmonary toxicity including oxidative stress, activation inflammatory lucid, and apoptosis. Cyclophosphamide, which is bioactivated to phosphoramidate mustard and acrolein were induced apoptosis [2]. Phosphoramidate mustard is responsible for the therapeutic activity of cyclophosphamide but acrolein is responsible for toxic part of this drug [3]. The acrolein results in decrease proliferation [4], via mechanisms involving activation of Nuclear transcription factor kappa-B (NF-κB) and Oxidative stress. Raspberry ketones (RKs) are a major standard aromatic compound obtained from red raspberry (*Rubus ideaus*). They have demonstrated antioxidant effects, including the reduction of abnormally high levels of malondialdehyde (MDA) [5]. They inhibit LPS-induced iNOS and COX-2 expression in RAW264.7 cells by blocking NF-kappaB activation pathway. They prevented the activation of (NF-KB) by blocking the translocation of (NF-KB) into the nucleus by IκB degeneration [6]. The current work was designed to examine the effect of Raspberry Ketones on CP-induced lung toxicity in male mice.

OBJECTIVE

To assess the histopathological examination to lung tissues in mice, and to explore the protective effect of Raspberry Ketones against Cyclophosphamide-induced pulmonary toxicity in Male albino mice. It was also aimed to

estimate levels of oxidative stress markers such as: glutathione (GSH), catalase(CAT), lipid peroxidase(MDA), and Superoxide Dismutase (SOD), and to evaluate effect of Raspberry Ketones, and Cyclophosphamide on markers of inflammation such as: nuclear transcription factor kappa-B (NF-KB), cyclooxygenase-2 (COX-2) enzyme, and inducible nitric oxide synthase (iNOS).

METHODS

Animals were divided into the following 6 groups of 8 mice (Groups 1–6, n = 8) each for the experiments. Negative control, mice were administered normal saline (10 ml/ kg b. w.) via intraperitoneal (i. p.) injection for 14 days positive control, mice were administered a single toxic dose of CP (150 mg/kg b.w. i. p.) in normal saline (10 ml/kg b.w.). Groups 3–6 mice were treated with Raspberry ketones at different concentrations (25,50, 100, and 200 mg/kg b.w. by i.p. injection) in normal saline (10 ml/kg b.w.), each day for 14 consecutive days followed by a single i.p.dose of 1hr after the last dose of Cyclophosphamide. After 24 hours of injection, all mice were anesthetized by thiopental (i.v). The lungs were then removed and washed 3 times with normal saline for complete blood removal. The left lungs were used for biochemical analysis, and the right lungs were used for histopathological examination.

3-2-DNA extraction and DNA ladder by gel electrophoresis: In this method, genomic DNA was extracted from the lung tissue using Bio EZ-10 spin column genomic DNA Kit (Markham, Canada), according to the manufacturer's instructions. All of the extracted genomic DNA samples was diluted to 90 ng/ml then was subjected to electrophoresis using 0.8% (w/v) agarose gel at 90 V and 110 mA for 2h. The samples were further visualized under UV light after ethidium bromide staining. The 100 bp DNA ladder (Solis Biodyn, Tartu, Estonia) is a ready-to-use molecular weight marker. Gel photo was captured using gel documentation system then was analyzed by Gel Docu advanced ver.2 software.

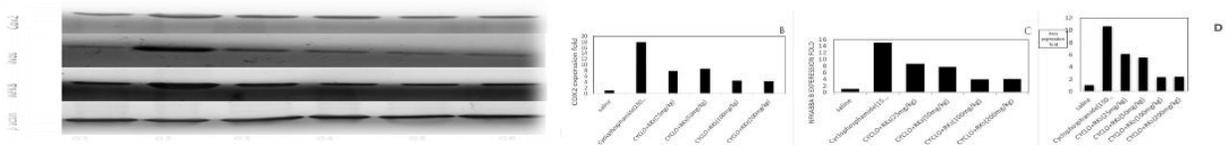
3-3-Western blot analysis: The frozen lung tissues was lysed with a RIPA lysis buffer, and was centrifuged at 12,000×g at 4°C for 10 min to obtain the cellular proteins in the supernatant. The supernatant of lung tissues was separated by SDS-PAGE, transferred to a polyvinylidene difluoride membrane, and was blocked in blocking buffer (150 mM NaCl in 10 mM Tris, pH 7.5 containing 5% non-fat dry milk) for 1 h at room temperature. The membranes was incubated with primary antibodies for 18 h at 4°C, after that was washed three times (20 mM Tris-HCl, pH 7.5, 137 mM NaCl, and 0.1% Tween 20), was incubated with horse-radish peroxidase-conjugated secondary antibodies (1:5,000, Thermo Fisher Scientific) for 1hr at room temperature, washed three times, and then was detected with enhanced chemiluminescence method. Antibodies against nuclear transcription factor kappa-B (NF-KB), cyclooxygenase-2 (COX-2) enzyme, and inducible nitric oxide synthase (iNOS) was purchased from Abcam and Cell Signaling Technology.

RESULTS

Results was presented as the mean \pm SE. Comparison between groups was performed employing SPSS applying one-way ANOVA followed by Bonferroni's post-hoc test.

Western blot analysis: Table A

The data were analyzed with one-way ANOVA to showed the significant difference between groups:



G1=Saline.G2=Cyclophosphamide(150mg/kg), G3=CYCLO+RKs(25mg/kg), G4=CYCLO+RKs(50mg/kg), G5=CYCLO+RKs(100mg/kg), G6=CYCLO+RKs(200mg/kg).

CONCLUSION

Raspberry ketones reduce CP-induced lung toxicity via their antioxidant and anti-inflammatory properties. Therefore, it can be suggested as a supplement to patients using CP to protect them against pulmonary toxicity.

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PS-9: HPLC STUDY FOR SIMULTANEOUS DETERMINATION OF SEVEN ANGIOTENSIN II RECEPTOR BLOCKERS IN THEIR PHARMACEUTICAL PRODUCTS WITH DIFFERENT STATIONARY PHASES

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HPLC STUDY FOR SIMULTANEOUS DETERMINATION OF SEVEN ANGIOTENSIN II RECEPTOR BLOCKERS WITH METHOD TRANSFER STUDY

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ABSTRACT: *Angiotensin II Receptor Blockers are clinically important drugs used in treatment of blood pressure disorders, so simultaneous determination of these drugs is meaningful. Full investigation on different Stationary phases and mobile phases that are applicable for separation of Angiotensin II Receptor Blockers were studied. Other factors affecting the separation were fully optimized. Validated , simple , fast , and reliable gradient RP-HPLC method with UV detection for simultaneous determination of Chlorthalidone , Hydrochlorothiazide , Eprosartan , Valsartan , Losartan , Candesartan and Irbesartan were successfully applied for the analysis of these compounds in their pharmaceutical products . The proposed method was validated according to ICH guidelines in terms of linearity, accuracy, precision, and robustness, limit of detection and limit of quantitation . Method transfer from UHPLC to HPLC is done in two different laboratories and the validated method achieve similar results with HPLC Waters Alliance as same as UHPLC Thermo Ultimate 3000 . The method Applied for analysis of pharmaceutical dosage forms available in market containing studied APIs and the method gives accurate results in quantitative determination*

KEYWORDS: *Angiotensin II Receptor blockers , stationary phases transfer, HPLC.*

INTRODUCTION

Angiotensin II receptor antagonists (ARA-II) are effective agents for the treatment of hypertension and heart failure, and have been considered as the alternative for the traditional inhibitors of angiotensin converting enzyme (ACE). It is recommended in the World Health Organisation (WHO) Guidelines that these drugs can be prescribed as the first-line treatment for essential hypertension.

Sensitive method established to separate seven compounds on C18 Column (250x4.6 mmID) at very low concentrations reaches 40 ng/ml with UV detection at 254 nm and the method transferred to Cyano Column and C8 Columns to detect behavior of these compounds after method transfer , this study facilitate to any analyst in industrial field to quantify any formula containing one or more of these compounds by precise accurate method.

OBJECTIVES

- 1- Study separation behavior of this group of drugs on different stationary phases and mobile phases .
- 2- Method transfer of Analytical method from UHPLC to HPLC and between Different Stationary Phases like C18 , C8 and Cyano columns .

- 3- Optimization of different factors affecting chromatographic separation .
- 4- Intensive study on each factor affecting Analytical method with separation behavior results from these factors.
- 5- Validation of HPLC method for determination of the seven Angiotensin II Receptor Blockers.

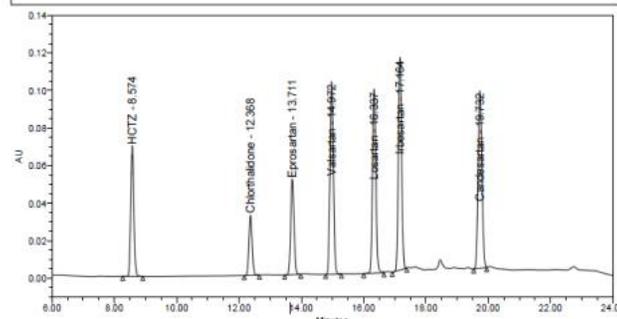
METHODS

RP-HPLC gradient method for determination of the Angiotensin II receptor blockers was developed. The chromatographic conditions used were as follow: Gradient Programme :

Mobile phase A : Sodium Dihydrogen Orthophosphate buffer pH 6.5 & **Mobile phase B :** Methanol ; **Column :** C₁₈ GL Sciences (250 x 4.6 mmID) , 5 um Particle size ; **Flow rate :** 1ml/min , **Detector :** UV Detector at 254 nm .

Time	(A) Phosphate Buffer pH 6.5	B (Methanol)
0	95	5
15	10	90
20	10	90
22	95	5
30	95	5

Sample Name:	Sartan Standard 100%	Acquired By:	K_Nasser
Sample Type:	Standard	Sample Set Name:	071217_Sartans_Validation
Vial:	5	Acti. Method Set:	Sartans_MS
Injection #:	5	Processing Method:	valid_7Mx_PM
Injection Volume:	10.00 ul	Channel Name:	W2489 ChA
Run Time:	30.0 Minutes	Proc. Chnl. Descr.:	W2489 ChA 254nm
Date Acquired:	12/7/2017 5:16:54 PM EET		
Date Processed:	12/18/2017 11:40:40 PM EET		



Peak Name	RT	Area	% Area	Height	Resolution	USP Tailing	USP Plate Count
1 HCTZ	8.574	479218	11.36	69942		1.083	35582.181
2 Chlorthalidone	12.368	228471	5.42	32044	20.566	1.061	67616.589
3 Eprosartan	13.711	377920	8.96	50923	6.967	1.036	77113.267
4 Valsartan	14.972	781057	18.52	103076	6.308	1.075	87439.664
5 Losartan	16.337	732084	17.35	97993	6.847	1.068	108483.268
6 Irbesartan	17.164	819215	19.42	113070	4.244	1.052	123509.373
7 Candesartan	19.732	800414	18.97	94266	12.248	1.087	120761.463

RESULTS & DISCUSSION

Separation was achieved with high accuracy and resolution according to the following chromatogram, other drugs of this group such as [Olmesartan Medoxomil, Azilsartan Medoxomil and Telmisartan HCl] are included in this study but they shows degradation behavior when included in the mixture and Olmesartan appears in the same retention time of Valsartan So these 3 APIs are excluded from the mixture.

Type of columns as different columns are used in this study to investigate separation behavior of Angiotensin II Receptor Blockers as C₁₈ GL Sciences (250x4.6mmID), 5um particle size , C₈ Alltech (250x4.6mmID) , 5um particle size & Cyano GL Sciences (250x4.6mmID) , 5um particle size .

Factors affecting method such as temperature of column as increase in temperature cause decrease on retention time and this result investigated on different columns such C₁₈ and C₈ . Salt of buffer of mobile phase as different salts are experimented such [Potassium Dihydrogen Orthophosphate , Sodium Dihydrogen Orthophosphate And Ammonium Dihydrogen orthophosphate] and each salt give specific different results in retention time . Organic part of mobile phase is investigated between Methanol and Acetonitrile , Methanol gives better resolution and plate count than Acetonitrile .

pH of buffer used in validated method investigated by Marvin sketch software and the best pH Suggested by Marrvin Software Achieved best separation and resolution (pH 6.5) While Acidic pH Gives bad separation and pH higher than 6.5 cause precipitation with Methanol .

This method applied on pharmaceutical products in market containing studied APIs and was successful in quantifying studied APIs , Method transfer from UHPLC to HPLC is done in two different laboratories and the validated method achive similar results with HPLC Waters Alliance as same as UHPLC Thermo Ultimate 3000.

CONCLUSION

An Efficient fast gradient HPLC method with ultraviolet detection for quantitative analysis of seven Angiotensin II Receptor blockers was developed . This method validated according to ICH guidelines and found to be specific, linear, sensitive, robust, precise, and accurate .This method successfully applied to the analysis of studied drugs in their Commercial pharmaceutical products . Different factors affecting separation behavior of studied drugs are investigated in this study such as temperature of column , pH of mobile phase and flow rate of mobile phase and method transfer studied between different stationary phases and between HPLC and UHPLC.

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PS-10: EMERGING ROLE OF LONG NON-CODING RNA (ROR) IN CELLULAR REPROGRAMMING AND PROGNOSIS OF RENAL CELL CARCINOMA

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ABSTRACT: *Long intergenic non-coding RNA, regulator of reprogramming (LINC-ROR) is a newly identified long non-coding RNA implicated in cell longevity and apoptosis. We aimed to quantify the expression of ROR and 3 stem-related transcriptional factors (SOX2, NANOG & POU5F1) by real-time PCR in renal cell carcinoma (RCC) tissue specimens relative to their paired non-cancer tissues and to correlate these expressions with clinicopathological data to test their use as prognostic biomarkers. The genes studied were markedly up-regulated in RCC. High expression levels were associated with poor prognosis in terms of tumour undifferentiation (for LINC-ROR, SOX2 & NANOG), lymph node infiltration (for SOX2), post-operative recurrence (for LINC-ROR & SOX2), and shorter overall survival (OS) and progression-free survival (for all genes studied). The best curve for OS prediction was constructed with LINC-ROR data. We concluded that aberrant ROR and pluripotent gene expression may be a prognostic biomarker for RCC.*

KEYWORDS: *Renal cell carcinoma; Long Non coding RNA-ROR; SOX2; NANOG and POU5F1.*

INTRODUCTION

Renal cell carcinoma (RCC), which arises from renal tubular epithelial cells, accounts for 2-3% of all cancers worldwide [1,2]. The interplay of the genetic mechanisms that affect RCC pathogenesis is still poorly understood. Aggressive cancer cells exhibit phenotypic traits remarkably similar to those of pluripotent stem cells [3]. SOX2, NANOG, and POU5F1 (also known as OCT3/4) are three pluripotency-associated transcription factors (TFs) that are well known to be up-regulated in various cancer types [4]. Recent evidence has suggested complex networking between TFs and non-coding RNAs that regulates cell fate and differentiation [5,6,7]. Long intergenic non-coding RNA, regulator of reprogramming (LINC-ROR) is a newly identified cytoplasmic long non-coding RNA (lncRNA) implicated in cell longevity, apoptosis and pluripotency maintenance [8]. The promoter of the *LINC-ROR* gene was found to contain binding sites for SOX2, NANOG, and POU5F1 [9]. Upon binding of TFs, *LINC-ROR* transcription is activated, whereas silencing of these proteins suppressed *LINC-ROR* expression through a regulatory feedback loop [8].

OBJECTIVES

To quantify the expression profiles of LINC-ROR and three putative stem-related transcriptional factors (SOX2, NANOG, and POU5F1) in renal cell carcinoma (RCC) tissue specimens relative to their paired non-cancer tissues and to correlate these expression levels with clinicopathological data to test their clinical utility as prognostic biomarkers.

METHODS

In the current study, we analysed the transcriptome signature of LINC-ROR and three of the main pluripotency-related genes (*SOX2*, *NANOG*, and *POU5F1*) in RCC patients to assess their clinical utility as prognostic biomarkers by using quantitative real-time polymerase chain reaction (PCR) analysis of 120 formalin-fixed, paraffin-embedded (FFPE) specimens, including 60 RCC samples and their paired adjacent non-cancer tissues. First, total RNA was purified from the FFPE sections using a Qiagen RNeasy FFPE Kit (Cat # 74404, Qiagen, Hilden, Germany) following the manufacturer's protocol. Second, reverse transcription was performed with a high capacity cDNA reverse transcription kit (Part No 4374966, Applied Biosystems, Thermo Fisher Scientific, Waltham, MA, USA) using a Mastercycler Gradient Thermocycler (Eppendorf, Hamburg, Germany). Afterwards, detection of *LINC-ROR*, *SOX2*, *NANOG*, and *POU5F1* gene expression and that of the endogenous control GAPDH was performed using real-time polymerase chain reaction (RT-PCR). Patient follow-ups were performed until December 2016 and ranged from 7 to 32 months. Post-operative recurrence was calculated, and survival times were estimated from the date of nephrectomy until patient death or the endpoint of follow-up. Approval was obtained from the Medical Research Ethics Committee of Faculty of Medicine, Suez Canal University. Patient follow-up was performed by telephone until April 1, 2017.

RESULTS & DISCUSSION

RCC tissue LINC-ROR, *SOX2*, *NANOG*, and *POU5F1* expression levels were significantly elevated. The Kaplan-Meier curves and ROC analyses showed that the LINC-ROR, *SOX2*, *NANOG*, and *POU5F1* expression profiles were associated with shorter survival times. RCC patients with high LINC-ROR and *SOX2* levels had a higher recurrence rate after an average of 4 months post-nephrectomy. Notably, regression analyses confirmed that LINC-ROR was an independent predictor for recurrence and poor OS. In addition, LINC-ROR, *SOX2*, and *NANOG* expression showed a significant association with poor differentiation, whereas *SOX2* was a poor marker for LN metastasis. The best curve for OS prediction was constructed with LINC-ROR data (area under the receiver operating characteristic curve (AUC) = 0.804 at a cut-off value of 72.7, sensitivity 78.9% and specificity 80.5%).

CONCLUSION

Aberrant LINC-ROR and pluripotent gene expression may be a prognostic biomarker for RCC. Deregulation of the LINC-ROR/pluripotent gene axis could be a prognostic RCC biomarker. LINC-ROR may be a potential therapeutic target in RCC. Future large-scale studies are highly recommended to validate the study findings.

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PS-11: SYNTHESIS OF SOME NOVEL QUINOLINONE DERIVATIVES WITH ANTICIPATED ANTICANCER ACTIVITY

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ABSTRACT: Starting from ethyl 4-hydroxy-1-(4-methoxyphenyl)-2-oxo-1,2-dihydroquinolin-3-carboxylate **1** [1,2], a series of new quinolinone derivatives **4a-e**, **5a-f** have been prepared by nucleophilic acyl substitution with some amino acids esters and amines. Some 4-substituted derivatives: 4-chloro **6**, 4-azido **7** and the fused tricyclic **8** have also been synthesized for comparison.

KEYWORDS: Quinolinone, amino acids, amines, nucleophilic acyl substitution, anticancer activity.

INTRODUCTION

The search for new anticancer drugs is never ending task with the aim to obtain products with lower toxicity and more selectivity towards tumor cells [3]. Some current commercial quinolone anticancer drugs such as tripifarnib, lenvatinib and cabozantini[4] possess characteristic features in their structures such as 2-oxo group, N-alkyl substituent, ether, amide, halo and azido groups.

OBJECTIVE

The key quinolinone derivative **1** [1,2] is suitable scaffold for the synthesis of a series of novel amino acid **4a-e** and amide **5a-f** derivatives, containing the above mentioned functional groups. 4-Chloro/azido **6**, **7** along with the heterotricyclic **8** have also been prepared for comparison on screening the antitumor activity.

METHODS

The key quinolinone derivative **1** was refluxed with the amino acid methyl ester hydrochlorides or amines in the presence of triethyl amine in toluene using Dean-Stark apparatus, to yield the corresponding derivatives **4a-e** and **5a-f** respectively. Chlorination of derivative **1** by using phosphorus oxychloride gave compound **6** which was then underwent two reactions; firstly the reaction with sodium azide to give derivative **6** and secondly the reaction with hydrazine hydrate to give the corresponding product **8**.

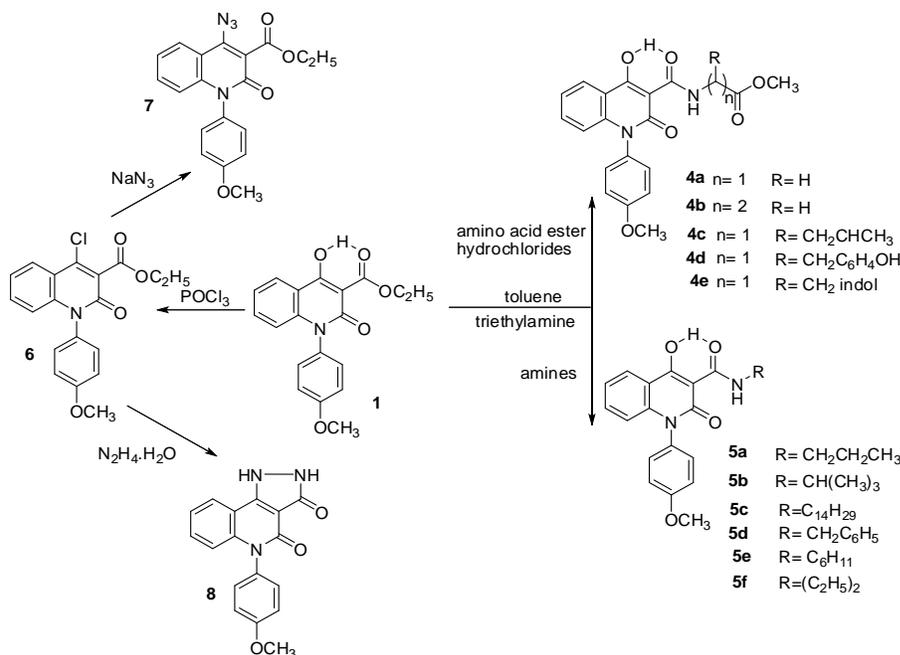
RESULTS AND DISCUSSION

Preliminary trials to synthesize the desired amino acid or amine derivatives by the acid chloride, azide or carbodiimide methods [5] were unsuccessful. However, these derivatives were obtained directly under drastic condition from **1** by nucleophilic acyl substitution in boiling toluene. C4-OH group was substituted with chlorine by treatment with POCl₃. The reactivity of chlorine was demonstrated by its substitution with the nucleophiles NaN₃ and NH₂NH₂.H₂O. The structures of the synthesized compounds were confirmed by elemental analysis, ¹H and ¹³C NMR.

Methyl 2-(4-hydroxy-1-(4-methoxyphenyl)-2-oxo-1,2-dihydroquinoline-3-carboxamido)acetate (4a) white powder (0.8 g 72.7%), m.p. 160°C. ¹H-NMR (CDCl₃): δ 3.76 (3H, s, COOCH₃); 3.90 (3H, s, OCH₃); 4.18 (2H, d, CH₂-COOMe); 6.73 (1H, d, Ar-H); 7.10-7.28 (5H, m, Ar-H); 7.45 (1H, t, Ar-H); 8.23 (1H, d, Ar-H); 10.57 (1H, s, NH); 16.58 (1H, s, OH) ¹³C NMR δ 40.88 (CH₂); 52.33 (CH₃); 55.59 (O-CH₃); 96.88 (C-3); 115.50 (C-5); 115.81 (C-3, C-5); 116.19 (C-7); 122.61 (C-6); 129.01 (C-9); 129.95 (C-8); 133.46 (C-2, C-6); 142.66 (C-10); 159.90 (C=O); 169.36 (C=O ester); 172.76 (C4-OH).

4-hydroxy-1-(4-methoxyphenyl)-2-oxo-N-propyl-1,2-dihydroquinoline-3-carboxamide (5a) Faint yellow powder (0.14 g, 43.66%), m.p. 178-180°C ¹H NMR (CDCl₃) δ 0.98 (3H, t, CH₃); 1.60-1.68 (2H, m, CH₂-CH₃); 3.36-3.43 (2H, m, NH-CH₂); 3.91 (1H, s, OCH₃); 6.73 (1H, d, Ar-H); 7.12-7.29 (5H, m, Ar-H); 7.46 (1H, t, Ar-H); 8.24 (1H, d, Ar-

H); 10.18 (1H, s, NH); 17.53 (1H, s, OH)¹³CNMR δ 11.61 (CH₃); 22.52 (CH₂); 40.88 (CH₂-NH); 55.57 (O-CH₃); 96.68(C-3); 115.57 (C-3', C-5'); 122.48(C-7); 125.12(C-6); 129.65(C-9); 129.97(C-8); 133.13(C-2, C-6'); 141.18(C-10); 159.89(C=O); 163.34(C=O)171.02(C=O); 172.93(C4-OH).



Scheme. Synthesis of some novel quinolinone derivatives with anticipated anticancer activity

CONCLUSION

Firstly, amongst all the synthesized derivatives, it was found that quinoline derivatives bearing amino acid esters gave a slightly better yield than those bearing amines. Secondly, the structure of the starting key quinolinone carboxylate derivative should be modified with the aim to increase the electrophilicity of the carboxylate carbonyl group. This permits the formation of the amide bond at low temperature and under milder conditions

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PS-12: SYNTHESIS OF SOME QUINOLINONYLGLYCYL/ β -ALANYL HYDRAZIDE DERIVATIVES WITH POSSIBLE ANTICANCER ACTIVITY

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ABSTRACT: *A series of quinolinonyl-glycyl/ β -alanylhydrazides 2a,b have been prepared by hydrazinolysis of their esters 1a,b. Some dipeptide esters 4a,b, 5a,b were synthesized from these hydrazides by the azide method. The amino acid hydrazides were condensed with p-anisaldehyde to yield the corresponding hydrazones 6a,b. Two thiosemicarbazides 3a,b were also obtained from their hydrazides 2a,b by reaction with phenyl isothiocyanate. The structures of the newly synthesized derivatives were elucidated by elemental analysis, ^1H and ^{13}C NMR.*

KEYWORDS: *Quinolinone, amino acids, amines, hydrazides, hydrazones.*

INTRODUCTION

A diverse arsenal of peptide based drugs have been developed for the treatment of cancer, viral infections, pain management [1] moreover our laboratory found that conjugation of some heterocyclic compounds with amino acids and dipeptides could afford products with promising anticancer activity [2].

OBJECTIVES

The present communication deals with the synthesis of a series of quinolinonyl amino acid and dipeptide esters/hydrazides/hydrazones and thiosemicarbazid derivatives to study their anticancer activity. The Gly/ β -Ala hydrazide derivatives were also coupled by the azide method with some physiologically active amines to afford the amides 7(a,b)i-iii for comparison.

METHODS

Quinolinonyl amino acid esters 1a,b were refluxed with excess hydrazine hydrate in ethanol to yield the corresponding hydrazides 2a,b which were then reacted via azide method with Gly/ β -Ala methyl esters to afford the corresponding dipeptide esters 4a,b, 5a,b. Analogously some amides 7(a,b)i-iii have also been obtained. Some hydrazones and carbazides were also prepared by the reaction of Gly/ β -Ala hydrazides 2a,b with p-anisaldehyde and phenyl isothiocyanate respectively.

RESULTS & DISCUSSION

The Gly/ β -Ala- N_2H_3 derivatives have been prepared from the corresponding esters by reflux with about 20 fold excess hydrazine hydrate. The formation of dipeptide esters and amides by azide method was performed at low temperature to avoid Curtius rearrangement [2,3]. The idea of the synthesis of some hydrazones and thiosemicarbazides is based on the importance of the presence of $-\text{NH}-\text{N}=\text{C}$ and $\text{NHNHCS}-\text{NH}-$ groups for exhibiting high level of anticancer activity [1].

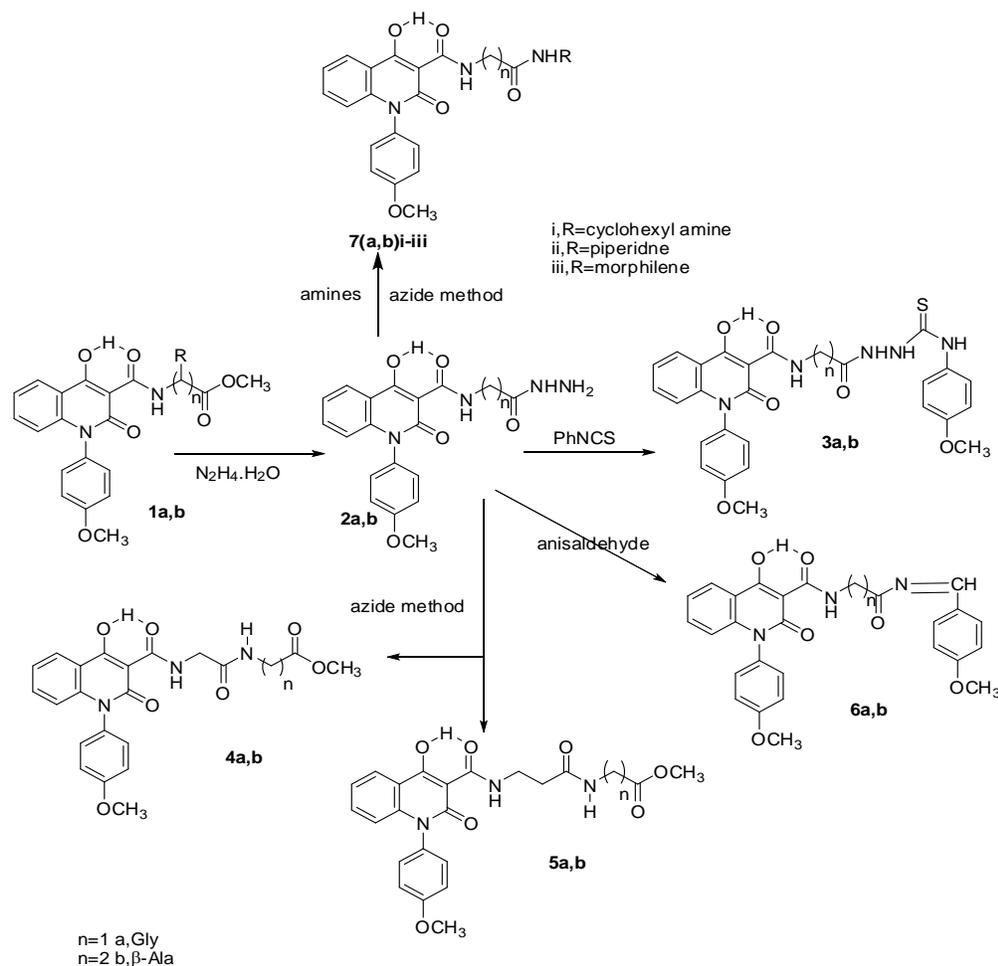
Methyl 3-(3-(4-hydroxy-1-(4-methoxyphenyl)-2-oxo-1,2-dihydroquinoline-3-carboxamido)propanamido)propanoate (4b)

White powder (0.12 g, 66.66%), m.p. 180°C ^1H NMR (CDCl_3) δ 2.50(2H, t, CH_2 -CO); 3.44(2H, t, CH_2); 3.55 (2H, t, CH_2); 3.68 (3H, s, OCH_3); 3.91 (3H, s, OCH_3); 6.73(1H, d, Ar-H); 7.11-7.31 (5H, m, Ar-H); 7.47 (1H, t, Ar-H); 8.23 (1H, d, Ar-H); 10.32 (1H, s, NH); 17.10 (1H, s, OH) ^{13}C NMR δ 34.60 (CH_2); 35.86 (CH_2); 39.42(CH_2); 40.54(CH_2);

51.65 (CH₃ ester); 55.60 (O-CH₃); 96.72(C-3); 115.55 (C-3', C-5') 122.67(C-7); 125.19(C-6); 129.90(C-8); 133.40(C-2, C-6'); 159.96(C=O); 163.31(C=O) 170.49(C=O); 171.70 (C=O);172.76(C4-OH).

4-hydroxy-1-(4-methoxyphenyl)-2-oxo-N-(2-oxo-2-(piperidin-1-yl)ethyl)-1,2-dihydroquinoline-3-carboxamide (7ai)

Yellow powder (0.0384 g, 69.82%), m.p. 220°C ¹H NMR (CDCl₃) δ 1.53-1.70 (6H, m, three CH₂ of piperidine ring); 3.38 (2H, t, CH₂piperidine ring); 3.57 (2H, t, CH₂piperidine ring); 3.91 (3H, s, OCH₃); 4.24 (2H, d, NH-CH₂); 6.73 (1H,d,Ar-H); 7.08-7.28 (5H, m, Ar-H); 7.46 (1H, t, Ar-H); 8.23 (1H, d, Ar-H); 10.81 (1H, s, NH); 16.91 (1H, s, OH); ¹³C NMR δ 24.43 (CH₂piperidine ring);25.40 (2CH₂piperidine ring); 41.12(CH₂-NH); 45.71(2CH₂piperidine ring); 55.57(OCH₃); 97.13(C-3); 115.36 (C-3', C-5'); 122.32(C-7); 125.07(C-6); 129.68(C-9); 130.16(C-8); 133.18(C-2', C-6'); 141.49(C-10); 159.78(C=O); 165.29(C=O); 170.92(C=O); 172.35(C4-OH).



Scheme, Synthesis of some quinolinonyl glycy/β-alanylhydrazide derivatives with possible anticancer activity

CONCLUSION

Firstly, the synthesized compounds were prepared in a good yield however derivatives of dipeptide bond with β-Alanine gave poor yield. Secondly, this study should be extended in the next future with some other optically active amino acids with physiologically active side chains containing hydroxyl, sulphur, basic, acidic, aromatic groups.

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PS-13: PHYSICO-CHEMICAL CHARACTERIZATION FOR THE DESIGN AND FORMULATION OF MIXED POLYMER-LIPID NANOPARTICLES AS A DRUG DELIVERY SYSTEM

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ABSTRACT: We prepared Mixed polymer-lipid nanoparticles (PLNs) for typical targeting delivery of Ibuprofen that was chosen as a model drug by modified emulsification solvent evaporation method (ESE). The particle size, zeta potential, surface morphology of mixed (PLNs), were characterized by Transmission electron microscopy (TEM) and Fourier transform infrared (FTIR). The thermal conduct of the mixed PLNs was characterized by differential scanning calorimetry (DSC). Mixed PLNs were negatively charged with zeta. The surface charge on the mixed PLNs was confirmed by zeta potential, which showed the value of 29.2 mV polarity negative.

KEYWORDS: Polymer-lipid nanoparticles; Nanostructured lipid carriers, Ibuprofen, Drug Delivery Systems.

INTRODUCTION

Mixed Polymer-lipid nanoparticles (PLNs) are developing nanoparticle drug delivery system made of polymers and lipids taking benefits of together materials state. Mixed PLNs remain in solid state at body temperature^[1].

OBJECTIVES

The objective of this study was evaluation of parameters such as particle size, zeta potential, surface morphology by TEM and FTIR. Also, evaluation of thermal behavior by differential scanning calorimetry (DSC).

METHODS

Mixed polymer-lipid nanoparticles (PLNs) were prepared by modified emulsification solvent evaporation method (ESE). Briefly, Lipid (Tristearin) and primary surfactant are dissolved in a water-immiscible solvent (The organic phase) dichloromethane (DCM) While the complex of drug-polymer (Hydroxypropyl-beta-cyclodextrin (HP-β-CD)) was separately dissolved in deionized water (W₁, internal aqueous phase) The two solutions are emulsified under homogenization to form W₁/O nanoemulsion, which is subsequently added to a second aqueous phase containing secondary surfactant (W₂, external aqueous phase) to form W₁/O/W₂ the Nano-emulsion was stirred overnight at room temperature to evaporate off solvent^[2].

RESULTS & DISCUSSION

In the present study, it was observed that the particle size was affected by the polymer and lipid concentration. It was seen that upon increasing the concentration of polymer (HP-β-CD), there was drastic change in particle size and PDI, at high concentration of HP-β-CD the particle size was found to be less^[3] (fig. 1).

Specifically poorly water-soluble drugs such as Ibuprofen could be successfully incorporated into the hydrophobic core of these systems during the formation process of the core structure. Our TEM assays revealed that the mixed PLNs were generally spherical in shape with a relatively smooth surface (fig. 2).

Fig. 1:- particle size distribution of mixed PLNs.

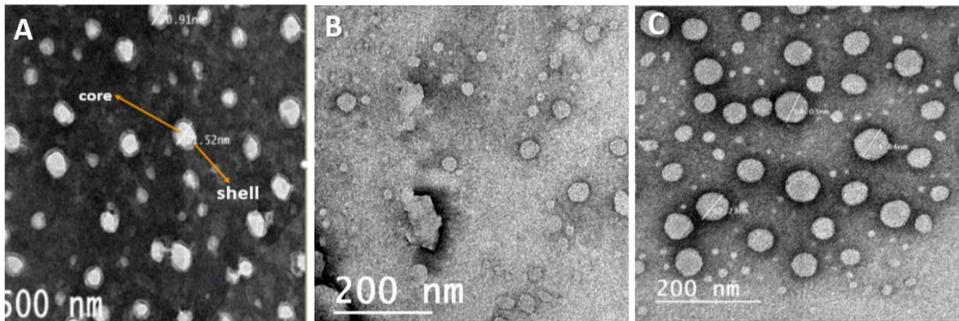
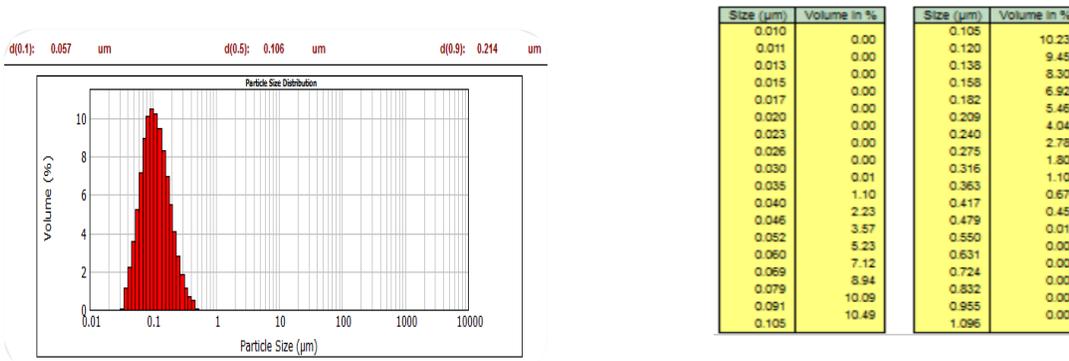


Fig. 2:- TEM of mixed PLNs. A) The morphology of the mixed Polymer core - lipid-shell was observed on TEM. The desirable features of the developed mixed systems are excellent core-shell structure. B) Blank mixed Polymer - lipid-shell on TEM. C) Loaded Ibuprofen mixed polymer-lipid nanoparticles on TEM.

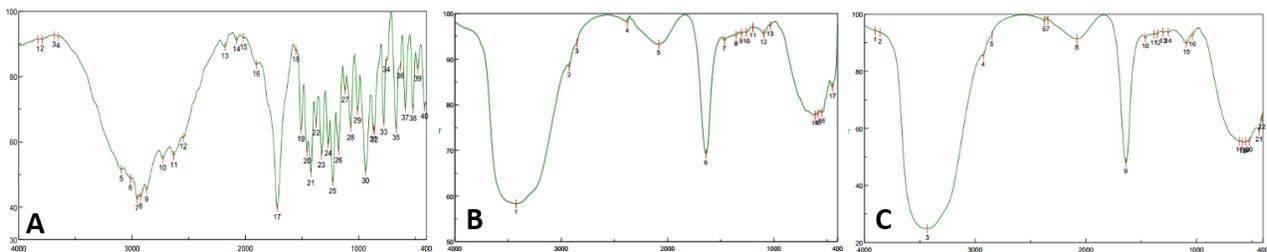


Fig. 3:- Fourier transform infrared (FTIR) of (A) Ibuprofen, (B) mixed (PLNs) without ibuprofen, (C) mixed (PLNs) with ibuprofen.

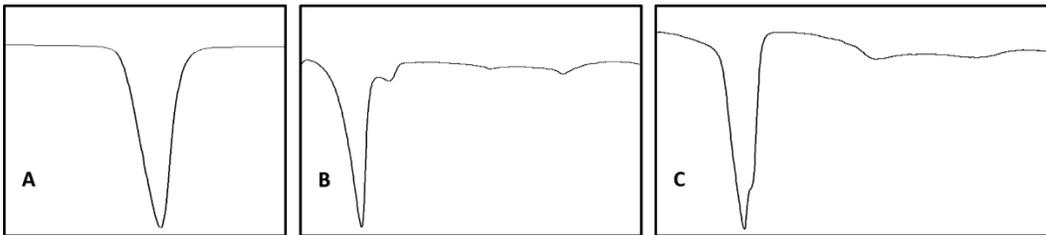


Fig. 4:- Represents the DSC results of three different types of samples: A) Ibuprofen alone, B) physical mixture HP- β -CD and Tristearin , C)inclusion complex.

CONCLUSION

It is concluded that the formulation of mixed PLN for Ibuprofen is possible. Further in vitro and in vivo studies are recommended to evaluate the efficacy of such formula. These results are important in the development of formulations.

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PS-14: QUALITY BY DESIGN OPTIMIZATION OF A FAST LIQUID-LIQUID MICROEXTRACTION PROCEDURE FOR DETERMINATION OF TRIMETHOPRIM AND SIX SULFONAMIDES IN WATER SAMPLES

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ABSTRACT: A salting out assisted Liquid-Liquid Microextraction (SA-LLME) was optimized to preconcentrate trimethoprim and six sulphonamides (sulfadiazine, sulfathiazine, sulfadimidine, sulfamethoxazole, sulfadoxine and sulfaquinoxaline) from water samples prior to HPLC analysis. The extraction of compounds was achieved into the salted out layer of previously added acetonitrile portion from buffered water samples. Quality by Design steps were applied starting with definition of target detection limits, followed by risk assessment of method parameters. Experimental I-optimal design enabled modelling of the responses of compounds preconcentration factors and the collectable salted out layer volume. The tolerance intervals of predicted responses were calculated to define the optimal design space region. The selected working point complied with the predicted tolerance levels and was validated in terms of repeatability, recovery, inter-day precision with detection limits ranging from 2.15 to 7.6 ng/ml.

KEYWORDS: Microextraction, Sulfonamides antibiotics, Trimethoprim, Quality by Design.

INTRODUCTION

Sulfonamides antibiotics (SAs) and Trimethoprim (TMP) are bacteriostatic compounds inhibiting microbial folate synthesis. Huge amounts of them are produced worldwide for human and veterinary use [1]. As a result, contamination of environmental water resources with these compounds is a major concern that initiated the need to monitor their levels in environmental water samples. Guideline detection limits were 35 ng/ml for SAs and 70 ng/ml for TMP[2]. Liquid-Liquid Microextraction techniques (LLME) had advantages of being fast and cheap procedures applying the minimum amounts of organic solvents to preconcentrate the target compounds[3]. A special type of LLME is the Salt aided Liquid-Liquid Microextraction (SA-LLME) [4] applied water miscible solvents (e.g. acetonitrile) to extract target analytes after separation from aqueous sample matrix by salt addition. This technique offered more compatibility to RP-HPLC systems and less impact on the environment.

Quality by Design (QbD) approach enables tailoring of methods to fulfill the predefined acceptance criteria with risk assessment starting with objectives predefinition and implementing sound science and risk assessment [5] to obtain a method with guaranteed performance criteria over a wide range of conditions and fewer incidence of failure upon routine operation. Outputs are the Design Space composed of ranges with guaranteed method performance and the Control Strategy composed of system suitability tests and control limits.

OBJECTIVES

Application of QbD based framework for development of SA-LLME procedure for detection and determination of residues of TMP at concentrations below 70 ng/ml and the six sulfonamides; STZ, SDX, SMX, SDZ, SQX, SDM, at concentrations below 35 ng/ml in environmental water samples coupled with HPLC analysis.

METHODS

Chromatographic system

Gradient HPLC system: Column; Kinetix XB C18 50 × 3.0 mm, 2.6 μm; flow rate= 1ml/min, temperature= 40°C. Detection wavelength=265 nm. Mobile phase A; 10mM ammonium formate pH=3, Mobile phase B; methanol:acetonitrile (92:8). Gradient time=8 minutes from 5% to 90% of mobile phase B.

Optimization Design

Response surface optimization with I-optimal design of 35 experiments was followed. Optimized factors were volume of acetonitrile in ml and added amount of ammonium sulfate salt in g. for the responses Preconcentration Factor (PF) of compounds and salted out volume followed calculation of responses tolerance one-sided intervals.

SA-LLME extraction procedure

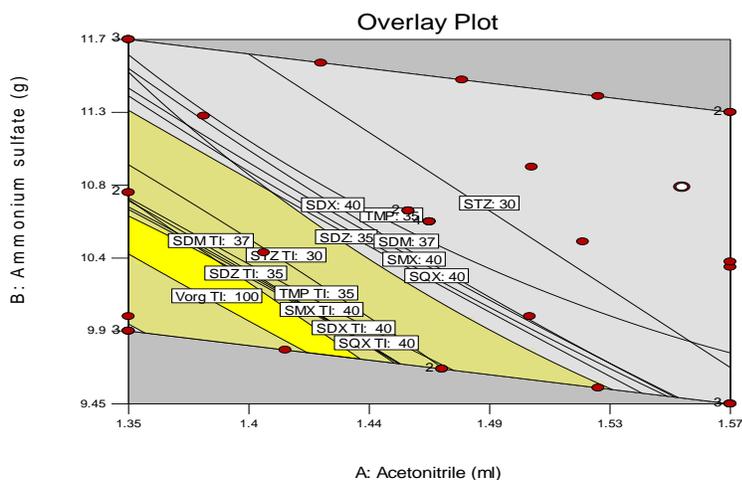
Mixture of 18 ml of buffered solution of blank, standard or sample (5 ml of 117 mM sodium citrate and 1.2M of sodium perchlorate pH 4 buffer in 40 ml solution), 1.4ml of acetonitrile and 10g of ammonium sulfate is mixed by then 100μl of the separated acetonitrile layer was collected and mixed with 100μl of water and inject to HPLC.

RESULTS & DISCUSSION

Design-Expert® Software
Factor Coding: Actual
Original Scale
Overlay Plot

Vorg
TI Low
SDZ
TI Low
STZ
TI Low
TMP
TI Low
SDM
TI Low
SMX
TI Low
SDX
TI Low
SQX
TI Low
• Design Points

X1 = A: Acetonitrile
X2 = B: Ammonium sulfate



A design space domain was obtained as zones which are not significantly different from the optimum response obtained from the process at a collectable acetonitrile volume. The working point was then selected from the DS with the following settings of studied parameters; ammonium acetate weight=10g and acetonitrile volume=1.4ml. Relative standard deviation for nine spiked water samples ranged from 6.4-8.8% which was acceptable according to trace analysis in AOAC method validation guidelines. ANOVA analysis of three days repeated analysis confirmed method Inter-day precision by having F-ratio below F-critical. Method detection limits ranged from 2.15 to 7.6 ng/ml for all SAs and TMP. This value was far below the threshold recommended by the guidelines for method detection limits of SAs and TMP (35 and 70 ng/ml respectively). According to these criteria, the method was valid and suitable for its intended use. Control strategy was defined by the minimum tolerance limits of the design space for the target compounds.

CONCLUSION

A valid SA-LLME procedure was developed for detection and determination of TMP and SAs below the stated guidelines limits in water samples following QbD steps to guarantee consistent method performance through routine application.

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PS-15: RENOPROTECTIVE EFFECT OF BIOCHANIN A AGAINST CISPLATIN-INDUCED NEPHROTOXICITY IN MICE

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ABSTRACT: Cisplatin is a potent widely-used chemotherapeutics; however, its clinical use is associated with nephrotoxicity. Renoprotective approaches are being discovered to halt the tubular cell death due to oxidative, inflammatory and apoptotic burdens. In the present study, the renoprotective effects of different doses of biochanin A (10, 20 or 40 mg/kg) in mice treated with a single injection of cisplatin (10 mg/kg) were reported. Cisplatin administration resulted in marked increases in serum creatinine and blood urea nitrogen. Furthermore, cisplatin administration increased renal malondialdehyde and decreased renal reduced glutathione (GSH) level. Cisplatin group showed marked necrosis and degenerated tubular lining epithelial cells with frequently detected apoptotic bodies and upregulation of caspase 3 and p53. Mice treated with biochanin A (10, 20 or 40 mg/kg) for 14 days prior to cisplatin abrogated cisplatin-mediated damage. Furthermore, serum creatinine and urea levels were diminished by some doses of biochanin A, indicating a significant reduction in renal injury ($P < 0.05$). Similarly, the level of malondialdehyde, GSH and changes in the apoptosis and inflammatory markers have ameliorated to significant levels ($P < 0.05$). The results suggest biochanin A as a nephroprotective agent against cisplatin toxicity. This effect involved antioxidant, anti-inflammatory and antiapoptotic activities.

KEYWORDS: Acute kidney injury, antioxidant, apoptosis, biochanin A, cisplatin.

INTRODUCTION

Cisplatin is one of the most potent widely-used chemotherapeutic; applied in the management of various solid malignancies of both pediatric and adult [1]. Despite its importance for cancer therapy and possessing of various chemotherapeutic properties the clinical use of this drug is actually diminished due to the risk of developing toxic acute kidney injury or progressive and a dose-dependent nephrotoxicity, which occasionally demanding discontinuation of treatment or a dose reduction, otherwise it may threaten life [2,3]. To curtail this side effect various approaches have been attempted for years. Despite these efforts, cisplatin nephrotoxicity, is still a key aspect that diminishes its utility and effectiveness in chemotherapy. Novel renoprotective interventions can be discovered to halt the tubular cell death due to oxidative, inflammatory and apoptotic burdens, depending on the understanding of the mechanism of cisplatin acute kidney injury. Biochanin A is a phytoestrogen which was reported to has a broad spectrum of beneficial biological effects [4-6] These favorable antioxidant and anti-inflammatory activities led to suggesting biochanin A as a nephroprotective agent to be tested in mice against cisplatin nephrotoxicity.

OBJECTIVES

Depending on the growing list of the useful effects of flavonoids and the current need for efficient, simple and economical strategies for preventing nephrotoxicity. This work was aimed to:

1. To study the role of different doses of BCA in protection of renal tubular cell structure and function against nephrotoxicity induced by an acute dose of cisplatin.

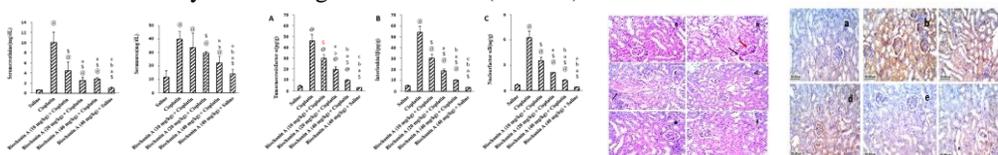
2. To determine if the antiinflammatory, antiapoptotic and antioxidative properties may suggest BCA as a nephroprotective agent against cisplatin induced acute kidney injury.
3. To determine if combination of BCA with cisplatin can reduce the mortality rate or not.

METHODS

Experiments was performed using 36 mice weighing ~25–30 g. Mice were randomly assigned to six groups, each group containing six animals, mice were injected with Biochanin A (10, 20 and 40 mg/kg, i.p.) or with the vehicle (1:9 DMSO/saline mixture), for 14 successive days. Then the induction of nephrotoxicity in mice was done by injecting cisplatin (10 mg/kg, i.p.). After scarifying; Histopathological examination was done for tubular renal cells, blood samples were collected for biochemical analysis and renal tissue homogenization was done for the assay of oxidative stress markers, inflammatory markers and DNA laddering.

RESULTS

In agreement with previous studies, acute injection of cisplatin increased serum creatinine and blood urea nitrogen, raised renal malondialdehyde and decreased renal reduced glutathione (GSH) level. Cisplatin group showed marked necrosis and degenerated tubular lining epithelial cells with frequently detected apoptotic bodies and upregulation of caspase 3 and p53. Further, treatment with BCA (10, 20 or 40 mg/kg) for 14 days abrogated cisplatin-mediated acute injury. Furthermore, serum creatinine and urea became lower by some doses of biochanin A; indicating a significant reduction in renal injury. Similarly, renal malondialdehyde, GSH, inflammatory markers and apoptotic markers have been ameliorated by BCA to significant levels ($P < 0.05$).



CONCLUSION

In agreement with previous studies, our results demonstrate a critical role of oxidative stress, apoptosis and increased production of proinflammatory mediators in the pathogenesis of cisplatin-induced acute kidney injury. Also, the present work demonstrated that BCA provided a significant protective effect in mice exposed to acute cisplatin nephrotoxicity.

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PS-16: EFFECT OF PRESSURE ULCER GUIDELINES ON NURSES' PERFORMANCE AND PATIENTS' OUTCOMES

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ABSTRACT: *A pressure ulcer is an injury to the skin that occurs when a patient lies or sits too long in the same position. The aim: to evaluate effect of pressure ulcer guidelines on nurses' performance and patients' outcomes. Methodology: Setting: conducted in Suez Canal university hospitals at Neurosurgery and Neuropsychiatric department. A quasi-experimental research design was used. Subject: a convenient sample of 27 nurses and purposive sample of 52 patients. Tools: Self-administrating questionnaire to assess nurses' knowledge regarding prevention and management of pressure ulcer, observational checklists to assess nurses' practice regarding prevention and management of pressure ulcer and patients' assessment to assess the effect of interventional guidelines on healing level of pressure ulcer. Result: statistical significance between the studied nurses' performance as knowledge score at phase of pre guidelines implementation and the patient outcomes score through pressure ulcer scale for healing score at 5th evaluation with P value 0.026. Conclusion: there was no statistical significance between the studied nurses' performance score at phases of post & follow up of guidelines implementation and the patient outcomes through PUSH score. Recommendation: Replication of the study on a larger probability sample selected from different geographical areas in Egypt is recommended to obtain more generalizable data.*

KEYWORDS: *Pressure Ulcer, nurses' performance, patients' outcomes.*

INTRODUCTION

A pressure ulcer (PU) is a localized injury or any lesion to the skin or underlying tissue, as a result of pressure and external surface for a prolonged period of time, is considered both inevitable and preventable. Pressure ulcer occurs as a result of a combination of both intrinsic factors as immobility, admission to the ICU, malnutrition, incontinence, spinal cord injury (SCI), stroke, hemodynamic instability and one important extrinsic factor as inadequate knowledge and practice of healthcare provider [1] [4].

The interventional guidelines of pressure ulcers treatment or care involve multiple methods intended to alleviate the conditions contributing to ulcer development (support surfaces, repositioning, and nutritional support), protection of the wound from contamination. The goal of guidelines are to provide evidence based recommendations for treatment that focus on recommendations is to provide evidence-based guidance on the most effective strategies to promote pressure ulcer healing, that can be used by health professionals [2].

The estimated cost of treating each case of pressure ulcers ranges from \$37 800 to \$70 000, and up to \$11 billion is spent annually in the United States to treat pressure ulcers and 60,000 die from their complications. Pressure ulcers have been described as one of the most costly and physically debilitating complications in the 20th century [1] [3].

OBJECTIVES

To evaluate effect of pressure ulcer guidelines on nurses' performance and patients' outcomes.

METHODS

Design: A quasi-experimental research design was used. **Setting:** was conducted in Suez Canal university hospitals at Neurosurgery and Neuropsychiatric department. **Subject:** a convenient sample of 27 nurses from neurosurgery department and purposive sample of 52 patients as 26 study group from neurosurgery based on inclusive criteria (patients have pressure ulcer and received nursing guidelines about pressure ulcer care through the studied group of nurses) and 26 control group from neuropsychiatric department who receive routine nursing care. **Tools: tool I: Self-administrating questionnaire** to assess nurses' knowledge regarding prevention and management of pressure ulcer, **tool II: observational checklists** to assess nurses' practice regarding prevention and management of pressure ulcer and **tool III; patients' assessment** to assess the effect of interventional guidelines on healing level of pressure ulcer. Content validity was done by a panel of seven expertises and Coefficient of reliability of the evaluating tools was measured by Cronbach's α . A pilot study was conducted on 10% as three subjects for nurses and patients.

Field work: Data collection of this study was carried out in the period from August 2016 to February 2017. All permission and agreements were founded before any intervention from each. The training program was developed based on the identified needs and demands of nurses. Nine sessions was implemented in 18th days, as day after day. Each day included one group of nurses then the studied patients and control group. Data gathered before implementation program by tool I&II for nurses and tool III for patients, then immediate post program implantation for both subjects, but three times evaluation as day after day for patients only, finally as one month post program implantation nurses evaluated by tool I&II and patients evaluated by tool III.

RESULTS

Table 1: Number and Percentage distribution of patients and the studied nurses according to their demographic characteristics.

Demographic characteristics	Patients				Studied nurses (n=27)	
	Studied group (n=26)		Control group (n=26)		No.	%
	No.	%	No.	%		
Gender						
Male	14	53.8	11	42.3	11	40.7
Female	12	46.2	15	57.7	16	59.3

Table 2: Number and Percentage distribution of the patients with pressure ulcer in both groups according to their skin examination. (n=52)

Skin examination	Study group (n=26)		Control group (n=26)		Significance
	No.	%	No.	%	
Stage of ulcer					X ² =0.434 MCP=0.958
Stage I	5	19.2	6	23.1	
Stage II	11	42.3	9	34.6	
Stage III	7	26.9	7	26.9	
Stage IV	3	11.6	4	15.4	
Skin temperature					X ² =0.515 P=0.773
Cold	9	34.6	9	34.6	
Hot	12	46.2	10	38.5	
Normal	5	19.2	7	26.9	

X²: Chi-Square test. MCP: Monte Carlo corrected P-value. *significant at $p \leq 0.05$.

Table 3: Correlation between the study group patients' outcomes through pressure ulcer scale for healing score (PUSH) at 5th evaluation with performance of the study nurses throughout the study phases.

Nurses' performance scores		Patients' outcomes (PUSH score at 5 th evaluation)	
		R	P
Pre	Knowledge score	0.436	0.026*
	Practice score	-0.135	0.511
Post	Knowledge score	0.029	0.889
	Practice score	-0.144	0.484
Follow up	Knowledge score	0.032	0.876
	Practice score	-0.310	0.124

r: Spearman Rho correlation coefficient. *significant at $p \leq 0.05$

CONCLUSION

All of the studied nurses had an improvement of satisfactory level of nurses' performance; there was significant correlation between it and PUSH healing score at phases of guidelines implementation.

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PS-17: NURSES' KNOWLEDGE AND PRACTICE REGARDING PRESSURE ULCER PREVENTION AND MANAGEMENT

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ABSTRACT: *A pressure ulcer is as a result of pressure and external surface for a prolonged period of time, is considered both inevitable and preventable. The aim: to determine the correlation between nurses' knowledge and practice regarding pressure ulcer. Methodology: Setting: conducted in Suez Canal university hospitals at Neurosurgery department. Design: A quasi-experimental research design was used. Subject: a convenient sample of 27 nurses. Tools: Self-administrating questionnaire to assess nurses' knowledge regarding prevention and management of pressure ulcer, observational checklists to assess nurses' practice regarding prevention and management of pressure ulcer. Result: statistical significant correlation between total practice score and total knowledge scores among the studied nurses. Conclusion: All of the studied nurses had an improvement of satisfactory level of knowledge and practice regarding pressure ulcer prevention and management. Recommendation: Submission of educational handouts, posters, booklet and brochure about pressure ulcer prevention and management and its associated therapeutic regimens.*

KEYWORDS: *Pressure Ulcer, nurses' knowledge and practice.*

INTRODUCTION

A pressure ulcer (PU) also known as decubitus ulcer or bed sore; is a result of pressure and external surface for a prolonged period of time is considered both inevitable and preventable. Pressure ulcer occurs as a mixed of both intrinsic conditions as bedridden, admission to the ICU, malnutrition, incontinence, spinal cord injury (SCI), cerebrovascular stroke, hemodynamic instability and one important extrinsic condition as inadequate knowledge and practice of healthcare providers [1] [2].

Pressure ulcer is considered a significant problem in critically ill patients and level of knowledge and practice among nurses regarding pressure ulcer education, prevention and management plays a vital role concerning the incidence and prevalence of it in the health care system causing pain, decreasing quality of life, and leading to prolonged hospital stays, loss of function & independence, increased incidence of infection, additional surgical interventions, significant economic costs. Pressure ulcers are an ancient problem, reported in Egyptian mummies. Data from developed countries indicates that between 3-5% of all hospitalized patients will develop a pressure sore at some time during their hospitalization [3].

Pressure ulcers are the third most expensive disorder and highly mortality rate after cancer and cardiovascular diseases due to prolonged hospitalization, and the need for intensive nursing care for pressure ulcer. The prevalence in the United States is estimated to range from 0.4% to 38% in acute care hospitals, 2% to 24% in long-term care, and 0% to 17% in home care settings [3] [4].

OBJECTIVES

To determine the correlation between nurses' knowledge and practice regarding pressure ulcer.

METHODS

Design: A quasi-experimental research design was used. **Subject:** a convenient sample of 27 nurses. **Setting:** was conducted in Suez Canal university hospitals at Neurosurgery department. **Subject:** a convenient sample of 27 nurses.

Tools: tool I: Self-administrating questionnaire to assess nurses' knowledge regarding prevention and management of pressure ulcer, **tool II: observational checklists** to assess nurses' practice regarding prevention and management of pressure ulcer.

Content validity was done by a panel of seven expertises and Coefficient of reliability of the evaluating tools was measured by Cronbach's α alpha. A pilot study was conducted on 10% as three subjects for nurses.

Field work: Data collection of this study was carried out in the period from August 2016 to February 2017. All permission and agreements were founded before data collection. The training program was developed based on the identified needs and demands of nurses. Four sessions was implemented in 8th days, as day after day. Each day included one group of nurses. Data gathered before implementation program by tool I & II, then immediate post program implantation also. Finally; follow up evaluation post one month of program implantation by tool I & II.

RESULTS

Table 1: Number and Percentage distribution of studied nurses according to their demographic characteristics.

Demographic characteristics	Studied nurses (n=27)	
	No.	%
Gender		
Male	11	40.7
Female	16	59.3
Age (years)		
Less than 20	2	7.5
20-<25	11	40.7
25-<30	9	33.3
30≤	5	18.5
Duration of nursing experience (Years)		
1-<5	10	37.0
5-<10	9	33.3
10-<15	6	22.2
15≤	2	7.4

Table 2: Total satisfactory of the studied nurse's performance (knowledge and practice) level about pressure ulcers throughout the study phases. (n=27)

Nurses performance	Pre		Post		Follow up		Sig(pre/post)	Sig (pre/ follow up)
	No	%	No	%	No.	%		
Total practice score Satisfactory	4	14.8	20	74.1	26	96.3	<0.0001*	<0.0001*
Total knowledge score Satisfactory	19	70.4	25	92.6	27	100.0	0.036*	0.004*

Table 3: Correlation between the studied nurses' knowledge and practice regarding pressure ulcer prevention and management.

Knowledge score	Total practice score					
	Pre		Post		Follow up	
	R	P	R	P	R	P
Skin anatomy and physiology	0.181	0.366	0.187	0.351	0.069	0.733
Knowledge about Pressure ulcer	-0.119	0.554	0.549	0.003*	0.486	0.010*
Knowledge about evaluation of risk for occurrence of pressure ulcers	-0.343	0.080	0.456	0.017*	0.466	0.014*
Care for patients to prevent ulcer	-0.225	0.258	0.319	0.105	0.403	0.037*
Nutrition of patient with ulcer	-0.095	0.637	0.321	0.103	0.414	0.032*
Exercise of patients with ulcer	0.118	0.557	0.096	0.635	0.007	0.971
Positioning of patients with pressure ulcer	-0.032	0.875	0.160	0.427	0.238	0.232
Care for patients with pressure ulcer	-0.049	0.807	0.001	0.995	0.237	0.235
Total knowledge score	-0.064	0.753	0.523	0.005*	0.610	0.001*

r: Spearman Rho correlation coefficient. *significant at $P \leq 0.05$

CONCLUSION

All of the studied nurses had an improvement of satisfactory level of nurses' knowledge and practice; there was statistical significant correlation between total practice score and total knowledge scores among the studied nurses at post and follow up phases of guidelines implementation.

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PS-18: DETECTION AND MOLECULAR CHARACTERIZATION OF SOME VIRUSES RESPONSIBLE FOR RESPIRATORY PROBLEMS IN CHICKEN FLOCKS IN EGYPT

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ABSTRACT: Respiratory diseases represent a big problem facing poultry in Egypt due to their multifactorial nature, including Newcastle disease virus (NDV), infectious bronchitis virus (IBV) and avian influenza virus (AIV) which mainly associated with high mortality rates. Screening for detection of respiratory viral pathogens were utilized during 2016 and 2017 in 55 chicken flocks suffering from respiratory, nervous and renal infections using Real time- PCR. Our results revealed detection of IBV, NDV and AIV at rate of 69%, 21.8% and 14.5% respectively in which AIV (H5) and (H9) was recorded at rate of 7.2% and 9.10% respectively. The highest rate of Co-infections was IBV and NDV (12.7%) followed by IBV and AIV(H9)(7.2%), meanwhile, the occurrence of IBV and AIV(H5), AIV(H5) and AIV(H9) was 1.8%. There is no Co-infections was detected between NDV and AIV. The partial sequence analysis for F gene of 4 NDV field isolates are related to velogenic genotype VII, and they have amino acid identity ranged from 96.1-100% with each.

KEYWORDS: Co-infections, sequence, genotype VII, chicken.

INTRODUCTION

In Egypt, respiratory viral diseases represents big problem to the chicken farm production due to their complication particularly when Co-infection occur (Roussan et al., 2008). IB causes high economic losses because of reduced performance and occurrence of secondary infections (Cavanagh and Naqi2003).

AI and ND are really infectious viral diseases affect a large number of poultry species. Mortality of AIV or NDV can reach 100% in susceptible birds (Wang et al., 2008). Additionally, both are transmitted to human, for that reasons the incidence of NDV, and both H5 and H7 viruses are notifiable to WHO (Lee et al., 2005).

NDV generally classified into 5 pathotypes including neurotropic, viscerotropic, mesogenic, lentogenic and asymptomatic (Alexander and Senne 2008).

Velogenic NDV genotypes VII were often appeared since at 1990s in different regions (Herczeg et al., 1999), the Middle East, South Africa and China (Bogoyavlenskiy et al., 2009, Wang et al., 2006).

The NDV velogenic strains have two basic amino acids, either arginine (R) or lysine (K), at residues 112 to 113 and 115 to 116 at the fusion (F) cleavage site additionally phenylalanine at residue 117 so as to be cleaved intracellularly by furin-like proteases. conversely, lentogenic NDV strains have one basic cleavage site that is cleaved extracellularly by trypsin-like proteases. (Pedersen et al., 2004).

Sequencing and phylogenetic study of NDV F gene give valuable information to draw the origins and extend of NDV, and to differentiate low and highly virulent so sequencing is used to fulfill the conditions adopted by the OIE for determination of virulence of NDV strains(OIE 2012).

OBJECTIVES

- 1- Determine occurrence of IBV, AIV and NDV in chicken farms using RT- PCR.
- 2- Determine occurrence of Co-infection between IBV, AI and ND.
- 3- Determine the relationship of circulating NDV with those of vaccine strains and Egyptian isolates throughout the F gene sequence of for NDV.

METHODS

1- Samples:

Tracheal swabs and specimen pools tissues (lungs, trachea and kidney) were collected from different poultry farms suffering from moderate to severe respiratory signs during 2016- 2017. Collected samples were transported in ice box to the laboratory as soon as possible where kept at -80°C till used.

2. Virus detection and identification

2.1. Viral RNA Extraction:

It was done using **Gene JET Viral DNA and RNA Purification Kit (Thermo Scientific)** according to instructions of the manufacturer's .

2.2. Identification of IBV by Real-Time RT-PCR:

One step RRT-PCR amplification of the coding regions of the N gene of IBV, F gene for NDV and H gene for AIV was performed using **Quantitect probe RT-PCR kit (Qiagen, Inc. Valencia CA)**.

3. Sequence analysis.

RESULTS:

Our results revealed detection of IBV, NDV and AIV at rate of 69%, 21.8% and 14.5% respectively in which AIV (H5) and (H9) was recorded at rate of 7.2% and 9.10% respectively.

The highest rate of Co-infections was IBV and NDV (12.7%) followed by IBV and AIV(H9)(7.2%), meanwhile, the occurrence of IBV and AIV(H5), AIV(H5) and AIV(H9) was 1.8%. There is no Co-infections was detected between NDV and AIV.

IBV and NDV infections were recorded in non vaccinated or vaccinated flocks with different vaccination programs, while AIV infection was occurred mainly in non vaccinated flocks.

The partial sequence analysis for F gene of 4 NDV field isolates revealed that all isolates possessed the motif ¹¹² R/K-R-Q-K/RR¹¹⁶ at the C-terminus of the F protein and F(phenylalanine) at residue 117 indicating that they are velogenic genotype VII, and they have amino acid identity ranged from 96.1-100% with each other and none of them are of vaccinal or attenuated origin.

CONCLUSION:

1- continuous spread of IBV variant II and occurrence of co-infections with NDV or AIV harshly confuse the epidemiology of respiratory viral disease in chicken farms in Egypt.

2- NDV isolated from chickens farms are virulent (Genotype VII) and related to vaccinal failure in chicken farms.

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PS-19: PATHOGENICITY, MOLECULAR CHARACTERIZATION OF CHICKEN INFECTIOUS ANEMIA VIRUS IN ISMAILIA PROVINCE.

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ABSTRACT: *Our research aimed to detect the percentage of CIAV circulating in backyard and farms in Ismailia. 100 chicken samples were collected from backyard and farms suffered from several complications, vaccinal failure and anemia. Chicken thymus, liver, spleen, and bone marrow pooled, prepared for extraction of CIAV DNA and directly detected by polymerase chain reaction. the positive results were showed clinically stunted growth, anemic appearance with normal performance or secondary complications. while the postmortem showed atrophied in immune organs, thymus rudiment sometime absent, enlarged to depleted spleen, pale liver, hemorrhages in muscles, and pale bone marrow. The PCR reaction using primers to detecting vp1 region by multiplying 418bp oligonucleotide. the result was 50% and 52% in backyard and farm chickens. The positive PCR samples were histopathological examined showed sever lymphocytic depletion in lymphoid organs followed by reticular cells hyperplasia, connective and adipose tissues proliferation. The thymus cortex characterizes by extensive lymphatic depletion and necrosis resulting in complete loss of thymus architecture with indistinct boundary between cortex and medullae with detected of microphages contain apoptotic bodies. the liver also was severely affected showed hepatocytes necrosis, congestion of central vein, sinusoids dilatation, scattered hepatic and periportal hemorrhages, focal lymphocytic aggregation with the necrotic area, liquefactive necrosis, and little cells contain eosinophilic intranuclear inclusion bodies. Spleen showed loss of germinal central lymphocyte and disappear of lymphoid follicles structure. this result explained that we must take care by chicken infectious anemia virus which spread with high percent among flocks causing immune suppression with little clinically or sub clinically signs allowed secondary infection and vaccinal failure and it has little research in Egypt.*

KEYWORDS: *Chicken infectious anemia virus, PCR, histopathology, Ismailia.*

INTRODUCTION

In the last years there are many problems appear in the poultry production in Egypt cause major economic losses (Mohamed, 2010). Some environmental factors and immunosuppressive diseases play a key role in suppresses both innate and acquired immunity, allowed increasing susceptibility to viral, bacterial, and parasitic diseases (Frederic, 2010). Chicken infectious anemia virus is one of the main immunosuppressive diseases. infect young chicks without maternally antibodies vertically or horizontally through penetration the haemocytoblasts and lymphoblasts cells in the bone marrow leading to transient severe anemia, depletion on lymphoid organs, regard on body weight gain, and antibody titers. while infect adult chickens more 4 weeks of age sub-clinically with replication by high concentration in liver, thymus and spleen and horizontally transmitting to other chickens (Krapež, et al., 2006). it was first described by Yuasa in Japan (Yuasa et al., 1979) and reported that CIAV spread among chicken in Egypt since the early 1980s when several outbreaks occurred in many breeds and diagnosis was based on clinical symptoms and post mortem lesions. since 1990 studies detected (CIAV) genomic characterization but has not been published. while recent researches were detected CIAV antibodies and studied the molecular characterization of the genome. (Mohamed, 2010; AboElkhair et al., 2014 & Hussein et al., 2016).

OBJECTIVES

Recently there are a lot of complaint from all farms due to increasing cases of vaccinal failure, low weight gain, increase rate of virus and bacterial infections which threat poultry production in Egypt, so that research based on studding the causes of low immunity by studying the spread of chicken infectious anemia in both backyard and farms in Ismailia.

METHODS

1-100 chicken samples were collected from backyard and farms suffered from retarded weight gain. Chicken thymus, liver, spleen, and bone marrow polled, prepared for extraction of CIAV DNA by Thermo scientific kits (geneJET, Catalogue no. K0821) and directly detected by PCR using primers (F: 5'-CTA AGA TCT GCA ACT GCG GA-3' and R: 5'-CCT TGG AAG CGG ATA GTC AT-3', Bio Basic Canada Inc) to detecting vp1 region by multiplying 418bp oligonucleotide (Hussein et. al., 2016). add of master mix (Takara, Code No. RR310A kit) and use thermal cycle at 95°C for 3 min, 50 cycles of 95°C for 30 sec., 50°C for 30 sec. and 72°C for 30 sec. were conducted. The amplification products were analyzed by electrophoresis on 1.5% agarose gels, stained by ethidium bromide, the gel was photographed by a gel documentation system and the data was analyzed through computer software. (QIAGEN kits, USA, cat. no. 239035).

2- Thymus, spleen and liver of chicken suspected to be infected were fixed in 10% neutral formalin solution, and then positive samples were embedded in paraffin, sectioned at 3 μ m and stained with Hematoxylin and Eosin according to (Bancroft et. al., 1994)

RESULTS

- 1- PCR result: when examined 100 samples from backyard and farms flock the result was:
 - 25 from total 50 backyard samples were positive for CIAV represent 50%.
 - 26 from total 50 farms flocks' samples were positive for CIAV represent 52%.
- 2- The Clinical symptoms of infected flocks were clinically stunted growth, emaciation, anemic appearance with normal performance or secondary complications which more pronounce in the farm samples that may related to vaccinal failure.
- 3- The postmortem lesions of infected flocks were showed atrophied in immune organs, thymus rudiment sometime absent, enlarged to depleted spleen, pale bone marrow and liver, and hemorrhages in muscles.
- 4- histopathological examined showed sever lymphocytic depletion in lymphoid organs followed by reticular cells hyperplasia, connective and adipose tissues proliferation. The thymus cortex characterizes by extensive lymphatic depletion and necrosis resulting in complete loss of thymus architecture with indistinct boundary between cortex and medullae with detected of microphages contain apoptotic bodies. the liver also was severely affected showed hepatocytes necrosis, congestion of central vein, sinusoids dilatation, scattered hepatic and periportal hemorrhages, focal lymphocytic aggregation with the necrotic area, liquefactive necrosis, and little cells contain eosinophilic intranuclear inclusion bodies. Spleen showed loss of germinal central lymphocyte and disappear of lymphoid follicles structure.

CONCLUSION

This result explained that we must take care by chicken infectious anemia virus which spread with high percent among flocks in both backyard and farms causing immune suppression with little clinically or sub clinically signs allowed secondary infection and vaccinal failure and it has few studies in Egypt. We need more researches in the molecular characterization of the virus with comparison with vaccines and other strains around the world.

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PS-20: ZOOTIC IMPORTANCE OF SALMONELLA IN SHEEP AND GOATS

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ABSTRACT: *Salmonellosis is one of the most important enteric diarrheal zoonotic diseases worldwide with a great public health impact. This study aimed to determine the prevalence of Salmonella spp. in sheep and goats with shedding the light on its zoonotic potential in Ismailia and Port-Said provinces. A total of 300 fecal samples of sheep (n=100), goats (n=100) and humans (n=100) were collected and submitted for bacteriological examination with serotyping identification. Overall fifty two Salmonellae had been recovered from sheep (n=31), goats (n=7) and humans (n=14), at the rate of 28%, 7% and 13% respectively. The most commonly identified serotypes of sheep samples were S. Typhimurium, S. Enteritidis, S. Montevideo and S. Heidelberg, while the most commonly identified serotype in goats' samples was S. Enteritidis. On the other hand, S. Enteritidis, S. Typhimurium, S. Saintpaul were the most commonly recovered serotypes from human samples. The current findings indicated that Salmonella is more prevalent in sheep than goats and these animals can be considered as sources for human infection.*

KEYWORDS: *Salmonella, Sheep, Goat, Human, Zoonoses.*

INTRODUCTION

Salmonellosis is one of the most important enteric diarrheal zoonotic bacterial diseases worldwide. The CDC considers the infection as a nationally notifiable infectious disease [1]. *Salmonellae* are Gram-negative non-sporing facultative anaerobic non-capsulated rods that belong to family *Enterobacteriaceae* with few strains that can express Vi (virulence) capsular antigen such as *S. Typhi* [2]. The organism is present in nature in a wide host range [3,4]. Humans usually acquire infection through consumption of contaminated food either of animal origin as eggs, poultry, meat, and milk or green vegetables contaminated by infected animal's manure. Moreover, direct fecal-oral route has been documented [5]. The presence of *Salmonella* in the gut of sheep and goat may lead to contamination of their meat and milk by products and subsequently affect the consumer health [6]. The importance of sheep as reservoir of *Salmonella* infection had been previously reported in Iceland, where [7] recorded an outbreak that was linked to the consumption of insufficiently boiled byproducts from apparently healthy sheep and goats. Infection in human ranged from a self-limiting condition to a life threatening one leading to death in children, elderly and immunodeficient persons [8]. Non typhoidal *Salmonella* species cause one million foodborne illnesses annually, with 19,000 hospitalizations and 380 deaths in the United States, while *Salmonella enterica* serotype Typhi causes 1800 illnesses with 200 hospitalizations [9].

OBJECTIVES

In Egypt, very few data are available about salmonellosis in sheep and goats. Therefore the present study aimed to

1. Determine the occurrence of *Salmonella* in sheep and goats in Ismailia and Port-Said provinces.
2. Determine the occurrence of *Salmonella* in humans in Ismailia and Port-Said provinces.
3. Identify the probable risk factors that may be associated with zoonotic transmission of *Salmonella* infection in the study area.

METHODS

A total of 300 fecal samples of sheep (n=100), goats (n=100) and humans (n=100) were collected in sterile labeled containers and transferred immediately to the Zoonoses laboratory, Faculty of Veterinary Medicine, Suez Canal University. Samples were examined bacteriologically according to the ISO 6579 annex D [10] with substitution of the

MSRV with both Rappaport Vassiliadis broth and selenite cysteine broth. The suspected colonies were identified biochemically by TSI, Indole production, Methyl red, Citrate utilization, Urease, Oxidase and Catalase tests. Serotyping of isolates was performed against O and H antigens in food analysis laboratory, Faculty of Veterinary Medicine, Benha University.

RESULTS & DISCUSSION

Overall, a total of 52 *Salmonellae* of 11 different serotypes had been recovered from sheep (n=31), goats (n=7) and human samples (n=14) at a rate of 28%, 7% and 13%, respectively. The most commonly identified *Salmonella* serotypes of sheep samples were *S. Typhimurium*, *S. Enteritidis*, *S. Montevideo* and *S. Heidelberg*., while the most commonly identified serotype in goats' samples was *S. Enteritidis*. On the other hand, *S. Enteritidis*, *S. Typhimurium*, *S. Saintpaul* were the most commonly recovered serotypes from human samples

Type of sample	Number of examined samples	Positive Number (%)	Number of isolates	Serotypes Number (%)
Sheep feces	100	28 (28%)	31	<i>S. Typhimurium</i> 10 (32.3), <i>S. Enteritidis</i> 4 (12.9), <i>S. Montevideo</i> 4 (12.9), <i>S. Hiedelberg</i> 4 (12.9), <i>S. Dublin</i> 3 (9.7), <i>S. Saintpaul</i> 3 (9.7), <i>S. Essen</i> 1 (3.2), <i>S. Anatum</i> 1 (3.2) <i>S. Tsevie</i> 1 (3.2)
Goat feces	100	7 (7%)	7	<i>S. Enteritidis</i> 3 (42.8), <i>S. Typhimurium</i> 1 (14.3), <i>S. Dublin</i> 1 (14.3), <i>S. Montevideo</i> 1 (14.3), <i>S. Saintpaul</i> 1 (14.3)
Human stool aContact a Non-contact	100	13 (13%) 7 6	14	<i>S. Enteritidis</i> 4 (28.7), <i>S. Typhimurium</i> 2 (14.3), <i>S. Saintpaul</i> 2 (14.3), <i>S. Anatum</i> 2 (14.3), <i>S. Essen</i> 1 (7.1), <i>S. Chester</i> 1 (7.1), <i>S. Dublin</i> 1 (7.1), <i>S. Apeyeme</i> 1 (7.1)
Total	300	48 (16%)	52*	11

* Number of isolates exceeds the number of positive cases because 5 samples contain two serotypes, ^a cases of human in contact or not in contact with sheep and goats.

CONCLUSION

The occurrence of *Salmonella* spp. in sheep and goats in the study areas were 28% and 7% respectively while occurrence in humans was 13% with some mutual serotypes between these three categories. This data indicate that *Salmonella* spp. is prevalent in sheep and goats and they can be considered as sources for human infection. *S. Typhimurium* was the most prevalent serotype in sheep samples while *S. Enteritidis* was the most prevalent in both goat and human samples.

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PS-21: MOLECULAR CHARACTERIZATION OF FIELD STRAINS OF INFECTIOUS BURSAL DISEASE VIRUS IN SUEZ CANAL GOVERNORATES IN EGYPT.

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ABSTRACT: *Re-emergence of IBDV causing significant economic losses in poultry industry in Egypt. In present study, 15 bursal samples were collected from flocks showing typical clinical signs and post mortem lesions of infectious bursal disease and then tested using reverse transcriptase-polymerase chain reaction (RT-PCR) for IBDV targeting VP2 gene. The virus was detected in the bursal samples by RT-PCR. Out of the tested samples 13 (86.67%) were positives. Further sequence analysis of PCR amplicon of 4 selected samples was carried out for genetic characterization. All of the sequenced samples were characterized as very virulent (vv) strain of infectious bursal disease virus. The molecular genotyping of vvIBDV strains indicate that they were closely related to previously isolated strains from Egypt.*

KEYWORDS: *IBDV, RT-PCR, Genotyping, Sequencing.*

INTRODUCTION

Infectious bursal disease (IBD) is a contagious viral disease of chickens that characterized by degenerative lesions in the bursa of Fabricius lead to fatal conditions and immune-suppression of the affected bird[1]. IBD caused by Infectious Bursal Disease Virus (IBDV). IBDV has two serotypes; Serotype 1 IBDV strains[2], and serotype 2 strains[3]. On the basis of their pathogenicity, Serotype 1 viruses can be categorized into four groups: Classical, variant, attenuated and very virulent strains[4]. IBDV genome is divided into two segments, segment A and B. Segment A encodes 4 viral proteins VP2 and VP3, 2 capsid proteins, the viral protease VP4, and a non-structural protein VP5. The segment B encodes VP1 an RNA-dependent RNA polymerase [5]. Amino acid position from 206 to 350 called hyper variable region (HVR) on VP2. This region includes the most variable region that is important for pathogenic variation [6]. Despite of chicken flocks are vaccinated against IBD, severe outbreaks of IBD were reported in chicken flocks in Egypt, caused high mortalities, and have become a serious problem [7].

OBJECTIVES

To characterize IBDV from clinical samples collected from chicken flocks by using recent molecular techniques.

METHODS

1- Clinical findings and post mortem examination of chicken from infected flocks: Chickens infected flocks showed watery diarrhea and drop in feed intake. Post mortem findings showed that affected chickens had different degree of bursal enlargement with petechial hemorrhage in breast muscle. **2- Sample collection:** 15 bursal tissues were collected from chicken flocks showing typical clinical signs and post mortem lesions of IBD from different regions of Suez Canal governorates. **3- IBDV detection by RT-PCR:** IBDV RNAs were extracted from the Bursal homogenates using QiAmp Viral RNA Mini kit (Qiagen, Germany) according to the instructions of the manufacturer. The RT-PCR reaction was done by using a set of primers and for the subsequent sequence analysis using forward and reverse PCR primers for amplification of a 620 bp fragment within IBDV on VP2. Forward primer (F): [AUS GU: 50-TCA CCG TCC TCA GCT TAC CCA CAT C-3]. Reverse primer (R): [AUS GL: 50-GGA TTT GGG ATC AGC TCG AAG TTG C-3] [7]. **4. Sequence analysis of VP2 of IBDV:** Gel containing DNA band of the expected size (620 bp) was cut and purified with the QIAquick Gel Extraction Kit (Qiagen) according to the instruction of the manufacturer. Purified PCR products underwent a direct sequencing using the ABI PRISM BigDye™ Terminators v3.1 Cycle Sequencing Kit. Alignment trimming was performed With **Bioedit** software.

RESULTS & DISCUSSION

1- The clinical diagnosis of the affected flocks with IBD depends mainly on the observation of the clinical signs and post mortem lesions as in **(Figure 1)**. Clinical signs depend on age of bird, the virulence of the virus, and immunity of the bird. **2-Detection of IBDV by using RT-PCR:** Out of 15 bursal samples tested with RT-PCR, 13 samples (86.67%) were positive. All RT-PCR positive samples showed specific bands at 620 bp on agarose gel (1.5%) as expected **(Figure 2)**. Detection of IBDV was obtained using RT-PCR which was known to be a sensitive test to detect the IBDV[8]. **3-Sequence analysis:** Four positive samples were selected for sequencing. 414 nucleotides which express 138 amino acid sequences (Position 201 to 338) were carried out. The deduced amino acid sequence revealed that the four samples have amino acid sequence identity between each other (99.3 -100%) and between Egyptian vvIBDV (Giza 2000, Giza 2008) strains (98.6 – 100%). Phylogenetic tree indicated that the four IBDV in this study showed close relationships with previously isolated Egyptian IBDVs (Giza Giza 2000 and Giza 2008) and they are clustered together.



FIGURE (1): Affected bird showed watery greenish diarrhea

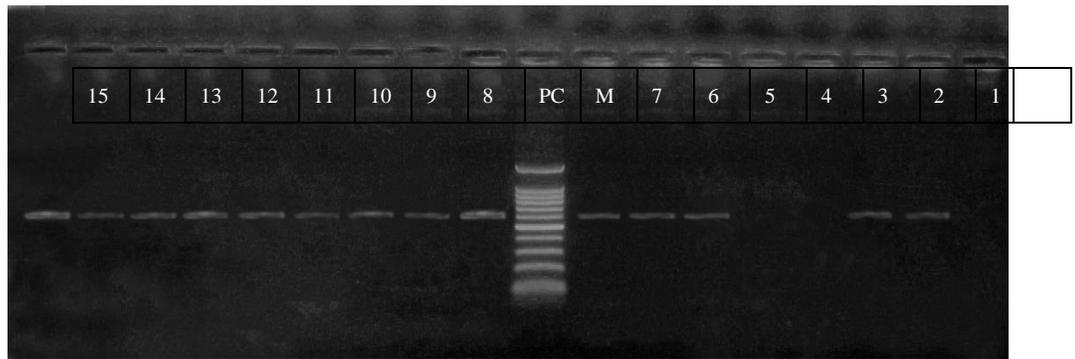


FIGURE (2): SHOWED RT-PCR RESULTS OF EXAMINED SAMPLES FROM (1) TO (15), M:100 BP MARKER, NC: NEGATIVE CONTROL, PC: POSITIVE CONTROL, LANE 1, 2, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14 &15 POSITIVE SAMPLES, LANE 3&4 NEGATIVE SAMPLES.

CONCLUSION

These results indicate that the detected strains are highly related to vvIBDV strains belonging to serotype 1 and also indicating that they are pathogenic strains. Results also indicate that vvIBDV belong to Egyptian strains still survive in the Egyptian environment despite the intensive use of vaccination programs.

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PS-22: COMPARATIVE SENSITIVITY OF AGPT, REAL-TIME RT-PCR AND CONVENTIONAL RT-PCR FOR THE DETECTION OF INFECTIOUS BURSAL DISEASE VIRUS IN BROILERS FARMS.

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ABSTRACT: *Isolation and identification of the Infectious Bursal Disease Virus (IBDV) provide the most certain diagnosis of the infectious bursal disease (IBD). In this study, The agar gel precipitation test (AGPT), real-time reverse transcription polymerase chain reaction (rRT-PCR) and conventional reverse transcription polymerase chain reaction (cRT-PCR) were compared for detection of IBDV in clinical samples. The rRT-PCR showed significant sensitivity to detect IBDV as compared to cRT-PCR, which was more sensitive than AGPT. AGPT was more economic for the detection of IBDV in clinical samples and can be used under field conditions. However, rRT-PCR was the most sensitive test among the compared tests in this study.*

KEYWORDS: *IBDV, AGPT, rRT-PCR, cRT-PCR.*

INTRODUCTION

Infectious bursal disease (IBD) is a contagious viral disease of young chickens described by [1] in USA. IBD caused by infectious bursal disease virus (IBDV) which has two subtypes; the first one is variant and the other is the classical subtype. Classical subtype has been subdivided into 3 pathotypes: attenuated, virulent, and very virulent (vvIBDV) [2]. vv IBDV strains are able to break through high levels of maternal antibodies [3]. Early detection of IBDV is very important by which veterinarians may have the trial for vaccination or other casual treatment programs [4]. Several procedures have been used to detect of the virus in bursa of chickens infected experimentally, the most sensitive test for the detection of the virus was the reverse transcription polymerase chain reaction (RT-PCR) [5]. Agar gel precipitation test (AGPT) also used for the detection of IBDV antigen [6]. In the present study, AGPT, real time RT-PCR (rRT-PCR) and conventional RT-PCR (cRT-PCR) were compared for the detection of IBDV antigen.

OBJECTIVES

To assess the sensitivity of different laboratory techniques that used for the detection of IBDV antigen.

METHODS

1. Samples collection: Twenty bursal samples were collected from chicken flocks showing signs and postmortem lesions of IBD. 2. IBDV antigen detection by AGPT: The test was performed following the procedure described by [7]. 3. IBDV antigen detection by rRT-PCR: IBDV RNAs were extracted from the Bursal homogenates using QiAmp Viral RNA Mini kit (Qiagen, Germany) according to the manufacturer's instructions. A set of primers and one probe were used for the rRT-PCR reaction. Forward primer (F): [5- GAG GTG GCC GAC CTC AAC T -3]. Reverse primer (R): [5- AGC CCG GAT TAT GTC TTT GAA G -3]. Probe [5- (FAM)-TCC CCT GAA GAT TGC AGG AGC ATT TG-(TAMRA)-3] [8]. 4. IBDV antigen detection by cRT-PCR: IBDV RNAs were extracted from the Bursal homogenates using QiAmp Viral RNA Mini kit (Qiagen, Germany) according to the instructions of the manufacturer. A set of primers were used for the RT-PCR reaction and for the subsequent sequence analysis using forward and reverse PCR primers for amplification of a 620 bp fragment within IBDV on VP2. Forward primer (F): [AUS GU:

50-TCA CCG TCC TCA GCT TAC CCA CAT C-3].Reverse primer (R): [AUS GL: 50-GGA TTT GGG ATC AGC TCG AAG TTG C-3] [9].

RESULTS & DISCUSSION

The results obtained with AGPT, rRT-PCR and cRT-PCR to detect IBDV in the tested samples are summarized in Table 1.

The three performed tests for the detection of IBDV are sensitive, though the rRT-PCR and cRT-PCR showed more sensitivity than AGPT. rRT-PCR was found to be the most sensitive method to detect IBDV from clinical samples. At the same time rRT-PCR was found to be the most costly test and required a well-equipped laboratory and well trained staff members. The sensitivity of performed tests are agreed [10]

Table (1) Comparative sensitivity of AGPT, rRT-PCR and cRT-PCR for the detection of IBDV from Bursal samples.

Sample no	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Results	AGPT	-	-	-	-	-	+	-	+	-	-	-	+	-	+	-	-	-	-	-
	rRT-PCR	+	+	+	-	-	+	+	+	+	-	-	+	+	+	+	+	+	+	+
	cRT-PCR	-	-	+	-	-	-	+	-	+	-	-	-	+	-	+	+	+	+	-

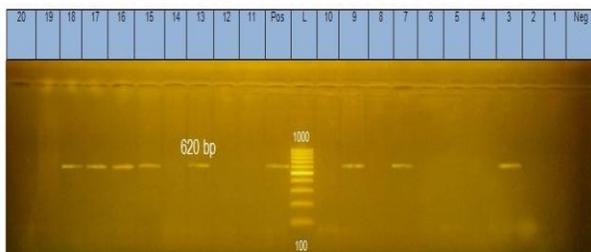


FIGURE (1): Showed cRT-PCR results of examined samples from (1) to (20), L: 100 bp marker.

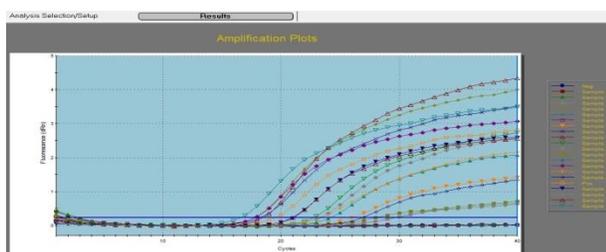


FIGURE (2): Showed rRT-PCR results of examined samples from (1) to (20).

CONCLUSION

In conclusion, among the performed tests, AGPT test is an economical test for detection of IBDV, but it showed the least sensitivity as compared to RT-PCR which is much more expensive.

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PS-23: EFFECACY AND SAFTY OF SOME COMMONLY USED INSECTICIDE AGAINST RABBITS MANGE

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ABSTRACT: *A total of 40 mature female rabbits with average age of 4-5 months were randomly divided into eight equal groups. The first group was kept as healthy negative control group. Each rabbit of the other groups was naturally infested with mange. Infested rabbits showed clinical signs of anorexia, anemia, itching, dandruff and dry crust like lesions on ears, nose, and face and around the paws. The second group consider as the positive control group. The third group treated with ivermectin 200µg / kg s/c, the fourth group treated with ivermectin 0.5ml oral, the fifth group treated with doramectin 200 µg / kg s/c, the six group treated with doramectin 0.5 ml oral, the seven group treated with iverzin tab 630mg/kg oral, the eight group treated with fipronil solution 354 mg/kg locally on the dorsal on neck all treated groups takwen two doses interval 7 days. The result revealed that, the six and seven groups show rapid recovery and disappearance of the clinical at day 14 and then completely recovery at day 21 post treatment compared with the second, third and fourth groups. In addition, there were significant increases in the weight gain and the final body weight in six and seven groups as compared to other groups. Additionally, doramectin oral and iverzine groups show lowest effect on the liver and kidney function compared with other groups. It could be concluded that, doramectin oral formula and iverzin tab are highly effective against mange infestation in rabbits while fipronil is not prefer to be used in rabbits.*

KEYWORDS: *rabbits, ivermectin, mange, doramectin, iverzine, fipronil.*

INTRODUCTION

Rabbit farming industry are growing exponentially since the last century due to its low production coasts with great benefits. Rabbit industry plays an important role in covering the shortage of animal protein necessary for human consumption and has a very important economic value (Villagran et al., 2003). One of the most threatening diseases of the rabbit farming is the mange as external parasite. *Sarcoptes scabiei* is avital ectoparasite in rabbits due to the risk of transmitted infection from rabbit to rabbit from rabbits to men by handling, (Harrenstien et al., 1995) and responsible for losses in the weight, productivity and fiber quality (Aiello et al., 1998). The farmers are mostly depending on anthelmintics for controlling the helmint (Godara et al., 2011). Anthelmintic is group drugs that control helminthes invasion in different animals. They are sorted according to their mode of action and chemical structure. Recently, the macrocyclic lactones group is the most known anthelmintics on the market. It includes milbemycins and vermectins (doramectin and ivermectin) (Jacobs and scholtz, 2015). Fipronil is a second-generation phenylpyrazole insecticide discovered and recognized by Rhône-Poulenc among 1985 and 1987 and produce to the market in 1993. It is one of new and small class of insecticide (Rhône-Poulenc 1995). Fipronil drug consider a veterinary product to treatment tick, mite and flea on pets and domestic animals 1(Rhône-Poulenc, 1996).

OBJECTIVES

Our goal was to evaluate the efficacy and the safely of the seven commonly used antiparasitic drugs available in Egyptian market.

METHODS

The present study was performed during the period from May 2016 to Jun 2016, in the Ossman farm – salam canal – damitta - Egypt. The room temperature was between 20-25 °C with 55-64% relative humidity. A total of 40 mature female

rabbits with average age of 4-5 months were randomly divided into eight equal groups. The first group was kept as healthy negative control group. Each rabbit of the other groups was naturally infested with mange. Infested rabbits showed clinical signs of anorexia, anemia, itching, dandruff and dry crust like lesions on ears, nose, and face and around the paws. The second group consider as the positive control group. The third group treated with ivermectin(Paramectin® pharma swede)200µg / kg s/c, the fourth group treated with ivermectin 0.5ml oral, the fifth group treated with doramectin (Pfizer® pharm)200 µg / kg s/c, the sixth group treated with doramectin 0.5 ml oral, the seventh group treated with iverzin tab 630mg/kg oral, the eighth group treated with fipronil solution (Bars® 354 mg/kg locally on the dorsal on neck all treated groups takwen two doses interval 7 days. Animals will be supplied with water and drug free pellets before and after the experimentation. Disinfection the rabbit caged with disnone solution 1% once weekly for 4weeks.the weight of animal taken at day 0,7,14,21and 28, Blood sampling taken at day 14 for liver and kidney function, liver taken at day 21 for histopathology.

RESULTS & DISCUSSION:

Table (1): Effect of used insecticid on infested rabbits body weights.

Gro ups	Body weight days post treatment				
	0	7	14	21	28
G1	1492.0±36.0	1678.8±41.2	1827.4±36.2	1961.8±47.3	2133.0±54.2
G2	1499.0±43.4	1516.4±52.8	1485.8±44.4	1459.7±76.7	1429.5±110.4
G3	1553.6±47.6	1496.2±41.5	1528.4±58.6	1609.4±55.8	1709±62.8
G4	1489.4±45.5	1524.8±51.3	1577.4±48.0	1649.4±64.4	1729.0±70.0
G5	1533.0±43.0	1523.2±46.1	1581.6±40.7	1671.8±62.5	1777.8±72.9
G6	1511.4±42.6	1514.8±46.8	1542.6±48.2	1781.8±51.6	1886.0±66.3
G7	1507.2±53.6	1480.8±49.0	1606.8±71.8	1755.4±68.8	1897.6±88.8
G8	1498.8±44.5	1585.0±86.4	All died	All died	All died

All data are expressed as mean SR. column carrying different letters are significantly different at $P \leq 0.05$. G1= -ve control G2= +ve control G3 =IVM S/C G4=IVM Oral G5=DOR S/C G6= DOR Oral G7 = Iverzine tab G8= Fipronil lotion.

The result revealed that, the group six and seven show rapid recovery and disappear of clinical at day 14 and then completely recovery at day 21 compared with the group second, third and fourth group also show increased the weight gain and the final body weight as compared to other groups. The group seven show rapid recoveries compared with other group at day 7 but lead to death of rabbits at the end. Additionally, doramectin oral and iverzine groups show low effect on the liver and kidney function compared with other groups on day 15, low damage in the liver histopathology at day 21 compared with other treated group.

Our study agrees with Voyvoda et al. (2005) reported that Doramectin presented a greater action period when compared to ivermectin, Doramectin, a genetically modified avermectin, possesses a plasma half-life and acting period greater than that of ivermectin. Rabbits have been shown to absorb and eliminate doramectin quicker, when compared to bovines and ovines (Li et al. 2009). The effect of fipronil has toxic effect on rabbits because the damage causes of mites lead to increase the permeability of skin so increase amount of drug entrance this agree with (Walters and Brain, 1990).

CONCLUSION

It could be concluded that, doramectin oral formula and iverzin tab are highly effective against mange infestation in rabbits. While fipronil is not prefer to be used in rabbits.

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PS-24: EFFICACY OF CUPRESSUS AND MORINGA EXTRACTS AS AN ALTERNATIVE ACARICIDAL AGENTS AGAINST MANGE IN RABBITS

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ABSTRACT: *Due to the high toxicity, the development of multiple parasitic resistances, and the serious environmental impact of the currently used anti-parasitic agents, safe alternatives with lowest hazardous effects are needed. The current study was an attempt to study the antiparasitic effect of Cupressus sempervirens and Moringa oleifera against Sarcoptes scabiei mite in rabbit. In a 35-days trial, a total number of 28 young male rabbits with an average body weight of 912 ± 82 gm were randomly distributed into 7 equal groups (control positive, control negative, benzyl benzoate, ethyl acetate Cupressus extract, ethanol Cupressus extract, ethyl acetate Moringa extract, and ethanol Moringa extract treated groups), each group contained 4 rabbits. The results revealed that, Cupressus ethyl acetate extract had significantly decreased in lesion size and the pruritis symptoms compared with other treated groups. Additionally, Cupressus topical treatment had significantly increased the body weight gain when compared to the control positive non-treated group. The serum parameters analysis of Cupressus ethyl acetate extract treated group showed normal values after 7 days of treatment. The results of the current investigation revealed that the ethyl acetate extract of Cupressus sempervirens has a favourable antiparasitic effect with an excellent wound healing property which support being a good natural substitute for current antiparasitic agents.*

KEYWORDS: *Antiparasitic, cupressus, benzyl benzoate, moringa, acaricidal agent, rabbit mange, sarcoptes mite, rabbit.*

INTRODUCTION

As rabbit meat production is a valuable asset in meat production process, it is essential to conduct more medical researchers in order to overcome the developing challenges. One of the most affected parts of animal body which reflects on rabbit meat industry is Skin and its diseases. Skin diseases affect animal health generally and production specially. They form a huge stress on animal, elevate inflammation reactions, decrease appetite and in severe cases it can lead to severe loss of weight due to malnutrition and secondary infection. Scabies (mange) has persisted for centuries a disease of economic importance disturbing animal production and welfare. Most types of mange are forms of allergic dermatitis, characterized by encrustation, alopecia, and pruritus, initiated and upheld by a number of mite species. There are a number of agents available on the market to treat scabies and there is extensive evidence of the activity of macrocyclic lactones. Promising new acaricides include a number of essential oils in which terpenoids are most likely the primary active components. Few Opinions assumed that Cupressus semperivirens and Moringa oleifera have antiparasitic effect. Hence, the aim of this study was to introduce an applicable forms of these plants and to investigate there acaricidal effect on mites.

OBJECTIVES

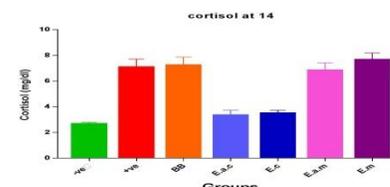
1. To overcomes high toxicity of currently used acaricidal agents. 2. Provide safe alternatives with lowest hazardous effects are needed. 3. Maintenance of the healthy appearance of Skin during disease treatment. 4. Enrichment of Skin layers with Plant extracts beneficial components.

METHODS

Fresh leaves and cones were collected from Ismailia, Egypt. After collection it was thoroughly washed with water and leaved for air dryness for 2 days. Then it was dried at 50 c for 24 hours and then grounded. The dried plants were put on extraction apparatus and soaked in ethanol and ethyl acetate for one week several times. After that the extracted components were allowed to air dry. 5% Liquid Paraffin suspensions of ethyl acetate and ethanolic extract were obtained. The present experiment was conducted for 5 weeks. The rabbits were assigned randomly into seven groups. Infected area was circumscribed area on the dorsal part of the animals. Infection induced by scattering of skin scabbing taken from infested individuals and animal observed for 14 days till the symptoms were revealed. The skin scraping was examined for the presence of mites. The examination approved presence of *Sarcoptes scabiei var cuniculi*. The plant extracts were applied on the infected area for 14 days.

RESULTS AND DISCUSSION

In the present study, ethyl acetate and ethanol extracts of *Cupressus sempervirens* and *Moringa oleifera* were administered as topical formulation on experimentally infected rabbits to evaluate their antiscabietic effect against sarcoptic mange mites. 7 days post-treatment of the cup susp. treated groups, there was a remarkable decrease in lesions size and pruritus symptoms. The cup ethyl acetate susp. treated group showed an observable improvement in skin condition after 4-5 application of the susp. once daily. The acaricidal effect represented in dryness of the crust which began to fall down after one week post-treatment, itching sensation decreased and food intake increased. Although the two extracts of cup.susp showed a remarkable acaricidal effect the ethyl acetate extract performance was higher than the effect of the ethanolic extract and that is may be due to the large amount of essential and volatile oils which is easily absorbed by skin. The acaricidal effect of the cup susp. matched with the findings of **Chaudhary**²³. 14 days post-treatment, macroscopic examination recorded signs of complete recovery. Cessation of itching and scratching, intact skin with absence of crusts, intact skin and fur regrowth were observed. These results matched with the results recorded by **Ali ZA**²⁴, about antioxidant and anti-glycation properties of branchlet and fruit oils of *Cupressus sempervirens* var. *horizontalis* which were studied after extraction of essential oils. The antioxidant effect thought to be an encouraging factor to wound healing process as stated by **Fitzmaurice SD**. The results revealed that the oil of *Cupressus sempervirens* inhibited the growth of susceptible bacteria, filamentous fungi and yeasts. The activity was more pronounced against Gram-positive than Gram-negative bacteria. On the contrary, the moringa susp. treated group showed no acaricidal effect on mites. The body weight and cumulative body weight gain values in cupressus extracts groups were significantly increased compared with *Moringa oleifera* extracts groups and Benzyl Benzoate treated group. Cortisol estimated values of the cup susp treated groups showed a significant decrease ($P < 0.05$) compared to the positive group.



CONCLUSION

The obtained results revealed that the acaricidal effect of Ethyl acetate cupressus extract suspension treated group was remarkable when compared with those treated with Ethanol cupressus extract suspension, Ethyl acetate moringa extract suspension, Ethanol moringa extract suspension and Benzyl Benzoate. The Ethyl acetate cupressus extract suspension can be used as a safe acaricidal agent of plant origin instead of other known treatment which causes resistance of mites or hazardous effect on the infested animal.

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PS-25: CLINICOPATHOLOGICAL STUDIES ON THE EFFECT OF SOME ANTIBACTERIAL MEDICINAL PLANTS IN BROILERS

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ABSTRACT: This study aimed to investigate the effect of *Moringa oleifera* and Sweet basil as a natural feed additives on chicken growth performance, blood pictures, immune response and antioxidant parameters in normal and experimentally infected chickens by *E. coli*. A total of 120 one- day- old, broiler chickens (Cobb breed) were randomly assigned to 6 groups (20/group) as follows: G1 as the control; G2 (5% *Moringa oleifera*); G3 (0.5% Sweet basil); G4 (*E. coli* only); G5 (infected and treated by 5% *Moringa oleifera*) and G6 (infected and treated by 0.5% Sweet basil). At 6th week of age, the infected treated groups significantly increased live body weight and weight gain and decreased feed conversion ratio in comparing to infected group. The infected treated showed a significant increase in TLC and lymphocyte, but less than the infected group. A significant decrease in the level of MDA, interleukin 6, IgG and IgM in infected treated groups in comparing to infected group. A significant increase in SOD and GSH in the infected treated groups in comparison to infected group. While the supplemented groups by *Moringa* and Sweet basil were improved the general health of chickens. It could be concluded that *Moringa oleifera* and Sweet basil has a role for controlling the *E. coli* infection.

KEYWORDS: Clinical pathology, *E. coli*, *Moringaoleifera*, Sweet basil, Medicinal plant.

INTRODUCTION

The addition of medicinal plants in broiler diets improved body weight, body weight gain, feed conversion efficiency (Abdel-Azem 2006). *Moringa* has a great potential in improving feed efficacy and strengthening immune functions of broiler chicken. Also it contains high antioxidants compounds (Yang *et al.* 2006). On the other hand, *Sweet Basil* contains plenty of phytochemicals with significant nutritional, antioxidant capabilities and health benefits (Jayasinghe *et al.* 2003).

OBJECTIVES

The aim of this study was investigating the role of *Moringa oleifera* and *Sweet basil* as feed supplement in controlling the *E. coli* infection in broiler.

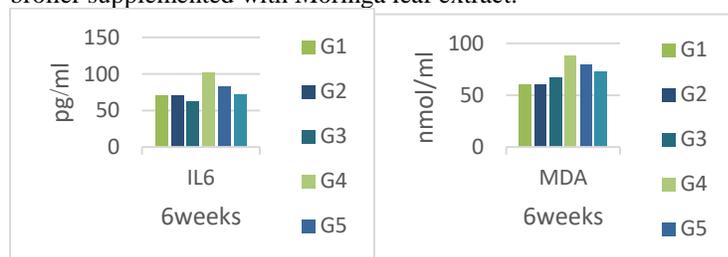
METHODS

A total of 120 unsexed one- day- old, broiler chickens (Cobb) were randomly assigned to 6 treatment groups for 6 weeks (group 20 birds) as follows: G1 as the control; G2 received 5% *Moringaoleifera* supplement; G3 received 0.5% *Sweet basil*; G4 infected by *E. coli* only; G5 infected and treated by 5% *Moringaoleifera* and G6 infected and treated by 0.5% *Sweet basil*. The growth performance parameters, blood picture, immunoglobulin concentration, IL6 and liver markers (GSH, SOD and MDA) were measured

RESULTS & DISCUSSION

E. coli infected group showed reduction in the growth, this result agreed with Ask *et al.* (2006). While, infected treated groups showed a significant increase in comparing to infected group. Ravid *et al.* (1997) suggested that linalool is the most active agent in *Sweet basil* which was responsible for antibacterial activity, caused an increase in broilers

body weight gain. There was normocytic normochromic anemia and a significant increase in TLC and lymphocyte in infected non treated group, these result agreed with Yousseff (2005). All *Moringa oleifera* and *Sweet basil* treated group showed a significant leukocytosis and lymphocytosis in comparison with control, and these can be attributed to the immune-stimulatory effect of *Moringa oleifera* and *sweet basil*. This came in agreement with Nfambi *et al.* (2015). In contrast to Osman *et al.* (2010) observed non-significant effect of Sweet basil on total WBC. A significant increase in the level of interleukin 6, IgG and IgM in infected non treated group as compared to control, these results agreed with Huang *et al.* (2012). Meanwhile, infected treated groups showed a significant decrease as compared to the infected group, these results were suggested to be due to immunostimulatory activity of *Moringa* and *basil* (Osman *et al.* 2010). Immunomodulatory potential of *M. oleifera* leaves could be attributed for the presence of flavonoids, polyphenols and terpenoids (Gaikwad *et al.* 2011). While, *Sweet basil* treated group showed a significant decrease in IL6 in comparison with control group, these result agreed with Yadav *et al.* (2009). *Moringa oleifera* and *Sweet basil* showed no changes in Ig levels in comparing to control group, these results agreed with Ojeka *et al.* (2016). In contrast to Sudha *et al.* (2010) showed administration of *Moringa* and *Ocimum sanctum* in rats significantly increased the levels of serum immunoglobulins and Kahilo *et al.* (2015) showed that, the level of IgG and IgM significantly increased in broiler treated with basil. The infected group significantly decreased SOD and GSH and increased MDA, these results agreed with Eslami *et al.* (2015). While, infected treated groups significantly increased SOD and GSH and decreased MDA as compared to the infected group, these results due to the antioxidant activity of *Moringa oleifera* and *Sweet basil* (Leela *et al.* 2014). While, *Moringa oleifera* and *Sweet basil* treated groups showed no significant difference in MDA, SOD and GSH levels in comparison with control, these results agreed with Sakr and Al-Amoudi (2012). In contrast to Kahilo *et al.* (2015) MDA significantly decreased while GSH and SOD significantly increased in broiler treated with basil and Allam *et al.* (2016) found SOD significantly increased beside significant decrease in MDA in broiler supplemented with *Moringa* leaf extract.



CONCLUSION

It could be concluded that the *Moringa oleifera* and *Sweet Basil* were more potent in growth performance, immune response and antioxidant action on broiler chicks. So, advised every farmer to use *Moringa* and basil as feed additives.

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PS-26: PHENOTYPIC AND GENOTYPIC CHARACTERIZATION OF E.COLI ISOLATED FROM FARM ENVIRONMENT AND POULTRY WITH REGARD TO VIRULANCE GENES AT ISMAILIA PROVINCE

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ABSTRACT: A total of 76 *E. coli* strains (19 environmental samples and 57 originated from organs other than intestine) were isolated from three different poultry farms at Ismailia province, Egypt from November 2015 till August 2017). Forty of the isolates (17 from environmental samples and 23 from diseased broiler chickens) were serogrouped and 10 were examined for 4 virulence gene markers (*iss*, *papC*, *eaeA*, and *CFAI*) by PCR. Among the 17 tested environmental samples, isolates were serogrouped as O119, O113, O78, O169, O91, O142, O111, O1, O26, and O128 and 6 isolates were non-serogrouped. The extraintestinal *E. coli* (ExPEC) strains were serogrouped as O126, O1, O125, O78, O44, O121, O15, O91, O146, O124, O20, O128, while five strains were not serogrouped. The *iss* and *papC* genes were found all the tested environmental and ExPEC strains, while *CFAI* and *eaeA* were detected in 0% and 20% percentage of tested strains, respectively.

KEYWORDS: ExPEC, broiler, serogroup, virulence gene.

INTRODUCTION

Pathogenic *E. coli* are ubiquitous in environments where poultry raised. *E. coli* is a common inhabitant in the intestinal tract of poultry at higher concentrations in younger birds, birds without established normal flora and in the lower intestinal tract [1]. A high percentage of pathogens in the poultry environment lead to poor flock wellbeing and decline in production [2].

OBJECTIVES

To characterize *E. coli* isolated from environment and diseased broilers chicken flocks using microbiological, serological and molecular techniques.

METHODS

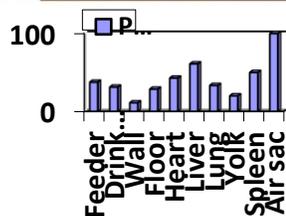
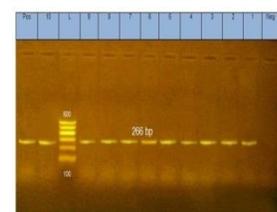
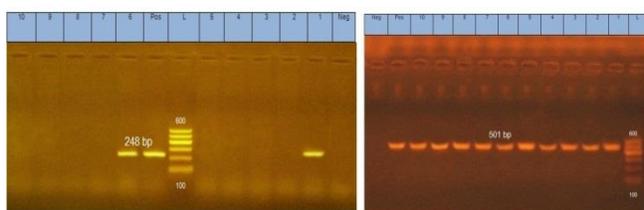
One hundred eighty four samples were collected from environment (feeder, drinker, wall, and floor) and septicemic broiler chickens (heart, liver, lung, yolk sac, spleen, and air sac) from 3 farms at Ismailia governorate. The samples were firstly inoculated on buffered peptone water and incubated for 24 hrs at 37°C then subcultured on mCconkey and on eosin methylene blue agar for 24 hrs at 37°C picked up single colony of typical morphology and cultured on TSA medium or BHIB medium for further biochemical identification as previously described [7]. A total of forty isolates were serogrouped by specific *E. coli* antiserum according to KoK *et al* (1996)[8]. Ten *E. coli* strains serogrouped as (O119, O169, O142, O111, O15, O126, O126, O1, O125 and O20) were tested by PCR for 4 virulence genes (*iss*, *papC*, *eaeA*, and *CFAI*). The oligonucleotide primers used as shown in table (1)

Table(1) Oligonucleotide primers

RESULTS & DISCUSSION

in this study, Seventy six *E. coli* strains were isolated from different environmental and birds samples; percentage of isolation from organs (50.44%) was agreed with **Heba 2012** [9], who found that the percentage of isolation from organs of native diseased broiler was 52.9%. Also higher percent of *E. coli* (84%) was obtained by **Oboegbulem et al. (2009)** [10] who isolated this organism from commercial and backyard poultry farms and chicken markets as shown in figure (1). Ten different serogroups and 6 isolates were non-serogrouped were detected in environmental strains, while twelve different serogroups and five strains were not serogrouped were detected in diseased chickens strains. PCR analysis to ten strains of *E. coli* to detect 4 virulence genes, all isolates harboring *iss* and *papC* genes and only 2 strains harboring *eaeA* gene as shown in figure (2,3 and 4). The percentage of *iss* and *papC* genes in this study was supported with **Mohamed et al. (2014)** [11] who reported that strains recovered from diseased birds were 44.4% positive to *papC* and 72.2% in *iss* gene, while result of *eaeA* gene was agreed with **Ola (2017)** [12] who reported that the incidence rate of *eaeA* gene of the tested *E. coli* isolates was 15.79% (3/19).

	Primer sequence (5'-3')	Amplified product (bp)	Reference
<i>iss</i>	ATGTTATTTTCTGCCGC TCTG	266 bp	[3]
	CTATTGTGAGCAATATA CCC		
<i>eaeA</i>	ATG CTT AGT GCT GGT TTA GG	248 bp	[4]
	GCC TTC ATC ATT TCG CTT TC		
<i>papC</i>	TGATATCACGCAGTCA GTAGC	501 bp	[5]
	CCGGCCATATTCACATA A		
<i>CFAI</i>	GCTCTGACCACAATGTT GA	364 bp	[6]
	TTACACCGGATGCAGA ATA		



FIGURE(2) EAE A GENE

FIGURE(3) P A P C GENE

FIGURE(4) ISS GENE

FIGURE(1)

CONCLUSION

E. coli is an important pathogen. It was isolated in different percentages from environmental samples and organs of diseased chickens. There was a high prevalence of virulence genes among APEC, and environmental strains.

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PS-27: ASSESSMENT THE MYCOLOGICAL AIR QUALITY OF INTENSIVE CARE UNITS IN SUEZ CANAL UNIVERSITY HOSPITAL

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ABSTRACT: One year seasonal survey of outdoor and indoor air quality of patient rooms at Suez Canal University Hospital units was conducted, including; Liver Care Unit, Heart and Chest Care Unit, Intensive Care Unit (ICU), and Cardio Care Unit (CCU). Samples were collected by plate settling technique to assess fungal diversity and frequency of airborne fungi in these units. The highest indoor and outdoor viable counts were obtained during winter and autumn seasons, in the four studied units. In winter the counts from outdoor and indoor air from liver care were 2158 and 2985 CFU/m³, respectively. The most dominant indoor species was *Cladosporium* sp (32%) and the most predominant outdoor species were *Alternaria* (37%). The out and indoor air counts from heart and chest unit counts were 1256 and 1570 CFU/m³, respectively and the most common out and indoor species was *Cladosporium* sp (40%). The viable count of outdoor samples of both ICU&CCU was 2514 CFU/m³, while the viable counts of the indoor samples of both units were 1492 and 1569 CFU/m³, respectively. The outdoor and indoor total viable counts from liver care unit during autumn season were 3614 and 2121 CFU/m³, respectively and the most dominant out and indoor species were *Cladosporium* sp (74%). From Heart and chest unit the out and indoor counts were 2668 and 1492 CFU/m³, respectively and the most predominant out and indoor species was *Cladosporium* sp (74%). The viable count from outdoor samples of ICU&CCU was 2433 CFU/m³, while the indoor samples of both units yielded 2278 and 1728 CFU/m³, respectively. This study shows the total count and diversity of air mycoflora in the vital units, thus the infection control unit must perform more hygiene actions to reduce the contamination of air in these units.

KEYWORDS: Air mycoflora, Air quality, Seasonal variation, Hospital air contamination.

INTRODUCTION

The airborne microbiota in the hospital environment is formed mainly of filamentous fungi, especially those belonging to the genera *Aspergillus*, *Cladosporium*, *Paecilomyces*, *Penicillium* and *Scopulariopsis* (1, 2). Yeasts have also been recorded in some studies, such as *Candida*, *Rhodotorula*, *Cryptococcus* and *Trichosporon*, (3-7), although there is less understanding about how they remain suspended in the air. All the mentioned genera have been described as potential human pathogens (1), especially the genus *Candida*, which is the main causative agent of hospital fungemia (8). One of the most important factors that affects the distribution of fungi in the air, in quantitative and qualitative terms, is seasonal variation (9).

OBJECTIVES

This study aims to investigate the total count and diversity of indoor and outdoor airborne fungi, in Suez Canal University Hospital vital units including; liver care unit, heart and chest care unit, Intensive Care Unit (ICU) and Cardio Care Unit (CCU), among the four seasons, in an attempt to assess the air quality of the selected units.

METHODS

The present study was conducted in Suez Canal University Hospital in Ismailia. One thousand and eight air samples were collected by plate settling technique during twelve months (January 2017 to January 2018) in daytime for inside

and outside the patients rooms of liver care , heart and chest care unit , Intensive care unit (ICU), and Cardio care unit (CCU) in the first and the third week. Plates were opened and exposed to air for 10 minutes, then closed and incubated at 28°C. We used czapek's and Sabouraud agar media for filamentous fungi .After 3-5 days of incubation at 28 °C, all the plates were examined and the colonies were counted, different colonies were identified microscopically (10), in addition, the fungal CFU/m³ air was calculated separately for each different colony observed on the plates from the formula :

$$= a \times 78.6 \text{ CFU/m}^3$$

where a – the number of fungal colonies grown from the air sample in one cubic metre of the air expressed in terms of the number of colony forming units in one cubic metre (cfu./m³).

RESULTS & DISCUSSION

The present work was a seasonal survey during one year for air quality at Suez Canal University Hospital, in order to assess fungal diversity and frequency of airborne fungi in these units. A total of 14955 and 10442 CFU/ m³ fungal cells were isolated from the outside and inside air of patient's rooms respectively from the different units in the four seasons. However, it was recorded that, the highest indoor and outdoor viable counts were obtained during winter and autumn seasons, in the four studied units. The outdoor and indoor air fungal counts of liver units in autumn season were 3614 and 2121 CFU/ m³, and the most dominant isolates outdoor and indoor species were *Cladosporium sp* (55%, 74%), respectively. Also, the viable outdoor air fungal counts from heart and chest unit in autumn season was 2668 CFU/ m³ and the indoor counts obtained during winter and autumn seasons were 1570, 1492 CFU/ m³, respectively and the most dominant isolates from both was *Cladosporium sp* (Figures 3b) . In winter, the highest outdoor viable fungal counts were detected in air samples of Intensive care unit (ICU) and Cardio care unit (CCU) in which the counts were 2514 CFU/ m³ and *Penicillium* (Figures 3a) while the highest indoor fungal count was detected in liver care unit (2985 CFU/ m³) (Figures 1&2).The highest viable fungal counts from indoor air in autumn were detected in Intensive care unit (ICU) (2278 CFU/ m³) and the most predominant species *Cladosporium* (74%), while the highest outdoor fungal count was obtained in liver care unit (3614 CFU/ m³) (Figures 1&2) .

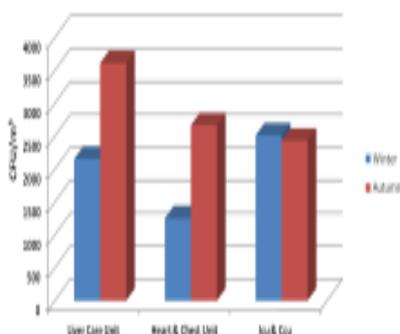


Figure (1): Total fungal viable count of indoor samples in the four studied units, during winter and autumn seasons

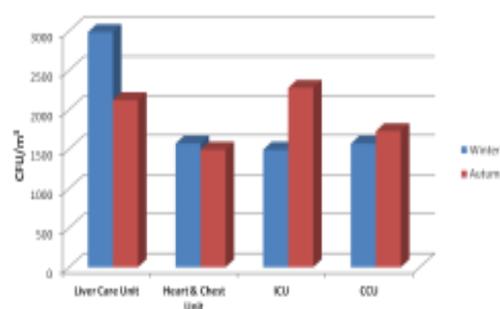


Figure (2): Total fungal viable count of indoor samples in the four studied units, during winter and autumn seasons.

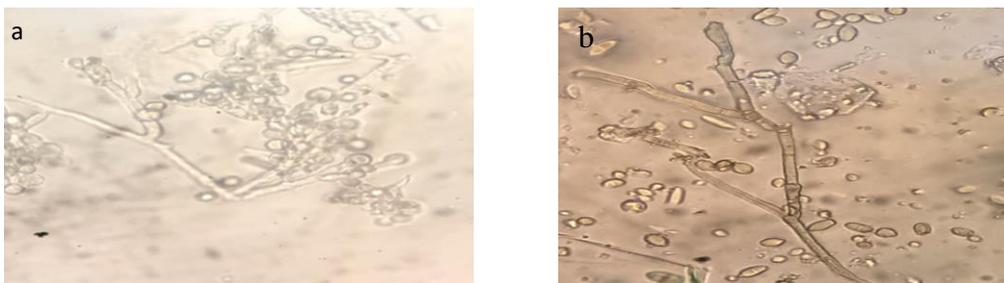


Figure (3): Microscopic examination of *Penicillium* sp. (a) and *Cladosporium* sp. (b), using light microscope (40X).

CONCLUSION

This study clearly indicated that there is a high count of indoor and outdoor air mycoflora in the vital units, in particular during winter and autumn seasons. Thereby, the Infection Control Unit must apply serious hygiene actions to reduce contamination of air in these vital units to reduce the risk of nosocomial infections.

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PS-28: MICROBIOLOGICAL QUALITY OF READY TO EAT MEAT MEALS AT ISMAILIA CITY

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ABSTRACT: *This study was performed to evaluate the microbiological quality and safety of ready-to-eat meals in Ismailia governorate .Egypt. Sixty samples of ready to-eat meat meals including liver (kibda), hawawshy and shesh-tawook (20 samples each) were randomly collected and examined for microbiological indices. The mean values of total aerobic spore forming microorganisms in the examined liver (kibda) sandwiches, hawawshy and shesh-tawook samples were 3.14, 2.5 and 2.8 cfu/g, respectively. Also, The mean values of Staphylococcus aureus counts in the previously mentioned samples were 3.03, 2.8 and 2.9 2.8 cfu/g, respectively. Total coliform were present with mean values of 16.12, 6.8 and 24 cfu/g, in the examined samples, respectively. Total Enterobacteriaceae mean values in the tested samples were 1.9, 1.6 and 1.5 cfu/g, respectively. Bacillus cereus mean values were 3.33, 1.97 and 2.6 cfu/g, respectively. Moreover, the mean values of total yeast were 1.5, 1.44 and 1.94 cfu/g in the examined samples, respectively. Total mould was detected with mean values of 2.26, 2.04 and 2.46 cfu/g, respectively. On the other hand, Salmonellae spp were not detected in all examined samples.*

KEYWORDS: *Ready-to-eat meals, Microbiological quality, food contamination, Staphylococcus aureus.*

INTRODUCTION

Ready-to-eat (RTE) foods are popular consumed all over the world including Egypt. The busy and hectic life schedule has opened the way for the fast food industry in most parts of the world. The consumers prefer and appreciated these foods for their unique flavours, convenience, low cost, nutrient value and ready availability for immediate consumption [1]. These foods could easily get contamination with various food-borne pathogens during the preparation through unsafe sources, contaminated raw food items, improper food storage, and poor personal hygiene during preparation. Inadequate cooling and reheating of food items with a prolonged time lapse between preparing and consuming food. Consequently, questions have been raised about the safety and microbiological quality of these meals, since such prepared foods are considered to be susceptible to post-preparation contamination by pathogenic bacteria [2].

OBJECTIVES

This study was conducted to evaluate the microbiological quality of ready to eat meat meals in Ismailia governorate.

METHODS

I. Collection and preparation of the samples: 60 samples of ready to eat meat meals, 20 each of (shesh-tawook, hawawshy and liver (kibda) sandwiches were collected from different vending shops in Ismailia province, Egypt. The samples were transferred immediately without delaying to the laboratory under complete aseptic conditions in clean ice box where prepared for the bacteriological examination. II. Preparation of the sample: was done according to [3]. III. Microbiological evaluation: 1. Determination of total aerobic spore forming count, total coliform, staphylococcus

aureus count, total yeast and mould count [3], 2. Detection of *Salmonellae* [3], 3. Determination of total *Enterobacteriaceae* count and *Bacillus cereus* [4].

RESULTS & DISCUSSION

It is evident from the results that the mean values of total aerobic spore forming in the examined samples liver, hawawshy and shesh-tawook were 3.14, 2.5 and 2.8 cfu/g, respectively, these results are similar to previous study [5] but lower than [6], *Staphylococcus aureus* mean values were 3.03, 2.8 and 2.9 cfu/g, respectively and it was detected by other authors [6,7&8]. Total coliform mean values were 16.12, 6.8 and 24 cfu/g, respectively and the obtained results seem to be higher than [7&8]. Total *Enterobacteriaceae* mean values were 1.9, 1.6 and 1.5 cfu/g, respectively and these obtained results seem to be similar to results were reported by [6, 9] and lower than [10]. *Bacillus cereus* mean values were 3.33, 1.97 and 2.6 cfu/g, respectively and it detected by other author [11]. Total yeast mean values were 1.5, 1.44 and 1.94 cfu/g, respectively and total mould mean values were 2.26, 2.04 and 2.46 cfu/g, respectively and it similar to results were obtained by [7]. On contrary, *Salmonellae spp* were not detected in all examined samples and this agree with some authors [12, 13&14]. According to Gilbert [15], 20% and 40% of liver and shesh-tawook samples were unsatisfactory for *Staphylococcus aureus* count.

CONCLUSION

These results demonstrate that ready-to eat street meat meals sandwiches sold in Ismailia governorate constitutes slightly hazard to human health. This is due to high bacterial load of *Staph. aureus*. While there is still no microbial guideline value for Egyptian RTE foods, the adoption of the published guideline values of center of food (is U.S. environmental, non-profit organization, based in [Washington, D.C.](#) aim to protect human health and the environment) safety may be appropriately used until more comprehensive guideline values for Egyptian RTE foods are established.

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PS-29: FACTORS AFFECTING BIODEGRADATION OF CRUDE-OIL BY MARINE ACTINOMYCETES ISOLATED FROM EL-TEMSAH LAKE, ISMAILLIA, EGYPT

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ABSTRACT:

Lake Tamsah is considered as one of the main water bodies along the Suez Canal. It supports a variety of activities including fishing, tourism and the Suez Canal maintenance. The lake is polluted by petroleum and its products, which are toxic with mutagenic and carcinogenic potentials. Different water and sediment samples from Lake Tamsah were collected, analyzed and used for actinomycetes isolation. Actinomycetes were isolated on Basic mineral salts medium supplied with 0.2% of crude oil. All recovered isolates were screened for their crude oil removal ability. The most powerful oil degrading isolates were selected and tested for biosurfactant production capabilities. The pH, temperature and salinity that affect biodegrading activity of these isolates were assessed. The degradation capability of the most powerful isolates was examined using gas chromatography (GC), in compare to control. Fifty two isolates of actinomycetes were recovered and showed different crude oil degradation capabilities. Five isolates were selected as the most powerful ones in crude oil degradation with the help of their biosurfactant capabilities. The best conditions for crude oil degradation were neutral pH, 37 °C and 2.5 % NaCl. The five isolates were identified as *Streptomyces* based on 16S rRNA gene sequencing. GC analysis has indicated that oil biodegradation was accomplished very well.

KEYWORDS: Biodegradation, Marine Actinomycetes, El-Tamsah Lake

INTRODUCTION

Lake Tamsah comprises different habitats. Work stations cause high pollution by petroleum and its products. Most petroleum products are toxic with mutagenic and carcinogenic potentials. The Lake Tamsah is considered as a source of supply of fish in Suez Canal area. Therefore, maintaining good marine environmental quality is crucial for several socio-economic reasons. Physicochemical method is one of the strategies used for hydrocarbon remediation, which consider being an expensive and destructive for the environment. The ability of oil hydrocarbons degradation has been observed in numerous microorganisms. Among the different microorganisms, actinomycetes are used for oil degradation as they distinguished by their high frequency and wide spectrum of petroleum products utilization (3). Many genuses of Actinomycetes can degrade petroleum and its products for example *Streptomyces* (1).

OBJECTIVES

This study aims to evaluate the capabilities of marine actinomycetes isolated from Lake Temsah to degrade crude oil and investigate factors affecting the degradation process.

METHODS

Different water and sediment samples from Lake Temsah were collected and analyzed. Actinomycetes were isolated on Basic mineral salts medium supplied with 0.2% of crude oil. The obtained isolates were screened for their capability for crude oil removal (2). The most powerful oil degrading isolates were selected and tested for biosurfactant production capabilities. The influences of certain variables (pH, temperature, salinity) on biodegrading activity of these isolates were assessed. The degradation capability of the most powerful isolates was examined using gas chromatography (GC). The most powerful five isolates were identified based on 16S rRNA gene sequencing.

RESULTS & DISCUSSION

Samples were slightly alkaline with pH range 7.7-8.2 and salinity ranged from 2.4 to 3.2 NaCl%. The crude oil was ranged from 0.5 to 4.1 mg/ml. Fifty two isolates of actinomycetes were recovered. The crude oil degradation% was classified into seven groups. Five isolates were the most powerful isolates. The selected isolates showed biosurfactant capabilities, which help in crude oil degradation. Many studies performed on hydrocarbons degrading actinomycetes show the ability of these organisms to utilize crude oil isolated from contaminated sites (4). The five isolates showed the same performance with slight differences under the different factors. The best degradation of crude oil ranged between 91 to 95% was at neutral pH, 37 °C, and 2.5 % NaCl. The five isolates were identified as different species of *Streptomyces* the most powerful was *Streptomyces enissocaesilis* strain 2C. In compare to control, GC analysis of *Streptomyces enissocaesilis* strain 2C has indicated that oil biodegradation was accomplished very well.

Hydrocarbons	Control	Isolate 3	Activity
Acenaphene	-	157	Derivative
Naphthalene	-	1033	
Fluoranthene	16	-	Disappeared
Flurene	13	-	
Acenathylene	1471	948	Reduced
Anthracene	166	58	
Benzo (a) anthracene	4	3	
Phenanthrene	98	9.7	

PS-30: PROTECTIVE EFFECT OF ARTEMISIA SANTONICA AND ORIGANUM SYRIACUM EXTRACTS IN MICE EXPERIMENTALLY INFECTED WITH SCHISTOSOMA MANSONI: PARASITOLOGICAL AND HISTOPATHOLOGICAL ASPECTS

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ABSTRACT: Schistosomiasis is one of the most important communicable diseases that affecting human. There is an increase in searching for antiparasitic drugs from natural sources, especially from plants. The present study was conducted to evaluate the antiparasitic effects of crude *Artemisia santonica* and *Origanum syriacum* and their aqueous (the polar constituents of the crude extract), hexane (the non-polar constituents of the crude extract) extracts against *Schistosoma. mansoni* infected mice. Male BALB/c infected mice (n=49) were grouped into 7 groups and treated with the crude extract of each plant and their aqueous and hexane extracts for 14 consecutive days. After the last dose, all animals were sacrificed to evaluate the efficacy of plant extract in the treatment of infection through parasitological, and histopathological examinations. There was a reduction in the total worm burden and egg load in the intestine and the liver. The oogram pattern showed a significant reduction in number of viable mature eggs and increasing in number of dead ova with treating with crude and aqueous extracts of both plants. The hepatocellular necrosis and hemorrhage diminished greatly around granulomas area in all treated infected mice, In conclusion, the crude, aqueous and hexane extracts of both plants may be considered as effective curative anti-schistosomal agents as they have schistosomicidal and ovicidal effects.

KEYWORDS: *Schistosoma mansoni*, *Artemisia santonica*, *Origanum syriacum* , SEM, Pathology.

INTRODUCTION

Schistosomiasis, a worldwide concern, affects more than 200 million people internationally, particularly children. Between the five schistosome species, *Schistosoma mansoni* is the richest in Egypt. Treatment of parasites depend on the usage of a drug poses serious concerns regarding the onset of resistance. So, the development of new and effective

schistosomicidal agents is highly desirable. So, the need for bioactive natural products against schistosome has excessive importance for founding future strategies to control schistosomiasis (Mohamed et al., 2005).

OBJECTIVES

This study was conducted to assess the protective effect of crude *Artemisia santonica* and *Origanum syriacum* and their aqueous/ hexane extracts against *S. mansoni* infected mice.

METHODS

Male BALB/c mice were purchased from the animal unit from the Schistosome Biological Supply Centre (SBSC), Theodor Bilharz Research Institute (TBRI) (Giza, Egypt). Plant materials were collected from Arish, North Sinai, Egypt. *A. santonica* and *O. syriacum* and their aqueous and hexane extracts were prepared according to Azwanida (2015) The acute toxicity of *Artemisia santonica* and *Origanum syriacum* crude extract and their fractions administered via intraperitoneal route to mice were determined via Up-and-Down method Where all groups were treated with (100 mg/kg,)except groups were treated with hexan fraction administrated with (10 mg/kg,) administration was via intraperitoneal route to mice daily for two weeks. Male and female worms were recovered from the portal system and mesenteric veins by perfusion technique and counted (Smithers and Terry, 1965). Adult male worms were prepared for scanning electron microscopic examination (Glauert, 1974). The eggs number/g tissues (liver and intestine) were evaluated following digestion with 5% KOH (Cheever, 1968). The percentage of egg developmental stages (oogram pattern) was determined according to Pellegrino et al. (1962). Sampling slices from the liver tissue were taken from mice liver and fixed in 10% formalin and the associated histopathological changes were observed. Granuloma diameter was measured using an ocular micrometer (Jacobs et al., 1997). The collected data were tabulated and analyzed using IBM personal computer using SPSS 16 microstate software package.

RESULTS & DISCUSSION

The coupled worm's burden in groups treated with crude *O. syriacum* and *A. santonica* and their aqueous extracts significantly decreased. The oogram pattern showed significant reduction in the number of viable mature eggs and increase in the number of dead ova in groups treated with the crude and aqueous extracts of both *O. syriacum* and *A. santonica* compared to untreated infected mice. Additionally the egg load in liver and intestine tissues significantly decrease in treated groups in groups treated with the crude and aqueous extracts of both *O. syriacum* and *A. santonica*. Low content of mature eggs in these tissues is a key factor in the reduction of oviposition ability of female worms by either causing their death or causing adverse changes in its reproductive systems (Rabia et al., 2010). Scanning electron microscopy revealed alterations in male worm tegument including tubercles collapsing reduced spines, tegument swelling, tearing and presence of vesicles. Vesicle formation is indicators of stress and swelling of tegument and focal lysis of worm muscles (Zhang et al., 2009). Moreover, worm tegument tearing increases antigen exposure on worm surface to host immune system that subsequently resulted in worm death (Eissa et al., 2011). Histopathological investigations revealed heavy chronic inflammatory infiltration at portal areas in untreated infected mice. However, the hepatocellular necrosis and hemorrhage diminished greatly around granulomas area in all treated infected mice, with less granulomas size and consequently less severe pathological responses.

CONCLUSION

Crude *O. syriacum* and *A. santonica* and their fractions may be considered a promising effective anti-schistosomal drug as they have schistosomicidal and ovicidal effects, whereas they enhance the host's immune system against the disorders caused by *S. mansoni* in mice, effective in decreasing worm burden and the egg load in the intestine and liver . In addition to the reduction in granulomas size that reduced the disease.

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PS-31: BIOCHEMICAL STUDIES ON THE EFFECTS OF ARTEMISIA SANTONICA AND ORIGANUM SYRIACUM EXTRACTS IN EXPERIMENTAL SCHISTOSOMIASIS MANSONI INFECTED MICE

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ABSTRACT: Schistosomiasis is one of the most common tropical parasitic diseases. Millions of people suffer severe sickness related to Schistosomiasis .A lot of efforts had been done to control it after finding out new drug-resistance strains of schistosomes .The present study was conducted to determine cytokine levels and liver enzymes activities in experimental schistosomiasis mansoni infected mice treated with Artemisia santonica (AT) and Origanum syriacum (OG) extracts and their aqueous (the polar constituents of the crude extract), hexane (the non-polar constituents of the crude extract) fractions. Male BALB/c mice (n=105) were grouped into 15 groups 7 each and treated with the crude extract of each plant and their aqueous and hexane fractions where, the acute toxicity of Artemisia santonica and Origanum syriacum crude extract and their fractions administered via intraperitoneal route to mice were determined via Up-and-Down method . All groups were treated with (100 mg/kg,)except groups treated with hexan fraction were administrated with (10 mg/kg,)administration was via intraperitoneal route to mice daily for two weeks. After the last dose, all animals were sacrificed to evaluate the cytokine patterns and liver enzymes activities in all mice. measuring the levels of cytokines (IL6,TNF- α & IL-1) were found to be significantly increased in infected mice compared to normal control while, treated groups with aqueous and crude extract of OG and AT showed significant decrease in TNF- α , IL-1, IL6 and IL10 levels compared to infected control. Regarding the effect on activity of liver enzymes, aqueous and crude extract of OG and AT decreased the activities of (AST), (ALT) and as well as (ALP) while the albumin level was increased. Also, treatment of infected mice with aqueous and crude extract of OG and AT led to significant increase in the activities of antioxidant glutathione when compared to control group and decrease the level of lipid peroxidation. In conclusion, treatment with AT and OG and their aqueous extracts in murine schistosomiasis have a hepatoprotective activity by their effect on production of pro-inflammatory cytokines.

KEYWORDS: Schistosoma mansoni, Artemisia santonica, Origanum syriacum, Cytokines.

INTRODUCTION

Schistosomiasis is a chronic parasitic disease caused by *Schistosoma* species (Gryseels et al., 2006). About 200 million people are globally infected. *Schistosoma* is still one of the most widespread epidemic disease in developing countries especially Egypt despite many efforts to control this infection over many years (El-Khoby et al., 2000). Current treatments depend on praziquantel (PZQ) (Zhang and Coultas 2013)., praziquantel does not treat early infection or avoid re-infection (Magnussen, 2003). In the last years, there is an obvious proliferation in searching for anti-parasitic drugs from natural sources, particularly from plants, that are the major source of biologically active constituents for the development of new treatments (Silva et al., 2009).

OBJECTIVES

To determine cytokine patterns and liver enzymes activities in experimental schistosomiasis mansoni infected mice treated with AT and OG extracts and their aqueous and hexane fractions.

METHODS

The study was conducted upon 105 mice that were divided into fifteen groups; 7 each: uninfected control group, normal animals treated with OG, AT and their fractions as well as DMSO, *Schistosoma mansoni* infected untreated mice (infected control), infected mice treated with crude OG, infected mice treated with aqueous OG and infected mice treated with hexane OG, infected mice treated with crude AT, infected mice treated with aqueous AT and infected mice treated with hexane AT. After 2 weeks of treatment all mice were sacrificed. The serum levels of cytokines (IL6, TNF- α , and IL-1), activity of liver enzymes (Gornal et al., 1949) and the activities of hepatic antioxidant glutathione (Beutler et al., 1963) & lipid peroxidation were evaluated in all groups (Satoh, 1978). The collected data were tabulated and analyzed using IBM personal computer using SPSS 16 microstate software package.

RESULTS & DISCUSSION

The levels of cytokines (IL6, TNF- α , and IL-1) were significantly increased in infected mice when compared with normal control mice. Groups treated with aqueous and crude extract of OG and AT showed significant decrease IL6, TNF- α & IL-1 levels when compared with infected control group. Regarding the effect of OG and AT extracts on activity of liver enzymes, aqueous and crude extract of OG and AT decreased the activities of ALT, AST and ALP while the albumin level was increased. Treating infected mice with aqueous and crude extract of OG and AT led to significant increasing in the activities of hepatic antioxidant glutathione when compared to infected control group and decreasing the lipid peroxidation level.

CONCLUSION

Treatment with crude and aqueous extracts of both AT and OG in murine schistosomiasis has hepatoprotective activity by their action on producing of pro-inflammatory cytokines.

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PS-32: HEAVY METALS POLLUTION IN WATER AND THEIR IMPACT ON (CLARIAS GARIEPINUS) MUSCLES FROM DIFFERENT AQUATIC ENVIRONMENTS AT ISMAILIA PROVINCE, EGYPT

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ABSTRACT: This experiment was done to investigate the effects of dietary Pidotimod, Astragalus and Eachnicea supplementation in water on blood analysis, immune response, growth performance and histopathological changes of broiler chicks. A total of 200 healthy one day-old Cobb chicks were divided into 4 groups; control, Eachnicea, pidotimod and Astragalus. The results revealed that, Pidotimod, Astragalus and Eachnicea treatment highly increased the growth performance and final body weight as compared to control as well as the immune response at 21 and 35 days. Histopathological investigation of lymphoid organs; bursa fabricius, thymus and spleen showed normal structure of lymphoid follicle proliferation and hyperplasia of lymphocytes in all the supplemented groups. It could be concluded that, Pidotimod Astragalus and Eachnicea has immunostimulant with a good growth promotion in poultry farming.

KEYWORDS: Broilers, Eachnicea, Pidotimod, Astragalus, Immunity, Growth performance.

INTRODUCTION

Immunomodulators are substances which act on the host immune system and produce effect either increasing or decreasing the immune responses of the host . It also could be defined as, biological immunoregulators which act as drug leading to non-specific stimulation of immune system defense mechanisms (1). Astragalus polysaccharide (APS) can also stimulate cell proliferation, induce the expression of surface antigens on lymphocytes, and affect the expression of cytokines and promote the production of antibodies (2). Pidotimod (Polimod ®) is a synthetic dipeptide molecule which acts as a biological response modifier (BRM) (3) with biological and immunological activity on both the adaptive and the innate immune responses.

OBJECTIVES

To evaluate the effects of a commercial supplements including pidotimod, Echinacea and Astragalus as potential immunomodulation and growth promoters through evaluating their effects on: Broiler growth performance and immunity.

METHODS

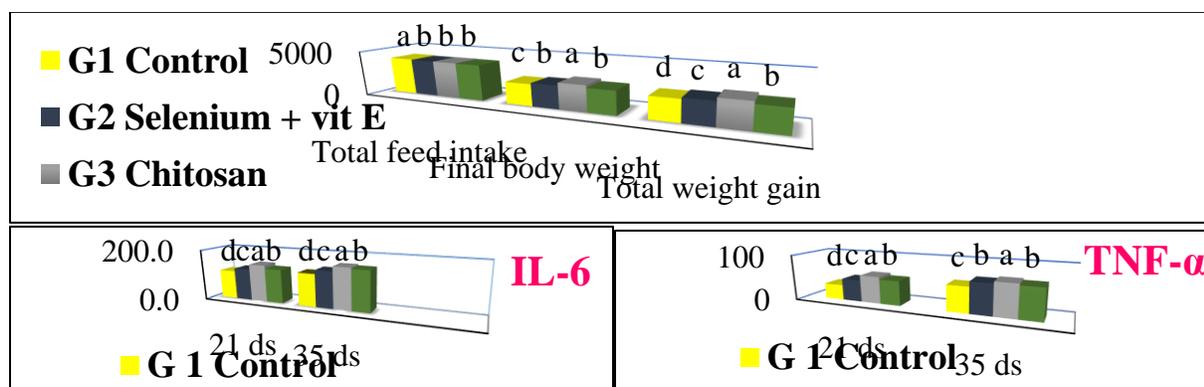
In this trial, 200 one-day old broiler chicks (Cobb) were weighted and randomly assigned to the four treatment groups, 50 broiler chicks in each one. The four treatments were as follows:

1. **1st Group:** control, ordinary water without supplementation.
2. **2nd Group:** drinking water supplemented with Eachnicea (1 ml/3L water),
3. **3rd Group:** drinking water supplemented with Pidotimod (1 gm/1Lwater),
4. **4th Group:** drinking water supplemented with Astragalus (1 gm /1Lwater). The chicks were reared for 42 days, and the feed and water were offered.

The feed intake, body weight, body weight gain and feed conversion ratio were determined weekly. Blood samples were taken for hematological, biochemical analysis and immunological tests (days 21 and 35), and also, for measuring antibody responses by haemagglutination inhibition test (days 28 and 42). At 21 and 35 days old, six birds from each group (three/replicate) were slaughtered for lymphoid organ index.

RESULTS & DISCUSSION

1- In the present study, the Pidotimod had the best effect on the body performance that showed as a significant increase in the final body weight and total weight gain as well as a significant reduction in total FCR and total feed intake as compared to the Eachnicea and Astragalus -supplemented groups. The proper effect of Pidotimod on the broiler performance mainly originated from the presence of balanced mixture of vitamins especially vitamin E and amino acids in its structure which cause a significant elevation of nitrogen utilization and amino acid digestibility and activation of intestinal villi epithelial cells (4). Also, (5) reported that, the middle Pidotimod dosage group is better than all the other groups in weight gain and survival rate (Figure 1). IL-6 is crucial for immune function in animals and birds, it induces the final maturation of B cell into immunoglobulin-secreting plasma cell. Also, IL-6 is an important mediator against viral and other pathogenic infection in animals. TNF- α is known to be a key mediator for the induction of apoptosis and development of humoral immune response (6). In the present study, IL-6 and TNF- α were significant increases in all supplemented groups in comparing with control group, while group supplied with pidotimod (G3) significantly increase than other groups at 21 and 35 days, followed by Astragalus (G4) then Eachnicea (G2) fed groups. EP has an interferon (IFN) like effect, activating macrophages and inducing the production of interleukin (IL)-1 and IFN (7).



CONCLUSION

The present study showed that, the Pidotimod, Astragalus and Eachnicea can be considered as immunostimulant and in the same time growth promoters.

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PS-33: SOME REPRODUCTIVE ASPECTS OF THE INDIAN SCAD DECAPTERUS RUSSELLI INHABITING THE GULF OF SUEZ

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ABSTRACT: Aspects of reproductive biology such as maturity, spawning season, sex-ratio and gonado-somatic index of *Decapterus russelli* were studied for a period of one year along the Gulf of Suez. The length at the onset of maturity was 15.5 cm. The length at which 50% of *D. russelli* attained maturity was estimated at 18.7 cm for female and 19 cm for male. Gonado somatic index (G.S.I) reached its maximum value in April (2.9). The presence of mature, ripe and spent gonads was observed from March to May indicating prolonged spawning season with a peak in April. The sex-ratio (male: female) varied from 1:0.87 in the commercial catches, showing dominance of male in the population except in February and March.

KEYWORDS: *Decapterus russelli*, Gulf of Suez, spawning season, Sex-ratio, Gonado- Somatic Index.

INTRODUCTION

The Indian scad, *Decapterus russelli* (Ruppell, 1828) belongs to family Carangidae. It is one of the most important and economic species in the trawl fisheries of Gulf of Suez. Most fishes are egg- layers, but many bear living young. *D.russelli* are considered egg- layers and heterosexual (there are separate male and female parents). Reproduction is the process by which species are perpetuated. The success of any fish species is ultimately determined by the ability of its members to reproduce successfully in a fluctuating environment. The environmental changes particularly temperature, day length and food supply. They have the greatest influence upon the gonadal development initiation and fecundity of the species. Many authors provided studies on the biology of the Indian scad, *Decapterus russelli* in different areas of the IndoPacific (Gjosaeter and Sousa (1983), Widodo, J. (1988), Murty (1991), Reuben et al., (1992), Raje.S.G. (1997), N.K Balasubramanian and P. Natarajan (2000), Manojkumar P.P. (2003) and Poojary, N. and Sundaram, S (2015). There has not been any recent attempt to study the biological aspects of *Decapterus russelli* in Egypt. The present study was undertaken to fill this need.

OBJECTIVES

Elucidate the reproductive biology *Decapterus russelli* in the studied site including estimation of the sex ratio, first sexual maturation, maturity stages, Gonado somatic index (G.S.I), spawning season.

METHODS

Random samples of 628 (292 female and 336 male) *Decapterus russelli* were collected monthly from October 2016 to April 2017 from Attaka landing site and caught by purse seine fishing gear for studying the following items: Maturity stages: Including 6 stages (immature/ Mature/ Maturing/Full ripe/Running(spawning) /Spent)

Sex ratio: It was determined as the percentage of males to females (M: F), this ratio was determined according to length and month also.

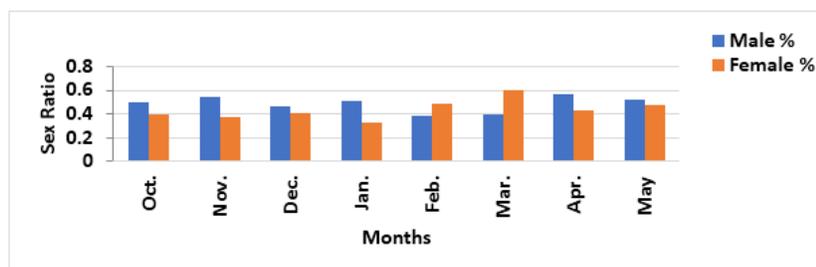
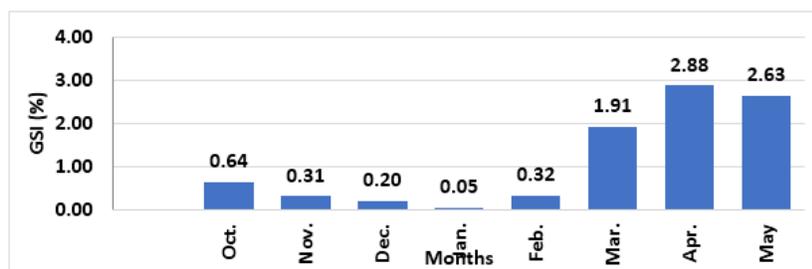
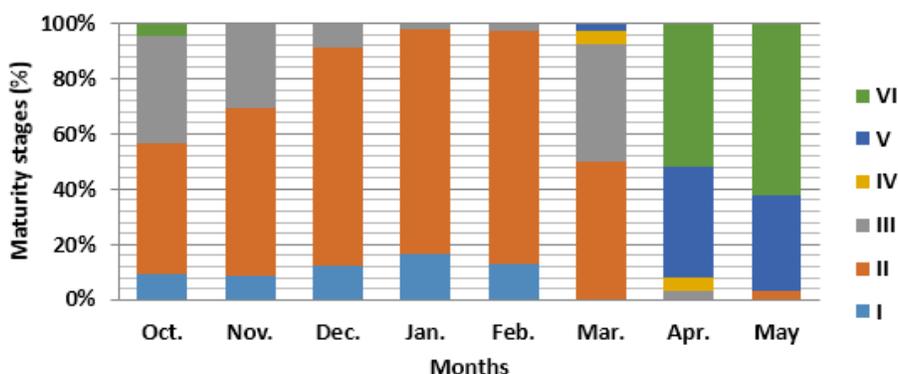
Gonado somatic index: the percentage of weight of the gonad whether testes or ovaries on the total fish weight.

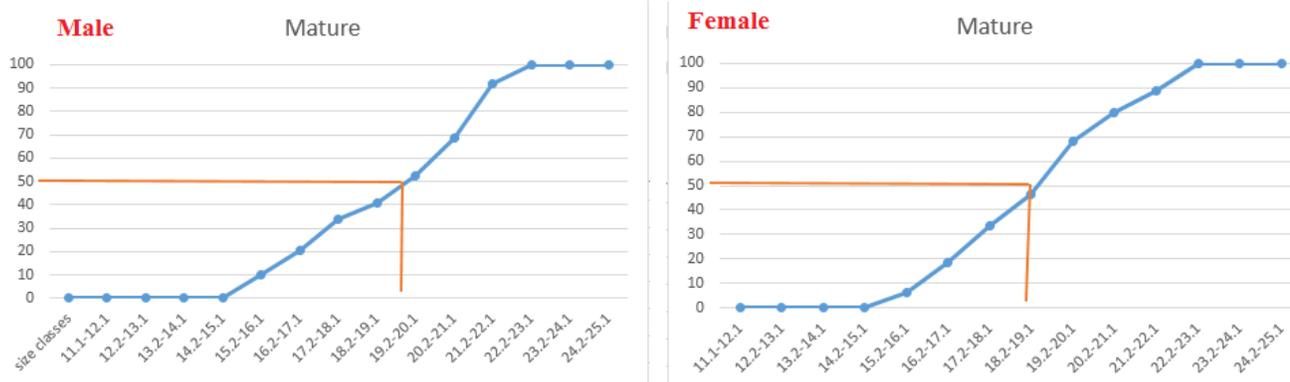
$$G.S.I. = \frac{gw}{GW} * 100 \quad (gw = \text{gonad weight} \quad GW = \text{guttet weight of the fish})$$

Length at which 50 % of fish were mature during the spawning season.

Spawning season was determined on the basis of distribution of different maturity stages of male and female during different months.

RESULTS & DISCUSSION





CONCLUSION

In the present study, The spawning period of *Decapterus russelli* was observed from March to May with extensive spawning in April. The length at the onset of maturity attained at 15.5 cm. The length at which 50% of *D. russelli* attained maturity was estimated at 18.7 cm for female and 19 cm for male. The sex-ratio (male: female) was 1:0.87 in the commercial catches, showing dominance of male in the population. Gonado somatic index (G.S.I) reach it's maximum value in April (2.9).

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PS-34: POTASSIUM ADSORPTION CHARACTERISTICS OF THREE DIFFERENT TEXTURED SOILS

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ABSTRACT: *Potassium adsorption isotherms for three soils in Egypt were studied to visualize the adsorption behavior. The soils vary widely in their physico-chemical properties. Potassium adsorption isotherms were constructed by equilibrating 5 g soil samples with 7 levels of K (0-250 mg L⁻¹) as K₂SO₄ in 25 ml solutions. Sorption time was 24 hours. Adsorption data were fitted to Freundlich and Langmuir adsorption equations. On an average amount of K adsorbed ranged from 13 to 62.6 % of added K. Freundlich equation explained K adsorption behavior better than the Langmuir adsorption equation as evidenced by higher correlation coefficient values ranging from 0.95 to 0.99.*

KEYWORDS: *Potassium adsorption, Freundlich, Langmuir, equation.*

INTRODUCTION

Potassium is one of the most important nutrients in the soil surface with vital physiological roles in plant, improving their quality [1]. The availability of K in soil is affected by many soil processes including physical, chemical and biological ones [2]. K adsorption in soils, that is, change of water soluble K form to fixed form, influences the efficiency of fertilization in soil-plant system. Understanding the mechanism that contains adsorption of K in soil is significant because soils may contain quite variable pools of K that are possibly mobilized by chemical weathering of soil minerals [3]. The process of potassium adsorption is measured by the equilibrium among the potassium held by the interlayer sites, the surface and edge sites of mineral crystal lattice and the potassium in soil solution. The clay minerals types, pH, soil organic matter (SOM), aluminum hydroxide, soil moisture status, cation exchange capacity (CEC), fertilization and plowing system are the main factors affecting the equilibrium [4]. The K adsorption in soil is very complex and may not be described by simple and single reaction. To imagine the K adsorption in soil numerous equations or adsorption isotherms have been developed. Langmuir and Freundlich adsorption isotherms are typically

employed for understanding the correlation between the amounts of K adsorbed per unit soil weight and the concentration of K in solution.

OBJECTIVES

The objective of this study is to study the adsorption of potassium with different soils.

METHODS

Soils samples: The soils used in the experiment were taken from 0-20 cm depths from different locations widely differ in their chemical and physical properties. The investigated soils were (S1) sandy from Ismailia Agriculture Research Station Farm, (S2) calcareous from El-Arish and (S3) Clay Loam from El-kantara.

physical and chemical properties of the investigated soils.

The Texture of the soil samples are varied from Loamy sand, to clay loam as shown in table (1). The clay content of different soil samples varied between 1.08 and 62.5 %, while the silt content varied greatly between 4 and 29.9 % and the sand content also varied greatly between 7.6 and 90.92 % in all soils . CaCO₃content of the soil ranged from 0.2 to 11%. The organic matter contents of the soil ranged from 0.07 to 1.3%.

Table 1. Some basic physical and chemical properties of the selected soil

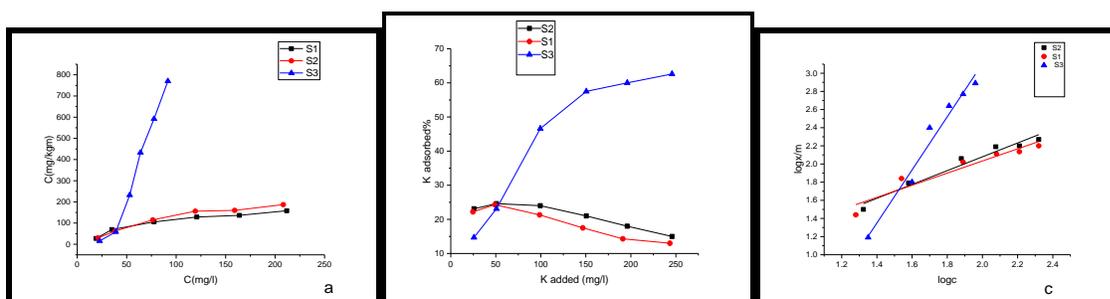
samples	E.C(dSm ⁻¹)	pH	CaCO ₃ %	O.M%	Sand%	Silt%	Clay%	Texture	K ⁺ (meq/l)(1:5)
S1	0.18	7.89	0.2	0.07	90.92	8	1.08	Loamy sand	0.16
S2	1.23	8.2	11.0	0.45	85.92	4	10.08	loamy sand	0.26
S3	1.5	8.3	2.97	1.3	7.6	29.92	62.48	Clay Loam	0.325

Potassium adsorption: Adsorption conducted with batch method [5,6]. Surface samples (5 g) were taken and equilibrated in 50 ml plastic bottles for 24h after adding 25 ml solution at different K⁺ concentrations (0, 25, 50, 100, 150, 200 and 250 ppm) in 25 ml solution. Samples were shaken for 30 minutes at starting time, and then measured for potassium.

RESULTS

Adsorption isotherm

Adsorption isotherms for 3 soils were created by plotting the quantity of K adsorbed versus the concentration of K remaining in solution Figure1,2. From the results shown, it is obviously found that the three soils diverse to potassium adsorption. and the amount of K adsorbed increased as concentration increased in all samples. the highest adsorption was found in S3 clay loam 770.25mg/kg (62.6%)because of high clay content and followed by S2 Calcareous loamy sand 187.225mg/kg (15%) and S1Loamy sand 157.95 mg/kg(13). K for these results, it could be concluded that adsorption mainly governed by the clay content of the soil.



Fig(1): (1) potassium adsorption isotherms, (2) Percent of K adsorbed under different K concentration levels of three soils. (3) Freundlich adsorption isotherms for 3 soils.

Comparison of different adsorption models: Freundlich equation described sorption isotherm with a higher degree of accuracy table 2. The coefficient of determination values of 0.95, 0.96 and 0.97 for S1, S2 and S3 respectively showed that Freundlich equation gave a better fit of equilibrium K adsorption data for these soils as the model suppose limitless adsorption sites having heterogeneous surfaces which connected better with the mixed mineralogy of soils. The results are supported by Gregory et al. (2005) [7], and Sidhu et al., (2004) [8]. Understandably, the distributions of different sites for adsorption depend on amount of clay minerals, their degree of reduction and integral ions. As Langmuir model assumes homogeneity of sorption sites with whole monolayer adsorption of solutes it could not appropriate well to the K sorption data of the soils under study. The Freundlich constant a and b table 2 may be taken as a measure of the range of adsorption and rate of adsorption or energy of adsorption. high adsorption capacity (2.76 mg mg^{-1}) and intensity (2.92) of clay loam and highest fraction of clay contents as compared to other soils table 1. The results are in line with the findings of Loannou et al. (1994) [9].

Table 2. Comparison of correlation coefficients (R²) for the Freundlich and Langmuir equations to the adsorption data of the soils.

Location	Equation	R ²	parameters of the Freundlich equation	
			adsorption capacity 'a' (mg /g)	Intensity of adsorption 'b'
S1	Freundlich	0.95	0.404	0.8
	Langmuir	0.68		
S2	Freundlich	0.96	0.55	0.76
	Langmuir	0.89		
S3	Freundlich	0.97	2.76	2.92
	Langmuir	0.745		

CONCLUSION

The three soils show different K adsorption characteristics. There is a significant positive relationship between the amount of potassium adsorption and clay content. The adsorption of K in all soils increased with the increase in concentration of added K. The adsorption isotherm was best described by Freundlich equation.

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PS-35: INFLUENCE OF HA-COATED NANO-ZINC OXIDE COMPOSITE ON POTASSIUM ADSORPTION IN DIFFERENT SOILS

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ABSTRACT Nanoparticles of ZnO were prepared by using sol-gel method., the adsorption behavior of humic acids (HA) by nano-ZnO was examined in this study by Fourier transform infrared (FTIR) spectroscopy and scanning electron microscopy .Then study the effect of HA-Coated Nano-zinc oxide composite on Potassium adsorption isotherm with two different soils which were made by equilibrating 5 g soil samples with 7 concentrations of K (0-250 mg L⁻¹) as K₂SO₄ in 25 ml solutions and adding 0.1 g HA-Coated Nano-zinc oxide complex Sorption time was 24 hours. Results shown increasing of K⁺ adsorption concentration by adding HA-Coated Nano-zinc oxide composite.

KEYWORDS: Humic acid, Nano-ZnO, Potassium.

INTRODUCTION

Potassium (K), which main component in all living cells is necessary to be exist in great amounts by plants, animals and humans [1]. It plays an important role in plant nutrition and physiology. absorbance of K by many plants is often larger than of nitrogen and phosphorus. This macronutrient is removed in large quantities by exhaustive cropping

systems [2]. Humic acids are those parts of humic substances which are insoluble in water in acidic conditions, but become soluble and extractable at high alkaline conditions. Humic acids have acidic groups such as carboxyl and phenolic OH functional groups, [3] and, therefore, provide organic macromolecules with an important role in the transport, bioavailability, and solubility of metals [4].

OBJECTIVES

The objectives of this study are to prepare nano-ZnO and HA coated nano-ZnO and characterize the products using Fourier transform infrared (FTIR); X-ray diffraction and scanning electron microscopy. Then study the effect of HA coated nano-ZnO on the adsorption of K^+ with two different soils.

METHODS

Soils samples: The soils used in the experiment were taken from 0-20 cm depths from different locations widely vary in their chemical and physical properties. The investigated soils were (S1) sandy from Ismailia Agriculture Research Station Farm, and (S2) calcareous from El-Arish.

Preparation of HA-Coated Nano-zinc oxide Complex.

Nano-ZnO was prepared using sol-gel method [5]. Preparation of HA-Coated Nano-oxide composite was achieved by the method described by Kan Yang et al [6].

Isothermal adsorption:

1-Potassium adsorption: Adsorption has been accomplished by the batch method [7,8]. Surface samples (5 g) were taken and equilibrated in 50 ml plastic bottles for 24h after adding 25 ml solution at different K^+ concentrations (0, 25, 50, 100, 150, 200 and 250ppm). Samples were shaken for 30 minutes at starting time, and then measured for potassium.

2-Effect of HA-Coated Nano-zinc oxide Complex on adsorption of potassium with soils. Surface samples (5 g) were taken and equilibrated in 50 ml plastic bottles for 24h after adding 25 ml solution at different K^+ concentrations (0, 25, 50, 100, 150, 200 and 250ppm) and 0.1g HA-Coated Nano-zinc oxide Complex. Samples were shaken for 30 minutes at starting time, and then measured for potassium.

RESULTS

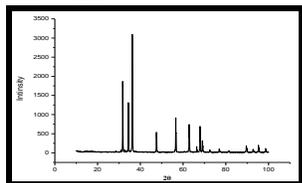


Fig. (1): X-ray powder diffraction plot of ZnO

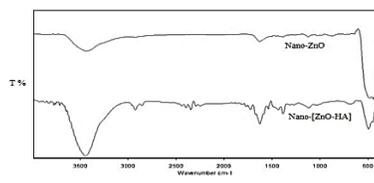


Fig. (2): FT-IR spectra of nano-ZnO and HA coated-nano-ZnO

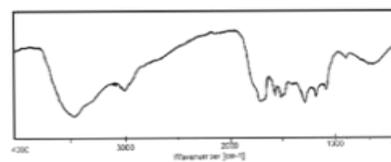


Fig. (3): FT-IR spectrum of humic acid

Characterization of Nano-zinc oxide: ZnO as detected by its powder X-ray diffraction pattern (Figure 1) Broadening of the X-ray bands allowed an approximate calculation of the average particle size as 37 ± 5 nm using the Scherrer equation [9] From the FTIR spectrum (Figure 2) The nano-ZnO is dominated by a very strong band at 450 cm^{-1} due to the Zn-O stretching.

Characterization of HA-Coated Nano-zinc oxide composite: From the FTIR spectrum of HA coated-nano-ZnO Figure 2 by comparison with bulk HA Figure 4 (Figure 3) strong interactions of phenolic OH with nano-ZnO surfaces were observed and may be responsible for HA adsorption due to the disappearance of the phenolic OH peak at 1280 cm^{-1} [10] Strong interactions of COOH with nano-ZnO may be due to the marked diminishing of the peak at 1722 cm^{-1} [11]. Furthermore, the peak of nano-ZnO shifted to 495 cm^{-1} due to interaction between nano-ZnO and humic acid. Figures 4,5 represent scanning electron micrographs of nano-ZnO and HA coated-nano-ZnO respectively. The SEM micrographs clearly show micro-structural homogeneities and remarkably different morphologies. An agglomeration of particles was observed in the case of HA coated-nano-ZnO and lower grains size than in case of nano-ZnO. The FTIR spectrum and SEM indicates the adsorption of HA by nano-ZnO and formation HA-nano-ZnO composite.

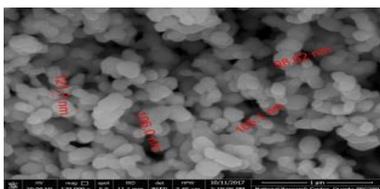


Fig. (4): SEM image of nano-ZnO

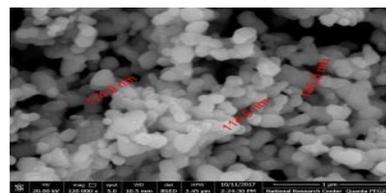


Fig. (5): SEM image of HA-coated nano-ZnO

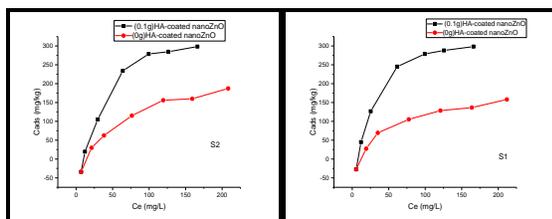


Fig (6) the effect of 0.1g HA-Coated Nano- ZINC oxide on the potassium adsorption with 2 soils

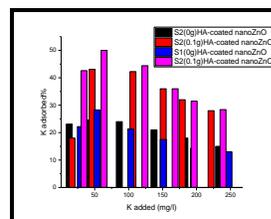


Fig (7) Percent of K adsorbed

Potassium adsorption for soils: Adsorption isotherm for two soils were constructed by plotting the amount of K adsorbed versus the concentration of K remaining in solution (Figure 6). From the results shown, it is clearly found that the two soils varied in θ potassium adsorption and the amount of K adsorbed increased K concentration of solutions increased in all samples. The highest adsorption was found in S2 clay loam 187.2mg/kg because of high clay content. With HA coated-nano-ZnO treatment the concentration of adsorbed potassium increased in low concentrations from 22.2%(24.57mg/kg) to 42.6%(44.85mg/kg) for S1 and from 24.6% (50.7mg/kg) to 43.07%(109mg/kg) for S2 and in high concentrations increased from 13%(157.95mg/kg) to 28.4%(298.35mg/kg) for S1 and from 15% (187.2 mg/kg) to 28.4%(298.35mg/kg) for S2(Figure 7). The reason of the result was likely related to the specifically adsorptive properties HA-Coated Nano-zinc oxide composite.

CONCLUSION

The preparation for HA Coated-Nano-ZnO composite has been successfully performed and it increased potassium adsorption on soils.

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PS-36: GENETIC VARIABILITY AND GENETIC ADVANCE OF MAIZE GENOTYPES (ZEA MAYS L.) UNDER SALINITY CONDITIONS

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ABSTRACT: Half diallel crosses were made among the six inbred lines resulting in 15 F1 crosses. The F1's and their parental inbreds were evaluated under four levels of salinity condition. The present investigation was carried out to assess the variability and genetic advance in 15 maize genotypes. The analysis of variance revealed the presence of significant variability among the maize genotypes for all traits in both conditions. Under control, Potassium content exhibited highest PCV (18.32) and GCV (17.47), whereas lowest PCV (2.04) and GCV (1.07) were recorded for days to 50% silking. While Under salinity stress, the GCV ranged from 1.29 in days to 50% silking to 21.99 in Potassium content and (PCV) ranged from 1.9 to 23.23. Under control, Potassium content exhibited highest PCV (18.32) and GCV (17.47), whereas lowest PCV (2.04) and GCV (1.07) were recorded for days to 50% silking. While Under salinity stress, the GCV ranged from 1.29 in days to 50% silking to 21.99 in Potassium content and (PCV) ranged from 1.9 to 23.23.

KEYWORDS: Maize Genotype, Salinity, PCV, GCV.

INTRODUCTION

Soil salinity is a major problem for agriculture throughout the world. As the world population continues to increase, more food needs to be grown to feed the people. This can be achieved by an increase in cultivated land and by an increase in crop productivity per area. Maize (*Zea mays* L.) is moderately sensitive to salt stress; Chinnusamy et al. (2005). Genetic variability among individuals in population offers effective selection. The magnitude of genetic variability present in population is of paramount importance for the success of any plant breeding program. Heritability alone provides no indication of the amount of genetic improvement that would result from selection of individual genotypes. Hence knowledge about genetic advance coupled with heritability is most useful. The extent of variability is measured by GCV and PCV which provides information about relative amount of variation in different characters (Subandi and Compton, 1974).

OBJECTIVES

The objectives of this study were: 1) To know about nature and magnitude of genetic variability in the resulted crosses as an important step to continue study and apply appropriate breeding program. 2) to identify the selection criteria would be effective to select the high yielding ability and adapted genotypes under salinity soils.

METHODS

In summer 2014, half diallel crosses were made among the six inbred lines P₁ (45), P₂ (7), P₃ (1), P₄ (8M) P₅ (5) and P₆ (3) resulting in 15 F₁ crosses. The F₁'s and their inbred parents were evaluated under four levels of soil salinity condition (T₁) 1.5 (control), (T₂) 2.5, (T₃) 3.5 and (T₄) 5.5 dSm⁻¹ summer 2015 and 2016 at east bitter lakes Experimental Farm Faculty of Agric. Suez Canal University (Sinai). The phenotypic and genotypic coefficients of variation were estimated according to the method suggested by Burton and de Vane (1953). The extent of genetic advance to be expected by selecting five percent of the superior progeny was calculated by formula presented by Robinson et al. (1949). The genetic advance was classified as low, moderate and high as following by Johnson et.al. (1955).

RESULTS & DISSUSION

The results of GCV, PCV and expected genetic advance percentage over mean for various characters are presented in Table (1). The GCV under control ranged from 1.07 to 17.47 per cent for various characters under study. Under control, high GCV was observed for the character K content (17.47 %) followed by grain yield plant⁻¹ (13.35%) whereas moderate for Na gkg⁻¹ (10.47 %) and plant height (9.15%). Character days to 50% silking showed low magnitude of GCV (1.07 %). Under salinity stress, the GCV ranged from 1.29 in days to 50% silking to 21.99 per cent in K gkg⁻¹ dry weight for various characters under study. The results revealed indicated increasing the GCV in salinity stress comparing with control condition in the most characters under study. Similar findings in maize were also reported by Rather et al., (2003). Under control, the PCV ranged from 2.04 to 18.32 for various characters. High PCV was observed for the character K gkg⁻¹ dry weight (18.32%) followed by grain yield plant⁻¹ (13.47%) and Peroxides activity (12.73%) whereas moderate for Na gkg⁻¹ (12.63 %) and prolin content (12.24 %). The character days to 50% silking showed low magnitude of PCV (2.04%). Abirami et al., (2005) reported high PCV and GCV values for grain yield per plant and ear length in maize. Under salinity stress, the PCV ranged from 1.9 to 23.23 per cent for various characters. High PCV was observed for the character K content (23.23 %) followed by grain yield plant⁻¹ (21.3%) and prolin content (16.6 %). whereas moderate for plant height (12.99 %) and ear length (12.84%). The character days to 50% silking showed low magnitude of PCV (1.90%). The previous results were indicative of increased PCV in salinity stress compare with control condition in the most characters under study. Expected genetic advance percentage GA over mean was estimated for different characters under control condition and it was observed that it was in the range of 1.25 to 34.32 per cent for different characters. GA having high value for K gkg⁻¹ (34.32%) followed by grain yield plant⁻¹ (g) (27.23%).

Table (1): Estimates of PCV, GCV, GA and GA% for the crosses under control(1.5dSm⁻¹) and 3rd salinity level(5.5 dSm⁻¹) during 2015 & 2016 seasons.

Traits	GCV (c)	mean	GCV(s)	mean	PCV (c)	Mean	PCV (s)	mean	GA%	GA%
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	2015	2016		2015	2016		2015	2016		2015	2016		(C)	(S)
Days to 50% Anthesis	1.39	1.68	1.54	1.80	1.20	1.50	2.00	2.14	2.07	2.41	1.66	2.04	2.42	2.27
Days to 50% silking	0.90	1.24	1.07	1.59	1.00	1.29	2.28	1.80	2.04	2.14	1.65	1.90	1.25	1.84
PH (cm)	6.62	11.68	9.15	14.23	10.74	12.48	6.78	11.73	9.25	15.06	10.93	12.99	18.64	24.71
Ear height (cm)	3.98	5.20	4.59	9.38	10.74	10.06	4.39	5.32	4.85	10.24	10.93	10.59	8.96	19.72
No. of leavesplant ⁻¹	4.00	4.65	4.33	2.80	3.79	3.29	7.22	6.52	6.87	8.12	8.68	8.40	5.70	2.70
Ear length (cm)	9.56	7.83	8.69	9.80	12.03	10.91	10.11	9.07	9.59	10.74	14.93	12.84	16.26	19.19
No. rowsEar ⁻¹	2.73	4.46	3.59	7.83	4.02	5.92	7.64	7.57	7.61	12.36	10.79	11.58	3.71	6.65
100 - g. w(g)	5.94	8.59	7.26	8.75	11.01	9.88	6.17	9.17	7.67	9.03	11.67	10.35	14.17	19.43
Shelling %	1.41	0.76	1.08	1.13	1.47	1.30	1.65	3.28	2.47	1.37	2.62	1.99	1.49	2.02
Grain yieldPlant ⁻¹ (g)	13.47	13.22	13.35	20.07	22.01	21.04	13.58	13.37	13.47	20.41	22.19	21.30	27.23	42.83
R.W.C	2.64	1.50	2.07	2.33	5.03	3.68	3.24	2.74	2.99	4.46	6.70	5.58	3.07	5.14
Prolin (mgg ⁻¹)	9.35	8.36	8.85	17.82	12.33	15.07	10.40	14.08	12.24	18.02	15.17	16.60	13.77	28.47
Peroxides activity	13.77	9.62	11.69	8.26	4.37	6.32	14.61	10.84	12.73	9.59	5.89	7.74	22.15	10.68
Spad	2.74	5.82	4.28	11.53	7.08	9.31	3.38	7.71	5.54	12.33	8.62	10.47	6.81	17.10
K gkg ⁻¹ dry weight	17.47		17.47	21.99		21.99	18.32		18.32	23.23		23.23	34.32	42.90
Na g/kg	10.47		10.47	6.64		6.64	12.63		12.63	8.65		8.65	17.75	10.51

GA for Plant height (18.64%) while low lower value was estimated for days to 50% silking (1.25%). While under salinity stress GA ranged from 1.84 to 2.9 per cent for different characters. High GA for K gkg⁻¹ (42.9%) followed by grain yieldplant⁻¹ (g) (42.83%). GA between 10 to 20% were observed for Ear height (19.7%) and 100-grain weight (19.43%) while low lower value were estimated for days to 50% silking (1.84%). Similar findings in maize were also reported by Kumar et al., (2014).

CONCLUSION

Phenotypic coefficient of variation (PCV) in salinity stress increased comparing with control condition in the most characters under study. Potassium content and grain yieldplant⁻¹ expressed high genetic advance under genotypes and salinity levels condition conditions, which indicated the preponderance of additive gene action in controlling these traits. Hence direct selection of such characters would be effective in improving the yield. Emphasis should be given on these characters, while selection to improve yield potential of crop.

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PS-37: COMBINING ABILITY OF SOME MAIZE INBRED LINES AND THEIR CROSSES UNDER SALINITY CONDITIONS

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ABSTRACT: This study was conducted to estimate GCA and SCA of some maize for agronomic traits and Yield and yield components by using diallel analysis under soil salinity conditions. The best parental inbreds were those showing positive and significant GCA effects for all studied traits except earliness traits. Analysis of variance displayed significant mean squares associated with general and specific combining abilities under control (T1) for all traits under study in both seasons except GCA and SCA mean squares for days of 50% silking and No. of rows ear⁻¹, revealing that, both non-additive and additive gene were determination the performance Under salinity stress levels, analyses of variance, indicated significant mean squares due to both GCA and SCA for all studied traits except GCA and SCA mean squares for number of leaves plant⁻¹, No. of rows ear⁻¹ and Shelling % both seasons, revealing the importance of additive as well as non-additive genetic effects.

KEYWORDS: Maize, inbred lines, Salinity, GCA, SCA.

INTRODUCTION

Maize is increasingly cultivated in Egypt. As the world population continues to increase, more food needs to be grown to feed the people. This can be achieved by an increase in cultivated land and by an increase in crop productivity per area. Maize (*Zea mays* L.) is moderately sensitive to salt stress. Genetic variability among individuals in population offers effective selection. The magnitude of general and specific combining ability present in population is of paramount importance for the success of any plant breeding program. Heritability alone provides no indication of the amount of genetic improvement that would result from selection of individual genotypes.

OBJECTIVES

The objective of this study was to estimate the amount of combining abilities (GCA and SCA) for some maize inbred lines under four soil salinity conditions.

METHODS

In summer 2014, half diallel crosses were made among the six inbred lines P₁ (45), P₂ (7), P₃ (1), P₄ (8M) P₅ (5) and P₆ (3) resulting in 15 F₁ crosses. The F₁'s and their inbred parents were evaluated under four levels of salinity condition (T1) 1.5 (control), (T2) 2.5, (T3) 3.5 and (T4) 5.5 dSm⁻¹ in summer 2015 and 2016 at east bitter lakes Experimental Farm Faculty of Agric. Suez Canal University (Sinai). Estimation of combining ability ANOVA of GCA and SCA and their effects were computed according to method II, model I of Griffing (1956) using computer program software dial 98 version 2

RESULTS & DISCUSSION

Analysis of variance under control (T1) displayed significant mean squares associated with general and specific combining abilities for all studied traits in both seasons except GCA and SCA mean squares for days of 50% silking and No. of rows ear⁻¹, revealing that, both additive and non-additive types of gene action were involved in determining the performance of single-cross progeny. Under salinity stress levels, analyses of variance for the studied traits indicated significant mean squares due to both GCA and SCA for all studied traits except GCA and SCA mean squares for no. of leaves plant⁻¹, no. of rows ear⁻¹ and Shelling % both seasons, revealing the importance of additive as well as non-additive genetic effects. To find out the relative importance of each genetic variance type, GCA/SCA ratio was computed for each irrespective case. GCA/SCA ratio was fluctuated according to salinity stress. High ratios largely exceeded unity were obtained for days to no. of leaves plant⁻¹, ear length, 100-grain weight, grain yield plant⁻¹ (g), POD activity, SPAD reading, K and Na (g kg⁻¹) under both conditions, indicating that the largest part of the total genetic variance was a result of additive and additive x additive types of gene action in controlling these traits. While, the other traits with low values at control and salinity stress which less than unity indicating that non-additive type gene action had more important part of the total genetic variability. These findings are in agreement with those of El-Ghonemy (2015) and Hassan et al. (2016).

1- general combining ability

The best parental inbreds were those showing positive and significant GCA effects for all studied traits except earliness traits. For days to 50% anthesis and days to 50% silking, negative estimates (GCA) and significant are considered desirable as those were observed to be associated with earliness. The data of parental lines P₁, P₃ and P₄ showed negative and significant general combining ability effects and they considered as the best general combiners for these traits. For plant height and ear height under both conditions results showed that the parental lines P₁, P₂ and P₃ expressed significant positive effects and had more genes for tallness. The results of GCA effects in the lines for number of leaves plant⁻¹ showed that the parental lines P₂ and P₃ had significant positive values for GCA effects. While P₅ and P₆ showed significant negative GCA effects for this trait under both conditions. It is of great attention to note that inbred lines P₁ and P₂ gave positive and significant GCA effects for yield and yield components in most cases under study, revealing that these inbred lines are good combiners for yield. Mousa (2014) reported that GCA effects were desirable and significant for grain yield and its components. The results of GCA effects for relative water content, proline content, peroxides activity and SPAD reading showed the highest positive values of GCA effects were exhibited by P₁ and P₂. Regarding to K content under control and salinity levels, the parental lines P₁, P₂ and P₃ had positive and significant effects for this trait. On the other hand the parental lines P₄, P₅ and P₆ showed negative

general combining ability effects. On the contrary regarding to Na content, parental lines P4 and P5 showed positive general combining ability effects. While the parental lines P1, P2 and P3 had negative and significant effects in most cases for this trait.

2. Specific combining ability effects

For days to 50% anthesis and silking the results presented showed that the most superior crosses to give the earliest ones of these traits were $P_1 \times P_2$, $P_1 \times P_3$ and $P_5 \times P_6$, since they had negative and significant effects in both seasons. The crosses $P_1 \times P_4$, $P_2 \times P_3$, $P_3 \times P_4$ and $P_5 \times P_6$ had positive and significant SCA effect for plant height in both seasons. Number of leaves plant⁻¹ showed significant positive SCA effects for crosses $P_1 \times P_5$, $P_2 \times P_3$ and $P_4 \times P_6$ in both seasons, $P_1 \times P_2$ in the 2nd season. In the both season, also, cross $P_3 \times P_5$ in control (1.5dSm⁻¹) $P_1 \times P_3$ in 3rd soil salinity levels (5.5dSm⁻¹) showed significant positive SCA effects. While $P_1 \times P_4$, $P_1 \times P_6$, $P_2 \times P_4$ and $P_4 \times P_5$ showed significant negative SCA effects for this trait in both conditions. Regarding to grain yield plant⁻¹ and 100-grain weight 5 crosses out of 15 cross combinations showed positive and significant sca values, $P_1 \times P_4$, $P_2 \times P_3$, $P_5 \times P_6$, $P_1 \times P_5$ and $P_4 \times P_6$ were the top best specific combinations. This must be due to gene complementation between the parents, which has led to increased grain yield plant⁻¹. These results were in agreement with reports of El-Shamarka et al. (2015).

CONCLUSION

The best parental inbreds were those showing positive and significant general effects for all studied traits except earliness traits. The inbred lines p1 and p2 were good combiners for grain yield and most of the yield component traits under inbred lines and soil salinity levels conditions. The best specific combining ability effects for grain yield were $P_1 \times P_4$, $P_2 \times P_3$, $P_5 \times P_6$, $P_1 \times P_5$ and $P_4 \times P_6$. These top crosses might be of interest in breeding programs to improve grain yield under both conditions.

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PS-38: INFLUENCE OF SOME WATER CHEMICAL PROPERTIES ON THE SOLUBILITY OF PHOSPHATE SALTS

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ABSTRACT: Phosphorus (P) plays an important role on Earth ecosystems. Moreover, excess of soluble P could exacerbate environmental hazards such as eutrophication in water. However, the solubility of different sources of inorganic phosphate in water has been not well investigated in Egypt. The objective of this study was to investigate the effect of some chemical properties (ionic strength, SAR, adj. SAR) of six different water sources from Suez Canal region on the solubility of three phosphate salts (ordinary superphosphate OSP ($\text{Ca}(\text{H}_2\text{PO}_4)_2 + \text{CaSO}_4$), pure tricalcium phosphate TCP ($\text{Ca}_3(\text{PO}_4)_2$) and rock phosphate (RP). The water sources used were collected from well water (WW), blended water (BW), farm fish water (FFW), Nile water (NW), agricultural drainage water (ADW) and sea water (SW). These waters were filtered and analyzed for some chemical parameters. Under laboratory conditions, 1 g of each salt was applied to 50 ml of each water source, shaken for 30 min., left for equilibrium. After 3 days was shaken again for 30 min., filtrated through Whatman paper grade 44. The filtrates were analyzed for dissolved P using spectrophotometer with the molybdenum-blue method. Generally, the obtained results indicate that the solubility of three phosphate salts were increased as increasing the ionic strength (decrease in activity coefficient). The highest solubility of P from OSP, TCP and RP was observed in SW that has ionic strength and SAR 0.6 mol dm^{-3} and 40.4, respectively, when compared to other water sources. However, the lower solubility

of P in NW that has ionic strength and SAR $0.007 \text{ mol dm}^{-3}$ and 1.3, respectively. These findings could be partially explained by the formation of ion association (ion complex and ion pair). Increasing in ionic strength reduce the attractive force between ions. From previous results, the solubility of P was varied based on the chemical properties of water particularly ionic strength and electrical conductivity (EC). Consequently, lead to an increase of soluble P and water pollution.

KEYWORDS: Ionic Strength, SAR, Adj. SAR, Phosphate salts, Solubility.

INTRODUCTION

Phosphorus plays an important role in chemical and biochemical processes and is a key factor in the eutrophication of surface water. Water eutrophication is one of the most worldwide environmental problems. The mechanisms of eutrophication are not fully understood, but excessive amount of P into aquatic ecosystems is the major factor [1]. Rock phosphate (RP) is used as a raw material in the manufacture of inorganic phosphorus fertilizers and can be applied directly to the soil. Direct application of RP can slightly increase PO_4^{3-} level, consequently increases crop yield. Therefore, the solubility of inorganic phosphate salts has an important impact in agriculture, aquaculture, biochemistry, industrial chemistry, and environmental chemistry [2]. The solubility of a salt in water can be depends on type of salt, ionic strength, temperature....etc. However, few studies focused on the effect of salinity or ionic strength on P solubility in water.

OBJECTIVES

The objective of this study was to investigate the effect of some chemical water properties (ionic strength, SAR and adj. SAR) of six different water sources from Suez Canal region on the solubility of three phosphate salts; OSP, pure TCP and RP under laboratory conditions ($25 \pm 2^\circ\text{C}$).

METHODS

Water samples were collected from Suez Canal region (Table 1) during March 2016, kept in plastic bottles and brought to the laboratory for further investigations. The water samples were filtrated and analyzed [3]. Some selected parameters were calculated; Ionic strength, SAR and adj. SAR [4, 5]. Three phosphate salts; ordinary superphosphate ($\text{Ca}(\text{H}_2\text{PO}_4)_2 + \text{CaSO}_4$) (OSP), pure tricalcium phosphate ($\text{Ca}_3(\text{PO}_4)_2$) (TCP) and rock phosphate (RP) were sieved through 60 mesh (0.25 mm). One gram of each salt was applied to 50 ml of each water source in plastic bottle (100 ml), shaken for 30 min., left for equilibrium. After 3 days the bottles were shaken again for 30 min., and filtrated through Whatman paper grade 44. Soluble P was measured in the filtrates spectrophotometrically with the **molybdenum-blue method [6].

RESULTS & DISCUSSION

Table 1 shows the locations of water sources and some chemical properties. The results indicate that EC, SAR and adj. SAR were higher in SW and WW than other water samples. The major cations (Na^+ , Ca^{2+} , and Mg^{2+}) comprise around 90% from cations. The ionic strength of water samples ranged from 0.007 to 0.6 mol dm^{-3} and soluble P ranged between 0.013 and 0.933 mg l^{-1} (Table 1). The results reveal that ionic strength play a significant role in increasing the solubility of sparingly inorganic phosphate salts as shown in Fig. 1. It can be observed that the solubility for every salt was raised as increasing of water ionic strength. The increases in solubility of OSP, pure TCP and RP were observed in SW that has ionic strength and SAR 0.6 mol dm^{-3} and 40.4, respectively, while the lower solubility of P in NW has ionic strength and SAR $0.007 \text{ mol dm}^{-3}$ and 1.3, respectively. Similarly, the results also indicate that the increase in EC or ionic strength cause an increase in solubility of sparingly inorganic phosphate salts in waters. These findings could be partially explained by the formation of ion association (e.g. ion complex and ion pair). Several studies reported that the formation of ion association (decrease in activity coefficient) consequently, could increase the solubility of an electrolyte [7].

Table1. Some chemical properties of tested water, (I) ionic strength and (P) soluble P.

Location	Water sources	EC (dSm ⁻¹)	pH	SAR	Adj. SAR	I (mol dm ⁻³)	P (mg l ⁻¹)
Sarabium	well water (WW)	5.72	7.73	13.1	33.0	4*10 ⁻²	0.082
El-Salam Canal	blended water (BW)	1.16	7.17	3.10	8.06	8*10 ⁻²	0.329
Om-Elkora	farm fish water (FFW)	4.55	7.17	1.66	5.41	6*10 ⁻²	0.933
Abo-sultan	Nile river water (NRW)	0.374	7.82	1.30	2.83	7*10 ⁻³	0.013
Kabrait	agricultural drainage water (ADW)	2.22	7.30	0.22	0.710	3*10 ⁻²	0.082
Abo-sultan	Sea water (SW)	45.5	7.75	40.4	98.0	6*10 ⁻¹	0.041

$$SAR = \frac{Na^+}{\sqrt{\frac{Ca^{+2} + Mg^{+2}}{2}}} \quad Adj.SAR = SAR [1 + (pH - 8.4)] \quad \text{Ionic Strength (I)} = \frac{1}{2} \sum m_i Z_i^2 \text{ (mol dm}^{-3}\text{)}$$

CONCLUSION

The solubility of inorganic phosphate salts was varied based on the chemical properties of water (ionic strength, EC and SAR). It can be concluded that phosphate pollution increased in marine ecosystems (more environmental problems) as compared to fresh water ecosystems.

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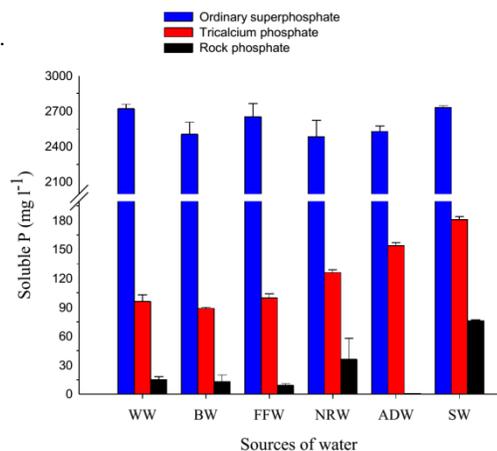


Fig. 1. Effect of water sources on the solubility of P salts

PS-39: EFFECT OF PHOSPHATE SOLUBILIZING MICROORGANISMS ON PLANT GROWTH AND SOIL ENZYME ACTIVITY

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ABSTRACT: The goal of this research was to assess the performance of phosphate dissolving bacteria (PDB) (*Pseudomonas fluorescens*, *Serratia marcescens*, *Bacillus megaterium* and *Bacillus subtilis*) to solubilize rock phosphate (RP) in broth medium. The synergistic effects of mycorrhizae and PSB with and without RP on wheat growth, yield and the activity of phosphatase in a natural unsterile sandy P-insufficient soil were evaluated under greenhouse pot experiment. In general, the levels of dissolve P increased with longer incubation periods and the amount of P that was released into the NBRIP broth medium was dependent on the type of strain. The amount of P solubilized of RP reached 46.31, 10 days after an inoculation with *Pseudomonas fluorescens* and the pH values of the medium were reduced from initial value of 7.3 to value 4.20. *Pseudomonas fluorescens* strain was the most efficient strain in solubilizing RP and in decreasing the pH value. The inoculation with PDB strains and mycorrhizae significantly increased the alkaline phosphatase activity of the rhizosphere soil of wheat plants when compared to single inoculation. Similarly, the combined inoculation with mycorrhizae and PDB synergistically increased wheat plant growth and yield when compared to the single inoculations. From previous results, co-inoculation of mycorrhizae and PSB improved wheat growth, yield and increased the activity of alkaline phosphatase.

KEYWORDS: AM fungi, Phosphate solubilizing bacteria, wheat, alkaline phosphatase.

INTRODUCTION

Phosphorus is one of the common essential macronutrients for plants and is added to soil as phosphatic fertilizers. However, a enormous amount of available inorganic phosphate added to the soil is rapidly fixed and converts to unreachable for plants [1]. Many newly reclaimed soils in Egypt already under excessive applications of chemicals and pesticides, and signs of severe environmental and health impacts have already been detected. Arbuscular mycorrhizal (AM) fungi and phosphate dissolving bacteria (PDB) could be an important biotechnological tool for sustainable agriculture by their positive effect on soil fertility, crop productivity and quality and could reduce the costs for chemical fertilization and pesticides [2, 3]. In soils with a low P bioavailability, PDB could release P ions from sparingly soluble inorganic and thereby contribute to an increase in the soil P pool that is available for the extraradical mycelium of the AM fungus and that can be moved to the host [4]. The presence of P-solubilizers in the soil increases the positive effect of mycorrhizal interactions on P nutrition and solubilization of P from rock phosphate [5]. Previous studies involving the inoculation with PDB and AM fungi have been conducted in sterile soils where competition from indigence microorganisms is disregarded [3, 5]. However, few studies conducted with non-disinfected soils under pot conditions and study the impact of dual inoculation with PDB and AM fungi on dry matter production and nutrients uptake.

OBJECTIVES

The targets of this research were to 1) investigate the performance of local four phosphate dissolving isolates for releasing P from rock phosphate in broth medium and 2) evaluate the synergistic effects of AM fungi and phosphate solubilizing rhizobacteria with and without rock phosphate on wheat growth, yield and the concentration of NPK in a natural unsterile sandy P-insufficient soil under greenhouse pot experiment. The impact of phosphate dissolving rhizobacteria alone or in combination with mycorrhizae on the activity of alkaline phosphatase was also examined.

METHODS

The capability of tested isolates to dissolved RP was evaluated *in vitro* using National Botanical Research Institute's phosphate (NBRIP) broth medium [6]. The trial was carried in 100 ml conical flask containing 40 ml of sterilized NBRIP broth medium. To each flask, 0.5 g RP was added and inoculated by adding 0.5 ml aliquots of actively growing isolates. The preliminary pH was regulated to 7.3 to ensure a minimum concentration of soluble phosphate. The flasks were incubated at 30°C and triplicate samples were booked after 0, 2, 3, 7, 10, 12 and 14 days post inoculation. Soluble P in the supernatants was determined spectrophotometrically using the molybdenum blue method [7]. The pH of the broth medium was also measured with a digital pH meter after consistent periods. A pot experiment was also conducted in the greenhouse at the Experimental Farm of the College of Agriculture, Suez Canal University, Ismailia. The soil was uniformly packed in plastic pots each of 30 cm height at a rate of 25.0 kg pot⁻¹. The soil was completely mixed with 250 g air-dried chicken manure. The experimental layout involves 2 blocks one with and the other on without AM inoculation. Each block divided into ten different sections, five rhizobacteria treatments (non-inoculated control or inoculation with one of the four P-solubilizing rhizobacterial strains) and two fertilizer treatments (control soil and RP application). All these treatments replicated three times, giving a total of 60 experimental units that organized in a randomized complete block (factorial) design. Eight inoculated wheat seeds (*Triticum aestivum* cv. Gemeza 9) were sown in each pot and irrigated to almost soil field capacity with Ismailia canal water. The seedlings were reduced to 4 regular plants pot⁻¹ after 2 weeks from sowing. The plants were harvested after 69 days (vegetative stage) and 130 days (ripeness stage) from sowing, dried at 65 °C and shoot dry weight, straw and grains were recorded, then analyzed for N, P, K. Soil samples were also collected at the two abovementioned growth stages for determined available P, pH and measured the activity of alkaline phosphatase.

RESULTS & DISCUSSION

In general, the level of dissolve P increased with longer incubation periods and the quantity of P that was released into the NBRIP broth medium was dependent on the type of strain. The quantity of P solubilized of rock phosphate (RP) reached 46.31, 10 days after an inoculation with *Pseudomonas fluorescence* (Fig. 1) and the values of pH in the

medium were reduced from initial value of 7.3 to value 4.20. The reduction of pH values evidently indicates the excretion of organic acids by phosphate dissolving bacteria (PDB) strains [8]. It has suggested that the isolates that decreased the medium pH through growth are effective P solubilizers. Additionally, chelate compounds may be also responsible for solubilization of RP [9]. At vegetative stage, the dual inoculation with AM fungi and PDB increased shoot dry weight of wheat when compared to non-inoculated plants or single inoculations. The application of RP enhanced shoot dry weight of wheat in AM-inoculated plant but slightly affect in non-AM-inoculated plant. The maximum shoot dry weight was recorded in the soil amended with RP and inoculated with *Bacillus subtilis* in AM fungi inoculated soil. The application of AM fungi and bacterial inoculations alone or in combination had a positive impact on soil enzymes like alkaline phosphatase (data not shown).

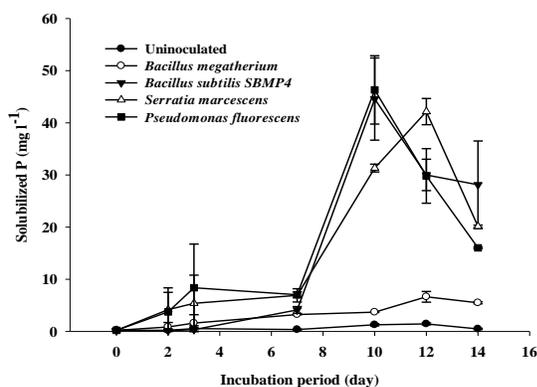


Fig.1 Solubilized P during rock phosphate solubilization by tested strains. Error bars denote the standard deviations.

CONCLUSION

Pseudomonas fluorescens strain is an efficient P solubilizers in liquid culture. The inoculation with AM fungi and/or phosphate dissolving bacteria increased wheat plant growth, yield and increased the activity of alkaline phosphatase under greenhouse pot experiment.

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PS-40: HYDRAULIC CALIBRATION OF SIMPLE ECONOMIC LOW HEAD COILED-TUBE EMITTER

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ABSTRACT: *Clogging, complex design with 100kPa operating pressure have been the main problems in trickle irrigation emitters. To overcome these problems a laboratory experiment was examined the coiled-tubes hydraulic characteristics as emitter. The coiled-tubes diameter (C_d) of 3.8, 5.2 and 6.8mm with lengths (C_l) of 0.5, 0.75 and 1.0 m were evaluated under operating pressures of 3, 6, 9, 12 and 15kPa. The discharge (C_q) of 3.8mm C_d with all lengths increased from 21.6 to 76.5l/h under tested pressures. While the C_q of 5.2mm C_d with all lengths increased from 60.23 to 168.5l/h under tested pressures. Whilst the C_q of C_d 6.8mm with all lengths increased from 116.16 to 323.07l/h under tested pressures. The coiled-tube exponent x was between 0.4 to 0.6 which considered turbulent flow. The manufacturer's coefficient of variation (C_v) was between 0.007 to 0.049 which classified as excellent for all.*

KEYWORDS: *Emitter, Design, Low Head, Coiled-Tube, Laboratory, Discharge, exponent, Classification.*

INTRODUCTION

The design of trickle irrigation emitters is sophisticated and typically operated at 100 kPa and exposed to clogging problems. Most rural communities in devolving countries consists of smallholder farmers whose low income hinders whose can't adopt with complex techniques. Using the small tubes as an alternative to current emitters can be a solution to these problems. The factors affecting coiled-tube hydraulic design were diameter, length, operating pressure. The main objective of emitter hydraulic design is calculating the head losses. Watters and Kellers (1978) calculated the head losses for smooth small diameter pipes (4 to 12 mm) by using Blasius formula. Several studies have been reported that the Blasius equation is an accurate predictor of the Darcy-Weisbach friction factor Von Bernuth and Wilson, (1989). Hydraulic performance evaluation which is used to determine and verify the characteristics of the coiled-tube emitter. The hydraulic calibration parameters are including coefficient of manufacturing variation (C_v) and (k, x) parameters.

OBJECTIVES

The objective of this work was to study the effect of operating pressures for different lengths and diameters of mean coiled-tube discharge and manufacturer's coefficient of variation and discharge equation constants k, x .

METHODS

A laboratory experiment (Fig. 1) was carried out to measure the coiled-tube discharges at different effective operating pressures (3,6,9,12 and 15kPa) with different lengths of 1, 0.75 and 0.5m for diameters of 3.8, 5.2 and 6.8mm. Then the coiled-tube discharge equation constant k and exponent x was calculating:

Where C_q : coiled-tube discharge rate (ℓ/h), k : dimensionless constant of proportionality that characterizes each coiled-tube, h : operating Pressure head (m). x : dimensionless discharge exponent.

The coiled-tube manufacturer's coefficient of variation (C_v), was calculated by measuring the discharge from a sample of the coiled-tube after **ASABE EP405.1 (2008)** as follows:

$$C_v = \frac{S_d}{\bar{X}}$$

Where C_v : the coiled-tube manufacturer's coefficient of variation, S_d : the standard deviation of the coiled-tube discharge in the sample (ℓ/h), and \bar{X} : mean coiled-tube discharge (ℓ/h)

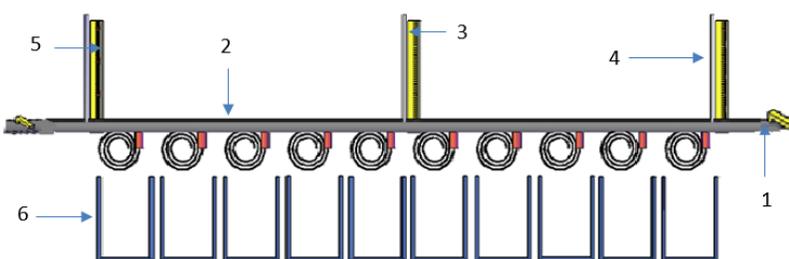


Figure (1): Setup diagram for coiled-tube calibration. 1: Valve, 2: Lateral pipe, 3: Steel tape, 4: Piezometer tube, 5: coiled-tube and 6: Plastic collector.

RESULTS & DISCUSSION

As shown at Table 1, Increasing operating pressure from 3 to 15kPa increases coiled-tube discharge diameter 3.8mm from 21.6, 28.7 and 32.2 to 58.3, 68.5 and 76.5 ℓ/h with coiled-tube length of 1.0, 0.75 and 0.5m, respectively.

Table (1): Mean coiled-tube discharge, (C_q) and manufacturer's coefficient of Variation, (C_v) at different effective pressures, (p_e) for different lengths, (ℓ) and diameters of 3.8, 5.2 and 6.8 mm.

coiled-tube diameter	p_e , kPa	$\ell = 1$ m				$\ell = 0.75$ m				$\ell = 0.5$ m			
		C_q , ℓ/h	k	x	C_v	C_q , ℓ/h	k	x	C_v	C_q , ℓ/h	k	x	C_v
3.8 mm	3	21.5	44.7	0.6	0.049	54.0	0.5	0.049	32.7	59.8	0.5	0.048	
	6	32.8			0.047			41.9	0.041			47.1	0.041
	9	42.3			0.039			51.9	0.033			58.6	0.037
	12	50.4			0.033			61.1	0.031			68.2	0.034
	15	58.7			0.029			69.5	0.029			77.6	0.028
5.2 mm	3	60.2	112.0	0.5	0.047	126.2	0.5	0.033	78.3	136.7	0.5	0.049	
	6	85.0			0.046			98.0	0.013			108.4	0.047
	9	104.7			0.045			120.4	0.013			132.3	0.039
	12	123.9			0.043			136.0	0.009			147.1	0.036
	15	139.7			0.037			155.6	0.007			168.6	0.029
6.8 mm	3	116.2	205.1	0.5	0.018	259.6	0.4	0.039	171.4	274.4	0.4	0.035	
	6	162.1			0.022			210.0	0.024			226.7	0.022
	9	189.6			0.020			247.3	0.021			262.3	0.022
	12	224.8			0.021			280.7	0.026			293.9	0.016
	15	252.8			0.022			308.9	0.028			323.1	0.019

While the coiled-tube diameter 5.8mm, increasing operating pressure from 3 to 15kPa increase the coiled-tube discharge from 60.23, 70.48 and 78.26 to 139.75, 155.57 and 168.59 ℓ/h with length of 1.0, 0.75 and 0.5m, respectively. Whilst increasing the operating pressure from 3 to 15kPa increases the coiled-tube discharge from 116.16, to 252.76, 154.73 to 171.37, 308.85 and 323.07 ℓ/h for coiled-tube diameter 6.8 mm with length of 1.0, 0.75 and 0.50, respectively. Then the coiled-tube discharge equation exponent x was ranged between 0.4 to 0.6 which considered turbulent flow. C_v values were ranged between 0.007 to 0.049. The manufacturing variation coefficient classification was considered excellent.

CONCLUSION

The results indicated that the discharge of coiled tube increasing proportionally with operating pressure and inversely with coiled-tube length. The coiled-tube discharge exponent x was turbulent flow which ranged between 0.4 to 0.6. The manufacturer's coefficient of variation (C_v) values was excellent classification between 0.007 to 0.049.

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PS-41: A NEW LOW HEAD IRRIGATION EMITTER

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ABSTRACT: Water is one of the most precious resources in worldwide, improving agricultural water use efficiency is vitally important by innovative irrigation systems. Energy costs are high in most countries. There is a need to reduce significant energy being used in an irrigation system. The objective of this study is developing a low head emitter manufactured from clay soil and organic materials. The work was divided into two calibration experiments which carried out in Agriculture Engineering Department, Faculty of Agriculture, Suez Canal University, Ismailia, Egypt. The emitter was fabricated from bentonite clay with straw by three percentages of 1%, 2% and 4 % for emitters Em₁, Em₂ and Em₃, respectively. Two calibration criteria to evaluate the developed emitters were specified. The first criterion was Hydraulic Characteristics of a design of the clay emitter; the second criterion was hydraulic calibration of the developed emitter. Emitters discharges were measured, then emitters exponents x , and coefficients of manufacturing variation, CV, were calculated at five low head operating pressures of 0.2, 0.4, 0.6, 0.8, and 1.0 meter. Suitable design for the clay emitter was the hollow cylindrical shape. Em₃ was having maximum average discharge.

KEYWORDS: *Clay Emitter, Discharge, Pressure Head, Coefficients of Manufacturing Variation (CV), Soils.*

INTRODUCTION

Low head microirrigation is a technique that enables us to save water and energy while economical, less laborious and more efficient irrigation can be achieved (Ngigi, 2008). Energy costs are more significant than water costs in most countries. Today most irrigation techniques have been developed for conditions under which fossil energy sources deliver pump energy as needed (Rashad, 2013).

Subsurface clay emitter irrigation is comparatively a new method of irrigation. It is widely considered to be a very promising method for small scale irrigation in arid and humid regions. Additionally, it can be used to improve irrigation uniformity and water use efficiency in a number of different cropping systems. The method allows one to supply the required amount of water by seepage from below the soil surface to the crop at the right place and the right time. The greatest advantages of clay emitter are that it consumes very low energy and water.

OBJECTIVES

Find a suitable proportion of clay and straw for making clay emitter. Find a suitable design for the clay emitter. Study clay emitters' discharge, then emitters' exponents x , manufacturer's coefficient.

METHODS

In these study three types of clay emitter was fabricated. The most important component of suction irrigation system is the emitters. These emitters can be fabricated locally by mixing clay and straw at specific proportions. Type **Em₁** was made from 99% pure clay (bentonite) and 1% straw, Type **Em₂** was 98% clay and 2% straw, and Type **Em₃** was 96% clay, 4% fine straw.

2.1Emitter fabrication: This emitter was fabricated by mixing clay and straw at specific proportions. Shaping the emitter can be done using moulds or specially designed extruders. The emitter is dried in the shade and then fired to about 105° C for 24 hours. The water emission rates of emitters will depend on the proportion of clay and straw wall thickness, surface area, and type of soil, The emitter is connected to the tank with water using plastic tubes.

2.2Emitter calibration: This Laboratory experiment was undertaken to evaluate the hydraulic performances of three clay emitters under laboratory conditions. Main objectives were to: Measure emitter discharges at five operating pressures and compare these results with manufacturers' rated discharges, determine the emitter discharge exponents, x , and evaluate the flow regime of each type of emitter and calculate the coefficients of manufacturing variation, CV, at five operating pressures, in order to establish the emitters flow rate sensitivity to pressure.

Coefficient of variation (CV): The manufacturer's coefficient of variation is determined from flow rate measurements for several identical emission devices and is computed with the following equation as follows (ASABE, 2008):

$$Cv = SD/qa$$

Where: Cv = manufacturer's coefficient of emitter variation, q_a = the mean discharge of emitters in the sample at a reference pressure head (L/h), SD = standard deviation of the discharge of the emitters in the sample at that reference pressure head (L/h).

The emitter exponent (x): The emitter discharge exponent (x); is a measure of the sensitivity of the emitter flow rate to changes in pressure. This exponent is dimensionless and it is independent of the units used to measure flow rate and pressure (Smajstrla et al., 2011).

RESULTS & DISCUSSION

The obtained results have been led to the following recommended points:

- 1- The clay emitter developed were three type **Em₁** (1% straw and 99%clay) **Em₂** (2% straw and 98%clay) and **Em₄** (4% straw and 96%clay), Suitable design for the clay emitter was the hollow cylindrical shape because it is the best in surface area and because its streamline shape and easier in field operation and EM3 was the best in average discharge at all experiment.
- 2- The CV values were relatively insensitive to operating pressure head 0.2, 0.4, 0.6, 0.8, and 1 meter For **Em₁** was 0.59, 0.52, 0.44, 0.42 and 0.37, for **Em₂** was 0.15, 0.16, 0.16, 0.186 and 0.19 and for **Em₃** was 0.11, 0.07, 0.12, 0.09 and 0.12.
- 3- The emitter exponent (x) was 0.39, 0.28 and 0.055 for Em1, Em2 and Em3 respectively.

CONCLUSION

From result a new low head emitter will be a promising system because it consumes very low energy and water. **Em₃** was the best in average discharge, Coefficient of manufacturing variation (CV) and the emitter exponent (x).

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PS-42: ENHANCING PERFORMANCE OF CIRCULAR HOLLOW SECTION T-JOINTS

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ABSTRACT: Structures with tubular members are widely used in steel structures, due to their economical and functional advantages. Applications of tubular joints in steel structures are found in steel bridges, space trusses, trussed Frames & steel latticed towers. In this study, the Enhancing performance of circular hollow section T-joints using vertical brace member and chord member with steel plate stiffener shall be investigated analytical under axial load mode. Finite element method is used in the analytical part of the research on stiffened and un-stiffened T-joints with different dimensions parameters. Results developed by finite element analysis are compared with numerical method result by CIDIC code for un-stiffened circular T-joints.

KEYWORDS: Circular hollow section, T-joint, Stiffened hollow-section, Yield stress.

INTRODUCTION

Circular hollow steel sections are becoming increasingly popular. The ultimate and reserve strengths of such structures depend significantly on the member and joint responses. There are many limits of applicability to the use of stiffened circular hollow sections. Most current standards for steel structures are the American Institute of Steel

Construction (AISC, 2005), and (CIDECT 2008). It is necessary to investigate the ductility of these stiffened circular hollow sections and structural behavior .

OBJECTIVES

The objectives of this study were as following; determine the overall behavior and load capacity of stiffened and un-stiffened tubular T-joints under loadings analytical methods, provide designers with recommended strength of stiffened tubular T-joints under brace compression force loadings, and provide equations and curves for the strength of stiffened tubular T-joints that can be included in design codes in future.

METHODS

The geometry and some normalized geometrical parameters commonly used for describing tubular T-joint are shown in Fig.(1) Without stiffener and Fig.(2) with 2 stiffeners, Fig.(3) with 4 stiffeners.

Determination of allowable static axial force in brace member by design code CIDECT for T-joints N which is the minimum of:

For the limit state of chord plastification.

$$N_1 = [fy_0 t_0^2 (2.8 + 14.2 \beta_2) \gamma^{0.2} \cdot f (n')] / (\text{Sin } \theta_1)$$

For the limit state of shear yielding (punching),

$$N_p = [fy_0 t_0 \pi d_i (1 + \text{Sin } \theta_1)] / 3^{0.5} \cdot 2 (\text{Sin } \theta_1)^2$$

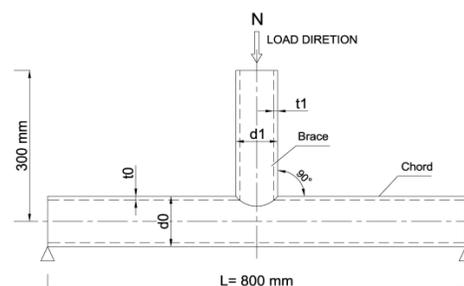
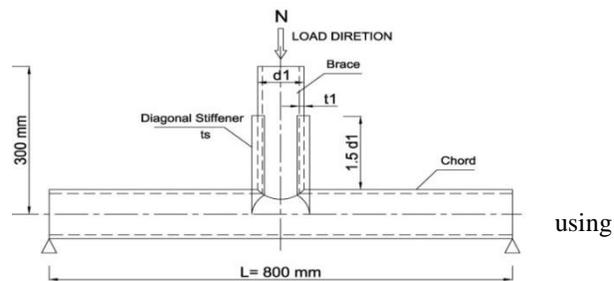


Fig (1): Dimensions of un-stiffened T-joint

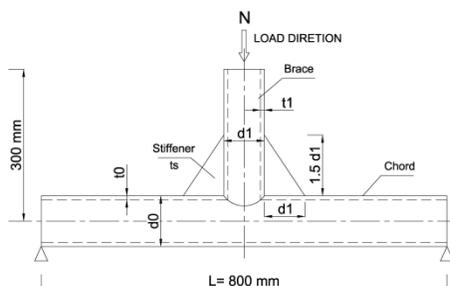


Fig (2): Dimensions of stiffened T-joint With 2 side stiffeners.

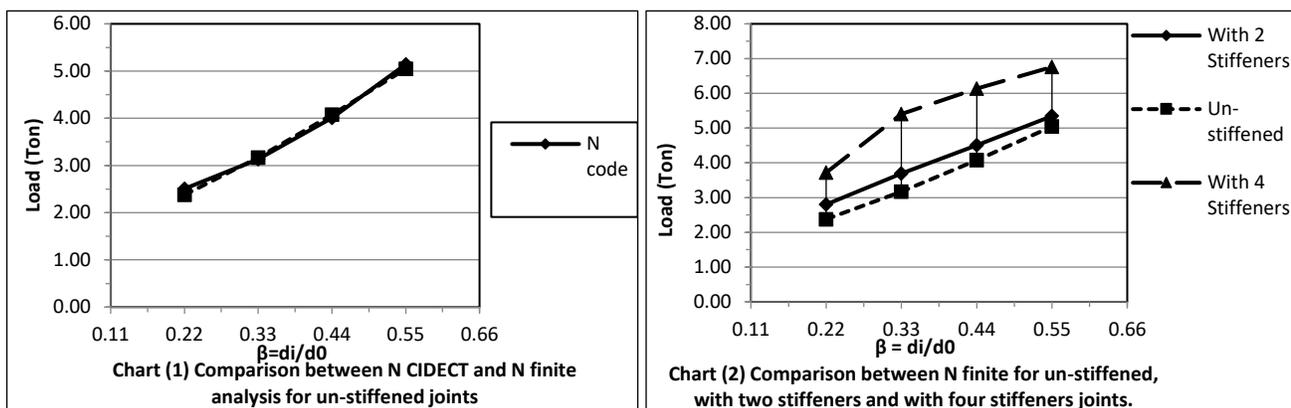
Fig (3): Dimensions of stiffened T-joint With 4 stiffeners.

Material properties of steel: Elastic Modulus = 200 (GPa), Yield Strength = 240 (MPa), Ultimate Tensile Strength = 360 (MPa)

The numerical study for each joint was carried out using the nonlinear finite element program (ANSYS, R14).

RESULTS & DISCUSSION

From Chart (1) shows the comparison between maximum force N from analysis and design code for different joints parameter values, it is appear the compatability between finite element result and CIDICT equations results for un-stiffened joint.



From Chart (2) shows the comparison between maximum forces N from un stiffened, stiffened joints for different joints parameter values, it is clear how the capacity of the joints increased by using two stiffeners with joints and this increasing is more in using four stiffeners than using two stiffeners.

Table (1): Joints Table Results:

No.	Joint	$\beta = di/d0$	N _c (CIDECT)	Un-stiff N _u (finite)	2 stiffeners N ₂ (finite)	4 stiffeners N ₄ (finite)	N _u /N _c	N ₂ /N _u	N ₄ /N _u
1	1	0.22	2.51	2.377	2.801	3.717	0.949	1.178	1.564
2	2	0.33	3.13	3.168	3.688	5.400	1.011	1.164	1.705
3	3	0.44	4.01	4.075	4.511	6.138	1.016	1.107	1.506
4	4	0.55	5.14	5.046	5.346	6.758	0.982	1.059	1.339

CONCLUSION

Enhancing T-joints subjected to brace axial compression forces using stiffeners was proven numerically and analytically to be an effective technique. In case of using two side stiffeners, the strength increasing is found to be 10-18%. In case of using four side stiffeners, the strength increasing is found to be 30-70%. This result is a significant gain compared to the cost and self-weight added. Additionally it is found that by increasing number of stiffeners closely to saddle area of the joints increases the joint capacity than closely to the crown of the joints.

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PS-43: NUMERICAL ANALYSIS OF CRUCIFORM WELDED STEEL CONNECTIONS REPAIRED WITH FRP MATERIALS

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ABSTRACT: Steel cruciform welded connection with adhesively bonded FRP materials were investigated regarding the fatigue performance. Full penetration weld was proposed as the type of welding. The (2-D) finite element method (FEM) was utilized and modeled for two cases. The first Case to evaluate the effect of using FRP only on stress intensity factors (SIF), while the second case was to study the effect of FRP materials fixed with head plate and bolts on SIF (K_I). SIF of mode I (K_I) were calculated for unrepaired and repaired specimens with various FRP materials by J-integral approach. In addition, FEA results of the unrepaired cruciform joint were verified with an analytical results approach. The reduction of stress intensity factors for two cases were clarified. Parametric studies were conducted by linear elastic finite element analysis using Ansys software.

KEYWORDS: Stress Intensity Factor (SIF), FEM, FRP materials, Repair, LEFM, Weld toe crack.

INTRODUCTION

Fatigue damage of existing metallic structures is a specific case of deterioration and occurs when the structure is subjected to cyclic loading during their service life. welded joints are weak points for fatigue strength. according to [1,2], fatigue cracks initiate in the joints at the high stress concentration regions. These regions are weld toe and weld root. Several researches assumed & considered toe cracks because it is very simple to detect with the naked eye as well as with destructive test, they are often found in many applications of engineering welded components. Moreover, there is a high stress concentration located at these points [3]. Many strengthening methods of metallic structures have been adopted to prolong fatigue life. In recent years, repair by adhesively bonded with fiber reinforced polymer (FRP) materials for metallic structures has shown as a hopeful retrofitting approach. This technique was also employed for several materials such as steel or aluminum. In recent years, Chen T et al. [2] conducted fatigue tests on non-load carrying cruciform joints vulnerable to tensile fatigue loading. Fatigue test results showed that the number of cycles enhance to two times compared to control ones. Numerous researches conducted experimental and numerical results have shown that a composite materials patch can delay crack growth propagation and extend the life of welded joints[4]. In this work the SIFs of cracked load-carrying cruciform welded joints initiate from weld toe and bonded with FRP materials have been calculated using a two-dimensional finite element analysis (FEA).

OBJECTIVES

To investigate numerically using finite element analysis the effects of SIF(K_I) of opening mode on strengthening evaluation. The investigation covers strengthening using FRP materials, in addition to FRP materials fixed with head plate and bolts.

METHODS

The geometry configuration of load-carrying welded connection adopted in this research was made of steel head plate (stiffener plate) which is welded to attach main plates at both sides as presented in Fig. 1. Analytical formulae of the SIF for a crack at weld toe of cruciform joint butt weld, according to Maddox SJ [5], was employed. The loading main plate was subjected to 100 Mpa tension stress range. An initial crack length, "a" perpendicular to the loading axis is supposed to exist at the weld toe. The steel specimen's surfaces are adhesively bonded with GFRP sheets as first layer & other four layers were bonded with CFRP sheets. Both, steel welded joint together with the adhesive and FRP materials and fixed with head plate and bolts were simplified to a half (2D) plane strain model due to symmetric. The

FEA model was meshed with PLANE183 which is a higher order 2-D, 8-node or 6-node element and having two degrees of freedom at each node. A symmetrical boundary as supports were defined for all nodes at left part which is the center of stiffener plate as shown in Fig. 2. The values of stress intensity factor (SIF), is calculated by the J-integral method which can be perfect with FEA using Ansys 14.5. The stress intensity factors for unrepaired welded joint under 100 MPa stress range are determined numerically and compared with the analytical formulas results.

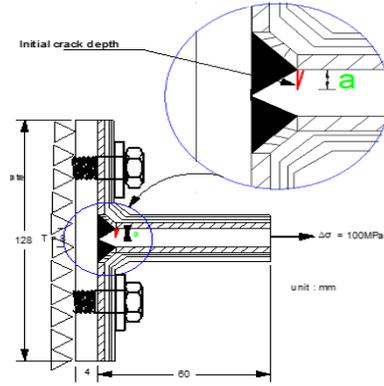


Fig. 1: Geometry configuration model

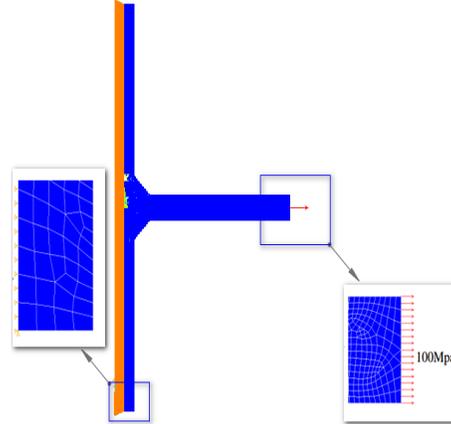


Fig. 2: 2- D FEA meshing with supports and loading of 100MPa

RESULTS & DISSUION

Results are shown graphically (Fig.3 and 4) for these parameters and stress intensity factor (KI). The following Results can be made: The FRP patch layers, had a direct effect on the decreases SIF(KI), the reduction of SIF ranged between (16 - 45) %. The effect of adhesive modulus was insignificant, the reduction reached 7% for small crack depth, while reached 14% for deeper crack length. A higher GFRP or CFRP modulus resulted in more reduction in SIF(KI), this reduction in SIF ranged between (10-17) %.

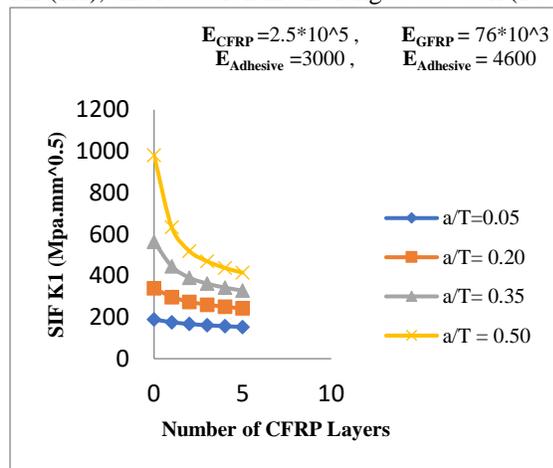


Fig. 3: Relation between SIF and number of FRP layers

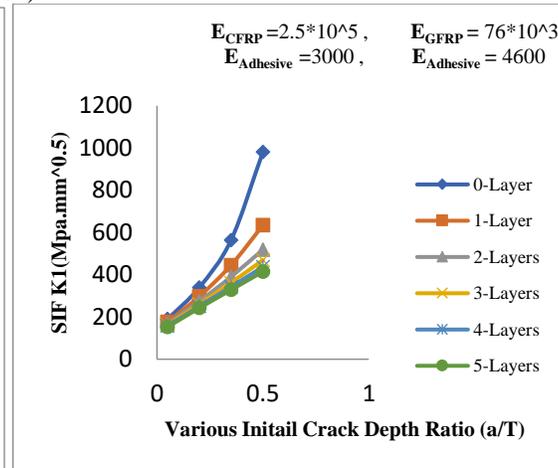


Fig. 4: Relation between SIF (KI) and the initial crack length

CONCLUSION

The effects of many parameters on SIF of opening mode I (K_I) at the tip of crack were calculated using the finite element method by J-integral approach for the two cases. To demonstrate the efficiency of these calculations, cruciform welded joint was investigated and developed numerically & analytically. The results of analytical method



and FEM showed good correlation, although some deviations existed with small and large crack depth. The reductions in the SIF(K_I) were obvious for the two cases.

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PS-44: OPTIMAL DEMAND SIDE MANAGEMENT IN A SMART ELECTRIC GRID BASED ON LOAD SHIFTING

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ABSTRACT: Demand-side management "DSM" has been usually seen as a tool of reducing maximum demand so that electric utilities can delay building additional power stations. DSM has several useful effects that include decreasing electrical system crises, decreasing those numbers of blackouts and increasing system reliability. In this work, DSM based on load-shifting is optimized to reduce the system maximum load and electric utility income and to reduce customer electricity bill. Based on smart metering, day ahead load-shifting method is expressed as a minimization problem and is solved by a novel Antlion optimization (ALO) technique. Simulations are executed on a smart-grid that include a different load in these sectors (residential customers, commercial customers, and industrial customers). Simulation results ensure the advantage of the optimized DSM method in savings of both electric utility and consumers, while decreasing the maximum demand of the grid.

KEYWORDS: DSM, Demand-Side Management, Load Shifting, Smart Grid, Antlion Optimization.

INTRODUCTION

Demand-side management (DSM) is considered as a serious function in power managements of coming smart grids. It has been habitually seen as a tool of reducing maximum demand so that electric utilities can postpone constructing additional power plants. Achievable benefits can also include reshape the demand curve for energy consumption, reducing reliance on expensive incoming fuel, reducing energy bills, and raise the grid continuity by decreasing the total cost and carbon-emission levels to the environment [1]. The planned demand side management system should therefore able to make communication between the central controller and loads that can be controlled. The last, but not the least, gauges for determining the best load consumption can vary largely [2]. There is an inclusive range of DSM-techniques [3]. Programs of demand-side management are growing in replay to the increasing in load and the rising price and time needed taking additional generation add to the service [4]. The load forms which show every-day or every-season electricity demands of residential, commercial and industrial customers between high consumption and low consumption periods be reformed by ways of six methods; peak-clipping (PC), valley-filling (VF), strategic-conservation (SC), load-shifting (LF), strategic load-growth (SLG), and flexible load-shape (FLS). In general, these are the potential demand-side management methods that we can employment for future grid [5, 6].

OBJECTIVES

The objective of this work is to propose a novel optimization method called antlion (ALO) to solve the DSM problem. The DSM problem is the modification of shape load curves by minimizing the overall load of the electric network during the high consumption times and shifting these demands to other suitable times to decrease the price of the network. Also applying the suggested optimization technique on an electric network comprises types of loads; residential, industrial and commercial with different load curves.

METHODS

Load shifting based DSM is executed as after: at each time, load energy (devices number) is decreased by an assured percentage and the residual consumption power is moved with an assured time stride. The two main constraints in this problem are: proportion of load decreasing at t time, and time stride's number at which the residual of the decreased load will be transferred. It should be announced that load-shifting is used only on loads that can be controlled and has flexible to be transferred. This load-shifting problem is solved to reduce the high



demand and consequently minimizing price of power consumption. ALO is applied to solve this problem. ALO simulates the tracking mechanism of antlions (ALs) in nature. The life cycle of ALs containing two essential stages: larvae and adult. A normal life-time take about three years, which generally happens in larvae (only three – five weeks for adulthood). They principally tracking in larvae and the adulthood phase is for propagation. An AL larva Excavations an etcher format pit in the sand and moving in a circulate path and declamation out sands with its massive jaw. After drilling the gin, the larva hides beneath the bottom of the etcher and stay waiting for the prey to be restricted in the pit. The rim of the etcher is acute enough for ants to fall to the down of the gin easily. Once the AL senses that a victim is in the gin, it trying to hunt it [7].

RESULTS & DISCUSSION

Simulation results are obtained by applying the ALO on electric network with three different loads and with different load curves. The data of the test system, forecasted and objective load curves, is given in [2]. The suggested algorithm has effectively and efficiently controlled huge number of different types of loads that can be controlled. The results of the simulation show that in all three load sectors, using optimized DSM techniques, the maximum load demand is decreased, as shown in Figs. 1 -3, and consequently the energy cosr is reduced as shown in Table 1. Where for residential load sector, the energy cost consumption is reduced from 2302.9 \$ to 1951 \$ and with a percentage reduction equals 15.2 %. For commercial and industrial load sectors, the costs of energy consumption are decreased with percentage reductions equal 19.6 % and 18.1 %, respectively.

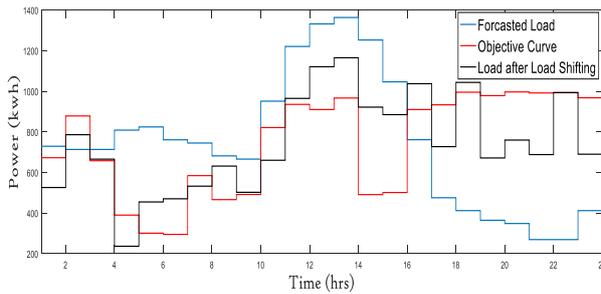


Fig. 1 load-shifting results of residential zone

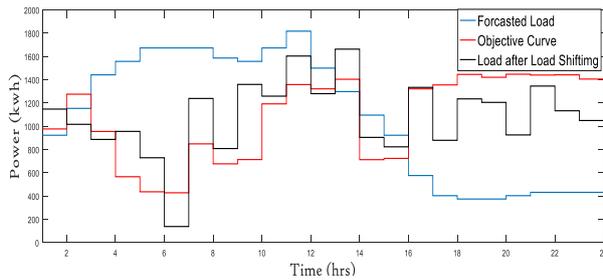


Fig. 2 load-shifting results of commercial zone

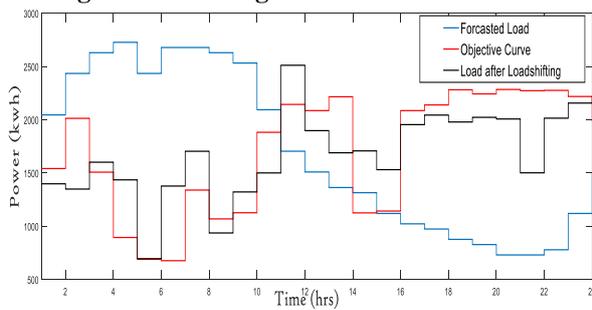


Fig. 3 load-shifting results of industrial zone

Table I. comparison of Cost Reduction without and with DSM

Area	Cost without DSM(\$)	Cost with DSM(\$)	Percentage reduction (%)
Residential	2302.9	1951.00	15.2 %
Commercial	3626.6	2915.52	19.6 %
Industrial	5712	4679.7	18.1 %

CONCLUSION

This paper presents a demand-side management strategy for smart-grids. The DSM technique supports both consumer and utility concerning energy-management particularly during high consumption hours. This strategy is based on load-shifting technique that has formulated as a minimization problem. The essential objective of the demand-side management planning is to realize the least operation cost by load-shifting. The proposed DSM utilizes and develops Antlion optimization algorithm to solve this problem. Simulations are applied on a smart-grid that includes three various types of consumer zones. Simulation results Describes that the algorithm used can control a big number of devices of various kinds, and to achieve energy consumption savings by decreasing the maximum load-demand.

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Poster Session (S2)





PS-45: VIRULENCE ASSOCIATED GENES OF AVIAN PATHOGENIC ESCHERICHIA COLI ISOLATED FROM COLISEPTCEMIC BROILERS AT ISMAILIA GOVERNORATE

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ABSTRACT: A total of 220 Avian pathogenic *E. coli* isolated from colisepticemic diseased broiler chicken flocks (moribund and/ or freshly dead) aged between (8- 65) days old at Ismailia governorate during 2014 to 2017, from different organs according to lesion (liver, heart blood, lung, air sac, and yolk sac). High incidence of isolation of APEC was between (2-4) week's old age. Twelve isolates were serogrouped as O1(2/12),O125(4/12),O148(2/12),O126(1/12),O15(1/12) and untyped(3/12).Five isolates were examined for (6)virulence genes marker (*iss, tsh, cvaC, papC, hly* and *iroN*) each gene detected singly using conventional PCR .It was found that *iss* and *iroN* genes present in all examined APEC isolates and only one isolates harbor *Pap C* gene, this prove that *iss* and *iroN* was considered marker of virulence and good indication for bacterial capacity to causing disease.

KEYWORDS: *E.coli*, broiler, serotype, virulence gene.

INTRODUCTION

Avian pathogenic *Escherichia coli* (APEC), a subgroup of extra intestinal pathogenic *E. coli* (ExPEC) that causes various diseases extra intestinal termed as colibacillosis in chickens, which are responsible for significant economic losses in the chicken industry [1].there are several putative virulence factors that can change certain commensal *E.coli* to be APEC and cause extra intestinal lesions[2, 3].So the study was conducted to isolate and identification probable pathogenic *E.coli* from colisepticemia diseased broilers chicken ,also detection virulence genes in some of certain isolates .

OBJECTIVES

Purpose of this study to characterizes APEC isolated from diseased broilers chicken flocks using microbiological and molecular techniques.

METHODS

1-SAMPLE COLLECTION: Three hundred and sixty three samples collected from moribund and freshly dead bird (liver, heart blood, lung, yolk sac, air sac and sinus from cases of swollen head syndrome) aged (8day-65day) old from different broilers flock at Ismailia governorate.

2-Bacterial isolation and identification: each sample firstly incubated at nutrient broth at 37c° for 24 hrs then sub cultured on MaConkey aerobically at 37c° for 24 hrs then picked up single colony of typical morphology and cultured on eosin methylene blue for more purity and suspected *E.coli* colony were identified biochemical according to protocol of Bretty et al[9].

3-Serological identification: Serogroups were identified using the slide agglutination test [10]



4-virulence genotyping: five strains(O1,O125,O148,O15 and untyped one) were examined for presence of 6 virulence genes(cvaC, iroN,iss,tsh,papC and hly), method according to[11], single cPCR assay was used for each virulence gene. Oligonucleotide primers used as shown in table (1).

Table (1) Oligonucleotide primers

GENE	Primer Sequence 5'-3'	Amplified product	Reference
<i>iroN</i>	atc ctc tgg tcg cta act g	847 bp	[4]
	ctg cac tgg aag aac tgt tct		
<i>Hly</i>	aacaaggataagcactgttct ggct	1177 bp	[5]
	accatataagcggtcattccc gtca		
<i>Tsh</i>	ggt ggt gca ctg gag tgg	620 bp	[6]
	agt cca gcg tga tag tgg		
<i>cvaC</i>	cacacacaaaacgggagctgt t	760 bp	[7]
	cttcccgcagcatagtccat		
<i>Iss</i>	atgttattttctgccgctctg	266 bp	
	ctattgtgagcaatataccc		
<i>papC</i>	tgatatcacgcagtcagtagc	501 bp	[8]
	ccggccatattcacataa		

RESULTS & DISCUSSION

Two hundred and twenty APEC isolated, incidence of isolation increased between (2-4weeks)old aged as shown in figure (1)the result agreed with[12] which find increase incidence of isolation over one week. Five

serogrouped were detected O1(2/12),O125(4/12),O126(1/12),O148(2/12),O15(1/12) and untyped (3/12) PCR analysis to five strains of E.coli to detect virulence genes of examined serotype(O1,O125,O148,O15 and one untyped) all isolates harboring iss gene and iroN and only O1 harboring papC as shown in figure(2,3and 4).

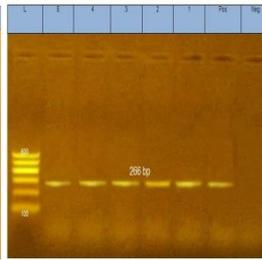
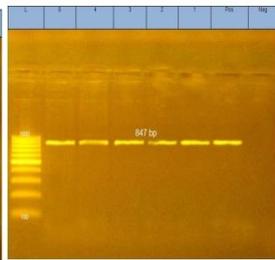
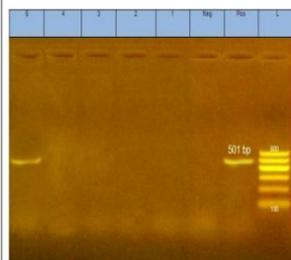
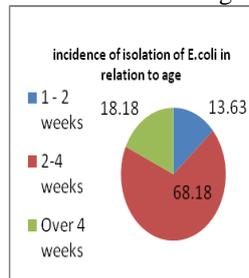


FIGURE (2) ISS GENE

FIGURE (3) IRON GENE

FIGURE (4) PAPC GENE

FIGURE (1)

FIGURE (2) ISS GENE

FIGURE (3) IRON GENE

FIGURE (4) PAPC GENE

FIGURE (1)

These finding of virulence genes agreed with[13, 14],which detect iron, iss, and papC from E.coli isolated colisepticemia diseased broiler chicken and its good indication for bacterial capacity to causing diseases.

CONCLUSION

The present study reported high incidence of isolation of APEC from colisepticemia diseased broilers flock among age(2-4weeks) old aged ,which contain on virulence associated genes potentiate its pathogenicity.

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PS-46: ISOLATION AND IDENTIFICATION OF FAMILY ENTEROBACTERIACEA IN RAPTORS

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ABSTRACT: A total of (183) fecal swab is collected birds of prey in Giza zoo. All samples were subjected to bacteriological examination, biochemical, serological and antimicrobial susceptibility analysis. *E.coli* was isolated by (44.8%), *Salmonella spp*(2.7%), *Proteus spp*(41.5%), *Shigella spp*(3.3%), *Citrobacter spp*(1.7%), *Enterobacter spp*(3.8%) and *Pseudomonas spp* (2.2%). The isolated *E.coli* strains belong to O stereotypes in order of frequency O55, O151, O27, O112 and Untypable (40%, 30%, 10%, 10%, and 10%) respectively. Antibiotic sensitivity testing revealed that *E.coli* strains showed high susceptibility rate to Colistine , Gentamycine, Norfloxacin, Ceftriaxone and Apramycine (100%), Spectinomycin(83.33%), Nalidixic acid(66.67), followed by Doxycyclin and Amoxicillin (33.33%), while they were intermediately sensitive to Neomycine ,while they were resistant to some antimicrobial agents, mainly Penicilin G ,and Erythromycin.

KEYWORDS: Raptors-*E.coli*-antibiotic sensitivity-serotyping.

INTRODUCTION

Wild birds play an important role in the ecology and circulation of human and animal pathogens including viruses, bacteria, fungi and protozoa. enteric also infection with members of family enterobacteriaceae is responsible for great economic losses to birds of prey especially *E.coli* infections which cause higher economic losses among these valuable birds. so the study was conducted to isolate and identify *E. coli* from birds of prey and antimicrobial susceptibility of these isolates.

OBJECTIVES

The aim of our study was to investigate the prevalence and incidence of family enterobacteriaceae from different species of birds of prey, serotyping and antibiogram of these isolates which are not considered as a part of common intestinal microflora of birds of prey, and to examine the antibiotic susceptibility of these bacterial isolates.

METHODS

Total of (183) fecal and cloacal samples are collected from different species of birds of prey in Giza zoo. All samples were subjected to bacteriological examination, biochemical and some of them to serological and antimicrobial susceptibility analysis by disc diffusion method using multiple antibiotic discs. Suspected isolates were identified by a series of biochemical reactions for identifying the Gram-negative bacteria and differentiate between members of family Enterobacteriaceae according to standard procedures given by (Fingold and Martin, 1982). All media were obtained as dehydrated media and prepared according to Macfadian (1980) and Cruickshank *et al.*, (1982). The isolated bacteria were identified biochemically according to procedures adapted by Macfadian (1980), Cruickshank *et al.*, (1982) and Brenner (1984). *E.coli* strains subjected to sensitivity tests according to the procedure given by the National Committee for Clinical Laboratory Standards (NCCLS) using Media used for antibiogram according to (Qunin *et al.*, 1994) and available commercial antibiotic discs. Some of *E.coli* isolates were subjected to serological typing by slide agglutination test using standard polyvalent and monovalent *Escherichia coli* antisera using slide agglutination test according to Edwards and Ewing (1972).

RESULTS

E.coli was isolated in 82 sample (44.8%), *Salmonella spp*(2.7%), *Proteus spp*(41.5%), *Shigella spp*(3.3%), *Citrobacter spp*(1.7%), *Enterobacter spp*(3.8%) and *Pseudomonas spp* (2.2%) of the 183 samples. The isolated *E.coli* strains were found to belong to O stereotypes in order of frequency O55, O151, O27, O112 and Untypable (40%, 30%, 10%, 10%, and 10%) isolates respectively). Antibiotic sensitivity testing revealed that the isolated *E. coli* strains showed high susceptibility rate to Colistine , Gentamycine, Norfloxacin, Ceftriaxone and Apramycine (100%), Spectinomycin(83.33%), Nalidixic acid(66.67), followed by Doxycyclin and Amoxicillin (33.33%), while they were intermediately sensitive to Neomycine ,while they were resistant to some antimicrobial agents, mainly Penicilin G ,and Erythromycin.



CONCLUSION

The present study highlights that there are different species of family enterobacteriaceae which cause high economic losses among birds of prey also, provide evidence for significant antimicrobial resistance of *E. coli* isolates due to miss usage of antibiotics.

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PS-47: CORRELATION BETWEEN SERUM RESISTIN AND ESTROGEN LEVELS IN FEMALE RATS FED ON HIGH CARBOHYDRATES LOW FAT DIET

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ABSTRACT: The study was executed to examine the alterations in serum resistin and estrogen in female rats fed on high carbohydrates low fat diet (HCLF) diet. It was carried out using 30 mature Wister albino female rats. Animals were fed on HCLF diet for 2 months. Then divided into 3 groups (HCLFC "control", HCLFO "ovariectomized" and HCLFOER "estrogen replacement"). Then serum samples were collected for analysis of resistin and estrogen. Results show a significant decrease in serum estrogen level in HCLFO at ($P < 0.05$) while there was no significant change in estrogen level during all period of estrogen replacement in the HCLFOER group as compared with HCLFC group. Regarding serum resistin level, there was a significant increase in resistin in HCLFO whereas there was a significant decrease in serum resistin at 2nd week of estrogen replacement. This suggesting that resistin was affected by changes in estrogen and HCLF diet increases serum resistin levels in rats.

Key words: resistin, estrogen, high carbohydrates low fat diet, rats.

INTRODUCTION

Adipose tissue is a pivotal endocrine organ that releases a lot of substances called adipokines, which provide a connection between insulin resistance, obesity and development of diabetes (Zayani et al., 2017). Gharibeh et al., (2010) showed a positive relationships between plasma resistin and obesity markers in human. Kim et al., (2001) supposed that resistin may enhance lipogenesis or be a marker of the lipogenic state in rodents. Huang et al., (2005) found that estrogen injection decreased adipocyte resistin mRNA expression. In a rodent study, an ovariectomy elevated resistin mRNA levels of adipose tissues without altering plasma resistin concentrations, whereas estrogen replacement decreased resistin mRNA (Gui et al., 2004).

OBJECTIVES

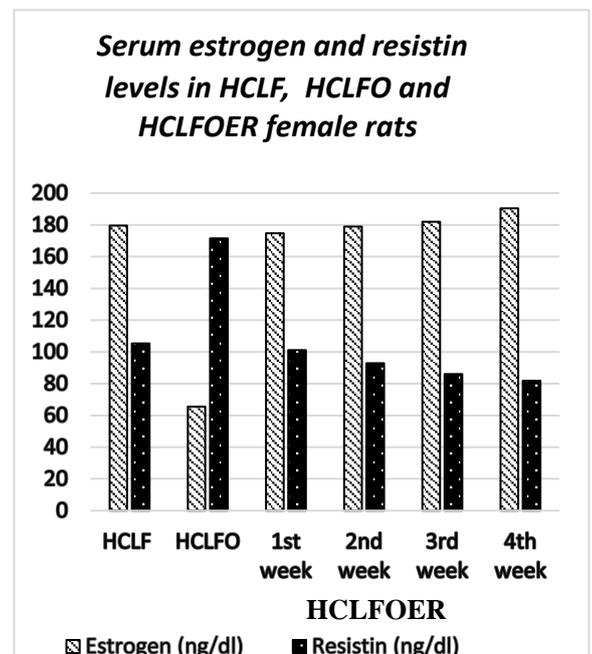
The goal of the study is to investigate the relationship between serum estrogen and resistin in female rats fed on HCLF diet and detect the effect of estrogen injection on serum resistin after ovariectomy.

MATERIAL & METHODS

A total of 30 mature Wister albino female rats (10 in each group), weighting approximately 100-120g body weight. After two weeks of acclimatization, they were fed on HCLF diet for 2 months. Then divided into 3 groups: HCLFC (control), HCLFO (ovariectomized) and HCLFOER (ovariectomized estrogen replacement), which injected estradiol benzoate (25 ug/kg b.wt /day), s/c for four weeks. Then blood samples were collected from retro orbital venous plexus from all groups & serum was separated for analysis of resistin and estrogen.

RESULTS & DISCUSSION

It was expressed in mean \pm SE, it showed a significant decrease in serum estrogen level in HCLFO at ($P < 0.05$) while there was non-significant change in estrogen level during all period of estrogen replacement in the HCLFOER group as compared with HCLFC group, Regarding serum resistin level, there was a significant increase in resistin in HCLFO whereas there was a significant decrease in serum resistin at 2nd week of estrogen replacement. There was a strong negative correlation between serum estrogen and resistin levels in HCLF, HCLFO and HCLFOER groups.



: The results consistent with **Lee et al., (2010)** who demonstrated that the concentrations of serum resistin in mice received high-fat diet reduced after the switch to the high-CHO diet. **Yuan et al., (2015)** found no change in serum resistin among normal diet and high fat diet female mice. **Haugen et al., (2001)** and **Kim et al., (2001)** observed that resistin gene expression is elevated during adipocyte mutation, stating that the increase in resistin gene expression is because of adipocyte mutation. **Catta-Preta et al., (2012)** reported an induction in resistin levels in different experimental studies in rodents using HF diets. **Litwak et al., (2014)** supposed that HFD feeding causes a relative estrogen diminish in female mice, this it was sufficient to stimulate body fat and induce visceral fat deposition.

CONCLUSION

Findings showed significant increase in serum resistin in ovariectomized rats which significantly decreased after estradiol injection suggesting that estrogen consider an important negative factor of resistin gene expression.

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PS-48: EVALUATION OF SOME IMMUNOMODULATORS ON BROILER GROWTH PERFORMANCE AND IMMUNITY

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ABSTRACT: This experiment was done to investigate the effects of dietary Pidotimod, Astragalus and Eachnicea supplementation in water on blood analysis, immune response, growth performance and histopathological changes of broiler chicks. A total of 200 healthy one day-old Cobb chicks were divided into 4 groups; control, Eachnicea, pidotimod and Astragalus. The results revealed that, Pidotimod, Astragalus and Eachnicea treatment highly increased the growth performance and final body weight as compared to control as well as the immune response at 21 and 35 days. Histopathological investigation of lymphoid organs; bursa fabricius, thymus and spleen showed normal structure of lymphoid follicle proliferation and hyperplasia of lymphocytes in all the supplemented groups. It could be concluded that, Pidotimod Astragalus and Eachnicea has immunostimulant with a good growth promotion in poultry farming.

KEYWORDS: Broilers, Eachnicea, Pidotimod, Astragalus, Immunity, Growth performance.

INTRODUCTION

Immunomodulators are substances which act on the host immune system and produce effect either increasing or decreasing the immune responses of the host . It also could be defined as, biological immunoregulators which act as drug leading to non-specific stimulation of immune system defense mechanisms (1). Astragalus polysaccharide (APS) can also stimulate cell proliferation, induce the expression of surface antigens on lymphocytes, and affect the expression of cytokines and promote the production of antibodies (2). Pidotimod (Polimod ®) is a synthetic dipeptide molecule which acts as a biological response modifier (BRM) (3) with biological and immunological activity on both the adaptive and the innate immune responses.

OBJECTIVES

To evaluate the effects of a commercial supplements including pidotimod, Echinacea and Astragalus as potential immunomodulation and growth promoters through evaluating their effects on: Broiler growth performance and immunity.

METHODS

In this trial, 200 one-day old broiler chicks (Cobb) were weighted and randomly assigned to the four treatment groups, 50 broiler chicks in each one. The four treatments were as follows:

1st Group: control, ordinary water without supplementation. **2nd Group:** drinking water supplemented with Eachnicea (1 ml/3L water), **3rd Group:** drinking water supplemented with Pidotimod (1 gm/1Lwater), **4th Group:** drinking water supplemented with Astragalus (1 gm /1Lwater). The chicks were reared for 42 days, and the feed and water were offered.

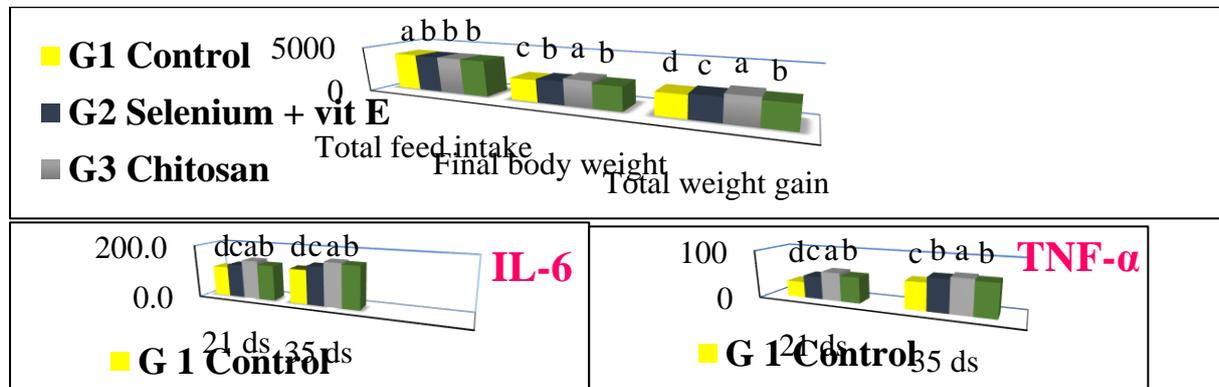
The feed intake, body weight, body weight gain and feed conversion ratio were determined weekly. Blood samples were taken for hematological, biochemical analysis and immunological tests (days 21 and 35), and also, for measuring antibody responses by haemagglutination inhibition test (days 28 and 42). At 21 and 35 days old, six birds from each group (three/replicate) were slaughtered for lymphoid organ index.

RESULTS & DISCUSSION

In the present study, the Pidotimod had the best effect on the body performance that showed as a significant increase in the final body weight and total weight gain as well as a significant reduction in total FCR and total feed intake as compared to the Eachnicea and Astragalus -supplemented groups. The proper effect of Pidotimod on the broiler performance mainly originated from the presence of balanced mixture of vitamins especially vitamin E and amino acids in its structure which cause a significant elevation of nitrogen utilization and amino acid digestibility and activation of intestinal villi epithelial cells (4). Also, (5) reported that, the middle Pidotimod dosage group is better than all the other groups in weight gain and



survival rate (Figure 1). IL-6 is crucial for immune function in animals and birds, it induces the final maturation of B cell into immunoglobulin-secreting plasma cell. Also, IL-6 is an important mediator against viral and other pathogenic infection in animals. TNF- α is known to be a key mediator for the induction of apoptosis and development of humoral immune response (6). In the present study, IL-6 and TNF- α were significant increases in all supplemented groups in comparing with control group, while group supplied with pidotimod (G3) significantly increase than other groups at 21 and 35 days, followed by Astragalus (G4) then Eachnicea (G2) fed groups. EP has an interferon (IFN) like effect, activating macrophages and inducing the production of interleukin (IL)-1 and IFN (7).



CONCLUSION

The present study showed that, the Pidotimod, Astragalus and Eachnicea can be considered as immunostimulant and in the same time growth promoters.

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P-49: RELATIONSHIP BETWEEN SERUM RESISTIN AND ESTROGEN LEVELS DURING PHASES OF ESTROUS CYCLE IN NORMAL CYCLING FEMALE RATS

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ABSTRACT: *The study was carried out to investigate the changes in serum resistin and estrogen during phases of estrous cycle in female rats. It was carried out using 20 immature Wister albino female rats which kept till maturity, they were all daily examined by vaginal smear to detect regular cycling rats. Rats were fed on normal diet devoid of soybean. Then serum samples were collected during all phases of estrous cycle (proestrus-estrus-metestrus-diestrus) for analysis of resistin and estrogen. Results show a significant increase in serum estrogen level in the estrus phase, followed by significant decrease in metestrus and diestrus phases at ($P < 0.05$). While, there was no significant difference in serum resistin among all phases. This suggesting that resistin was not affected by changes in estrogen during estrous cycle in rats.*

KEYWORDS: *Resistin, Estrogen, Estrous, Rats.*

INTRODUCTION

Adipose tissue releases different pivotal substances named adipokines. Resistin became was first adipocyte-secreted adipokine linked obesity and insulin resistance in rats (Park et al., 2017). A close association between resistin and reproductive function in females has been documented. Rak-Mardyla et al., (2014) found that resistin concentration in adult cycling female pigs was not dependent on follicular size. Nogueiras et al., (2003) mentioned age-based expression of resistin mRNA markedly elevated during puberty. Jones et al., (2009) observed no marked changes in resistin expression in ovarian rat throughout the estrous cycle. In contrast, Gui et al., (2004) recorded that resistin mRNA concentrations elevated in diestrus phase than that of proestrus phase.

OBJECTIVES

The aim of the study to detect the correlation between serum resistin and estrogen during the different phases of estrous cycle in normal diet normal cycling female rats.

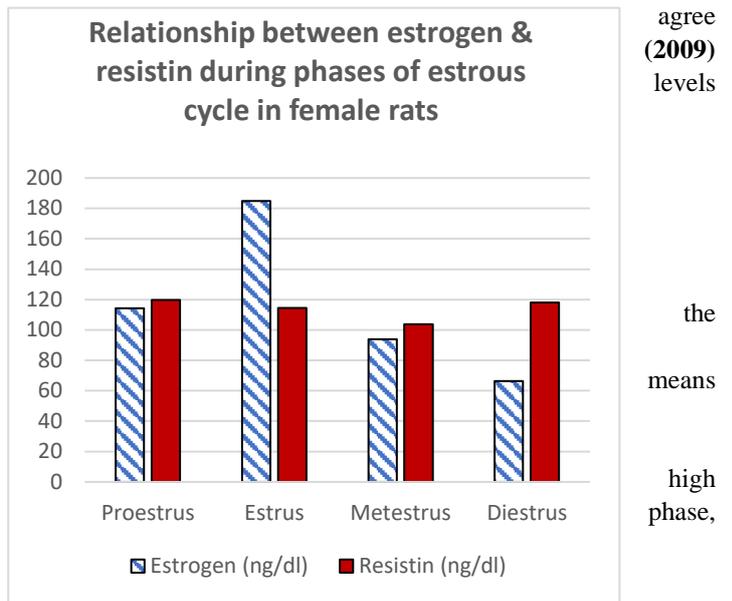
METHODS

A total of 20 immature Wister albino female rats, weighting nearly 60 - 80 g body weight. After two weeks of acclimatization, 20 rats were daily examined by vaginal smear to detect regular cycling females. They were fed on standard commercial food. Then blood samples were collected from retro orbital venous plexus during all phases of estrous cycle and serum was separated for analysis of resistin and estrogen.

RESULTS & DISCUSSION

(was expressed in mean \pm SE), it showed a significant increase in serum estrogen level (ng/dl) in the estrus phase (184.84), followed by significant decrease in metestrus (93.94) and diestrus phases (66.32) at ($P < 0.05$). While, there was no significant difference in serum resistin (ng/dl) among all phases. Results showed a significant strong negative correlation between serum estrogen and resistin in proestrus and estrus phases ($r = -0.654$ and -0.773 respectively),

while there was a strong positive correlation in metestrus and diestrus phases ($r = 0.592$ and 0.552 respectively). Regarding serum resistin level, the present results in parallel with **Jones et al., (2009)** who found no significant changes in resistin expression in rat ovaries during the estrous cycle. Also with **Chalvatzas et al., (2009)**, **Dafopoulos et al., and Wyskida et al., (2017)** who found plasma resistin were unchanged in women during normal menstrual cycles. But disagree with **Gui et al., (2004)** who reported that resistin mRNA concentrations elevated in diestrus phase, as in the rat, glucose disposal is decreased and hepatic gluconeogenesis is raised in diestrus compared with proestrus supposing both skeletal muscle and hepatic insulin resistance during diestrus phase. However, they observed no changes in plasma resistin levels between diestrus and proestrus, that resistin has any direct function in regulating insulin sensitivity during the estrous cycle. Concerning estrogen level throughout estrous cycle, results show level of estrogen during proestrus then peaks in estrus then declines in metestrus and diestrus phases, which represents the normal estrogen pattern in female rats according to **Trabace et al., (2011)**.



CONCLUSION

The study concluded no change in serum resistin throughout the estrous cycle suggesting that estrogen is not the only ovarian factor regulating serum resistin concentration during estrous cycle in rats.

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PS-50: PHYTOCHEMICAL SCREENING AND ANTIOXIDANT PERFORMANCE OF POMEGRANATE WHOLE FRUIT EXTRACT

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ABSTRACT: Pomegranate is a very useful food for human health due to its high content of phenolic compounds including mainly anthocyanins and phenolic acids. This work aimed to investigate the bioactive components in pomegranate whole fruit extract and its antioxidant behavior. The peels of pomegranate were separated and the whole fruits were blended and extracted with 96% ethanol. The antioxidant behavior was determined based on the reducing power and scavenging capacities on ABTS radical. Total phenolic content and total flavonoid content were determined by UV-vis. Pomegranate whole fruit extract show high content of polyphenols and flavonoid 5.461 mg GAE/g and 0.249 mg CE/g, respectively.

KEYWORDS: Pomegranate extract, polyphenols, flavonoids, antioxidant activity, phytochemical screening analyses.

INTRODUCTION

A Folk medicine is the union of practical beliefs and experiences of various cultures, skills and knowledge that are used to maintain health and also, to prevent, diagnose, improve or treat physical and mental illness [1]. Nowadays, several studies investigate the bioactive components in different medicinal plants to confirm its efficiency as natural drugs against many diseases [2, 3]. Pomegranate fruits (*punica granatum L.*) is one of the puniceae family. Pomegranate has a powerful history of use in folk medicine for the treatment of different diseases [4]. Pomegranate is a very important food source rich in phytochemical components [5] such as polyphenols, flavonoids, anthocyanins, triterpenoids, condensed tannins and hydrolyzable tannins [6].

OBJECTIVES

This study aims to investigate the bioactive components in pomegranate whole fruit extract, its antioxidant behavior, and evaluate its phenolic and flavonoid contents.

METHODS

Sample preparation

Pomegranate whole fruits were washed, blended and extracted with ethanol 96% [7]. The extract solution was freeze-dried and then the dried extract was analyzed.

Qualitative phytochemical screening

Pomegranate whole fruit extract was screened for the existence of main families of phytochemicals [8].

Total phenolic content

The total phenolic compounds in the crude extract were measured by Folin- Ciocalteu method [9].

Total flavonoid contents

The total flavonoid contents in the crude extract were measured using aluminum chloride ($AlCl_3$) colorimetric assay [9].

Determination of radical ABTS scavenging activity

The scavenging activity on 2,2'-azinobis(3-ethyl benzothiazoline-6-sulfonic acid) diammonium salt (ABTS) of pomegranate extract was determined according to Hwang and Do Thi [10].

RESULTS & DISCUSSION

The pomegranate whole fruit extract was studied to analyze its bioactive components. Total phenolic contents, total flavonoid contents, scavenging activity on ABTS were determined as shown in table 1.

Table 1. Total polyphenolic and flavonoid contents and antioxidant activity of the pomegranate extract



Parameter	Value
Total phenols	5.461 mg GAE/g
Total flavonoids	0.249 mg CE/g
Scavenging activity on ABTS radical	87.776 mg TE/g

GAE, CE and TE refer to gallic acid, catechin and trolox, respectively.

Pomegranate whole fruit extract was screened for the presence of main families of phytochemicals, i.e., flavonoids, saponins, steroids, tannins, triterpenoids, carbohydrates, and reduced sugars, table 2.

The bioactive components present in this extract show strong antioxidant activity that are mainly due to the presence of polyphenols. These findings demonstrate that pomegranate whole fruit extract may be very useful for treatment of various diseases.

Table 2. qualitative phytochemical screening of pomegranate whole fruit extract

Test	Presence
Flavonoids	+++
Saponins	+
Steroids	+++
Tannins	+
Triterpenoids	+++
Carbohydrates	+++
Reduced sugars	+++

The notations, +++, ++, + and – refer to high amounts (positive within 5 min); moderate amounts (positive after 5 min but before 10 min); traces (positive after 10 minutes but before 15 min) and absent, respectively.

CONCLUSION

A high polyphenols content in pomegranate fruit could be a natural treatment for many diseases, i.e., cancer, aging and diabetes.

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PS-51:PHYTOCHEMICAL SCREENING AND ANTIOXIDANT PERFORMANCE OF OLIVE LEAVES EXTRACT

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ABSTRACT: Several studies suggest olive leaves as a significant source of many bioactive components. The most abundant bioactive component in olive leaves suggested to be polyphenols. This study aims to determine total phenolic content, total flavonoid content, antioxidant profile and phytochemical screening of olive leaves extract. Olive leaves were washed, dried and ground then extracted with ethanol 80%. Total phenolic content and total flavonoid content were determined by UV-vis. The antioxidant performance was determined based on the reducing power and scavenging capacities on ABTS radical. Olive leaves extract shows high content of polyphenols and flavonoid 11.817 mg GAE/g and 4.587 mg CE/g, respectively.

KEYWORDS: Olive leaves extract, polyphenols, flavonoids, antioxidant activity, phytochemical screening analyses.

INTRODUCTION

Olive (*olea europaea* L.) is one of the most important historical plant in Mediterranean countries [1]. Olive leaves were regarded as a significant source of polyphenols, flavonoids and other bioactive components [2]. The chemical composition of olive leaves varies depending on several conditions such as origin, proportion of branches on the tree, storage conditions, climatic conditions, moisture content, and degree of contamination with soil and oils [3]. In addition to their diversity, phenolic compounds are found in olive leaves at different concentration levels [4]. Recently, many researchers try to investigate the main bioactive component in olive leaves.

OBJECTIVES

This study aims to investigate the bioactive components in olive leaves extract, its antioxidant behavior, and evaluate its phenolic and flavonoid contents.

METHODS

Sample preparation

Olive leaves were collected on a farm located in Ismailia, Egypt from December 2016 to October 2017. Olive leaves were washed, dried, blended and then refluxed with 10 vol (v/w) of 80% ethanol at 80 °C for 3 h, and the extraction was repeated three times. [5]. The extract solution was freeze-dried and then the dried extract was analyzed.

Qualitative phytochemical screening

Olive leaves extract was investigated for the presence of main families of phytochemicals [6].

Total phenolic content

The total phenolic compounds in the extract were determined by Folin- Ciocalteu method [7].

Total flavonoid contents

The total flavonoid contents in the crude extract were determined by aluminum chloride (AlCl₃) colorimetric assay [7].

Determination of radical ABTS scavenging activity

The scavenging activity on 2,2'-azinobis(3-ethyl benzothiazoline-6-sulfonic acid) diammonium salt (ABTS) of olive leaves extract was determined according to Hwang and Do Thi [8].

RESULTS & DISCUSSION

The olive leaves extract was studied to analyze its bioactive components. Total phenolic contents, total flavonoid contents, scavenging activity on ABTS were determined as shown in table 1.

Table 1. Total polyphenolic and flavonoid contents and antioxidant activity of the olive leaves extract

Parameter	Value
Total phenols	11.817 mg GAE/g
Total flavonoids	4.587 mg CE/g
Scavenging activity on ABTS radical	112.528 mg TE/g

GAE, CE and TE refer to gallic acid, catechin and trolox, respectively.

Olive leaves extract was screened for the presence of main families of phytochemicals, i.e., flavonoids, saponins, steroids, tannins, triterpenoids, carbohydrates, and reduced sugars, table 2. The bioactive components present in the olive leaves extract show strong antioxidant activity that are mainly due to the presence of polyphenols. These findings suggest that olive leaves extract may be very useful for treatment of many diseases.

Table 2. qualitative phytochemical screening of olive leaves extract

Test	Presence
Flavonoids	+++
Saponins	+++
Steroids	+
Tannins	+++
Triterpenoids	+
Carbohydrates	+
Reduced sugars	+

The notations, +++, ++, + and – refer to high amounts (positive within 5 min); moderate amounts (positive after 5 min but before 10 min); traces (positive after 10 minutes but before 15 min) and absent, respectively.

CONCLUSION

A high polyphenols content in olive leaves could be a natural treatment for many diseases, i.e., cancer, aging and diabetes.

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PS-52: MICROBIOLOGICAL ASSESSMENT OF SOME EDIBLE MOLLUSCS

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ABSTRACT: Seafood borne diseases associated with consumption of shellfish are the major challenge to the food hygienists in the 21st century, especially in the costal cites-Egypt. Therefore 80 samples of each of 20 bivalve molluscs “*Tapes decussates*“ (*Gandoffli*), 20 cephalopods fresh cuttlefish “*Sepia pharaonis*“, 20 frozen cuttlefish “*Sepia pharaonis*“ and 20 gastropod “*Thais Lacera*“ (*Logz*) were randomly collected from Ismailia markets and beaches to be examined for bacteriological quality. The study revealed that *logz* had the highest psychotropic count with mean 5.3 log CFU/g. *Staphylococcus aureus*, *Salmonella* species and *Vibrio* species were detected in 66 (82.5%), 26 (32.5%) and 52(65%) of the molluscs respectively. Total coliform count was highest in fresh *sobia* with mean 32.8 MPN/g, while the highest count of total aerobic bacteria was in *sobia* with mean 5.75 logCFU/g. These bacterial contaminations could be attributed to excessive unsanitary handling and improper storage measures. The achieved results declared that strict hygienic measures and proper storage time/ temperature practices are necessary to prolong molluscs shelflife and to protect the consumers from the hazards of seafood-borne pathogens

KEYWORDS: Microbiology, Cephalopods, Gastropods, Bivalve molluscs, pathogenic bacteria

INTRODUCTION

Molluscs are a healthy and nutritious food source, nowadays; there is a global increase in their consumption leading to a worldwide concern in the hazards of molluscs borne pathogens, molluscs can be microbially contaminated from harvesting areas and also can be contaminated with human pathogens of agricultural and anthropogenic origin, these contaminations may be transmitted to the consumers. Current programs of food safety are concerned in protecting the consumers. On the other hand, molluscs microbial contamination is mismanaged and underrated, which can cause a possible public health risk [1, 2]. Pathogens from the harvest area are significant in molluscan shellfish because (1) molluscan shellfish concentrate and filter pathogens that may be present in nearby waters (2) environments in which molluscan shellfish grow are usually subject to contamination from sewage and from Harvest Area; (3) molluscan shellfish are frequently consumed whole, either partially cooked or raw [3].

OBJECTIVES

This study was conducted to evaluate the bacteriological quality of the selected molluscs displayed in the fish markets of Ismailia governorate.

METHODS

I. Collection and preparation of the samples:

A total of 80 Random samples each of 20 molluscs “*Tapes decussates*“ (*Gandoffli*), 20 fresh cuttlefish “*Sepia pharaonis*“, 20 frozen cuttlefish “*Sepia pharaonis*“ and 20 gastropod “*Thais Lacera*“ (*Logz*) from Ismailia markets and Beaches, the samples were transferred immediately without delaying to the laboratory under complete aseptic conditions in clean ice box where prepared for the bacteriological examination .

II. Preparation of the sample: was done according to (APHA) [4].

III. Microbiological evaluation: 1. Determination of total aerobic colony counts, total psychotropic counts, total *Staphylococcus aureus* count and Total Coliform Counts (APHA) [4]. 2. Detection of *Vibrio* organism, *Salmonellae* (APHA) [4] and *Clostridium perfringens* count (MPN/g) [5].

RESULTS & DISCUSSION

Pathogenic bacteria linked to fish and fishery product can be classified into three general groups: (1) bacteria (indigenous bacteria) that come from the natural microflora of fish (pathogenic *Vibrio* spp, *Clostridium botulinum* , *Aeromonas hydrophila*); (2) enteric bacteria (non indigenous bacteria) that are present as a result of fecal contamination (*Staphylococcus aureus*., *Shigella* spp., pathogenic *Escherichia coli*, *Salmonella* spp); and (3) bacterial contamination during preparation for consumption or storage , processing, (*Staphylococcus aureus*, *Listeria monocytogenes*, *Bacillus cereus*, *Clostridium perfringens*, *Salmonella* spp.) [6]. In this study *Staph. aureus*, *Vibrio* spp., *Cl. perfreinges* and *Salmonella* spp. were detected



in 66 (82.5%), 52 (65%), 0 (0%) and 26 (32.5%) of all molluscs samples respectively. In the present study *Staph. aureus* were isolated from all molluscs samples in 14 (70%), 20 (100%), 16 (80%) and 16 (80%) for gandofli, logz, sobia and frozen sobia samples respectively, *Staph. aureus* were detected by different authors in molluscs [7-9], EOS [10] Listed the permissible limit of *Staph. aureus* in frozen sobia to be equal or smaller than 5×10^2 CFU/ g thus 16 (80%) of frozen sobia samples exceeded permissible limit. Meanwhile *Vibrio* spp. were detected in all molluscs samples in 14 (70%), 18 (90%), 8 (40%) and 12 (60%) for gandofli, logz, sobia and frozen sobia samples respectively, *Vibrio* spp. were detected by different authors in molluscs [11, 12], 12 (60%) of frozen sobia samples exceeded the permissible limit set by EOS [10]. On the other hand, 100% of Gandofli, logz, sobia and frozen sobia samples were free from *Cl. perfringens*, similar results was detected by [7]. *Salmonella* spp. were detected in 4 (20%), 10 (50%), 12 (60%) for gandofli, logz and sobia respectively, salmonella were detected by different authors in molluscs [8, 13]. while frozen sobia samples were free from *Salmonella* spp. and did not exceed the EOS [10] permissible limit, similar results was detected by [14]. The mean values in gandofli, logz, sobia and frozen sobia samples were (4.96 ± 0.36 , 5.27 ± 0.30 , 5.75 ± 0.37 and 5.5 ± 0.34 logCFU/g), (4.8 ± 0.2 , 5.3 ± 0.12 , 5.1 ± 0.2 and 5.1 ± 0.1 logCFU/g), (3.8 ± 0.4 , 4.8 ± 0.1 , 3.5 ± 0.2 and 3.2 ± 0.2 logCFU/g) and (14.3 ± 2.64 , 25.46 ± 6.33 , 32.8 ± 7.5 and 18.42 ± 6.78 logCFU/g) of ACC, psychotropic count, *Staph. aureus* and total coliform count respectively, these bacteria were found by different authors in molluscs [8, 15, 16].

CONCLUSION

It could be concluded that the presence of such pathogens even in a low frequency in the molluscs at the retail level are in need of more governmental attention to ensure safety of these foods. Clean food, rapid chilling, proper heating and cold storage are the principles for quality control of food to ensure food safety. To achieve this goal, molluscs consumers should be only purchase fresh molluscs handled in good hygienic conditions, prevent cross-contamination to other raw food, wear clean disposable gloves when handling the molluscs and thoroughly cooking the molluscs.

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PS-53: HEPATOPROTECTIVE EFFECT OF MORINGA OLEIFERA EXTRACT ON LEAD INDUCED DNA DAMAGE IN RATS

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ABSTRACT: Lead induced hepatotoxicity was attributed to the impairments of liver structure and function. The present investigation was conducted to assess the hepatoprotective characters of *Moringa oleifera* leaves extract (MOLE) on the hepatic damage caused via lead acetate in rats. In the present study 24 male albino rats were distributed into four groups, six rats for each group. The control group was the first group, the second, third, and fourth groups were given saline, 200 mg/kg of MOLE only, 100 mg/kg of lead acetate only and 100 mg/kg of lead acetate with 200 mg/kg of MOLE, respectively. Saline, lead and MOLE were administered orally to the rats daily for four weeks. Lead acetate administration showed an increase in the parameters of liver enzymes and lipid profile such as ALT, AST, ALP, triglycerides, cholesterol, LDL accompanied with a decline in total proteins and HDL, reduced superoxide dismutase (SOD) activity and reduced glutathione (GSH) level in liver tissues. MOLE co-administration with lead acetate significantly improved these toxic effects.

KEYWORDS: *Moringa oleifera* leaves extract (MOLE), lead, hepatotoxicity, oxidative stress.

INTRODUCTION

Lead is one of the most widespread heavy metal in the environment that used for both domestic and industrial purposes and possesses serious harms to both humans and animals. previous studies on lead exposed animals showed that liver is considered the main reservoir (33%) for lead among the soft tissues [1]. lead-induced oxidative stress mechanism was reported as a result of disruption of balance between removal and generation of reactive oxygen species in cellular components and tissues leading to membranes and proteins damage [2]. phytotherapy has attained much more interests among the researchers; where they use the medicinal plants that possesses antioxidant power for the protection against toxicities including heavy metal toxicity [3]. MOLE was investigated for its high antioxidant power toward the free radicals, inhibit oxidative harms of the biomolecules and has a considerable protection ability toward the oxidative damage depending on the existence of different antioxidant compounds like flavonoids, carotenoids, phenolics and ascorbic acid [4].

OBJECTIVES

This study aims to assess the antioxidant role and hepatoprotective effect of Aqueous MOLE on liver injury induced by lead acetate in male rats.

METHODS

Extract preparation: Aqueous MOLE was prepared according to Berkovich *et al.*, 2013 [5].

Animals and experimental protocols: twenty four male albino rats distributed randomly after acclimatization period into four groups (6 rats in each one) as the following: Group I (Control) got saline solution. Group II (MOLE) got 200 mg/kg of MOLE [6]. Group III (lead) got 100 mg/kg of lead acetate [7]. Group IV (lead + MOLE) got mixture of MOLE (200 mg/kg) and lead acetate (100 mg/kg). Saline, MOLE and Lead were administered orally to the rats by stomach tube daily for four weeks. After four weeks, animals were subjected to cervical dislocation under the effect of diethyl ether inhalation anesthesia and blood samples were drawn into labeled tubes, after clotting the tubes subjected to centrifugation for 10 minutes at a speed of 800 x g to get sera that used for analysis of different biochemical parameters. After livers excision, ice-cold saline was used to wash the blood and plotted by filter paper then weighed. After that livers were frozen as soon as possible in dry ice (-80 °C) for GSH and SOD assays.

RESULTS & DISCUSSION

In accordance with previous study of Mabrouk *et al.*, 2016 [8], our results showed high increase in the levels of ALT, AST and ALP as a result of the exposure to the lead (Pb), denoting for a damaged integrity of the liver function and structure which causes leakage of these enzymes into blood circulation. T. protein and albumin levels declined significantly in Pb-treated group when compared to control one, which may be due to the impairment of protein synthesis as a result of inability



to utilize the free amino acids [9]. The active excretion of lead through the bile by binding to the thiol group of GSH and then being excreted may be the logical explanation for GSH reduction. This decrease may be attributed to the binding of the lead to GSH thiol group during active excretion through bile then being excreted [7]. Lead toxicity increased TC, TG and LDL levels and showed a significant decrease in HDL level, which agree with [10]. Administration of MOLE to lead group showed protective effect that was proven by decreasing in ALT, AST and ALP activities. As well as, improving the liver synthetic function as reflected by increase in proteins level [11]. Furthermore, showed a high increase in hepatic GSH and SOD activities, MOLE also revealed a decrease in TC, TG and LDL accompanied with an increase in HDL level which agree with Mansour *et al.*, 2014 [12].

Table 1: The effect of MOLE, lead acetate and their combination on serum markers of liver in rats.

Parameters	ALT (u/l)	AST (u/l)	ALP (u/l)	T. protein (g/dl)	Albumin (g/dl)	Globulin (g/dl)
Control	49.0 ± 1.22	149 ± 5.36	93.2 ± 3.28	7.22 ± 0.07	3.77 ± 0.09	3.45 ± 0.05
MOLE	51.8 ± 2.96	149.2 ± 13.35	94.6 ± 5.43	6.88 ± 0.05	3.57 ± 0.06	3.45 ± 0.05
Lead	80.4 ± 3.64 ^a	238.4 ± 4.30 ^a	215.8 ± 7.84 ^a	4.48 ± 0.13 ^a	2.45 ± 0.09 ^a	1.83 ± 0.14 ^a
MOLE + lead	61.4 ± 0.400 ^b	192.2 ± 2.52 ^b	156.8 ± 9.63 ^b	6.22 ± 0.13 ^b	3.16 ± 0.08 ^b	2.89 ± 0.20 ^b

Table 2: The effect of MOLE, lead acetate and their combination on the levels of lipid profile in rats.

Parameters	TC (mg/dl)	TG (mg/dl)	HDL (mg/dl)	LDL (mg/dl)
Control	68.40 ± 2.44	47.20 ± 1.74	41.00 ± 1.57	17.96 ± 1.65
MOLE	68.80 ± 2.71	49.00 ± 2.51	37.40 ± 0.87	21.00 ± 1.91
Lead	130.20 ± 17.01 ^a	80.20 ± 3.24 ^a	13.60 ± 1.17 ^a	100.60 ± 15.72 ^a
MOLE+ lead	89.00 ± 3.21 ^b	62.00 ± 0.71 ^b	25.40 ± 1.08 ^b	51.20 ± 2.31 ^b

Table 3: Effect of MOLE, lead acetate group and their combination on the activities of SOD and the levels of GSH.

Parameters	SOD (u/ml)	GSH (µmol/l)
Control	7.73 ± 0.06	20.69 ± 0.10
MOLE	7.35 ± 0.02	20.14 ± 0.13
Lead	4.50 ± 0.12 ^a	12.52 ± 0.22 ^a
MOLE + lead	6.22 ± 0.17 ^b	15.90 ± 0.13 ^b

All the data in the tables 1, 2 and 3 are presented as mean ± S.E., n = 6. ^a Superscript significantly different at P < 0.05 with control group. ^b Superscript significantly different at P < 0.05 with lead group by using ANOVA followed by Bonferroni's post hoc as a post-ANOVA test by using the SPSS software.

CONCLUSION

Results in the present study showed a hepatoprotective effect of MOLE against liver injury induced by lead acetate in male rats.

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PS-54: EFFECT OF EXPERIMENTAL COPPER DEFICIENCY ON CARDIAC COPPER CHAPERONE gene EXPRESSIONS AND THEIR IMPACT ON HEART FUNCTIONS IN SHIBA GOATS

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ABSTRACT: Copper deficiency (Cu-D) considered one of the most common nutritional disorders in farm animals. Although various circulatory disturbances were reported in lab animals and human, no studies were undertaken to investigate such changes in farm animals. Our recent study reported for the first time the associated ECG and Echo changes caused by Cu-D in goats. The aim of the current work was to investigate the molecular changes in copper regulating genes in the cardiac tissues and their effect on ECG and Echo parameters. Copper chaperone mRNA expressions were evaluated by real time PCR in control and copper deficient goats. The expression levels of CP, ATP7A, CTr, LOX and COX17, SOD1, CCS and ATP7B showed downregulation in Cu-D group. Variable significance of certain parameters including T du, T volt, LVED, EF, FS%, LAd and LA/Ao ratio were correlated with the investigated genes. So, Cu-D impacted the copper regulation genes of goat's heart resulting in changes in ECG and Echo measurements.

KEYWORDS: Copper deficiency, ECG, echocardiography, Copper chaperones, PCR, shiba goat.

INTRODUCTION

Copper is important for the cardiovascular health due to its catalytic cofactor for various enzymes especially those involved in antioxidant and cross-linking of connective tissue (Klevay 2000)). Numerous transporters and chaperone proteins exist that regulate Cu acquisition, intracellular distribution, and utilization and are essential in preventing both deficiency and toxicity (Robinson and Winge 2010). In our research, changes in ECG and echocardiographic measurements in goats were investigated. The effect of copper deficiency on copper chaperones mRNA expressions and their impact on heart functions in farm animals did not previously reported.

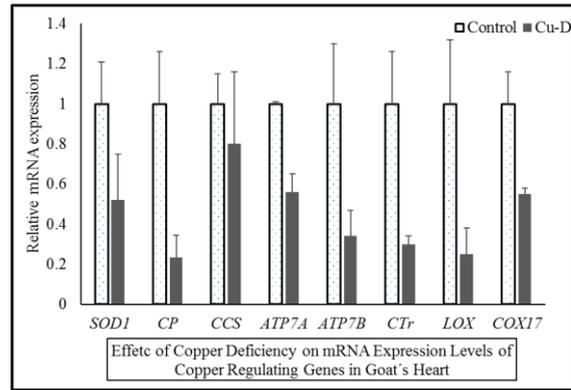
OBJECTIVES

This study aimed to investigate the molecular basis of impacted cardiac tissues of goats due to copper deficiency via 1- evaluation of the mRNA expression levels of copper chaperones, TNNI.3, MMPI and GPX1 in the cardiac tissue, 2- determination of correlation between the expression levels and the recorded ECG and echocardiographic parameters.

METHODS

Copper deficiency was induced by supplementing the basal diet of Cu-D group with S (1.5-3 gm) and Mo (10-40 mg)/kg DM for 7 months. The heart was examined twice at two interval time points before euthanasia. The mRAN expression levels of copper chaperones were determined in the myocardial specimens by real time PCR. Statistical correlation between the expression levels and reported ECG and echocardiographic parameters was reported.

RESULTS & DISCUSSION



Variable significance of certain parameters including T du, T volt, LVED, EF, FS%, LAd and LA/Ao ratio were correlated with the expression levels of specific genes.

CONCLUSION

Disturbances in the copper regulating genes in the heart resulted from experimental hypocuprosis could disturb the ECG and echocardiographic measurements. So, changes in the heart function should be considered during clinical investigation of Cu-D in farm animals.

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PS-55: PETROLEUM GEOCHEMICAL CHARACTERIZATION OF GHARIBON OIL FIELD, EAST BENI SUEF BASIN, EASTERN DESERT, EGYPT.

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ABSTRACT: East Beni Suef Concession is located in the eastern part of Beni Suef Basin which is a relatively under-exploration basin and lies about 150 km south of Cairo city. Rock-Eval pyrolysis and well logs data from three wells (Gharibon-1x well, Gharibon NE-1X and Tareef-1X well) in the Gharibon oil field, East Beni Suef basin were used to evaluate the organic matter richness, generation, maturation and kerogen type of the Cretaceous source rocks. This study represents the first attempt to investigate the petroleum geochemistry of the Cretaceous sequences in Gharibon oil field. The assessment of the source rock has been done by using different methods such as well logging data, Rock-Eval pyrolysis and Vitrinite reflectance (%Ro) of some Cretaceous sequences comprise Apollonia, Khoman, Abu Roash (A, E, F and G members), and Baharyia formations. The geochemical analysis includes pyrolysis data which are total organic carbon (TOC %), generating source potential (S₂), oxygen and hydrogen indices (OI, HI), production index (PI) and (T_{max}). On the basis of TOC and Rock-Eval pyrolysis results, three main source rock types could be distinguished in the studied wells. The first source rock type is oil-prone, while the second source rock type is mixed oil/gas-prone and the third source rock type is mainly gas - prone.

KEYWORDS: Source rock evaluation, maturity, Rock-Eval pyrolysis, Beni Suef basin, Egypt.

INTRODUCTION

The Beni Suef Basin is a relatively under-exploration in the North Central part of Egypt, which is located about 150 km south of Cairo. The Nile Valley bisected the basin into East and West basins [2,3,7]. The study area (Gharibon oil field) is located in the eastern side of the Beni Suef basin and is surrounded by Sohba oil field (Fig. 1). The present study deals with the evaluation of the source rock using a group of techniques including the Rock-Eval pyrolysis, %Ro, and well log data of some Cretaceous sequences (i.e. Apollonia, Khoman, Abu Roash (A, E, F and G members), and Baharyia formations) for Gharibon-1x well, Gharibon NE-1X and Tareef-1X wells. The type of hydrocarbon matter was determined through the relationship between the plots of Hydrogen index (HI) with the Oxygen index (OI), the (HI) with (T_{max}) and the (TOC) with (S₂) [1,4]. The thermal maturity levels were identified from the production index (PI), (T_{max}) and (TOC) plots versus depth. The percentages of each type in the mixed kerogen were calculated from the relationship between (HI) and (T_{max}) [6,8]. Well log data [gamma ray, density, neutron, deep resistivity (ILD), photoelectric factor (PEF) and sonic logs] are used to calculate the TOC content of the source rocks using the D log R technique [9] and Density log method [5].

OBJECTIVES

The main objectives of this study are to identify and characterize potentiality of the source rocks and their generating capability, investigate the levels of maturation the proven source formations, predict the levels of thermal maturity of the studied Cretaceous sequences through the study of hydrocarbon generation and expulsion, and identify the kerogen type of each source rock.

METHODS

The entire study depends on a group of technique including the Rock-Eval pyrolysis, %Ro, and well log data of some Cretaceous sequences comprising Apollonia, Khoman, Abu Roash (A, E, F and G members), and Baharyia formations for Gharibon-1x well, Gharibon NE-1X and Tareef-1X wells.

RESULTS & DISSUSION

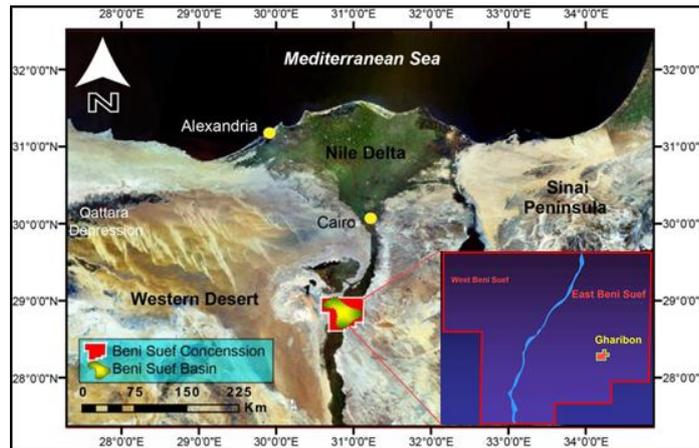
The screening analysis (TOC and Rock Eval pyrolysis) results (Table 1) revealed the presence of three source rock types within the analyzed sections in Gharibon -1X, Gharibon NE-1X and Tareef-1X wells. Most of the first source rock type



contains rocks composed mainly of argillaceous limestones with hydrogen-rich kerogen capable of generating oil. The second source rocks contain rocks have the capacity for oil and gas generation. The third source rocks are characterized by fair potential for mainly gas generation.

Table 1: Rock-Eval pyrolysis and TOC analysis results of Gharibon -1X, Gharibon NE-1X and Tareef-1X wells.

Source Rock	TOC (%)	pyrolysis S2 (mg HC/g rock)	Hydrogen Index (mg HC/g TOC)
Type I (Oil)	0.53 to 4.02	2.63 to 27.91	409 to 889
Type II (oil and gas)	0.65 to 1.78	2.12 to 5.27	254 to 433
Type III (gas)	1.07 to 4.99	1.95 to 12.52	< 260



CONCLUSION

The petroleum hydrocarbon of Gharibon oil field is derived from predominantly marine organic matter with some terrestrial input at moderate thermal maturity. According to the screening analysis results of TOC and Rock Eval Pyrolysis of the Cretaceous sequences of the studied wells in Gharibon oil field, three source rock types are distinguished. The first source rock type is oil-prone, while the second source rock type is mixed oil/gas -prone and the third source rock type is mainly gas -prone.

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PS-56: GEOTECHNICAL ASSESSMENT OF SOIL FOR URBAN PLANING, ISMAILIA GOVERNORATE, EGYPT

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ABSTRACT: *The urban planning must be based on previously-carried geotechnical investigations. Such investigations are invaluable, therefore, the present study aimed to assess the suitability of soil for the different land use purposes assigned in that plan. The geotechnical measurements reveal that the subsurface Quaternary sequence start with fill of sand with traces of silt, fine gravels, and iron oxides at depth 0.5 to 1.5m. Other layers are mainly fine to coarse sand with trace silt and sometimes with trace gravel, except silty clay layer at depth from 20m to 40m. Based on uniformity coefficient (C_u) (2.07-5.243) and gradation coefficient (C_c) (0.630-1.657), most of samples are poorly graded. According to AASHTO system most of samples are classified as A-1-b, A-2, A-2-7, A-2-6 and A-3 groups which are good to excellent subgrade, except A-6 and A-7-6 groups that are fair to poor. The SPT results show that penetration resistance values (N) range between 16 and 91 blows/cm, meaning that most of samples are very dense, which are suitable for resisting load, except the fill which is of medium dense. So, fill must be removed and replaced by adequate soil of A-1 type. The pocket penetrometer measurements show that all clay samples have hard density. The moisture content values vary from 22.8 to 36.82% and that of bulk density vary from 1.828 to 1.91gm/cm³. The percentage of moisture content is very high as this layer encountered below water table (13.3m). On the other hand, the plasticity index (PI) values range between 11.04 and 66.98%, indicating medium to very high plasticity, and hence their performance is decreased. The compaction achieved in situ, using sand cone test, ranges between 90.3 and 97.8% which is reasonable.*

KEYWORDS: *Geotechnical, Development planning, Ismailia.*

INTRODUCTION

Currently, Ismailia Governorate witnesses widely spread constructional activities including establishment of new urban, industrial zones and mega projects according to the strategic urban and development planning. This plan requires conducting geotechnical investigations to testify the suitability of soil for the assigned purpose. Also, previously carried research such as [1], [2], [3], [4] and [5] revealed that there is a lack of update geotechnical data which are required before the achievement of such constructional activities.

OBJECTIVES

This research was carried out to assess the geotechnical properties of soils in order to testify their suitability for the different land use purposes. Hence, providing the data required to achieve the urban planning of Ismailia Governorate, as well as avoiding the geotechnical problems that might be appeared and the high costs required for repairing.

METHODS

The geotechnical testing program includes both Field and Laboratorial measurements. The field work encompasses collecting Data from seven boreholes (depth: 40-80m), Standard Penetration Test (SPT), Pocket penetrometer measurements, and Sand cone method. Whereas the laboratorial testing includes the determination of particle size, Moisture Content, Liquid limit (LL) and Plastic limit (PL), Unit Weight (Bulk density), and maximum dry density and Optimum moisture content (Standard Proctor).

RESULTS & DISCUSSION

According to AASHTO system [6], most of samples are classified as A-1-b, A-2, A-2-7, A-2-6 and A-3, which are considered as good to excellent subgrade, except silty clay layer at depth 20-40m, which is classified as A-6 and A-7-6 groups and considered as fair to poor subgrade. As an example, the particle distribution curves of samples no.1 &2 of borehole-1 are shown in Figure (1) and the classification and coefficients are listed in Table (1). On the other hand, the liquid limit (LL) ranges between 26.30 and 96.84% and the plastic limit percentage ranges from 14.60 to 32.50%, consequently, plasticity Index (PI) values range between 11.04 and 66.98. This means that the swell potential range from medium to very

high, so the performance of these samples is decreased [7]. The results of proctor test show that the Maximum dry density is 1.894 and optimum moisture content is 7.8%. This means that we have to verify the achievement of such values in the field. To do that, the sand cone test was carried out to measure the in situ dry density. The results illustrate that the compaction values range between 90.3 and 97.8%, which is considered to be reasonable.

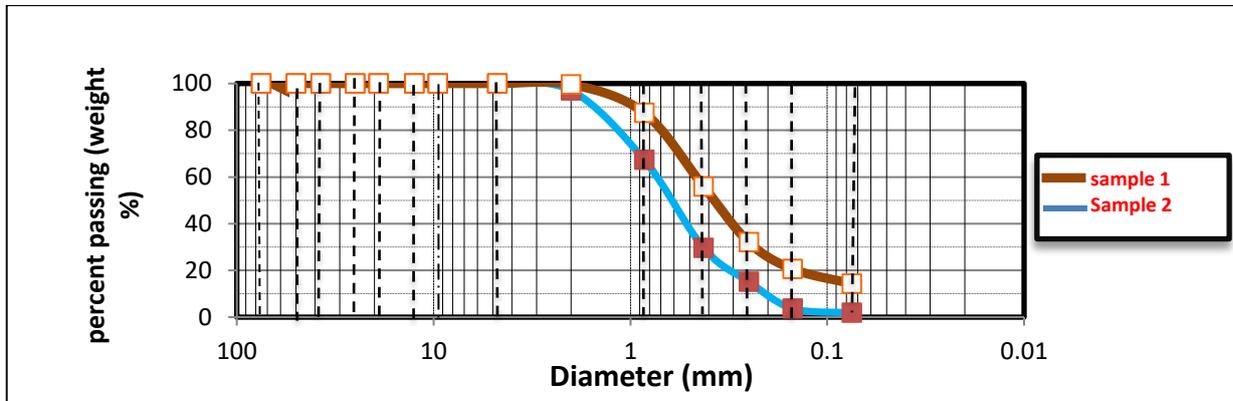


Figure 1: The particle distribution curve of samples no.1 & 2, borehole-1, El-Qersh locality (Depth of sample 1= 3 to 3:45m, sample 2 = 12 to 12.45m)

Table 1: The classifications and Coefficients of soil samples of El-Qersh locality

Borehole No	Sample No.	AASHTO system	USCS system	Percent Passing			D10, D30, D60			Coefficients		Hydraulic Conductivity (K) (cm/sec)
				Sieve No. 10	Sieve No. 40	Sieve No. 200	D10	D30	D60	Uniformity (Cu)	Gradation (Cc)	
1	1	A-3	SM	99.6	55.9	14.3	-	0.22	4.9	-	-	-
	2	A-1-b	SP	97.0	29.6	1.8	0.205	0.430	0.791	3.851	1.140	5.46×10^{-4}
	3	A-1-b	SP	97.3	33.2	2.8	0.193	0.371	0.705	3.653	1.012	4.84×10^{-4}
	4	A-7-6	CH	100	97.5	62.7	-	-	-	-	-	-
	5	A-7-6	CH	100	79.6	50.5	-	-	0.17	-	-	-
	6	A-3	SP	100	75.6	3.5	0.158	0.231	0.357	2.265	0.946	3.61×10^{-4}
	7	A-7-6	CH	98.9	97.9	89.3	-	-	-	-	-	-
	8	A-2	SM	100	99.6	32.1	-	-	0.18	-	-	-
	9	A-2	SM	100	99	26.3	-	0.085	0.17	-	-	-

CONCLUSION

Geotechnical test program reveals that most of soil samples are considered as good to excellent subgrade, except clay and silty clay samples which are fair to poor. For pavement purposes, the topmost fill layer must be removed and replaced by suitable soil of A-1 type. While, for construction purposes, it must be removed to depth of about 1.5m. The plasticity index of clayey soils is medium to very high so their performance is decreased and is subjected settlement. The compaction achieved in situ, using sand cone test, ranges between 90.3 and 97.8%, based on Proctor test, it is a reasonable value. Such type of soil, which encountered at depth from 20 to 40m, needs a specific foundation to fix their settlement. Eventually, this assessment must be taken in to consideration during the urban and development planning of Ismailia Governorate.

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PS-57: ASSESSMENT OF WATERLOGGING FEATURE ALONG SUEZ GOVERNORATE AREA USING REMOTE SENSING AND GEOGRAPHIC INFORMATION SYSTEM TECHNIQUES

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ABSTRACT: *Water logging feature, caused by rising of groundwater level due to returned flow irrigation water, is an major environmental hazard threaten Suez Governorate area due to the interactions of human and natural activities with the environment. Thus, it is necessary to assess, monitor and detect the changes in groundwater rising to maintain a sustainable environment. Remote sensing and GIS tools and techniques are used to assessing, monitoring and mapping the water logged sites and salt-affected soil. The obtained results cleared that the increasing of vegetation, the underlying lithology, geomorphology, water table level and flow direction of ground water are the principal factors impacting the spreading of water logging feature and soil salinization in Suez Governorate area. The present study revealed that the water logged areas are increased during the period from 1984 to 2015 by 3.278 to 13.961 km² (.31% to 1.32%) out of the area 1632 Km², while soil salinized sites are decreased during the period from 1984 to 2015 by 118.635 to 60.044km² out of the area 1632 Km² (11.24% to 5.68%).*

KEYWORDS: *Suez, Water logging, Soil salinization, Remote sensing*

INTRODUCTION

This rising of water level leads to some hydro-environmental problems such as water logging, soil salinization and water pollution. Suez Governorate area, one of the most affected area, is located at the northern part of the Eastern Desert of Egypt. It is bounded by Longitudes 32°22' to 32°40' E and Latitudes 29°52' to 30°16'N and covers an area of about 1632 Km². It is bordered to the north by Bitter lakes, to south by Suez city and GabalAtaqa, to the East by Sinai, and to the West by GabalGenefa. Geomorphological units of the study area includes Structural table land, Structural ridges, Structural depressions (El-Dakruri depression), Sand dunes, lakes and bonds and Isthmus stretch (Eastern low land). Lithologically, the study area is essentially covered by limestone with clay, which is the principle factor causing the water logging and soil salinization problems.

OBJECTIVES

The present study aims to assess the groundwater level rising and the waterlogging feature of the study area. The main goal of the proposed research will be achieved by enhancement and interpretation the multi-temporal remote sensing satellite images then, compare the results with each other in order to identify, delineate and construct the water logging maps of the study area. Moreover, GIS modeling is an important approach to produce land use, land cover, land degradation such as waterlogged, soil salinization maps of the study area by integration of the previously constructed thematic layers and other ancillary geological data.

METHODS

Four types of multi-temporal RS data were used in the present study to monitor and assess the hydro-environmental hazards through developing of LU/LC maps. The multi-temporal RS data are obtained from NASA [1], for the period 1984, 2000, and 2015. Additionally, ASTER GDEM used to produce slope, drainage and groundwater flow map. Surveying and projection of the water points and soil sampling sites on the produced maps have been done using geographic positioning system, (GPS). Field check for some remotely sensed features and measuring of hydrogeological parameters have been done during two field trips along the investigated area. Remote sensing and digital image processing, involving the manipulation and interpretation of digital images, are processed with the aid of a computer to detect, outline and monitor water logging and salt crust features. Image pre-processing includes: layer stack, image mosaicking and subset and geometric correction. Image processing and enhancement includes contrast stretching, principal component analysis (PCA) [2] and band rationing [3]. Image classification [4] is applied to characterize the involved land cover classes in the mapped area. Finally, change detection and post classification comparison techniques are applied to differentiate the specific features or phenomenon by monitoring it at different times and estimate the rate of change and their hydro-environmental impacts. All processes have been done using ERDAS IMAGINE and ARC GIS software.

RESULTS

The Lu/Lc distribution maps of the study area are constructed for the years 1984, 2000 and 2015 (Fig. 1 as an example). The obtained maps show that the study area is subject to rapid and increasing changes in different classes of the LU/LC as a result of natural and human activities. The main changes were in vegetation cover, soil salinization and waterlogging distributions those took place during the periods from 1984 to 2000 and from 2000 to 2015. The obtained results reflect that the water logged areas are increased during the period from 1984 to 2000 by 3.278 to 11.602 km² (.31% to 1.11%), while during the period from 2000 to 2015 it is increased by 11.602 to 13.961 km² (1.11% to 1.32%) (Fig. 2). Soil salinized sites are decreased during the period from 1984 to 2000 by 118.635 to 106.106 km² (11.24% to 10.19%) and from 2000 to 2015 by 106.106 to 60.044 Km² (10.19% to 5.68%) (Fig. 2). The vegetation increase from 1984 to 2000 by 43.43 to 75.441 Km² (4.11% to 7.24%) and from 2000 to 2015 by 75.441 to 231.563 Km² (7.24% to 21.94%) (Fig. 2).

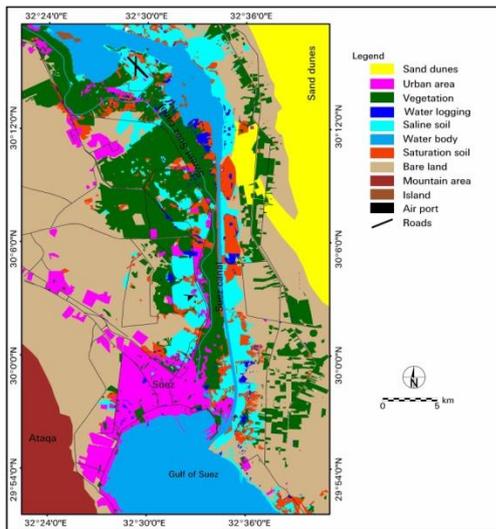


Fig (1): Land use/land cover distribution map of Suez Governorate (2015).

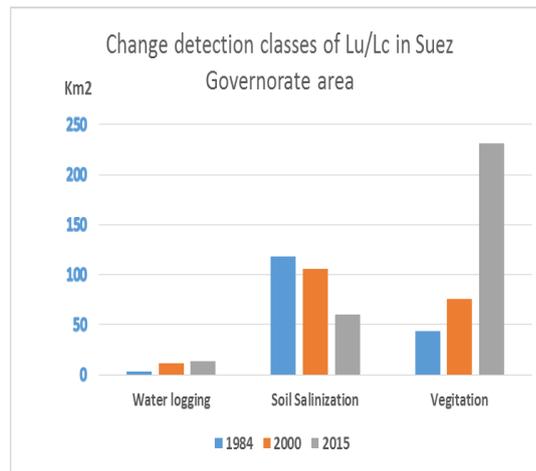


Fig. (2): Change detection classes of Lu/Lc in Suez Governorate area during (1984, 2000, 2015).

CONCLUSION

By integration of the obtained maps (land use/ land cover, slope map, water table map and the lithological and geomorphological maps of the study area), the causes of the water logging feature is related to the groundwater level rising, the low topographic depressions, the presence of low permeability clay layers and the returned flow irrigation water from the newly surrounding cultivated lands. The present study recommends applying of some mitigation measures to lower the water table in the study area in order to reduce the water logging and soil salinization problems. The mitigation measures could be summarized as minimizing the flood irrigation water by enhancing the irrigation process using modern irrigation methods such as drip and sparkling methods, enhancing the drainage system of the new cultivated lands, applying dewatering technique to lower water table using ground water modeling technique.

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PS-58: FLASH FLOOD ASSESSMENT AND WATER MANAGEMENT IN 10th OF RAMADAN WATERSHED AREA, EGYPT

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ABSTRACT: *Flash flooding occurs on saturated soil or dry soil that has poor absorption ability when it rains rapidly. Flash floods are among natural hazards disastrous causing the largest quantity of deaths and property damage. The runoff collects in gullies and streams and, as they join to form larger volumes, often forms a fast flowing front of water and debris. The present study aims to estimate flash flood risk of Wadi Gafra basin draining 10th of Ramadan watershed area and cross cutting the main industrial and urban extension of 10th of Ramadan city. Hydrological, morphometric and stochastic rainfall analyses have been conducted for 10th of Ramadan watershed to assess the flood risk ranking. The flood hazard risk mapping are employed by using remote sensing data and GIS tools. The obtained results indicate that the Wadi Gafra drainage network has been subdivided into ten sub-basins, of which three sub-basins have high vulnerability for flooding risk. Applying some mitigation measures are recommended for the decision makers to reduce the impact of probable flash flooding on the existing infrastructures and utilities of 10th of Ramadan area.*

KEYWORDS: *Remote sensing, GIS, Flash flood hazards, 10th of Ramadan, risk assessment, Egypt.*

INTRODUCTION

10th of Ramadan area is one of main industrial zones in Egypt which attracts the attention of investors. Natural hazards, such as flash floods, water and soil pollution are very important threats to the developed projects area environment [1]. The study area, 10th Ramadan watershed, is located between Latitudes 29° 50' & 30° 20' N and longitudes 31° 30' & 32° 10' E and covering an area of 2850 km². The study areas encompass the whole drainage network of Wadi Gafra mega basin which drains an area of 1491 km² and debouches into the industrial zone of 10th of Ramadan. Nowadays, the new extensions of the industrial and urban have invaded the main course of Wadi Gafra which might be subjected to future flood hazard under the impact of climate change [2]. The present study aimed to assess the vulnerability of the 10th of Ramadan area to flash flood risks and recommending applying some mitigation measures to reduce the flood hazard impacts and protect the existing industrial and urban utilities.

OBJECTIVES

The aim of the present study is to analyze morphometric parameters in order to estimate the flash flood risk levels of sub-basins within tenth of Ramadan watershed area. The drainage network of the watershed area is analyzed by using ArcGIS software. Eight variables are considered as layers introduced into the flood model. A generalized model has been established on the basis of causal factors including basin surface and its drainage characteristics. These factors include Weighted Bifurcation Ratio, Stream Frequency, Stream Density, Circularity Ratio, Overland Flow, Main gradient, Rainfall, and Basin Area.

METHODS

The morphometric parameters are used to assess the hydrologic situation of Wadi Gafra basin [3]. These parameters include Fill, Surface Slope, Aspect surface, Hill shade, Basin Area (A), Basin Shape, Stream Order (U), Bifurcation Ratio (Rb), Drainage Density (D), Drainage Frequency (F), Overland Flow (OLF), Relief Ratio, Drainage Gradient. These drainage network and the morphometric parameters are extracted and calculated from DEM by using ArcGIS software (Fig. 1). The flood risk ranking is mapped by integration of this parameters [4]. The quantitative values associated with each parameter ought to have a different score on a scale according to its importance in flood or risk. An overlay operation would then assess the intersected regions by a sum of the scores, so each region is characterized by a score measuring its potential for flood prospect. According to the relationship between the parameter values and the risk of flash flood [5], the analysis of each parameter is calculated using a simple statistical method. Each parameter is classified into three classes based on the morphometric characteristics and their relations to their potential degree of risk. Then, the parameters are classified into three intervals as degree of risk. To obtain a final estimate of flood risks, different scores on a scale according to their importance to flood risk are given. An overlay operation will evaluate the intersected regions by a summation of scores, so that each region is characterized by a score measure. To present a clear final map, the result is divided into three categories (low, medium and high risk) using equal intervals.

RESULTS

The study area could be divided into three classes of flood hazard susceptibility. The flood hazard risk final map (Fig. 2) of Wadi Gafra basin shows that Sub-basins 1,4,5 have high rank of flooding risk, while the three Sub-basins 2, 7, 8 are considered to have moderate rank of flooding risk. On other hand, sub-basins 3,9,10 have low rank of flooding risk.

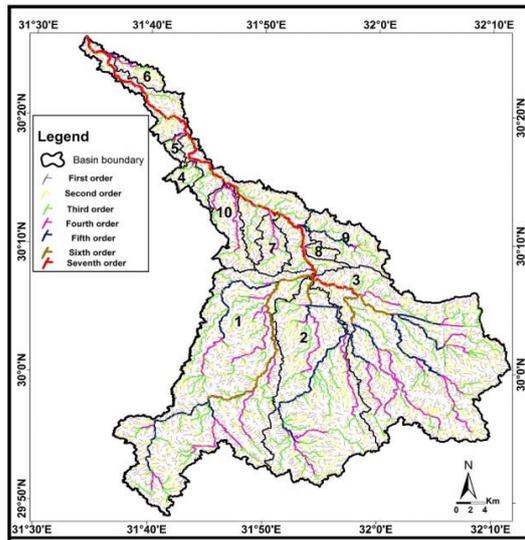


Fig. (1): Drainage network of 10th of Ramadan watershed area.

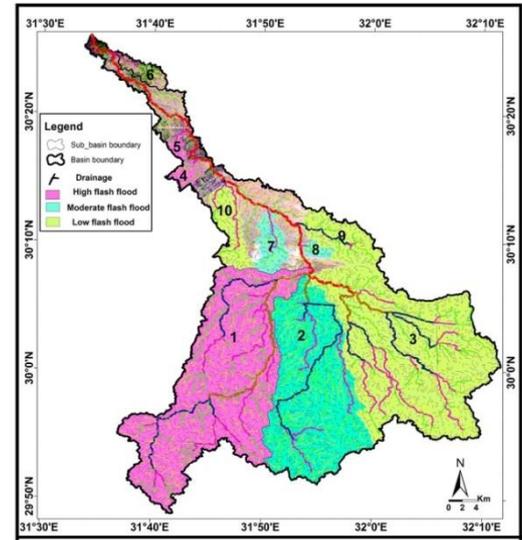


Fig. (2): Flash flood risk ranks map of 10th of Ramadan watershed area.

CONCLUSION

10th of Ramadan area suffers from susceptibility for risky flash flood. The flash flood risk levels of sub-basins of 10th of Ramadan watershed area is assessed by analyzing the morphometric parameters the studied basins using remote sensing and GIS system. The results are scored on a 1 to 3 scale, in ascending order of hazard significance. The study area is divided into three classes of flood hazard susceptibility. The flood hazard risk final map of Wadi Gafra basin shows that 1,4,5 have Sub-basin have high flooding risk, Sub-basins 2,7,8 have moderate flood risk; while sub-basins 3,9,10 have a low flooding risk. It is recommended to apply some mitigation measures to reduce the impact of flash hazards of the existing structure of the industrial and urban extensions and conserve the flood water for the local uses. Establishments of hydraulic structures, such as retardation dams, cisterns and storage dam along the sub-basins of high flooding risk is of prime importance.

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PS-59: GEOMORPHIC INDICES AS A SIGNATURE OF ACTIVE TECTONIC IN WADI GHWEIBA BASIN, NORTHWEST GULF OF SUEZ, EGYPT

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ABSTRACT: Wadi Ghweiba considered as one of the main largest hydrographic basins in the Eastern Desert of Egypt. Tectonic activity at Wadi Ghweiba basin has been investigated by DEM derived catchments and drainage lines using geographic information systems software. The geomorphic indices are a useful tool in evaluating tectonic activity studies. The main geomorphic indices used in this study are; ratio of valley floor width to valley height (Vf), stream length-gradient index (SL), transverse topographic symmetry factor (T), hypsometric integral (Hi) and drainage basin shape (Bs). These indices not only provide evidences of regional tectonic deformation of an area, but also indicate its level of tectonic activity. Applying the geomorphic indices have been previously tested as a valuable tool in different tectonically active areas in many parts of the world. The present study revealed new criteria clarifying the impact of tectonic and weathering processes on the geomorphological forms and evolution of Wadi Ghweiba, with understanding the interactions between active tectonics and drainage networks. Applying these indices on the study area is suggesting high tectonic activity on some parts of the areas and still in youthful stage.

KEYWORDS: Wadi Ghweiba, Active tectonic, geomorphic indices.

INTRODUCTION

Many investigations and analyses are combined to evaluate the active tectonic behavior in an area. Active tectonic investigation is of high main concern in assessing the geo environmental hazards in an area. Geomorphic indices have been used here to appraise the active tectonic behavior at Wadi Ghweiba basin. The study area is located at the northwestern part of the Gulf of Suez, and bounded between latitudes 29° 11' 15" & 29° 54' 10" and longitudes 31° 38' 10" & 32° 22' 01" covering an area of 3030 km². The study area subjected to high deformation due to the impact of tectonic activities related to the opening of Gulf of Suez. The drainage network evolution of the study area impacted by the tectonic activities of the surrounding environment.

OBJECTIVES:

The present study aims to investigate and assess the active tectonic activity affecting the drainage network of W. Ghweiba basin.

METHODS

The morphometric indices have been estimated using the following procedures:

Ratio of valley floor width to valley height (Vf)

The ratio of the valley floor width to its height (Vf ratio), is calculated by the following equation:

$$Vf = 2Vfw / [(Eld - Esc) + (Erd - Esc)] \quad \text{Eq. (1)}$$

Where: Vf is the ratio of the valley width to valley floor, Vfw is the width of valley floor, Eld and Erd are the elevations of the left and right valley divides, respectively looking downstream and Esc is the elevation of the valley floor. The Vf parameter differentiates U-shaped valleys from the V-shaped ones, so that large amounts of Vf indicating slow level of uplift and valleys with flat floor and U-shaped. While low values of Vf indicating high rate of uplift and deep V-shaped valleys, because uplift is associated with incision.

Stream length-gradient index (SL)

The stream length-gradient index (SL) indicates the role of rock resistance (resistant against erosion) in streams, and it is computed by the equation (Hack, 1973) [1]:

$$SL = (\Delta H / \Delta L) L \quad \text{Eq. (2)}$$

Where: SL is the stream length gradient index, $\Delta H / \Delta L$ is the stream gradient at a specific reach (point) in the channel (ΔH is the change in elevation of the reach and ΔL is the length of the reach) and L is the channel length from the divide to the midpoint of the channel reach for which the index is calculated.

The SL indexes investigate the relationships between tectonic activity, rock resistance and topography due to the influence of sudden changes in channel slope. Large differences in the values of this index indicate zones of tectonic activity.

Transverse topographic symmetry factor (T)

The transverse topographic symmetry factor evaluates the amount and the variation of asymmetry of a river or wadi course within specific basin. It is calculated regarding the larger axis of the basin. This factor (T) is the ratio of the distance from the basin midline to the active meander-belt midline (Da) and to the basin divide (Dd). The basin midline would be the location of a river that is symmetrically placed with regard to the basin divide. The factor (T) is calculated as follows:

$$T = D_a / D_d \quad \text{Eq. (3)}$$

The (T) values vary between 0 and 1, which represent the minimum and maximum asymmetry of a segment, respectively. High values indicating areas of potential possible surface tilting resulting in variation of slope polarity and the influence of bedrock on stream migration is negligible.

Hypsometry

The hypsometric integral (Hi), or area elevation analysis (Strahler 1952) [2], is a quantitative measure of the degree of dissection of a drainage basin and reflecting the state of landscape evolution.

The hypsometric integral (Hi) is calculated by using the following equation.

$$H_i = (h_{\text{mean}} - h_{\text{min}}) / (h_{\text{max}} - h_{\text{min}}) \quad \text{Eq. (4)}$$

Where: Hi is the hypsometric integral, h_{max} , h_{min} , and h_{mean} are the maximum, the minimum, and the mean elevation, respectively

Drainage basin shape (Bs)

Drainage basin is the area that encompasses all the land from which water flows into a particular stream or river. The area of a drainage basin can vary from a few square kilometers to a part of a continent. The horizontal projection of the basin shape may be described by the basin shape index or the elongation ratio, (Bs) (Ramirez-Herrera, 1998) [3] and can be expressed as:

$$B_s = B_l / B_w \quad \text{Eq. (5)}$$

Where: Bl: is the length of the basin measured from the headwater to the mouth. Bw: is basin width in the widest point of the basin. High values of Bs are associated with elongated basins, generally associated with relatively higher tectonic activity. Low values of Bs indicate a more circular-shaped basin, generally associated with low tectonic activity.

RESULTS:

In Wadi Ghweibba basin, the Vf values in W. Naoz (0.62 to 0.99) and W. El Abyad (0.176 to 0.463) sub-basins are low ($V_f < 1$) which indicate that the wadi incision is quite high for almost the whole wadies. W. Khafori and W. El-Qena show similar results, where the Vf values are less than 1 which indicate that the wadi incision is quite high. The Vf values of W. Khafori range between 0.252 and 0.550, while that of W. El-Qena range between 0.142 and 0.631. W. El-Batati, W. El-Sheikh and W. Gharaba exhibit different behavior; where the Vf values are less than 1 at the upstream and more than 1 at the downstream. The streams near the headwater show low Vf (0.350 to 0.531) for W. El-Batati and (0.390 to 0.786) for W. El-Sheikh. Vf values increases near the downstream reaches of W. El-Batati, Wadi El-Sheikh, as well as the whole stream of W. Gharaba due to the increase in the valley floor width, indicating periodic tectonic activity. The stream length-gradient index (SL) in the middle parts of the sub-basins of Naoz, El-Abyad, Khafori, El-Qena, which are the main sub-basins of the Northern Galala plateau, are of very high values compared to the upper and lower parts. The transverse topographic symmetry factor (T) values obtained for the sub-basins of Wadi Ghweibba; W. Naoz, W. El-Abyad, W. Khafori and W. El-Qena, are high reflecting a dominant role played by the tectonic activity (tilting) on those sub-basins. The hypsometric integral (Hi) values indicate that, W. El-Hamma, W. El-Batati, W. El-Sheikh and W. Gharaba sub-basins are in mature stage. On the other hand, the sub-basins of W. Naoz, W. El-Abyad, W. Khafori and W. El-Qena have values greater than 0.6 in which the watershed is highly susceptible to erosion, and in other words reflects a dominant role of tectonic activity on those sub-basins. Drainage basin shape (Bs) values of W. Naoz, W. El Abyad and W. El Sheikh sub-basins are more than 3 which indicate more longitudinal shape than the other Wadies suggesting more tectonically active areas.

CONCLUSION:

The result of this study afford a new criteria about the impact of tectonic and weathering processes on the geomorphological forms and evolution of the drainage system of Wadi Ghweiba, with understanding the interactions between Active tectonic and form of the drainage networks.

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PS-60: GEOMORPHIC INDICES AS AN INDICATION FOR ACTIVE TECTONICS IN WADI BEDA BASIN

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ABSTRACT: Many individual investigations and analyses are combined to evaluate the active tectonic behavior in an area, such as geomorphic indices analysis, remote sensing, seismicity analysis, and field surveys. Tectonic activity at Wadi Beda Basin has investigated by DEM derived catchments and drainage lines using GIS techniques. The geomorphic indices include ratio of valley floor width to valley height (Vf), stream length-gradient index (SL), transverse topographic symmetry factor (T), hypsometric integral (Hi) and drainage basin shape (Bs) are useful in evaluating tectonic activity. These indices not only provide evidences about regional tectonic deformation of an area, but also its level of tectonic activity. Applying these indices on the study area suggesting moderate tectonic activity on some parts of the areas and still in youthful stage.

KEYWORDS: Wadi Beda, Active tectonic, geomorphic indices.

INTRODUCTION

Active tectonic investigation is of high main concern in assessing the geo environmental hazards in an area. Geomorphic indices have been used here to appraise the active tectonic behavior at Wadi Beda. The area has been subjected to many previous studies regarding various types of hazards, but none of them used the geomorphic indices as an indication for active tectonics.

OBJECTIVES

The present study aims to investigate and assess the active tectonic of W. Beda basin, W. Umm Athala, W. El-Noqra and W. Umm Elda sub-basins.

METHODS

Ratio of valley floor width to valley height (Vf)

The ratio of the valley floor width to its height (Vf ratio), is calculated by the following equation:

$$Vf = 2Vfw / [(Eld - Esc) + (Erd - Esc)] \quad \text{Eq. (1)}$$

Where:

Vf is the ratio of the valley width to valley floor, Vfw is the width of valley floor, Eld and Erd are the elevations of the left and right valley divides, respectively looking downstream and Esc is the elevation of the valley floor.

Stream length-gradient index (SL)

The stream length-gradient index (SL) indicates the role of rock resistance (resistant against erosion) in streams, and it is computed by the equation (Hack, 1973) [1]:

$$SL = (\Delta H / \Delta L) L \quad \text{Eq. (2)}$$

Where:

SL is the stream length gradient index, $\Delta H / \Delta L$ is the stream gradient at a specific reach (point) in the channel (ΔH is the change in elevation of the reach and ΔL is the length of the reach) and L is the channel length from the divide to the midpoint of the channel reach for which the index is calculated.

Transverse topographic symmetry factor (T)

The transverse topographic symmetry factor (T) is calculated regarding the larger axis of the basins follows:

$$T = Da / Dd \quad \text{Eq. (3)}$$

The factor (T) is the ratio of the distance from the basin midline to the active meander-belt midline (Da) and to the basin divide (Dd). The basin midline would be the location of a river that is symmetrically placed with regard to the basin divide.

Hypsometry

The hypsometric integral (Hi), or area elevation analysis (Strahler 1952) [2], is a quantitative measure of the degree of dissection of a drainage basin and reflecting the state of landscape evolution.

The hypsometric integral (Hi) is calculated by using the following equation.

$$Hi = (h_{\text{mean}} - h_{\text{min}}) / (h_{\text{max}} - h_{\text{min}}) \quad \text{Eq. (4)}$$

- Hi is the hypsometric integral.
- h_{max} , h_{min} , and h_{mean} are the maximum, the minimum, and the mean elevation, respectively.

Drainage basin shape (Bs)

Drainage basin is the area that encompasses all the land from which water flows into a particular stream or river. The horizontal projection of the basin shape may be described by the basin shape index or the elongation ratio, (Bs) (Ramirez-Herrera, 1998) [3] and can be expressed as:

$$Bs = Bl / Bw \quad \text{Eq. (5)}$$

- Bl: is the length of the basin measured from the headwater to the month.
- Bw: is basin width in the widest point of the basin.

RESULTS

Most of the measurements of the Ratio of valley floor width to valley height (Vf) in Wadi Beda sub-basins indicate that; the streams near the source show low Vf (0.29 to 1.7), whereas it increases far away from the source due to increase in the valley floor width, except for Wadi Umm Elda, where the values are relatively high at upstream (1.093-1.018) to (0.497-0.437) at downstream. These values mean that some places become very low, as valley incision is quite high for a particular part of the area, indicating periodic tectonic activity. On the other hand, all values of Wadi El-Noqra are low indicating high rate of activity. Wadi Beda basin and Wadi Umm Athala sub-basin represent ideal case of increasing values from upstream to downstream where the higher values near the mountain fronts indicate the broad valley floors and lateral cutting of the streams. The values of SL index increase as streams crosses an active uplifts, and may have lesser values when they are flowing parallel to features such as valleys produced by strike-slip faulting (Keller and Pinter, 2002) [4], or running over or parallel to normal faults or grabens, such conditions are encountered in W. Beda, W. Umm Athala and W. Umm Elda. Most of the measurements of factor (T) in Wadi Beda are less than 0.1 indicating less tilting. This can be attributed to its running parallel to the major fault, which depicts the valley. The values of the hypsometric integral indicate that W. El-Noqra, W. Umm Athala, are in mature stage. However, the values of 0.524 and 0.541 obtained for W. Beda basin and W. Umm Elda sub-basin are indicating that they are close to the lower limit of the youthful stage. The Drainage basin shape (Bs) values of W. Beda basin, W. Umm Athala, W. El Noqr and W. Umm Elda sub-basins have intermediate values suggesting moderate tectonically active areas.

CONCLUSION

The results of this study afford new criteria about the effect of tectonic and weathering processes on the geomorphological forms and evolution of the basins, with understanding the interactions between active tectonics, faulting and drainage networks. The northwestern part of the study area shows a degree of tectonic activity. This area is near from future urban expansion; therefore a great consideration must be taken.

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PS-61: DRY WELLS ANALYSIS OF SUDR OIL FIELD, GULF OF SUEZ, EGYPT

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ABSTRACT: Sudr oil field is positioned in the north-eastern part of the Gulf of Suez (Egypt), and characterized by low oil production rate and many dry wells. Dry well analysis is an exploration procedure to identify what could be the reason for drilling failures. Structure modeling and fault seal analysis are the major methods which could give satisfied answers for this incredibly huge number of dry wells in the Sudr field. The study of field structure was based on interpretation of 2D seismic data. Faults in the subsurface generally dominate the major oil traps. The field is a tilted horst block aligned NW-SE and dipping to the NE. A number of NE-SW cross faults offset the structure but they are difficult to define. The poor quality of seismic data prevented accurate modeling of reservoir structure. Depth maps, based on both optimistic and probable seismic interpretations of reservoir size, were constructed for the deepest, continuous, mappable seismic horizons. Structure modeling is used to measure the sand-shale juxtaposition for both the footwall and the hanging wall in clastic sequence of Miocene and pre-Miocene that controlled by structure system. Sealing analysis reflects the properties of these faults, controlled by volume of shale calculations based on gamma ray and resistivity logs. The final integration of results shows the bad structural closure and sealing which dramatically caused the migration of the hydrocarbon through the Sudr oil field in obvious case.

KEYWORDS: Dry wells analysis, Fault seal analysis, Seismic interpretation, Structural trap, Sudr oil field.

INTRODUCTION

The Gulf of Suez is classified as a hydrocarbon-rich province which characterized by petroleum system developed from clastic and non-clastic reservoirs that are charged from excellent organic source rock varying in age from Pre-Miocene and Miocene Sequences [1, 2, 3]. Sudr field is one of the northern oil fields in Gulf of Suez. Sudr field shows low oil reserve estimation with a large number of dry wells in the most important oil province of Egypt [1]. The continuous developed techniques in seismic interpretation can provide new better vision about the subsurface structure pattern and its criteria which controlled the petroleum system in study area. Nontraditional method like seismic attributes help to determine the subsurface features including faults and sedimentary sequence [4, 5, 6]. Well data of composite logs and wire line data provide rich information values that used to increase the certainty of flow work and proceed major steps. Depth structure map and fault properties provide wide vision about the real reasons for this phenomena of dry wells.

OBJECTIVES

The main objectives of this research are to focus on the principle reasons related to classify the Sudr oil field as a weak field for hydrocarbon production in the major hydrocarbon province of Egypt. Discovering of new best location suitable for future exploration stage. Reduction of uncertainty for further exploration plan in the study area is a great impact from this research.

METHODS

The analysis for all available data which include both of 2D-seismic data and well data are the main method that are used. The integration of data analysis helped in find out the reasons explain the low rate of oil production. Seismic attributes are used to give more enhancement for the structure vision and to separate between the vertical secession of layers in seismic interpretation step [7, 8, 9, 10]. Well logging analysis is used to identify the petrophysical properties of faults which worked as traps [11, 12, 13]. Building of facies model and petrophysical model are based on well data analysis after reservoir structure model stages [13]. Fault seal analysis is used to determine seepage zone in promising structure traps and infer the most sealing traps [14 & 15].

RESULTS & DISCUSSION

Reservoir models was the first step to visualize the geological setting in subsurface basically with structural model. Facies model was built based on up-scaling process to represent the sand-shale juxtaposition for both footwall and hanging wall in clastic sequence of Miocene and pre-Miocene secession. Juxtaposition analysis identify the type of closure that is



controlled by faults system. Fault seal analysis involves in the distribution of shale along fault planes to predicate the ability of faults to transmit the fluid throw out it. Volume of shale distribution was obtained from petrophysical model. The integration for all this result including reservoir model, juxtaposition analysis and fault seal analysis provide and explain the reasons of weak rate of oil production. The results helped to focusing on the areas of suitable future exploration. Finally, perfect structure pattern with unfortunately criteria of bad closure and weak sealing lead to have a huge number of dry wells in Surd oil field.

CONCLUSION

Currently, the Gulf of Suez is the most active exploration and development province in Egypt. The large oil discoveries in the Gulf of Suez are all located in tilted fault blocks. The new seismic interpretation techniques provide satisfied analysis for the geological setting in Sudr oil field. Fault seal analysis could reduce the risk of drilling and focusing in the major promising locations because it is not depending only on the structure situation. Drilling based on the traditional interpretation seismic and gravity anomaly data lead to failure drilling plan. Sudr oil filed controlled by good structure features which assumed to be suitable for hydrocarbon accumulation located in depth structure maps for pre-Miocene and Miocene reservoirs, but it is not suitable throughout all the Sudr field to hydrocarbon accumulation as a result of bad sealing in these traps.

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PS-62: INTEGRATION OF SEISMIC AND PETROPHYSICS TECHNIQUES TO STUDY HYDROCARBON POTENTIALITY AT SAURUS FIELD, WEST DELTA DEEP MARINE, MEDITERRANEAN SEA, EGYPT

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ABSTRACT: *The Saurus field was discovered in 2001, and lies in late Pliocene – El Wastani Formation, and located approximately 100 km NE of Alexandria and in the western portion of the West Delta Deep Marine concession, which lies offshore in the Mediterranean's deep water (250-1500m). The Saurus channel is a combination stratigraphic/structural trap. It is defined to the East & West by stratigraphic closure, while there is dip closure to the North, and fault seal to the South. The reservoir consists of the succession of sandstone and mudstone in a general upward fining profile. The main seismic vintage used for the interpretation is the 2003 pre-stack time migration seismic data. Horizon picks were calibrated to well markers by obtaining good to fair well-seismic tie. Five horizons namely Top Ibn, Base Ibn, Top Channel, Base Gas and Base Channel were interpreted, along with five fault sets. The horizons were then depth converted using numerous depth conversion method (Polynomial function). Stratigraphic interpretation was conducted by analyzing various seismic attributes, in amplitude and frequency domain. This consists of Average Magnitude, Root mean square (RMS), and Spectral Decomposition attribute for reservoir geometry to identify the channel fairways and delineate the channel continuity. Well logging data is also used to identify productive zones, and to determine depth and thickness of zones. From the integration of seismic attributes and well logging analysis, we have two assumptions; 1- one of the channels deposited from south and continued to the north, and 2- the northern part of the channel is older than the southern part of the channel (the southern part eroded or incised the northern part of the channel).*

KEYWORDS: *Hydrocarbon Potentiality, Seismic, Mediterranean Sea*

INTRODUCTION

Egypt is divided into three petroleum provinces which are Gulf of Suez, Nile Delta and Western Desert, where the Nile Delta basin is the most prolific, prospective gas and condensate province in Egypt [1, 2]. Nile Delta is a lobate sedimentary succession that began in the Miocene time with a very thick section of Late Tertiary-Quaternary sediments indicating a rapid and continuous deposition in a subsiding basin. This section consists mainly of shale with thin sandstone intercalations [2, 3]. The Nile Delta deep water is rapidly emerging as a major gas province. A number of multi TCF gas fields have been discovered in the deep water of the Nile Delta in the last few years as the most recent reports (Issued by the American Geological Society, May, 2010) assure the presence of about 223 TCF (Trillion Cubic Feet) as proven reserves [3, 4, 5]. Early exploration across the Nile Delta was focused on the onshore Messinian incised valleys. Offshore discoveries were made on the extension of this play and subsequently on new plays such as the Pliocene shallow marine reservoirs of the Rosetta and WDDM fields [6]. Recent advances in deep water drilling technology, coupled with the use of 3D seismic as a standard exploration tool, have highlighted the outstanding prospectivity of the Pliocene and Oligo-Miocene sequences in the offshore deep water.

OBJECTIVES

The main objectives of this research are to quantify the recoverable gas volume in the study area by better lithology fluid discrimination, and using the seismic reservoir analysis results to optimize the best location for development well.

METHODS

Seismic attributes analysis is used to explain the geometry of Saurus field, the extension of the channel, and the geometry of sediments at different areas of the channel through the channel core levees and over bank deposits by means of amplitude attribute analysis at different time level through the Saurus channel. Comprehensive well logging analysis has been carried out for Saurus reservoirs in two wells in Saurus field using logging data in the form of (deep and shallow resistivity tool, porosity tool (neutron-density), gamma ray. Moreover, calculated gas initial in place (GIIP) was done by mean of seismic horizons (top and base) and by means of calculated petrophysical parameters.

RESULTS & DISCUSSION

Calculated petrophysical parameters, and comprehensive well logging analysis has been carried out for Saurus reservoirs in two wells in Saurus field using logging data in the form of (deep and shallow resistivity tool, porosity tool (neutron-density), gamma ray. This analysis shows very good reservoir petrophysical parameters; the porosity range from 19% in ibn saurus channel to 0.25% porosity in Saurus channel, and water saturation from 26% in ibn saurus channel to 29% and 36% in Saurus channel, the Net to Gross 42% from 107 meters total gross in Saurus channel, and 61% from 13 meters total gross in Ibn Saurus channel. Moreover, calculated gas initial in place (GIIP) was done by mean of seismic horizons (top and base) and by determination the interested area (A) by various seismic attributes, in amplitude and frequency domain, and by means of calculated petrophysical parameters, showing GIIP deterministic calculations over Saurus Channel.

CONCLUSION

GIIP mid case estimation for Saurus channel is 399 BCF and 117 BCF for Ibn Saurus channel. The total GIIP is 516 BCF, and the recovery target is 60% which is 309 BCF, and Saurus field production stopped in 2014 after producing roughly half volume from the recovery target. Therefore, the results of this study indicates that we still have good and economic reserve. Then we recommend to produce the rest of gas by drill side track in saurus-Db well, which is low in cost from new well and already saurus-db penetrate saurus and Ibn saurus channels.

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PS-63: New 3D Structure Model Miocene Succession in Belayim Land Field, Gulf of Suez, Egypt

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ABSTRACT: *Belayim Land field is located in the central part of the Gulf of Suez, along the coast of the Sinai Peninsula (Egypt), and characterized by a multilayer field with several separated sandstone reservoirs interbedded with shales and anhydrite intercalations, with Lower to Upper Miocene Age and named (Zeit Fm, South Gharib Fm, Belayim Fm, Kareem Fm, and Rudeis Fm). From a structural point of view the field can be described as a N-S trending anticline cut by several (NW-SE) and (NE-SW) faults. The main oil trapping is combined between structure and stratigraphy. More than four hundred well have been drilled in the field concentrated in the central and eastern parts of the field. The south part still undiscovered and the western part still undeveloped well. The work aimed to generate anew 3D structure model based on anew 3D PSTM seismic interpretation. A model of Miocene structure in the studied area has been established. The model is based on detailed faults and horizons interpretation, complex velocity model and well data. As a result of this work we present new evidence for unexplored blocks have been observed in the study area, which will open the gate for exploration in Belayim land field.*

KEYWORDS: *Belayim oil field, Seismic interpretation, Structural model.*

INTRODUCTION

. The Gulf of Suez is the oldest producing region for oil in Egypt, as well as the field of Belayim is one of the most important fields in this region since it is produced since 1955 and still producing until now[1]. It located in the central part on the eastern coast of the Gulf of Suez. The Miocene succession is the main oil producer in the field, five formations has been defined in this succession (Rudeis Fm, Kareem Fm, Belayim Fm. South Gharib Fm and Zeit Fm), each one of this formation contain more than one reservoir, the reservoirs are mainly sandstone capped by shale or anhydrite[2, 3]. The field characterized by the presence of several independent structural blocks with some differences in oil water contact[4].

OBJECTIVES

The main objectives of this work is to present new evidence for un discovered structure trapping within the Miocene succession, based on new 3D structure model coupled with well data, these structure model allow us to evaluate the possible potential in the field.

METHODS

. The study conducted through seven steps; First, well to seismic tie which facilitated correct identified of horizons[5]. Second, fault interpretation and fault relation defining. Third, Miocene formations interpretation (Zeit Fm., South Gharib Fm, Belayim Fm, Kareem Fm. and Rudeis Fm.) [6, 7]. Forth, construct 3D structure model in time domain. Fifth, establish velocity mode. Six, converted the 3D structure model from time to depth domain. Finally, map for Miocene targets.

RESULTS & DISCUSSION

The first benefit of the structure model that it enabled us to build a velocity model that taken into account the complex structural effects and was able to convert the data from time to depth as revers with high accuracy beside that allowed constructing new maps for each reservoir smoothly. The structure model provided the chance to investigate more details including highlights on the unexplored potential oil traps in the southern part of the field and undeveloped blocks in the western part of the field depths of the distant spots from the wells and improve the structure definition of the main targets.

Concerning to the structure interpretation workflow started by fault and fault relations interpretation. it was matched with Yagci [8] who found that horizon interpretation is more stationary with faults, making the interpretation smoother and more efficient in time. However, Yagci used PSDM seismic data to construct the model , In contrast, we constructed the model using PSTM seismic data and after that converted to depth domain using generated velocity model the data were available and were converted using a velocity model. Regarding Most of the faults take the (NW-SE) direction, which is consistent with the studies in the nearby fields and it is consistent with the studies in the Gulf of Suez [1, 9, 10].



CONCLUSION

The Gulf of Suez is one of the most complex structure regions in the world, the structure framework must be consider throw the velocity model generation, the interpretation seismic horizons as new data, performed at reservoir scale (Rudeis Fm, Kareem Fm, Belayim Fm. South Gharib Fm and Zeit Fm) and according to the well to seismic tie allowed to generate new time surface, depth converted and calibrated using database were then used to generate the new structural model according to the availability of new seismic data set covering Belayim field area, the present work allow to update structure model, that impacts on the exploration activities. As a result of this work we provide new depth structure maps of the main producing levels, with new unexplored possible blocks, which will open the gate for near future exploration.

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PS-64: ASSESSMENT OF RADIOLOGICAL HAZARDS IN WASTES ASSOCIATED WITH OIL PRODUCTION FIELDS

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ABSTRACT: The present work presents a radiometric and elemental characterization of hard scale/liquid waste samples produced through oil production process. Natural activity concentrations of the ²²⁶Ra and ²³²Th series and ⁴⁰K have been determined by using high-resolution gamma-ray spectrometry. Mean natural activity concentrations ranged from 1249 to 50985 Bq/kg for ²²⁶Ra, from 786 to 20471 Bq/kg for ²³²Th and from 287 to 1474 Bq/kg for ⁴⁰K. Results obtained are discussed and compared to the national and international exemption levels.

KEYWORDS: Oil Production, NORM, Gamma Ray Spectrometry, EDX.

INTRODUCTION

Individuals are continually exposed to external radiation from cosmic ray and natural radioactive nuclides in the earth's crust. Worldwide exposure to natural radiation sources ranges from 1 to 10 mSv [1]. Different raw materials are used in different industries that contain naturally occurring radioactive materials (NORM). Discrete operations are accomplished on these raw materials causing an enhancement of radionuclides emission to the environment and humans exposures [2]. One of these industries is the oil production industry. Scales are build up on the inner surfaces of different production installations, under changes in pressure, temperature and PH [3]. Egypt is the largest non-OPEC oil producer in Africa with a total production averaged just under 700,000 bbl/d [4].

OBJECTIVES

This study aims to perform a radiological and elemental characterization of hard scale/liquid wastes related to oil production fields and assess the effect of these wastes on the environment and workers.

METHODS

Sampling & Sample preparation: Seven, hard scale and liquid, waste samples were collected directly from different oil production equipment. Samples were taken from 2 production sites at the Gulf of Suez. For measuring activity concentration of scales, about 0.35 kg of each waste sample was dried at 105°C, grounded and homogenized [5]. Two liquid samples (produced waters) were placed in plastic bottles and transported to the laboratories. They were concentrated by using hot plate for 4 hours. All samples were packed in a plastic container (typical use for calibration purposes) sealed and stored for 4 weeks to establish the secular equilibrium between the parent radionuclides and daughters (²²⁶Ra and ²²²Rn) [5]. **Gamma ray spectrometry:** The radiometric analysis was performed by a hyper pure germanium detector (HPGe) coupled with Multichannel analyzer. Technique features regarding with relative efficiency, energy and efficiency calibration and counting time for samples and background, were mentioned in other publication [6]. **Elemental analysis:** The elemental composition of the investigated samples was carried out by using EDX technique. Features of the technique were mentioned in other publication [7].

RESULTS & DISCUSSION

Elemental analysis: Results obtained from EDX analysis showed that:- 1- The major elements in all samples are O, S, Fe, Zn, Ti and alkaline earth elements (Ca, Sr and Ba), 2- The minor concentrations of Al, Mg, Si, K, Pb and Cl elements have an extensive range of values and in most of samples are not detected, 3- Besides the radiological influences, a non-radiological threats might be created where results comprise significant amount of the toxic element Zn and traces amounts of Pb. The range of concentration of major and minor elements for the assigned samples is shown in Figure (1).

Gamma ray spectrometry: Natural activity concentrations were determined by measuring the corresponding gamma lines of ²³⁸U and ²³²Th series daughters. For ²³⁸U series, gamma lines with energies of 186.1 keV (3.3 %) ²²⁶Ra, 295.1 keV (18.7 %), and 352.0 keV (35.8 %) ²¹⁴Pb, 609.3 keV (45 %), 1120 keV (15 %), and 1765 keV (16 %) ²¹⁴Bi were used for determination of the assigned nuclides concentrations in the series. For ²³²Th series, gamma lines with energies of 338.6 keV (12.3 %), 911.2 keV (29 %) and 968.9 keV (17.5 %) ²²⁸Ac, 238.6 keV (45%) ²¹²Pb, 727.3 keV (6.7 %) ²¹²Bi, 583.0 keV (30.9 %) and 2614.7 keV (10.67 %) ²⁰⁸Tl were used for determination of the assigned nuclides concentrations in the series.



The gamma-ray peak with energy of 1460.8 keV (10.7 %) was used to determine the ⁴⁰K concentration [8]. Table (1) represents the natural activity concentrations for isotopes in ²³⁸U and ²³²Th series and ⁴⁰K. From table (1), it can be concluded that: 1- For ²³⁸U series, concentrations of ²¹⁴Bi and ²¹⁴Pb, in scale samples, are higher than that of ²²⁶Ra so, their contributions to external dose involves 98% of all gamma rays from all nuclides in this series [9], 2- There are no significant differences in concentrations of ²³²Th series radionuclides, 3- Activity concentration of ²²⁶Ra in formation water is in the range of measured values in other literatures, which varies from 0.002 to 1200 Bq/l [10], 4- Both ²³⁸U and ²³²Th are relatively insoluble and will remain in the oil reservoir, so There aren't any significant concentrations of them in the scale/liquid wastes [11]. Figure (2) represents concentrations of ²²⁶Ra, ²³²Th and ⁴⁰K depending on the average activities of their respective decay products. The IAEA critical values are 10000 Bq/kg for ⁴⁰K and 1000 Bq/kg for all other radioactive nuclides of natural origin [12].

The EAEA critical values are 4000 Bq/kg for ⁴⁰K and 1000 Bq/kg for ²³⁸U Series + ²³²Th Series [13]. From results of figure 2: All the activity concentration values of ²²⁶Ra and ²³²Th or their sum for all scale samples exceed the national and international exemption activity levels except sample no. 3. On the other side, all concentrations of ⁴⁰K were lower than the national and international critical values. For Water samples, all the concentration values of all radioisotopes were much lower than the critical values.

Table (1): Natural activity concentration for nuclides of ²³⁸U and ²³²Th series and ⁴⁰K.

(*) N.D. (not detectable): The radioisotope concentration was less than the value of uncertainty and was negative.
 (**) Activity concentration values of water samples are in Bq/l.

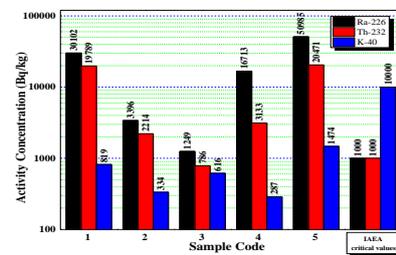
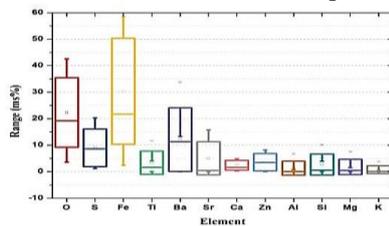


Fig. (1). Concentration of major and minor elements **Fig. (2). Activity Concentrations of ²²⁶Ra, ²³²Th and ⁴⁰K**

Elements Sample Code	²³⁸ U Series (Bq/kg)			²³² Th Series (Bq/kg)				⁴⁰ K (Bq/kg)
	²²⁶ Ra	²¹⁴ Pb	²¹⁴ Bi	²²⁸ Ac	²¹² Pb	²¹² Bi	²⁰⁸ Tl	
O.W.S. 1	22788 ± 709	28041 ± 179	32162 ± 196	18139 ± 245	23126 ± 146	19702 ± 896	18102 ± 302	819 ± 147
O.W.S. 2	3191 ± 151	3170 ± 40	3622 ± 43	1577 ± 58	3378 ± 47	2768 ± 219	1688 ± 47	334 ± 60
O.W.S. 3	1107 ± 135	1145 ± 29	1352 ± 35	679 ± 45	980 ± 24	984 ± 134	699 ± 44	616 ± 102
O.W.S. 4	17282 ± 378	15582 ± 67	17844 ± 75	2433 ± 68	3717 ± 29	1555 ± 122	3249 ± 58	287 ± 104
O.W.S. 5	34981 ± 430	40331 ± 97	61638 ± 129	19765 ± 152	24256 ± 85	18133 ± 490	17392 ± 113	1474 ± 236
O.W. Water 1	N.D.*	N.D.*	6**	N.D.*	N.D.*	4**	N.D.*	N.D.*
O.W. Water 2	16**	5**	4**	N.D.*	3**	3**	N.D.*	21**

CONCLUSION

Natural activity concentrations of wastes produced from oil production fields have been assessed. High activity concentrations of ²²⁶Ra, ²³²Th and their daughters have been found. Although the

assigned radioisotopes concentrations are in the world average range for oil industry, nearly all these values are higher than the national and international exemption levels. EDX results concluded that, non-radiological hazards might be occurred. Based on these high concentrations, individual workers are exposed to a considerable exposure levels. Special care must be performed through stages of working, to minimize radiation exposure.

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PS-65: ASSESSMENT OF RADIOLOGICAL HAZARDS IN WASTES ASSOCIATED WITH OIL PRODUCTION FIELDS

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OBJECTIVES

This study aims to perform a radiological and elemental characterization of hard scale/liquid wastes related to oil production fields and assess the effect of these wastes on the environment and workers.

METHODS

3.a- Sampling & Sample preparation: Seven, hard scale and liquid, waste samples were collected directly from different oil production equipment. Samples were taken from 2 production sites at the Gulf of Suez. For measuring activity concentration of scales, about 0.35 kg of each waste sample was dried at 105°C, grounded and homogenized [5]. Two liquid samples (produced waters) were placed in plastic bottles and transported to the laboratories. They were concentrated by using hot plate for 4 hours. All samples were packed in a plastic container (typical use for calibration purposes) sealed and stored for 4 weeks to establish the secular equilibrium between the parent radionuclides and daughters (²²⁶Ra and ²²²Rn) [5]. **3.b- Gamma ray spectrometry:** The radiometric analysis was performed by a hyper pure germanium detector (HPGe) coupled with Multichannel analyzer. Technique features regarding with relative efficiency, energy and efficiency calibration and counting time for samples and background, were mentioned in other publication [6]. **3.c- Elemental analysis:** The elemental composition of the investigated samples was carried out by using EDX technique. Features of the technique were mentioned in other publication [7].

RESULTS & DISCUSSION

4.a- Elemental analysis: Results obtained from EDX analysis showed that:- 1- The major elements in all samples are O, S, Fe, Zn, Ti and alkaline earth elements (Ca, Sr and Ba), 2- The minor concentrations of Al, Mg, Si, K, Pb and Cl elements have an extensive range of values and in most of samples are not detected, 3- Besides the radiological influences, a non-radiological threats might be created where results comprise significant amount of the toxic element Zn and traces amounts of Pb. The range of concentration of major and minor elements for the assigned samples is shown in Figure (1).

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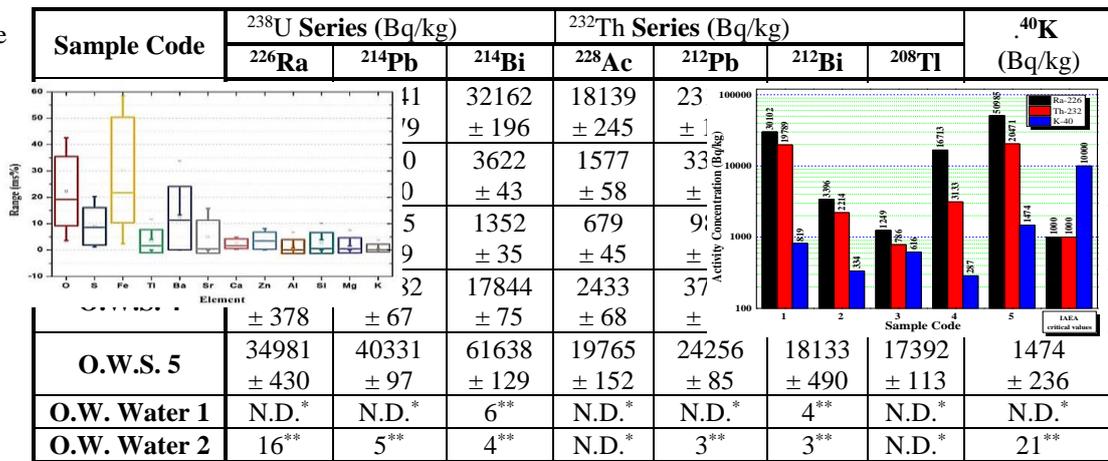


Fig. (1). Concentration of major and minor elements.

Fig. (2). Activity Concentrations of ²²⁶Ra, ²³²Th and ⁴⁰K.

CONCLUSION

Natural activity concentrations of wastes produced from oil production fields have been assessed. High activity concentrations of ²²⁶Ra, ²³²Th and their daughters have been found. Although the assigned radioisotopes concentrations are in the world average range for oil industry, nearly all these values are higher than the national and international exemption levels. EDX results concluded that, non-radiological hazards might be occurred. Based on these high concentrations, individual workers are exposed to a considerable exposure levels. Special care must be performed through stages of working, to minimize radiation exposure.

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PS-66: GRAPHENE OXIDE-MnO₂ NANOCOMPOSITES FOR SUPERCAPACITORS

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ABSTRACT: Graphene oxide (GO) doped by manganese oxide (MnO₂) nanoparticles (GO-MnO₂) has been synthesized through inexpensive, scalable, single step and easy microwave assisted method. In this approach, microwave radiation has been used to provide uniform and rapid heating during the reaction. The morphology and structure of these nanocomposites have been investigated using field emission scanning electron microscope (FE-SEM), transmission electron microscopy (TEM) and FTIR spectroscopy. SEM investigations revealed the formation of MnO₂ nanoflowers over graphene oxide nanosheets. FTIR spectroscopy confirmed the presence of the MnO₂ over which indicate the successful synthesis of GO-MnO₂. The flower morphology of the MnO₂ provides a high surface area. Additionally, GO nanosheets improve the mechanical properties of the formed nanocomposite that can be used as an electrode for high performance and high capacitance supercapacitors.

KEYWORDS: MnO₂ nanoparticles • graphene oxide • supercapacitors.

INTRODUCTION

Transition metal oxides are redox active materials among them MnO₂ with the advantages of environmental friendliness, high specific capacitance, wide potential window and low cost but pure MnO₂ has low surface area to solve this problem we choose GO for preparing MnO₂ based composites[1,2]. The surface area of MnO₂ will increase and finally enhance the property of energy storage.

OBJECTIVES

The main object of the present work is to synthesize MnO₂/GO nanocomposite with superior surface area for high performance supercapacitors via ease, single step, and straightforward approach.

METHODS

Firstly GO was synthesized from powdered graphite (150mesh) by a modified Hummers method which described previously [3]. Secondly MnO₂/GO nanocomposite was synthesized as follows: GO (0.1 g) and MnCl₂ • 4H₂O (0.5 g) were dispersed in distilled water (100 mL), with ultrasonication for half hour then KMnO₄ (0.3 g) liquefied in 10 mL of distilled (DI) water then we added it rapidly into the above solution. The solution was heated to approximately 80°C using microwave. The mixture began to deposit. The nanocomposite, was then centrifuged, washed, and finally dried in air at 60°C overnight. Then we prepared MnO₂ nanoparticles by the same procedure for comparison.

RESULTS AND DISCUSSION

Fig. 1. presents typical SEM (a, b) and TEM images (c, d) of the as-synthesized GO/MnO₂ hybrid electrode materials and MnO₂ nanoparticles (control sample) respectively. The SEM image in Fig (a) clearly shows well-dispersed MnO₂ nanoparticles on the surface of GO without excessive wrapping by the GO sheets, assured full exposure of both GO sheets and MnO₂ nanoparticles to electrolyte ions during charge/discharge cycles. TEM investigations reveals that MnO₂ has a spherical flower morphology with average size ~200nm. Higher magnification TEM image (Fig. 1f) reveals that the spherical nanoflowers are consists of ultra-thin nanosheets that are separately intersected and uniformly grown in all directions forming connected small pores. Additionally, the grown highly porous spherical nanoflowers can be assembled in one dimensional pattern as shown in Fig. 1 (d, e). It is worth noting that this flower morphology of the MnO₂ is expected to maximize the surface area due to the hollow interior, porous structure, 2D structure of GO, and the uniformly dispersed carbon in the porous MnO₂/GO.

To explain the degree of composite of MnO₂ and GO, the FT-IR transmittance spectra (not shown here). In case of GO, the peaks at about 1743 and 1637 cm⁻¹ correspond to C= O stretching and C= C stretching vibrations, respectively [4]. When the composite ratio of MnO₂ increase then the peaks 1743 and 1637 cm⁻¹ are declining, while the peak at 551cm⁻¹ which indicated to Mn-O bond seems and become more strong[5]. These means that MnO₂ nanoparticles have been successfully deposited on the surface of graphene oxide.

Based on the obtained results, since we did not use any template or surfactant, the formation mechanism of the MnO₂ nanoflowers can be explained by “the oriented attachment crystal growth model” [6]. This model explains the formation of the nanoflower through the following step sequence. Firstly, MnO₂ seed will be formed at the early stage of reaction. In the next step, the supersaturated nuclei will aggregate to reduce the total surface energy. Secondly, by the time, some growing active points on the surface grows along the specific directions as the reaction environment constantly maintains the reactions due to the lower concentration of reactants. The preferential growth along special oriented directions results in the formation of nanosheets. With further orienting growth along specific directions, more and more nanosheets interlace, and finally yielding spherical porous nanoflowers. This flower morphology is expected to have a great impact on the specific capacitance due to the high surface area. In short, a rapid and straightforward approach for the preparation of MnO₂ nanoparticle doped graphene has been presented. We believe that the present approach can applied for the other metal oxides for the energy storage applications.

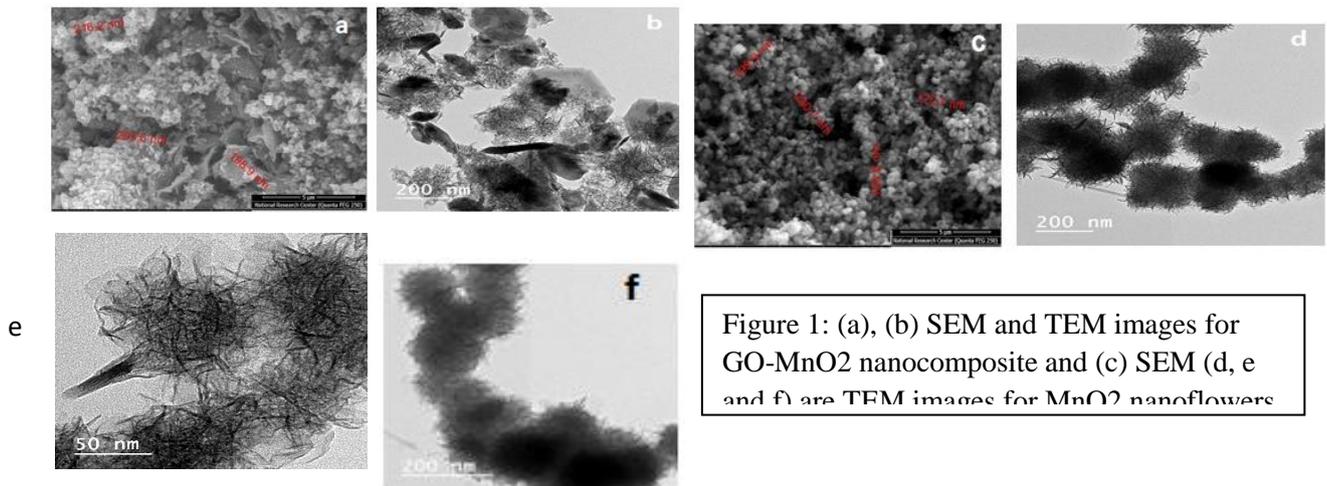


Figure 1: (a), (b) SEM and TEM images for GO-MnO₂ nanocomposite and (c) SEM (d, e and f) are TEM images for MnO₂ nanoflowers

CONCLUSIONS

In summary, cost effective, scalable and fast microwave assisted synthesis of GO-MnO₂ nanocomposites has been presented. FTIR and SEM analysis confirmed the formation of MnO₂ with flower morphology over GO nanosheets. The high surface area due to the flower morphology together with the superior mechanical properties of GO nanosheets make the present GO-MnO₂ nanocomposite a good candidate as an electrode material for high performance super capacitor.

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PS-67: Thickness effect on optical characteristics of copper acetylacetonate thin films

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ABSTRACT: Copper acetylacetonate $\text{Cu}(\text{acac})_2$ thin films were deposited on quartz substrates by using thermal evaporation technique at vacuum pressure 1×10^{-5} mbar at room temperature. Dependence of optical properties of films on thickness was investigated. The thickness of prepared films ranges from 155 nm to 299 nm. Thin film thicknesses were determined using point-wise un-constrained minimization approach, PUMA. Optical properties of films were investigated using spectrophotometric measurements of transmittance and reflectance. The increase in film thickness produced an obvious decrease in transmittance and redshift of the fundamental edge. As a result of thickness increment, energy gap value was decreased from 3.89 eV to 3.63 eV. A strong absorption peak was obtained at 307 nm which is attributed to π - π^* transition which is localized in the ligand ring. Molar extinction coefficient was calculated and used to determine the values of the oscillator frequency, f , and electric dipole strength, q^2 . A slight decrease was observed in the values of refractive index with increasing thickness values. Dispersion relation of the $\text{Cu}(\text{acac})_2$ showed an anomalous dispersion at ($\lambda < 750$ nm) and normal dispersion behaviour at ($\lambda > 750$ nm).

KEYWORDS: Copper (II) acetylacetonate, thickness effect, energy gap, dispersion relation.

INTRODUCTION

Currently, there is a considerable interest in the understanding of UV-visible and near IR absorption spectra and exciton generation in thin films of transition metal acetylacetonates. This interest is based on the importance of these phenomena in a wide range of electronic and optoelectronic applications especially in perovskite solar cells [1]. Metal-free and metal acetylacetonates (acac) complexes have been extensively investigated as a building materials in various optoelectronic devices such as sensors and in ICs manufacture [2-4]. Despite the rapid progress in the research of synthesis of new materials based on copper (II) acetylacetonates and their potential applications, there is no detailed study of thickness effect on its optical properties.

OBJECTIVES

This work aims mainly to introduce a elaborated investigation about optical properties of $\text{Cu}(\text{acac})_2$ thin films as a function of film thickness.

METHODS

Copper (II) acetylacetonate ($\text{C}_{10}\text{H}_{14}\text{CuO}_4$) blue powder of molecular weight 261.76 g/mol and purity 99.9% purchased from Sigma-Aldrich Company of chemical structure shown in Fig.1 was used as a raw material. $\text{Cu}(\text{acac})_2$ thin films were fabricated using thermal evaporation technique (Edwards, E-306A, England) under 1×10^{-5} mbar pressure at room temperature with 2 nm/sec deposition rate. The deposited film thickness was monitored using quartz crystal monitor Edward FTM6 model. Optical properties of $\text{Cu}(\text{acac})_2$ thin films were analyzed through spectrophotometric measurements of transmittance $T(\lambda)$ and reflectance $R(\lambda)$ by using JASCO model V-570 UV-VIS- spectrophotometer in spectral range 200–2500 nm.

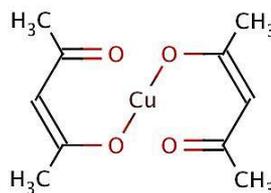


Fig.1: Molecular structure of copper (II) acetylacetonate.

RESULTS & DISCUSSION:

The spectrum of $\text{Cu}(\text{acac})_2$ thin film shown in Fig.2 is divided into two regions; the first region at $\lambda > 540$ nm is a transparent region where no light can be absorbed ($T+R \approx 1$) while the second region at ($200 < \lambda < 540$) nm is absorbing region. Increasing thin film thickness produced a decrease of transmittance and reflectance at whole spectrum regions and caused a red shift to the transmission edge. Absorption band edge can be estimated from the first derivative of optical transmittance

with respect to wavelength where the energy gap defined (which is known as the energy at which $[d^2\alpha/d(h\nu)^2]=0$) [5,6]. The detailed description of band gap calculation method is introduced in ref [6]. Location of the sharp peaks exist in Fig.3 determines the value of energy gap where the estimated values of energy gap were estimated to be 3.89, 3.8, 3.72, 3.63 eV for thicknesses 155, 188, 236 and 299 nm respectively. Increasing film thickness would increase the defects within the microstructure of film which is responsible for increasing the density of localized tail states near the band gap producing higher absorption and lower refractive index shown in Fig.5. There is a strong absorption peak at 307nm (4eV) which shifted toward the low photon energy with increasing film thickness. This absorption peak is attributed to $\pi-\pi^*$ transition which is localized in the ligand ring. Dispersion behaviour of $\text{Cu}(\text{acac})_2$ shown Fig.5 divides into two regions, the first is the strong absorption region ($\lambda < 750\text{nm}$), where the behavior is anomalous dispersion which can be explained according multi-oscillator model while the second region at ($\lambda > 750\text{nm}$) the behavior is normal dispersion which can be explained according single oscillator model.

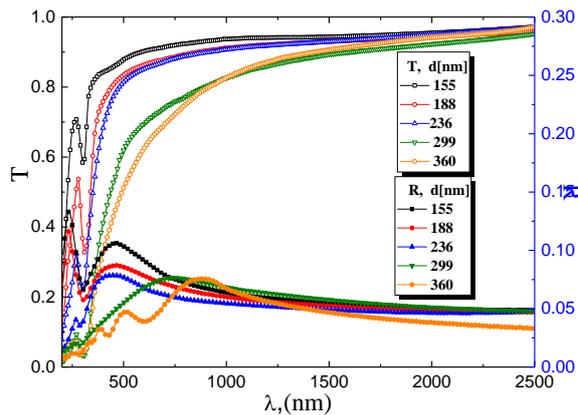


Fig.2: The spectral variation of $T(\lambda)$ and $R(\lambda)$ with thickness

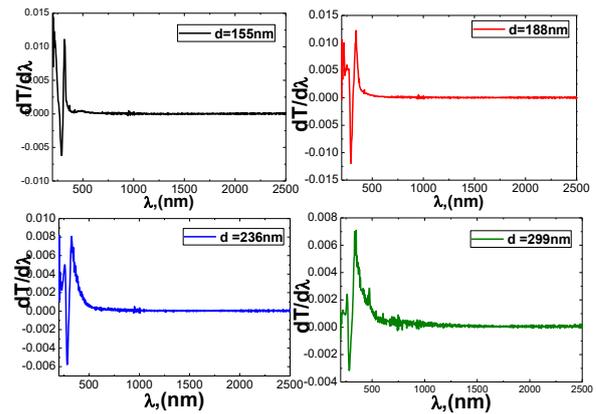


Fig.3: Plot of $dT/d\lambda$ versus wavelength at different thickness.

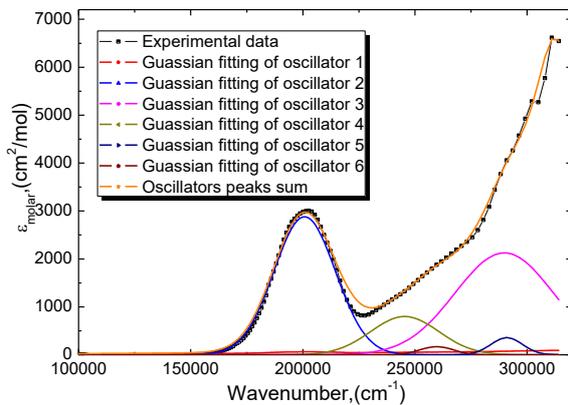


Fig.4: Molar extinction coefficient versus wave number for 155nm film

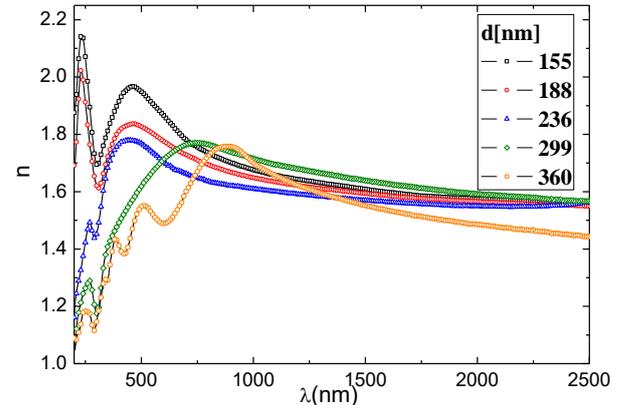


Fig.5: Dispersion relation of films as a function of film thickness

Variation of copper acetylacetonate thin film thickness in the range of (155-299) nm showed a significant decrease in refractive index values and an increase in absorption values. Energy gap showed thickness dependence behavior where it decreased from 3.89 to 3.63 eV for and the UV absorption peak existed in absorption spectra suggest the ability to use this material in UV photodetection. This work is under publishing.

CONCLUSION

Variation of copper acetylacetonate thin film thickness in the range of (155-299) nm showed a significant decrease in refractive index values and an increase in absorption values. Energy gap showed thickness dependence behavior where it decreased from 3.89 to 3.63 eV for and the UV absorption peak existed in absorption spectra suggest the ability to use this material in UV photodetection. This work is under publishing.

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PS-68: Dielectric Properties of Alpha-Sexithiophene (α -6T) Nanoparticles Thin Films

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ABSTRACT: The studying of dielectric spectroscopy gives us chance to know the electrical and charge transport properties in α -sexithiophene (α -6T) thin films. α -6T thin films were fabricated by the thermal evaporation technique. The AC conductivity was investigated by Jonscher's universal law under the influences of temperature ranging from 293 to 523 K. The ac electrical conduction mechanism is described by the correlated barrier hopping (CBH) model. The increasing of frequencies from 0.5 to 20 KHz has its influence on the values of the AC activation energy where it decreased from 0.219 to 0.070 eV.

KEYWORDS: α -sexithiophene (α -6T) thin film, AC Conductivity; Dielectric Properties

INTRODUCTION

Oligothiophenes organic thin films have great attention because of high mobilities, and high chemical stability [1]. The analysis and characteristic of the electrical properties of oligothiophenes give us chance to recognize the type of charged defect and the electrical conduction mechanisms operating in polythiophenes, [1]. Conjugated oligomers like α -sexithiophene (α -6T) is an organic p-type semiconductor. α -6T is a material with high stability, high crystallinity, and high conjugation of π electrons, so it shows good performance as an active layer in organic thin film transistors [1].

OBJECTIVES

Study the conduction mechanism and dielectric properties of α -sexithiophene (α -6T) thin film.

METHODS

The device with sandwich structures of Al/ α -6T /Au was fabricated by a high vacuum Edward-E306A, England coating unit on glass substrates. The thin films of α -6T were fabricated under vacuum at a pressure equal 2×10^{-5} mbar, with growth rate ~ 1 nm/s at room temperature and a film thickness of 100 nm. Both Au and Al electrode were deposited at a deposition rate of 2 nm/s under the pressure of 6×10^{-5} mbar. The active area of the investigated samples was 0.020 cm^2 . A computer controlled HIOKI 3531-Hi-tester LCR meter were used to measure the impedance Z, conductance G and capacitance C in the frequency range 42 Hz to 5MHz, and the temperature range 303-368K.

RESULTS & DISCUSSION:

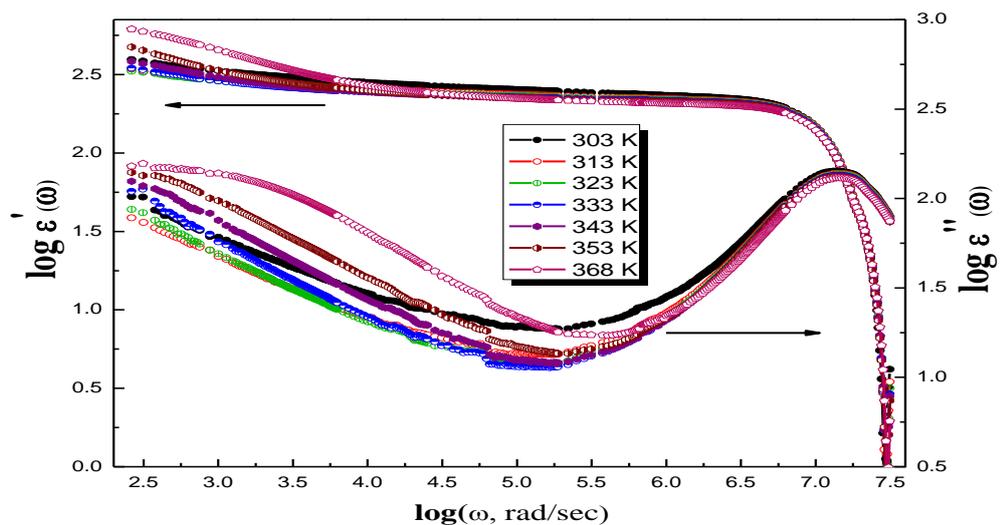


Fig. 1 shows the frequency dependence of the real and imaginary part of the dielectric constant for a α -6T film at different temperatures

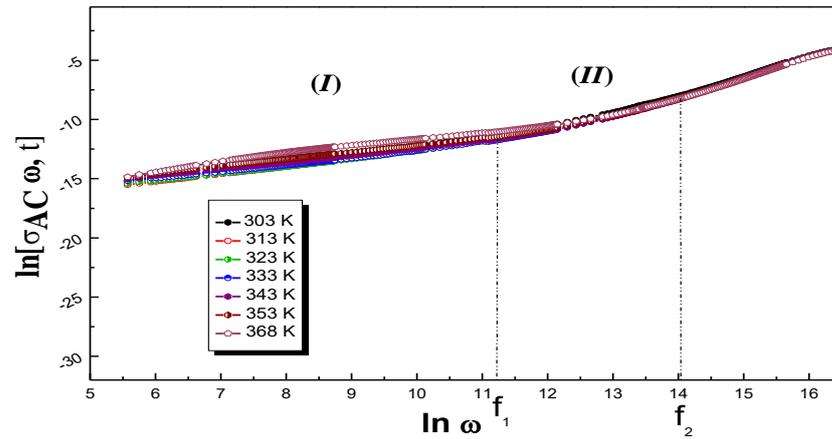


Fig. 2 shows the frequency dependence on AC conductivity

Fig. 1 show that at low-frequency region a space charge region at the electrode interface was formed, this explains why ϵ' decreases as frequency increasing [2]. As the frequency is increased ($\omega \ll 1/\tau$), electric dipoles follow the field and ϵ' was constant as frequency increase, in this case, $\epsilon' \approx \epsilon_s$, where ϵ_s is static dielectric constant [2]. As the frequency is further increased ($\omega < 1/\tau$), dipoles start to lag behind the field and ϵ' slightly decreases. When frequency becomes the characteristic frequency ($\omega = 1/\tau$), ϵ' drops suddenly indicating relaxation process [2]. Fig. 1 also shows the frequency dependence of the imaginary part of the dielectric constant, ϵ'' , for a α -6T film at different temperatures. At lower frequencies ϵ'' is found to decrease with the increase in frequency, this may be attributed to space charge effects. At higher frequencies, a relaxation phenomenon occurs when restoring action tends to bring the excited system back to its original equilibrium state. Fig. 1 shows that the peaks developed in the values of $\epsilon''(\omega)$ indicate a relaxation process. Fig. 2 shows the ac electrical conduction in this first region is due to the correlated barrier hopping (CBH) model [2], where electron transfer by thermal activation over the barrier between two sites. In second region (II) at high frequencies, $f_2 > f > f_1$, the s values were decreased from 1.178 to 1.011, i.e. $1 < s < 2$, the ac electrical conduction in this region is due to the well localized hopping and/or reorientational motion [3].

CONCLUSION:

α -6T thin films were synthesized by the thermal evaporation technique. The conduction mechanism in a α -6T thin film is described by the correlated barrier-hopping (CBH) model. The values of the AC activation energy were found to be decreased from 0.219 eV to 0.070 eV as the frequency was increased from 0.5 KHz to 20 KHz.

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PS-69: Optical Analysis of Alpha-Sexithiophene (α -6T) Thin Films as a Function of Thickness

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ABSTRACT: Alpha-Sexithiophene (α -6T) thin films were deposited on optical quartz substrates using the thermal evaporation technique. The estimated α -6T thin films thickness range from 43 to 112 nm. The spectrophotometric data (T&R) were obtained by using JASCO spectrophotometer (model V-570) at the spectral range 260–2500 nm. The transition is an indirect transition, as the thickness increases from 43 to 112 nm, the fundamental energy gap shows a substantial increase from 2.05 to 2.12 eV. The effective band gap was shifted to higher energy as film thickness increases to 112 nm.

KEYWORDS: Alpha-Sexithiophene (α -6T), thin films thickness, energy gap

INTRODUCTION

Conjugated oligomers like α -sexithiophene (α -6T) is an organic p-type semiconductor. It is characterized by nonlinear optical, photophysical properties, and exhibits high field-effect mobility [1]. It was used in prototypical electronic and optoelectronic devices as the active molecular layer. All above properties qualify α -6T for using in fabrication thin film organic photovoltaics (OPVs), organic light-emitting diodes (OLEDs), ultrafast spatial modulator, and luminescent diodes [2]. To understand the basic principles of such applications the optoelectronic properties of α -6T must be known.

OBJECTIVES

Study the effect of thickness on optical properties of α -6T thin film

METHODS:

Alpha-Sexithiophene (α -6T) was purchased from Aldrich Chem. Co. (Case-594687) and its molecular structure is shown in Fig. 1.

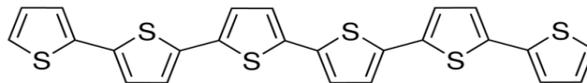


Fig. 1 The molecular structure of alpha-sexithiophene α -6T

A high vacuum Edward-E306A, England coating unit was used to fabricate α -6T thin films of thickness \sim 43, 70, and 112 nm onto cleaned optical quartz substrates. The samples were fabricated under vacuum at a pressure equal 2×10^{-5} mbar. The spectrophotometric data (T&R) were obtained by using JASCO spectrophotometer (model V-570) at normal incidence of light at the spectral range 260–2500 nm.

RESULTS & DISCUSSION:

Fig. 2 illustrates the transmittance $T(\lambda)$ and reflectance $R(\lambda)$ spectrum of as-deposited α -6T thin films with different thickness range from 43 to 112 nm in the wavelength range 260–2500 nm. α -6T thin films have a high transmission in the wavelength range $\lambda > 570$ nm, this defines the film transparency at this range where $T+R \approx 1$. In contrast at the wavelength range 260–570 nm, there is light absorbing. The transmittance edge shifts slightly toward longer wavelengths as the film thickness increases to 112 nm. We clearly note that the transmittance of films increases with decreasing film thickness. Fig. 3 shows the $(\alpha h\nu)^{1/2}$ vs $(h\nu)$ for as-deposited α -6T thin films at different thickness. The values of indirect optical band gaps for the as-deposited α -6T films are evaluated from the x-axis intercepts at $(\alpha h\nu)^{1/2} = 0$. The optical gap, E_g^{onset} , corresponds to the onset of optical absorption and formation of a bound electron-hole pair, or exciton “Frenkel exciton” [3], but the fundamental energy gap, E_g^{opt} , is the energy gap between valence band “ π -band” and conduction band “ π^* -band” [4]. As the thickness increases from 43 to 112 nm, the E_g^{opt} shows a substantial increase from 2.05 to 2.12 eV, while E_g^{onset} increases from 1.83 to 1.96 eV. The effective band gap was shifted to higher energy as film thickness increases to 112 nm.

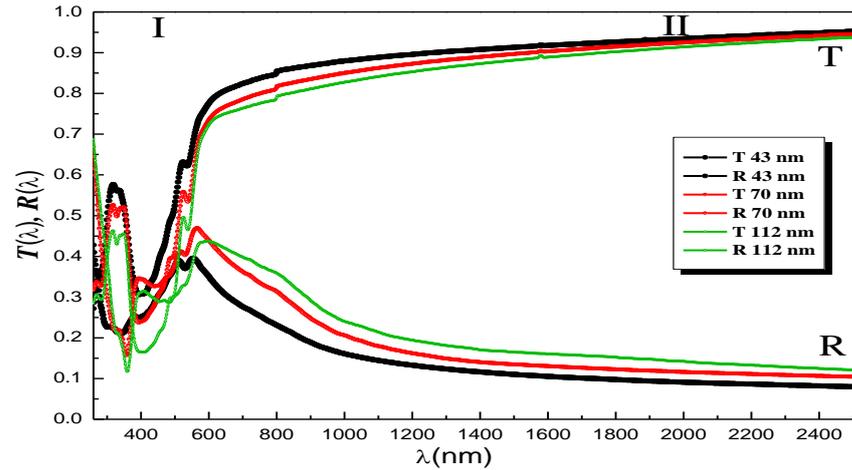


Fig. 2 Spectral distribution of $T(\lambda)$ and $R(\lambda)$ for as deposited α -6T thin films at different thicknesses

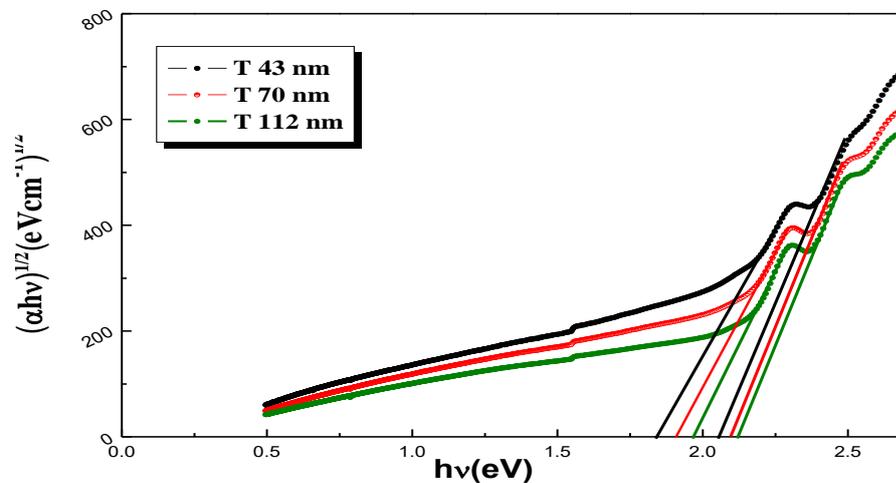


Fig. 3 The relation between $(\alpha hv)^2$ and photon energy ($h\nu$) for as-deposited α -6T thin films at different thickness.

CONCLUSION

Alpha-Sexithiophene (α -6T) thin films were successfully deposited by using thermal evaporation technique. The α -6T films were found to have an indirect transition with band gap ~ 2 eV. As the thickness increases from 43 to 112 nm, the E_g^{opt} shows a substantial increase from 2.05 to 2.12 eV, while E_g^{onset} increases from 1.83 to 1.96 eV. The energy band gap of α -6T thin films can be controlled by varying the film thickness.

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PS-70: CONTROLLING ELECTRICAL SYSTEMS USING PHYSICAL FEATURES OF HUMAN BODY

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ABSTRACT: Nowadays technology is trying to provide human being with solutions for his facing problems in every science fields. This paper trying to introduce some of those solutions that make us overcome the facing problems, specifically the disabled people. We already have solutions for them to make them able to be useful for themselves and for their community, and this represents our objectives. We introduce two methods by which any human can control smart digital systems, let us call it “Body-controlling”, without any need for single action, the first method is a sonic method, in which the human can control a system using his voice after converting it into an electrical signal transmitted from the converter and sent to the receiver which is the controlled system, and this method was tested on some LEDs and it is shown in the results section. The second method is an eyes method, in which the human focuses on a specific device that works on electrical signals. The working of this second method is as following, the human focuses on the controlled system which produces electrical signals in his brain, these brain signals are transmitted to the controlled system wirelessly and then work.

KEYWORDS: Human Body, Biophysics, Digital Systems, Physical Mechanism, Bio-automation.

INTRODUCTION

The human body is a very interesting phenomenon for exploration and research, specially its physical mechanism. The study of the physical mechanism of human bodies is called “Biophysics”. In our work we discussing a new interesting modern concept that is called “Controlling by Human Body”, that means using our organs to control digital systems and life technology. For example, we can control electronic devices, electrical doors, computers, even cars and houses by eyes, a method that employs the electrical signals in human brain, or human voice. Modern technology provides us with methods to achieve the control of electrical devices, i.e. using of various types of processors in order to process the signal transmitted through the whole system, which results in more accurate for the system [1, 2], or different types of wireless-data

OBJECTIVES

The purpose of our work is to disabled people to use modern technology without any limits, like any normal human, that means designing a smart system that enables humans to control their houses, even if they cannot move their arms or legs or moving on a wheelchair, just using their voice. We also can use this new technology to provide those disabled people with the ability of moving their disabled parts of their body or even replacing it with artificial limbs that includes a digital systems and circuits inside it.

METHODS

There are two methods to control a digital system: _

1- Sonic Method:

Materials used in this method are (Arduino Nano Environment “Atmega 328pu” – Logic Circuit – RLC Circuit – Prototype devices for testing – Microphone – Servo motor for the prototype – Amplifier). The system receives a sonic order from a human, then this sonic order is converted into electrical signal by the microphone. The amplifier amplifies the signal coming from the microphone. The amplified signal is passed through an RLC circuit that is responsible to select the frequency of the human and make the signal relative to specific intensity. The signal is passed through a logic circuit to



Figure (1),
Bluetooth Module.



Figure (2), Servo-Motor.



Figure (3), The
Programmer.

convert this analog signal into a digital signal. The role of the microcontroller is to receive the digital signal and control the duration of the signal.

2- Eyes Method:

Materials used in this method are (Arduino Nano Environment “Atmega 328pu” – Surface electrode – Bluetooth HC06 module – Multiplexer – Amplifier – Prototype device). When the human focuses his eyes on a specific device, electric signals are produced in his brain. The surface electrode is put on the human head to detect brain signals. The brain signals are sent to the Bluetooth HC06 module. The signal is sent to another Bluetooth module that is connected to an amplifier to amplify the signal and send it to the microcontroller pin. The microcontroller processes it and make a logic-high signal with a specific duration. The signal is sent to the multiplexer to select the device that the human desire to trigger.

RESULTS



Figure (4)

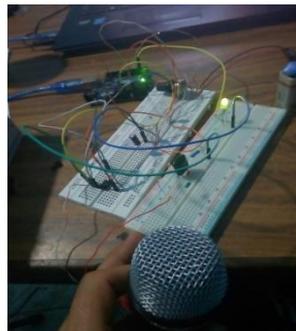


Figure (5)



Figure (6)

Figures below show the

implementation of the sonic method and the test of the circuit.

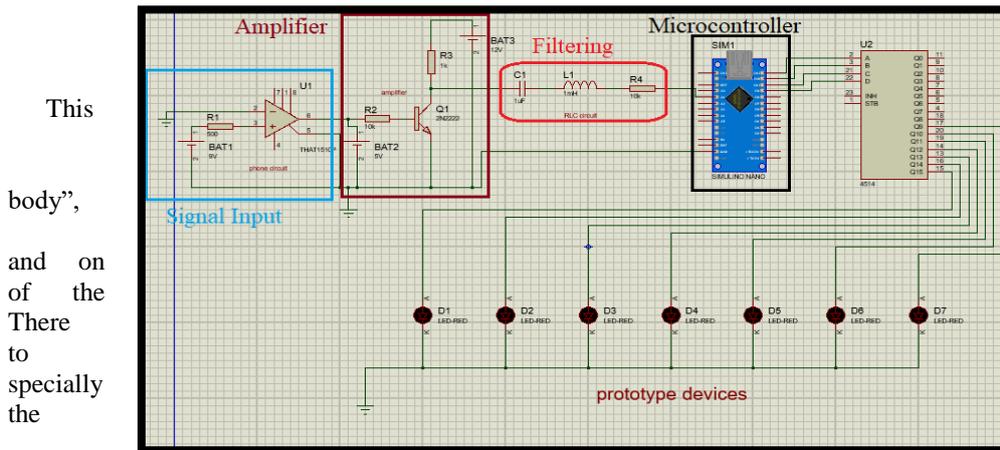


Figure (7) The Algorithm Design

This body”, and on of the There to specially the

systems houses,

The first method uses a system that converts the human voice into a convenient electrical signal that will be sent to the controlled system. The second method uses the human eyes and implement a conversion on the brain signals to be orders directed to the controlled device.

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CONCLUSION

paper is introducing an important concept, “Controlling by human which is of a considerable importance, which depends the future science of biophysics. are two possible methods provide humans - disabled humans- with ability of controlling electrical and electronic represented in smart artificial limbs, ... etc.



PS-71: OPTICAL CHARACTERIZATION OF ORGANIC - INORGANIC NANOCOMPOSITE MEMBRANE

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ABSTRACT: Organic-inorganic composites consisting of silicotungstic acid (STA) and poly (vinyl alcohol) were prepared by casting technique. The structural and optical characteristics of the synthesized membranes with different STA concentrations were investigated. A decrease in the energy gap from 3.206 eV to 3.089 eV and promising excitonic transitions were observed with increasing STA concentrations from 0.002 M to 0.012 M.

KEYWORD: Casting technique-nanocomposite-Silicotungstic acid-Excitonic transitions

INTRODUCTION

Fuel cells are very attractive devices of energy conversion for transportation and portable applications because of their high efficacy and low emission [1]. Between many types of fuel cells, polymer electrolyte membrane fuel cells (PEMFC, DMFC) have been considered as a selected option for electrical vehicles. The most important component in PEMFC is the proton conducting membrane. The protonic conduction characteristics of these membranes are unique, since the inorganic compartment, silica and other oxides also, the active component (hetero-poly acids) are able to maintain a large number of water molecules in their hydration sphere, so that the proton transfer can be as effective as in aqueous electrolyte solutions. The conditions that can be formed in the inorganic component of the membrane, can be used for anchoring the active component and by this way the decay of the membrane performance can be considerably decreased as well as the identity of the active component in nano segregated scale can be retained which will facilitate the protonic conductivity [2].

OBJECTIVES

This study aims to investigate the influence of STA different concentrations on optical and structural characteristics of PVA membrane

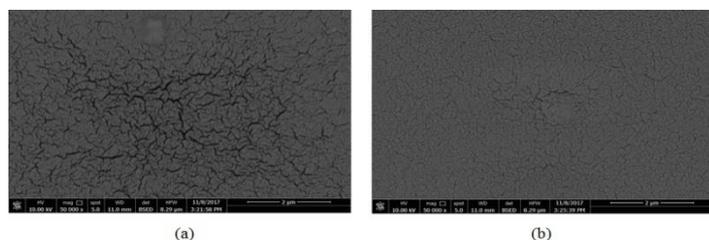
METHODS

The organic – inorganic composite was prepared by casting technique. A homogenous poly-vinyl alcohol (PVA) solution was obtained by dissolving PVA powder in distilled water at 60 °C with stirring for 4h. Different concentrations (0.002, 0.004, 0.006, 0.008, 0.01, 0.012 M) of silicotungstic acid, $H_4(W_{12}SiO_{40})$, were dissolved in distilled water and added to PVA solution separately under stirring for 24h. The homogenous solutions were casted in plastic dishes and the solvent were evaporated slowly at room temperature to get a transparent homogenous membrane [3]. Micro-structural properties of the synthesized composite membranes were characterized using Scanning electron microscope (SEM) while the optical properties were studied using UV-Vis-IR spectrophotometer.

RESULTS & DISCUSSION

Fig.1 shows SEM images for PVA and PVA/STA with concentration of 0.01mol. With increasing STA concentration, an enhancement in the surface morphology in terms of smoothness, decreasing of the intermediate pits and vacancies can be observed.

Fig.1: SEM images for (a) PVA membrane and (b) 0.01M concentration of PVA/STA membrane.



Tauc's relation was used to investigate the values of energy gap. A clear modification of PVA energy gap was observed as a result of adding few amounts of STA. Table.1 summarizes the obtained values of energy gap. A decrement in energy gap values was noticed (Fig.2) with an obvious red shift of fundamental edge (Fig.3) as a result of STA concentrations. Moreover, a distinct near band gap excitonic transitions was observed for concentrations above 0.006 M.

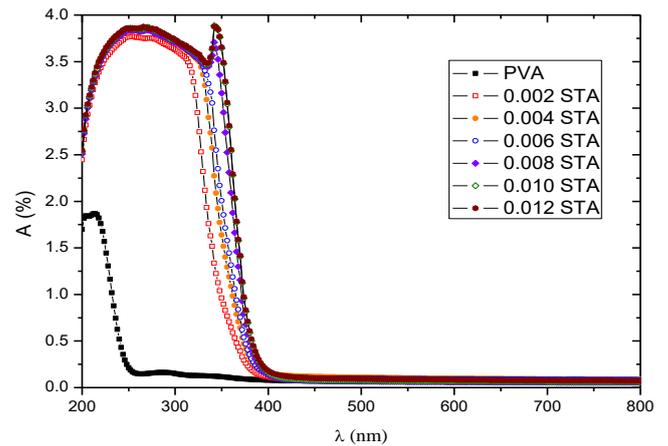
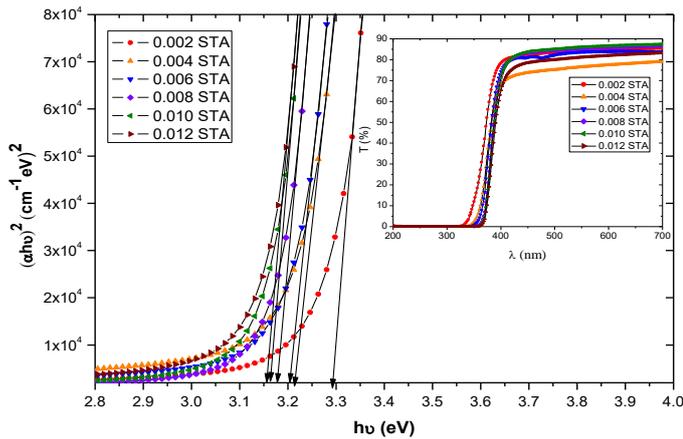


Fig.2: The plots of $(\alpha h\nu)^2$ versus $(h\nu)$ for all the samples. Fig.3: Variation of optical absorption with wavelength for pure PVA and PVA/STA.

Table 1: Direct optical band gap for PVA/STA concentrations

STA content (Molar)	Direct energy gap (eV)
0.002	3.206
0.004	3.153
0.006	3.144
0.008	3.126
0.010	3.107
0.012	3.089

CONCLUSION

Adding of very small amounts of STA to PVA had a significant influence on micro-structural and optical properties of PVA films. Incorporation of STA in PVA matrix decreased film roughness and increased the film homogeneity. In addition, optical band gap measurements showed a systematic decrease from 3.206 eV to 3.089 eV with increasing STA concentration from 0.002 M to 0.012 M.

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PS-72: RARE MEDICINE-ANDROID APPLICATION

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ABSTRACT: This application adopts the arrival of the patient to a rare medicine, without the trouble to search manually and moves to find the medicine. -By Using: 1- Android studio IDE to program and edit project , 2 - Google Location Service to get location of user3.Firebase to manage database, 4.Google map to user to find his way

KEYWORDS: Android studio, Google location service, Firebase, Google map

INTRODUCTION

Nowadays there are more medicine don't exist in abundance and no possibility to find a rare medicine but asking in every pharmacy by the user himself and this a exhausted method and takes a lot of time so we thought in a method to solve this problem, then we approach to idea and go to implement it .

OBJECTIVES

Provide the user with the rare medicine by provide location and the way of nearby pharmacies that have the rare medicines.

Make it easy to make pharmacist to sell rare medicine.

By saving time it is possible to rescue a sick person who needs treatment as soon as possible.

METHODS

Firstly, we create application that help to find rare medicine by calculate the distance between detected pharmacies and the user need medicine.

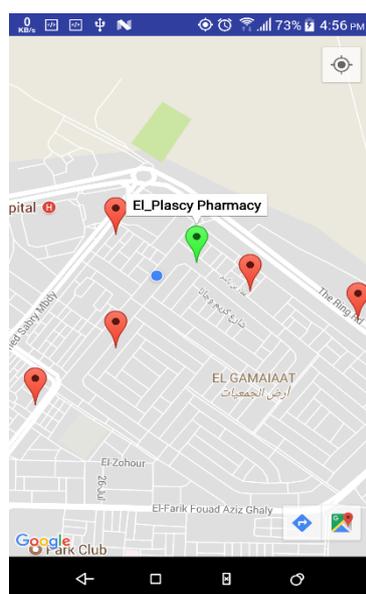
Every pharmacy has user that signing up his pharmacy and its location.

Each pharmacist registers his / her pharmacy on our application and then records the medicines are in pharmacy.

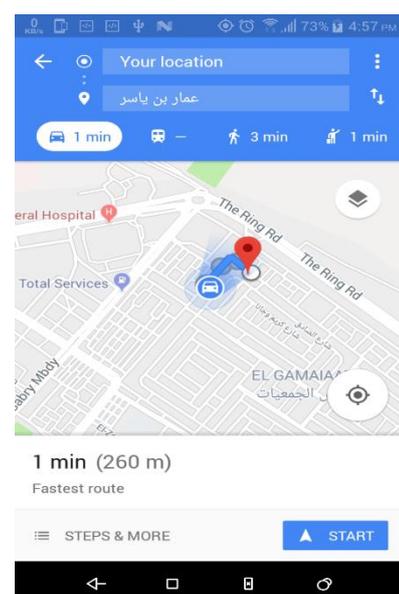
RESULTS & DISCUSSION

-The result is list of nearby pharmacies that have the searched medicine listed sequentially by the least distance between pharmacy and user need searched medicine

-showing map to these pharmacies on mobile device.



Green mark
Pharmacy)



(The

nearest

Red mark (nearby Pharmacy)

CONCLUSION

We introduced the program to pharmacists and users and we found a great welcome and had a good effect, users get its medicines faster and easier than past.

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PS-73: ISLANDING DETECTION METHOD BASED ON COMBINED DISCREET FOURIER TRANSFORM AND LOGISTIC REGRESSION TECHNIQUE

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ABSTRACT: *Islanding detection of electrical microgrid is a pivotal problem in distributed energy resources (DER). This Intended islanding detection method using a logistic regression technique. Regarding the grid by measuring instantaneous values of current and voltage then extracted some features by applied a discreet Fourier transform. Logistic regression is set to distinguish between the islanding or not by using the extracted data sets from the DER. Results show that the logistic regression algorithm is effective and fast for detecting the islanding of microgrid.*

KEYWORDS: *Islanding detection, Feature extraction, Logistic regression, Distributed generation.*

INTRODUCTION

The increasing of the ecological pollution, aggressive altitude of power cost and the massive expenditure for construct a power plant, distributed energy resources (DERs) have become a concentricity of awareness, DERs include micro turbines, photovoltaic systems, synchronous generators and wind turbines [1]. However, DER is set one's face against with a functioning issue of an accidental islanding. A case which DER still supplying power to a regional load, though it has been separated from a main utility this case called Islanding event [2]. Local loads with this situation will be injected power all sole. Detection of islanding event is substantial for the DER protection [3].

Techniques used in Islanding detection may be passive or active or remote methods [4]. Passive technique like the rate of frequency change related to the time (ROCOF), voltage unbalance, and the rate of output power change related to the time. Passive methods have two drawbacks; the existence of non-detectable zone and the other drawback founded when the change in parameters is unnoticeable, they usually don't give the indication for the islanding. Islanding active techniques like Sandia frequency shift [5] and hybrid fuzzy positive feedback [6] have also a serious drawback where they inject additional disturbances that reduce the quality of the output power. Methods mentioned above are proceed at the DER site so this technique are called local methods. Another technique depends on a direct communication among DERs and main grid is called remote methods, these methods are more expensive than other. A new technique based on artificial intelligent (AI) is presented by researchers to extract some features and classify the output based on these features. These AI techniques include decision tree based method [7], a combination of artificial neural network with support vector machine (SVM) [8]. In this approach, a logistic regression algorithm is taken as a classifier. This paper utilizes the technique of applying a discreet Fourier transform to extract features and make a data set to train a classifier and make the decisions of islanding. Logistic regression method is applied a classifier of the islanding events because of its robustness, simplicity and flexibility and it has been applied in a lot of fields [9].

OBJECTIVES

The aim of this research is to submit and implement an islanding detection technique to prove that it works effectively in distribution system with multiple DERs interface. Symmetrical sequence components of the waveforms for each voltage and current are derived using discreet Fourier transform. These extracted features are inputs to the logistic regression classifier to differentiate islanding and non-islanding DERs. To evaluate the efficiency and validity of the submit method, a comparison with the existing conventional techniques is conducted.

METHODS

The proposed approach is consisting of two stages; i) features extracting from the measured voltage and currents at the target DER, and ii) classifying event specific with these features using a logistic regression based classifier for detection of islanding events. *i) Features Extraction;* Discrete Fourier transform established pre-processor is utilized to assess fundamental phasor values and resultant features. The proposed model uses sequence analyzer of the measured instantaneous voltage and current signals for computing features. Derived features are influenced through islanding event and can be measured at DER site and this features are Positive and Negative sequence of each multiplying voltage and current ($[V \times I]^+$, $[V \times I]^-$), voltage ($[V]^+$, $[V]^-$), current ($[I]^+$, $[I]^-$). *ii) Classification;* Logistic Regression is a regression algorithm, this algorithm can be applied where the dependent variable (DV) is categorical 0 or 1. In the same time the islanding and non-islanding decision is considered as categorical (take value of 0 for non-islanding and 1 for islanding). In this paper, islanding detection can be identified by the following steps: Simulating the model network, Measuring the voltage and current at every DG location at every situation, Simulating events (intentional or unintentional) to creating a database, Analyzing the

database generated from the simulation and determining the feature extractions of the parameters, using logistic regression to classify the data into islanding & non-islanding state and store pattern vector X along with the corresponding class Y in the database. The tested model consists of 4 synchronous generator-based DG units (DG1, DG2, DG3, DG4) as a distributed generator it is a salient pole machine brushless excitation. Those DGs are connected with the main utility grid through a step-up transformer 400v/25kv.

RESULTS

By applying the approached technique on a distribution system comprises DERs, two very important results are found, the first one belongs to the classifier performance evaluation using parameters, this evaluation using a classifier accuracy and misclassification rate of logistic regression classifier and in estimate the execution of protection devices, to evaluate the quantify the precision and annoyance tripping tendency we use two indices, dependability index and security index) and by comparing those parameters with the conventional passive islanding technique it found that the logistic regression method is more reliable and fast as shown in the Table 1 this comparison shows the evaluation performance indices for the proposed approach is superiority over other techniques.

Table 1. Comparison between Performances of the proposed and conventional methods at 0-30 % power mismatch for DER

Islanding technique	Dependability %	Security %	Accuracy %	Misclassification %
SVM [7]	96%	93%	94%	6%
ROCOF [7]	44%	100%	72%	28%
Logistic Regression	98%	94%	95%	5%

The second result is that when applying the proposed method on the model in different cases of intentional (by opening circuit breaker on Distributed generator (DG) site) or non-intentional (by applying many types of faults on the DER site) islanding, the proposed approach decides that which DER are islanded from the instant of fault inception, as shown in Fig. 1, this figure shows the result when the main grid is disconnected at time $t=6.5$ seconds, its seen that by Applying the proposed technique all DGs can be show their situation at the moment of islanding occurred, and this means that this microgrid will be in autonomous mode. Fig. 2 shows the result when the DG3 only is disconnected it will be islanded and the other DGs are non-islanding.

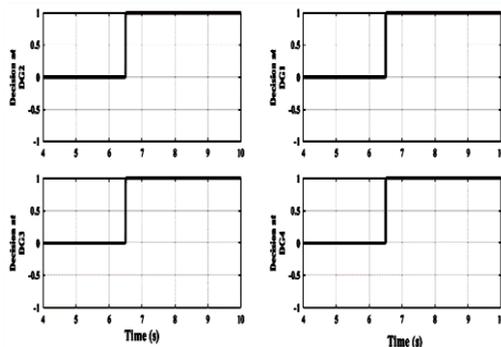


Fig. 1. Islanding decision when the circuit breaker of utility grid is opened

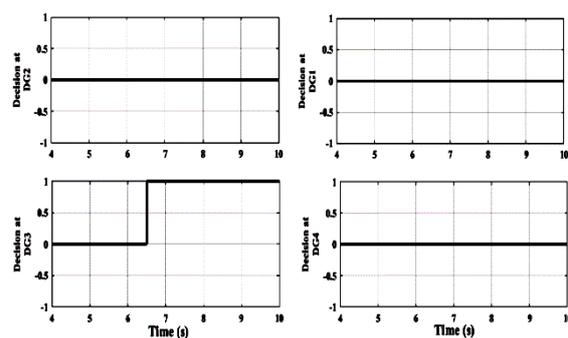


Fig. 2. Islanding decision when the circuit breaker of DG3 is opened

CONCLUSION

The proposed islanding detection technique utilizes some of features and uses logistic regression based classifier for pattern recognition and classification of many types of system events, intentional or non-intentional, for islanding detection. The suggested method is detecting islanding with a speed accuracy less than three cycles from the islanding occurrence. The results of proposed method are compared with other techniques in terms of dependability, security and accuracy. Examples of patterns show the superiority of effective detection of islanding phenomenon in compare with other islanding detection techniques.

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PS-74: PREDICTING LENGTH OF STAY IN INTENSIVE CARE UNIT FOR STROKE PATIENTS USING RANDOM FOREST CLASSIFICATION TECHNIQUE

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ABSTRACT: According to the World Health Organization (WHO) one of the performance measurements and monitoring indicators is the hospitals' is the length of staying and it also used to evaluate both financial and medical performance. Prolonged Length of Stay (LOS) in Intensive Care Unit (ICU) leads to consuming hospitals resources as manpower and equipment. Moreover, increase patients' recovery duration and raising the probability of death during accommodation or after discharging. So, LOS early detection aims to best resources utilization and medical team allocation. Additionally, helping the healthcare specialists for more effective medical decision making moreover accounting department can recognize the amount of the initial insurance paid in cash for patients who do not have medical insurance. Furthermore, the healthcare insurance companies can evaluate the expected cost for their clients and the quality of healthcare they receive. For such prediction many data mining and intelligent techniques are used. In this study we used Random Forest (RF) classification algorithm which is one of the popular Machine Learning (ML) algorithms to predict the LOS of patients admitted to the ICU and diagnosed with stroke.

The data set used in the study is a real data set consists of 82 records and 27 medical feature for each. Those features collected up on admission state of the patients. The prediction followed the data mining process stages: the data preprocessing stage, training stage and testing stage.

The primary prediction shows high variance results due to over fitting problem therefore we followed some steps to enhance the prediction accuracy such as Increase Data Set Size, Decrease Number of Features and Use Resampling Techniques. As a result of the previous updates the prediction accuracy improved to reaches 75.28 ± 8.38 when use resampling with replacement for one replication and 96.10 ± 2.92 for ten replications.

KEYWORDS: Data Mining, Random Forest, Health Care, Over Fitting and high variance

INTRODUCTION

Prolonged Length of Stay (LOS) is inversely proportional with efficiency, LOS used to evaluate hospitals performance due to its effectiveness and equity [1]. In addition, the Intensive Care Unit (ICU) is considered as the most department which consumes resources in the medical sections; predicting the LOS in the ICU is beneficial in reducing the cost and improving the health care. So using Data Mining (DM) and Machine Learning (ML) algorithms in such process will be more effective especially when relying on the human factor is not highly accurate [2] [3]. ML is a subfield of artificial intelligence (AI) that gives computers the ability to learn without being explicitly programmed and it has two main techniques: supervised learning and unsupervised learning. In the presented study we use supervised learning which trains a model based on a known input and output data so it can predict future outputs and it is used for both classification and regression problems. Random Forest (RF) is one of the popular classification algorithms and it is an extension of decision trees, it starts to increase the prediction accuracy of unseen data and trying to avoid over fitting problem by using stochastic modeling principle [4], RF technique changes the way of selecting and learning the sub trees in order to create less correlated trees.

OBJECTIVES

The objective of this study is to use DM and ML principles to get the most benefits of the patients' medical records especially after the wide use of advanced electronic medical record on the medical and financial levels and apply those principles to predict the length of stay of stroke patients in intensive care unit based on the admission medical features.

METHODS

In the proposed study, general medical features such as demographic data (age and gender), vital signs (blood pressure, temperature, respiratory rate,...), basic labs (CBC, Na, K, creatinine, ABG), chronic illness (HTN, DM, IHD,...) and GCS are used to predict the LOS in the ICU for the patients admitted to the ICU diagnosed with stroke. The prediction process using DM and ML techniques starts with collecting the selected features up on admission state then the data is pre-processed. Methods used for data preprocessing are: **Data integration** which merges data from multiple sources into one consistent

database. **Data cleaning** which is applied to remove noisy and inconsistent data and tries to fill missing values. **Data transformation** scales data into smaller range in order to increase the efficiency of mining algorithms and we used Min-Max normalization method for this purpose. **Data reduction** which works to reduce data set size by removing redundant features using features selection techniques. Then the data set has been divided using K-fold cross validation technique, 90% for training and 10% for testing. Because of the limitation of real data collected and the limited number of records, the primary model was over fitted and the results was high variance. To solve the high variance problem some recommended steps have been followed to enhance the model prediction accuracy such as: 1) **Increase data set size**, so the data set increased by 21 records which present 34% of the original data set size, 2) **Reduce numbers of features**, to reduce number of features we replaced 12 of them with single feature the Severity of Illness (SOI) which indicates the seriousness of the patient medical condition. And also using 3) **Resampling Techniques**, resampling techniques are used to increase the data set number of records by repeating original data set records. One of those resampling techniques is Bootstrap Aggregating (Bagging). Bagging performed by sampling with replacement the data set, with replacement means some records might be repeated in each simulated dataset. Breiman [5] applied bagging to multiple data sets with different replications times (10, 25, 50, 100). The results show that 10 bootstrap replications will be getting the most of improvement with algorithms. Moreover, the model simulated for 10 iterations and the results averaged. At the end the model evaluated using the terms of accuracy, precision, sensitivity and specificity [6].

RESULTS

By applying the previous steps, we achieved notable improvement in the model prediction as illustrated in the *Table 1*.

Table 1: LOS prediction results summary

	Accuracy		precision		sensitivity		specificity	
	μ (%)	σ (\pm)	μ (%)	σ (\pm)	μ (%)	σ (\pm)	μ (%)	σ (\pm)
One Replication	75.28	8.38	Nan	Nan	0.75	0.11	Inf	Nan
Ten Replications	96.10	2.92	1.12	1.11	0.95	0.04	1.22	0.40

CONCLUSION

LOS early detection especially on the admission stage provides health care providers with a decision support data for the upcoming treatment plan as well as, helping the hospital management plan and managing hospital resources and allocating medical team. The early detection of the LOS helps to decide the primary insurance value with patients who pay in cash. Additionally, it enables the health insurance providers to manage their clients' medical records and expected cost. The proposed model used supervised machine learning classification algorithm random forest for the prediction process and perform several updates into the model to overcome the high variance problem due to the limitation of the original data set.

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PS-75: PREPARATION OF SOME BENZOTRIAZIN DERIVATIVES AND STUDY OF THEIR BIOLOGICAL ACTIVITY

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ABSTRACT: Starting from methyl anthranilate, a series of new benzotriazinone dipeptide and amide derivatives have been prepared by azide coupling method with some amino acids esters and amines. Some benzotriazinone hydrazone derivatives were also prepared by condensation reaction with different aldehyde.

KEYWORDS: Benzotriazine, amino acids, amines, antibacterial activity, anticancer activity.

INTRODUCTION

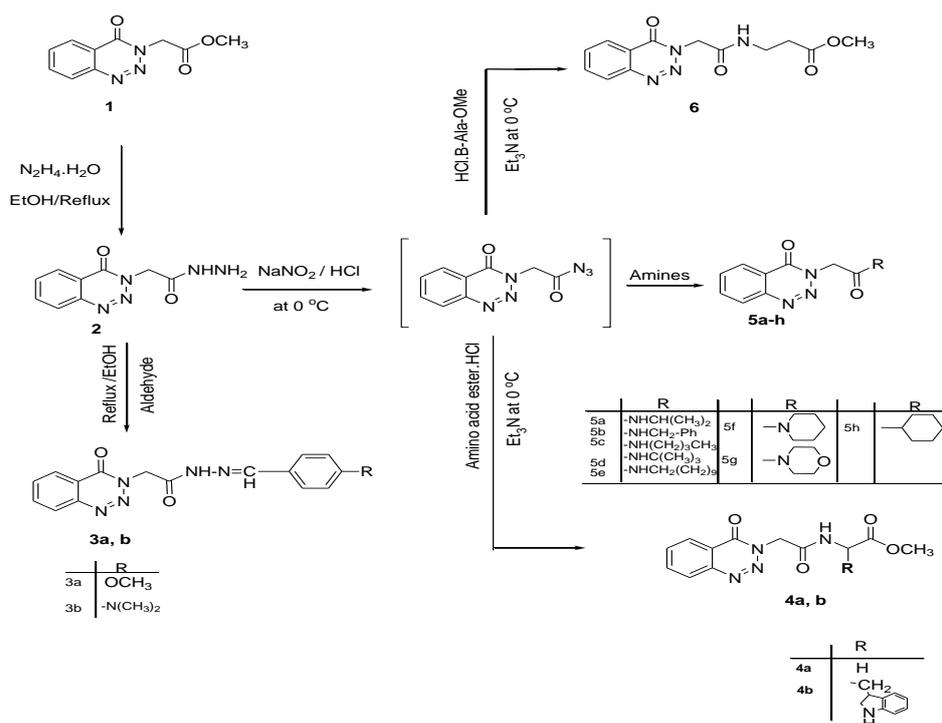
The search for new anticancer drugs is never ending task with the aim to obtain products with lower toxicity and more selectivity towards tumor cells. Some current commercial benzotriazinone anticancer drugs such as α -hydroxylated benzotriazinone [1], *N*-Arylbzotriazinones [2] and 4-[(4-Oxobenzo[*d*][1,2,3]triazin-3(*H*)-yl)methyl]benzoic acid[3] show the possibility to reduce recombinant human cancer cells growth in culture.

OBJECTIVE

The key benzotriazinone glycine ester derivatives **8** are suitable scaffold for the synthesis of a series of novel amino acid **6**, **4a**, **b** and amide **5a-h** derivatives. These derivatives were used to do screening on antibacterial such as *E.Coli*, *Staphylococcus*, *Streptococcus aureus* in comparison with the benzotriazinone along with screening on HepG₂ (human liver cancer) in comparison with the standard doxorubicin.

METHODS

Compound **1** were prepared by diazotization of methyl anthranilate in the presence of glycine amino acid ester hydrochloride. Hydrazide **2** was prepared by the reaction of benzotriazinone amino acid ester of glycine **1** with hydrazine hydrate in ethanol. The hydrazide **2** was used to prepare **6**, **5a-h** and **4a**, **b** via azide coupling method by the reaction with a series of amines and amino acid ester derivatives. Condensation of hydrazide **2** with some aldehydes gave hydrazones **3a**, **b**.



RESULTS AND DISCUSSION

A good yield was obtained by using azide coupling method to prepare the benzotriazinone derivatives either amino acids or amide or hydrazone derivatives in comparison with the DCCI method, in addition to the high quality, low cost and no contaminations. The structures of the synthesized compounds were confirmed by elemental analysis, ^1H and ^{13}C NMR.

CONCLUSION

It's easy to synthesize benzotriazinone derivatives by azide coupling method without any racemization and with a little bit of side product by keeping the temperature during the reaction less than $0\text{ }^\circ\text{C}$. Hydrazone derivatives were synthesized from hydrazide of benzotriazinone amino acid derivatives with aldehyde by condensation reaction.

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PS-76: BINDING OF LEVOTHYROXINE TO BOVINE SERUM ALBUMIN USING FLOURESCENCE MEASUREMENTS

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ABSTRACT: The binding constants of the two drugs Levothyroxine and Sodium Alendronate with bovine serum albumin (BSA) were calculated from fluorescence measurements.

KEYWORDS: Levothyroxine, Bovine serum albumin(BSA), fluorescence, Sodium Alendronate

INTRODUCTION

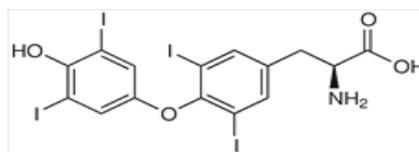
Albumin forms almost half of the total blood proteins; it is the most abundant soluble protein in the body of vertebrates and the most prominent protein in plasma. It controls blood volume by maintaining the colloidal osmotic pressure (Oncotic pressure) of plasma. It is important for most of the acid / base buffering action of plasma proteins in extra vascular fluids. Albumin binds and carries drugs, metabolites and is principal binding protein to variety of xenobiotics in blood plasma. Levothyroxine is a drug used for the treatment of thyroid hormone deficiency and for the prevention of kidney and eye complication in people who have diabetes.

OBJECTIVES

To calculate the constant of binding for Levothyroxine with bovine serum albumin (BSA) using fluorescence measurements.

METHODS

Fluorescence measurements was carried out by measuring the variation in the intensity of the of the fluorescence of bovine serum albumin (BSA) with different concentrations of Levothyroxine drug.



Levothyroxine

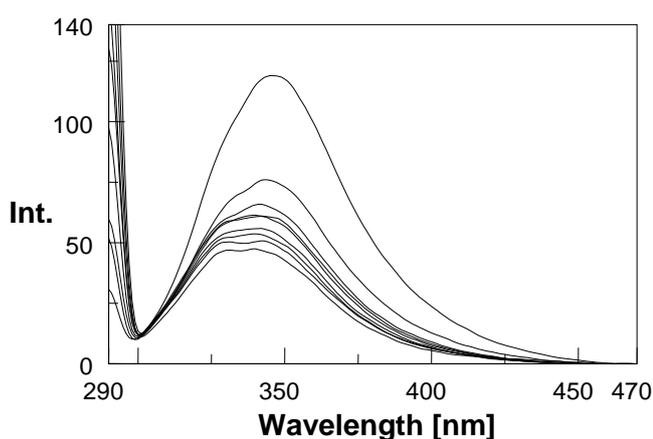


Figure1: Levothyroxine quenching effect on BSA fluorescence emission

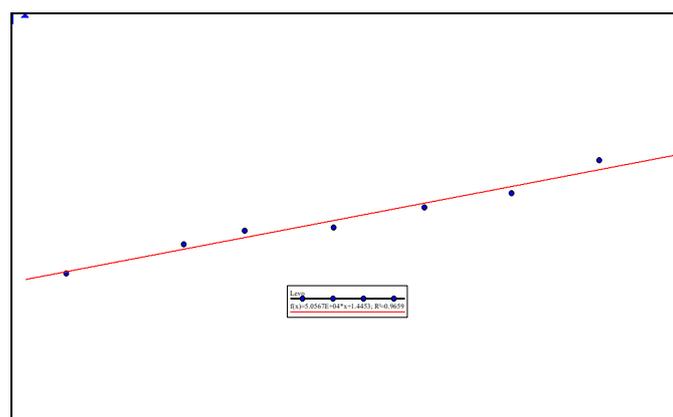


Figure 2: Stern Volmer relation

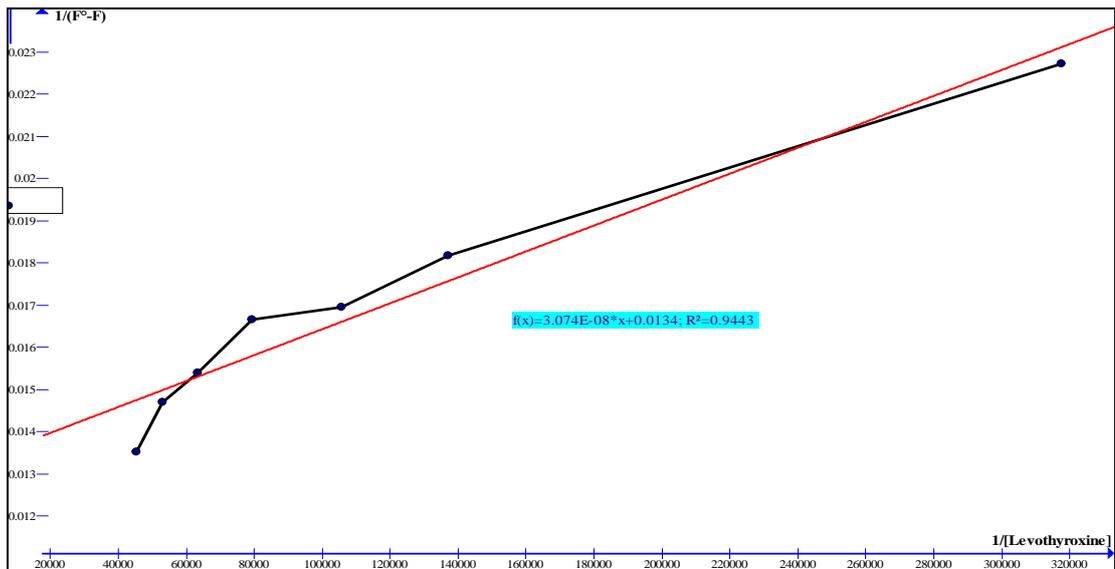


Figure 3: Line Waver-Burk relation

RESULTS

The interaction between bovine serum albumin dissolved in Phosphate buffer (Ph=7.4) with different concentrations of Levothyroxine in the average of 3.15×10^{-6} to $3.78 \times 10^{-5} \text{ mol}^{-1}\text{L}$. The data obtained from the variation of fluorescence intensity at $\lambda_{em}=346 \text{ nm}$ are fitted in Stern-Volmer equation where the quenching constant equals $5.0567 \times 10^4 \text{ mol}^{-1} \text{ L}$.

The binding constant of Levothyroxine with bovine serum albumin is calculated according to Lineweaver-Burk equation and it is found to be $2.73 \times 10^5 \text{ mol}^{-1}\text{L}$.

CONCLUSION

There is considerable binding between the Levothyroxine drug with bovine serum albumin (BSA), which gives information about the capability of BSA to transport the drug into the different parts in the body e.g., blood plasma.

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PS-77: SYNTHESIS AND CHARACTERIZATION OF SOME NEW TETRA HYDRO BENZOTHIOPHENE DERIVATIVES

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ABSTRACT:

A Series of new thiophene derivatives based on ethyl-2-amino-tetrahydrobenzo[b]thiophene-3-carboxylate were synthesized. The ester 1 was synthesized via Gewald reaction starting from cyclohexanone. The amino ester was reacted with different reagents to afford new functionalized fused thiophenes 2-6.

Keywords: Thiophene, Gewald reaction, 2-Amino thiophene, Synthesis

INTRODUCTION

Organic heterocycles containing thiophene ring are widely found in nature and play a significant role in many biochemical processes. Therefore, they are merged into new bioactive compounds by medicinal chemists [1]. Many thiophene derivatives display a wide spectrum of biological activity such as anti-microbial. The concentration in this kind of heterocycles is spread from dye chemistry to drug design [2]. 2-Amino-3-arylthiophenes are potent agonist allosteric enhancers at the A1 adenosine receptor [3]. A novel class of thiophenes antagonists of human glucagons' receptor had been discovered [4]. Conventionally, poly substituted 2-aminothiophenes containing an electron-withdrawing group like cyano in the 3-position and alkyl in the 4- and 5- positions are synthesized using Gewald reaction [5]. The significance of this division of heterocyclic chemistry show push to this study, where the data on activity and preparation of many substituted 2-aminothiophenes are organized. Substituted 2-aminothiophenes are important structures which usually display various pharmacological activities with anti-inflammatory and anticonvulsant activities [6].

OBJECTIVES

Synthesis of new thiophene derivatives and structure characterization using ^1H NMR and ^{13}C NMR spectroscopy.

METHODS

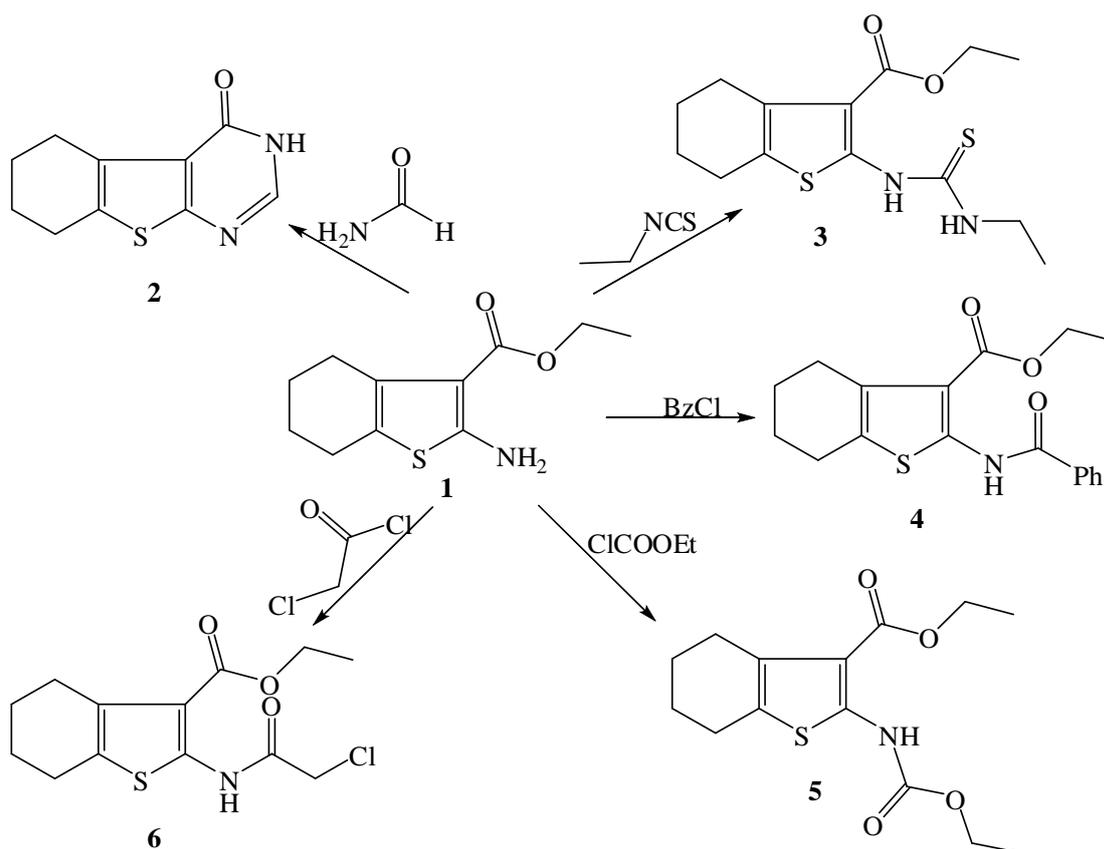
A mixture ethyl 2-amino-4,5,6,7-tetrahydrobenzo[b]thiophene-3-carboxylate 1 (0.002 mol) and appropriate reagents in the ethanol was refluxed for 6 hours. Then concentrated and cooled. The ppt formed was filtered and washed with water, dried and the solid products were crystallized from ethanol to give products 2-6.

RESULTS & DISCUSSION

The amino thiophene ester 1 was synthesized from one-pot three component reaction of cyclohexanone, sulfur, ethyl cyanoacetate in the presence of tri-ethylamine. The reaction of 1 with formamide gave 2, ethyl isothiocyanate afforded 3, benzoyl chloride yielded 4, ethyl chloroformate gave 5, and chloro acetylchloride lead to the formation of 6 (scheme 1). The structures of new compounds were elucidated from ^1H and ^{13}C NMR spectroscopy, for example the structure of compound 6 was elucidated from ^1H NMR, which showed singlet signal at 12.0 ppm for the NH proton, multiplet signal between 7.12 ppm and 8.56 ppm refer to the aromatic protons, triplet signal at 1.15 ppm for proton of methyl group, quartet signal at 4.4 ppm refer to CH_2 of ethyl group and multiplet signal between 1.76-2.76 ppm for 4 CH_2 of cyclohexene ring. ^{13}C NMR showed signals between 127 and 133 ppm refer to aromatic carbons and amide carbon appeared at 163 ppm.

CONCLUSION

New thiophene derivatives were synthesized, purified, and characterized using NMR spectroscopy and sent for testing the biological activity.



Scheme 1

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PS-78: APPLICATIONS OF NANO HYDROXYAPATITE PREPARED FROM BIO - WASTE MATERIALS IN REMOVAL OF LEAD IONS FROM AQUEOUS SOLUTIONS

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ABSTRACT: Six Nano carbonated type hydroxyapatite materials having particle size ranging from 15-85 nm were prepared from bio-waste materials (egg shells, marine shells and/or bovine bone). These HA materials are used in removal of lead ions (Pb^{2+}) from aqueous solutions using batch experiments at 25°C. The effect of contact time (2,4,6,8,12 and 24 hrs.) and Pb^{2+} ions concentration (300 and 600 mg/l) on their removal efficiency were also considered. The results indicated that 100% of Pb^{2+} ions is completely removed by the all solids after 24 hrs as contact time. Freundlich model of adsorption isotherm are employed to correlate the data in order to understand the adsorption reaction mechanism. The adsorption process followed pseudo second order kinetics. The results of this research study can lead to the conclusion that nano carbonated calcium hydroxyapatite extracted from bio-waste materials appear excellent for lead ions removal from waste waters.

KEYWORDS: Bio waste materials, Nano-hydroxyapatite, Pb^{2+} ions, Heavy metals, adsorption

INTRODUCTION

Wastewaters pollution is a major environmental problem faced by modern society that leads to ecological disequilibrium and health hazards. Heavy metal ions such as lead (Pb^{2+}), copper (Cu^{2+}) ...etc. often found in the industrial life, including humans. Therefore, the removal of heavy metals before disposal of wastewaters is necessary. Pb^{2+} ions are one of the most hazardous heavy metal ions to human health because of its high rate of anthropogenic accumulation. Pb^{2+} ions enter the human body, causing temporal or chronic poisoning [1]. One of the most dangerous effect of Pb^{2+} ions is that it may replace Ca^{2+} ions in human bones, becoming a source of constant poisoning for long time [2]. Therefore, the removal of lead from living organisms is a necessary mission. Hydroxyapatite ($Ca_{10}(PO_4)_6(OH)_2$) is an important material for biomedical applications as bone substitute and implants coating due to its high similarity to the human bone [1]. It also can be used as excellent ion exchanger for heavy metals removal [1] and can successfully remove Pb^{2+} ions from blood and restore the functionality of the liver and kidneys [3].

OBJECTIVES

In this study, the main objective is to prepare and characterize Nano sized hydroxyapatite powders from bio wastes: egg shells, marine shells and bovine bones and investigate their removal potentials for Pb^{2+} ions from wastewaters.

METHODS

Different six Nano-hydroxyapatite powders (HA1- 6) were prepared from different sources. Their designation and methods of their preparation are given in Table (1). The HA's solids powders were characterized by using different techniques: X-ray diffraction (XRD), Infrared spectroscopy (FTIR) and Scanning Electron Microscopy (SEM) with Energy Dispersive x-ray (EDX) (Fig.2). The average crystallite size of HA's powders was calculated from XRD data. The Pb^{2+} ions uptake reactions was conducted by using 300 and/or 600mg/l of Pb^{2+} ions with 0.2g of each solid for time period's 2,4,6,8,12 and 24 hrs. The concentration of unreacted Pb^{2+} ions was measured by Inductive Coupled Plasma-Atomic Emission Spectroscopy.

RESULTS AND DISCUSSION

XRD, FTIR and SEM with EDX data revealed that the obtained HA powders are pure phase with average crystallite sizes 15-85 nm and the hydroxyapatites are from carbonated (AB) types due to the substitution of $(CO_3)^{2-}$ ions in OH^- and/or $(PO_4)^{3-}$ groups in HA crystal sites [4]. Most of the HA solids removed 100% of Pb^{2+} ions after 4 hours (e.g. sample HA5, Fig. 2) and the adsorption isotherm curve follows Langmuir isotherm and the kinetic reaction is pseudo second order. XRD data after uptake of Pb^{2+} ions revealed the presence of some sort of ion exchange between $Ca^{2+} \leftrightarrow Pb^{2+}$ through the formation of hydroxypropiomorphaite phase $\{Pb_5(PO_4)_3(OH)\}$ as well as lead carbonate hydroxide $\{Pb_3(CO_3)_2(OH)_2\}$.

Table (1): Methods of HA's Preparation

HA No.	Source	Method of preparation
HA1	Ca(NO ₃) ₂ + (NH ₄) ₂ HPO ₄	Prepared chemically, by sol gel methods at pH=10
HA2	Egg shell	Calcined egg shells + (NH ₄) ₂ HPO ₄ using sol gel methods at pH=10
HA3	Marin shell	Calcined Marin shells + (NH ₄) ₂ HPO ₄ using sol gel methods at pH=10
HA4	Bovine bone	Calcined of deprotonated bovine bone at 1100°C
HA5	Bovine bone	Calcined of deprotonated bovine bone at 900°C
HA6	Bovine bone	Acid dissolution of deprotonated bone and re-precipitation by NH ₃ at pH=10

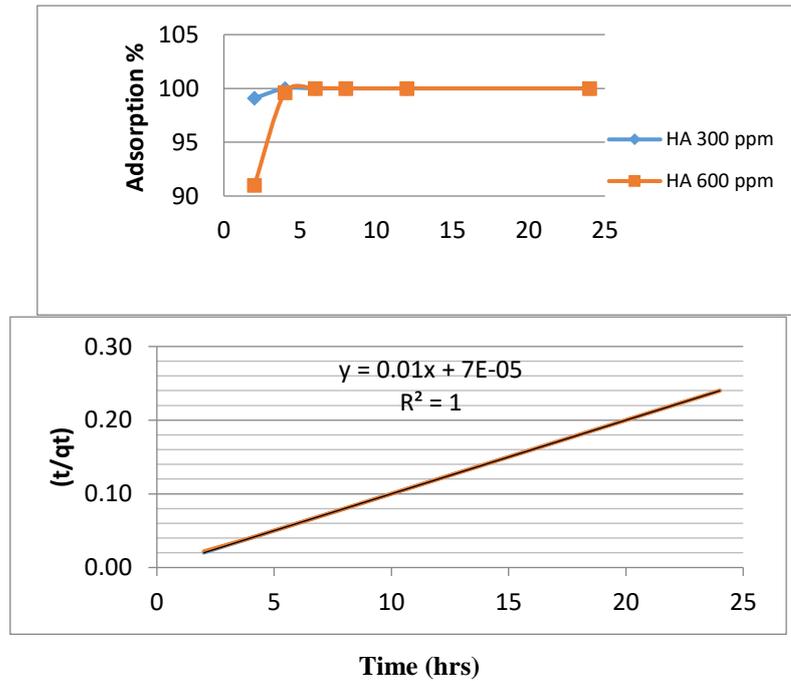


Fig. (1): Effect of time and Langmuir isotherm of Pb²⁺ uptake by HA5 solid

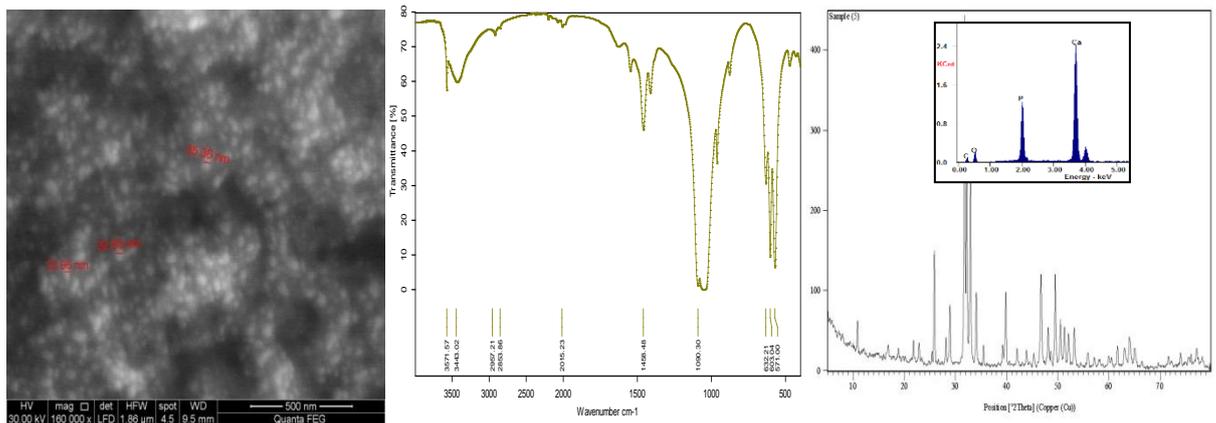


Fig. (2): XRD, FTIR and SEM / EDX analysis of carbonated hydroxyapatite prepared from bovine bone (HA5)

CONCLUSION

Nano-carbonated hydroxyapatite AB types can be obtained from biowaste materials with crystallite sizes 15-85nm. Often they having removal efficiency of 100% for Pb²⁺ ions from aqueous solutions after 4hrs of contact time and the adsorption isotherm curve follows Langmuir isotherm and the kinetic reaction is pseudo second order. Based on this study, nano carbonated hydroxyapatite extracted from biological wastes is considered as an effective agent in removing lead from contaminated water.



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PS-79: Studies on the binding affinity of Humic Acid towards Cu^{2+} , Zn^{2+} , Pb^{2+} and Cd^{2+}

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ABSTRACT: This study provides a model of potentiometric titration of naturally occurring macromolecule (polyelectrolytes) as a ligand and stability constants determination for (1:2) metal-ligand complexes. Humic acid was extracted by 0.5 N NaOH and 2 M H_2SO_4 from the bio-gas manure sample from recycling of agriculture residue training center Moshthohor, El-kaliobiya governorate, Egypt. The acidity constants of the ligand and the formation constants of metal-ligand complexes (Cu^{2+} , Zn^{2+} , Pb^{2+} and Cd^{2+} with humic acid) carried out at 25 °C and ionic strength of 0.1 mol dm^{-3} KNO_3 . All the titrations were carried out using a Knick pH/ion meter model 761 calimatic. All the obtained results were refined using computer programs. The total acidity of humic acid was (31.14 meq/100gm). The pKa of humic acid was 4.45 at 25 °C and the overall stability constants of Cu^{2+} , Zn^{2+} , Pb^{2+} and Cd^{2+} were 8.1×10^6 , 5.33×10^5 , 7.2×10^5 and 5.35×10^5 respectively, so the stabilities of the complexes follow the order: $\text{Cu}^{2+} \gg \text{Pb}^{2+} > \text{Cd}^{2+} > \text{Zn}^{2+}$.

KEYWORDS: Humic acid, Extraction, Ionization Constant, Stability Constant.

INTRODUCTION

Humic substances as portion of humus-soil organic matter are compounds resulting from the physical, chemical and microbiological transformation (humification) of biomolecules [1]. They produce water-soluble and water-insoluble complexes with metal ions. These weakly acidic polyelectrolytes play a noticeable role in the fixing of micronutrients in soil [2]; and they are included in the migration and then deposition of mineral substances in sediments. From an environmental point of view, complexing of toxic heavy metals by humic substances is of significance in determining the destiny of these pollutants in the environment [3]. An important property of metal-organic complexes is its stability constant, the value of which gives an index of the affinity of cation for the ligand. Numerical values of stability constants for metal-humic complexes would be of considerable value in expecting the behavior of trace elements and toxic heavy metals in soils and sediments [4]. Simple proton-transfer reactions of Bronsted acids with bases in aqueous solution are very fast, approaching the diffusion-controlled limit [5]. In the titrations of humic substances, while, it is usually obvious that pH tends to decrease after additions of base titrant, suggesting that slow reactions of some type are producing additional acidity. This theory is supported by frequent reports of important hysteresis in forward-reverse titrations of humic substances [6]. Some researchers report no hysteresis [7,8]. It has been mentioned that repeated titration of a humic substance to high and low pH progressively removes hysteretic effects [6].

OBJECTIVES

The objective of this study is to extract humic acid from bio-gas manure and to present and determine the ionization constant by pH-metric titrations of humic acid and the binding affinity towards Cu^{2+} , Zn^{2+} , Pb^{2+} and Cd^{2+} .

METHODS

Humic acid was extracted and purified according to the method described by Sanchez Monedero et al [9], and then the total acidity and carboxylic groups was determined [10]. Potentiometric titration measurements were done at 25 °C and ionic strength of 0.1 mol dm^{-3} KNO_3 using a Knick pH/ion meter model 761 calimatic [11].

RESULTS

Total acidity and acidic groups determination of humic acid show that, the total acidity is 310.14 meq/100g, the amount of COOH groups is 140.72 meq/100g and the amount phenolic OH groups is 169.42 meq/100g. The knowledge of acid-base equilibria of humic acid is very important for the understanding their complexation properties with heavy metal ions. Fig. (1) introduce the titration data. The curves show one inflection due to the overlap of pKa wide ranges values of carboxyl and phenolic groups make it impossible to quantify definitely the separate contributions of these groups to the total acidity of a humic substance [12]. The values of the pKa can be obtained by plotting the pH against $\log(a/(1-a))$ which corresponds to the pH at $a=0.5$ $\text{pKa}=4.45$ fig. (2). The titration curves of the metal-humic mixtures were separated and the pH-readings depressed relative to that of the free humic due to the complexes formation fig. (3). The curves show slightly two inflections indicating the formation of (1:1) and (1:2) metal-ligand complexes.



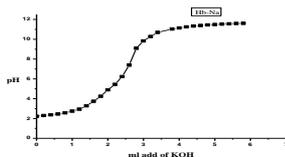


Fig. (1): The titration curve of humic.

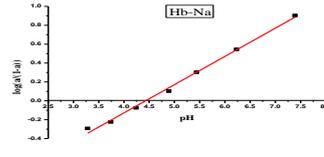


Fig. (2): pKa of humic acid

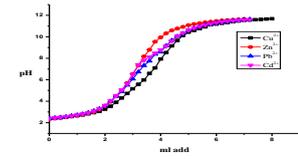
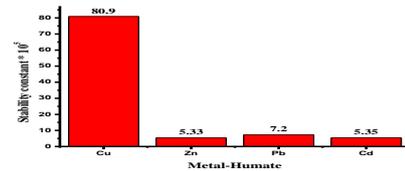


Fig. (3): titration curves of humic-metal complexes.

The values of the stability constants was obtained from the formation curves by plotting pL values against the corresponding n' values table (1). The binding affinity obtained in this study followed the order $\text{Cu}^{2+} \gg \text{Pb}^{2+} > \text{Cd}^{2+} > \text{Zn}^{2+}$, fig. (4).

TABLE (1): STABILITY CONSTANTS OF METAL-HUMIC ACID COMPLEXES

METAL COMPLEX	K_1	K_2	K_1K_2
Cu^{2+} -HUMIC	7.28×10^3	1.11×10^3	8.1×10^6
Zn^{2+} -HUMIC	3.83×10^3	1.39×10^2	5.33×10^5
Pb^{2+} -HUMIC	3.49×10^3	2.05×10^2	7.2×10^5
Cd^{2+} -HUMIC	3.59×10^3	1.49×10^2	5.35×10^5

Fig. (18): The binding affinity of Humic Acid towards Cu^{2+} , Zn^{2+} , Pb^{2+} and Cd^{2+} .

CONCLUSION

The result obtained can be summarized as follows. 1- the humic acid was extracted from the bio-gas manure from recycling of agriculture residue. 2- The total acidity of humic acid was 31.14 meq/100gm. 3- The pKa of Humic acid was 4.45 at 25 °C. 4- The successive stability constant and the overall stability constants of Cu^{2+} , Zn^{2+} , Pb^{2+} and Cd^{2+} was estimated by potentiometric titration were 8.1×10^6 , 5.33×10^5 , 7.2×10^5 and 5.35×10^5 respectively. 5- The affinity of humic towards the metals ions followed the order $\text{Cu}^{2+} \gg \text{Pb}^{2+} > \text{Cd}^{2+} > \text{Zn}^{2+}$.

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PS-80: NANO-TECHNOLOGY TECHNIQUES FOR HUMIC ACID-NANO-ZINC OXIDE COMPOSITE

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ABSTRACT: Natural organic matter (NOM) adsorption on nanoparticles (NPs) is essential for assessing their mobility, transfer, and destiny in the nature, which will likewise influence sorption of hydrophobic organic compounds (HOCs) by NPs and so potentially change the toxicity of NPs and the destiny, transport, and bioavailability of HOCs in the nature. So, the adsorption behavior of humic acids (HA) by nano-ZnO was studied to investigate their interaction mechanisms using analytical techniques including fourier transform infrared (FTIR) spectroscopy and high-resolution scanning electron microscopy. The extraction of the humic acid was achieved from the bio-gas manure sample from recycling of agriculture residue training center Moshtohor, El-kaliobiya governorate, Egypt. The obtained humic acid was characterized using fourier transform infrared (FTIR), ¹H-NMR and mass spectroscopy. Nanoparticles of ZnO were prepared by the reaction of ethanolic solutions of zinc acetate and oxalic acid followed by drying (80 °C) and burning at (500 °C). The characterization was achieved by means of wide-angle X-ray diffraction, fourier-transform infrared spectroscopy, and high-resolution scanning electron microscopy.

KEYWORDS: Humic acid, Characterization, Nano-ZnO, HA coated-Nano-oxides.

INTRODUCTION

Natural organic matter (NOM) present in everywhere in the environment and shows high reactivity. Once freed in the environment, NPs will adsorb NOM to form complexes. In addition to carbon nanotubes, nanoparticulate oxides (nano-oxides) are also among the most used NPs^[1]. Nano-oxides show greater surface area than their bulk counterparts, allowing for better performance in recognized applications. Nano-oxides such as TiO₂, ZnO, SiO₂, and Al₂O₃ are commonly used for applications in photocatalysis, pigments, semiconductors, electrical insulators, cosmetic additives, and biomedical areas^[2]. Adsorption of HA by nano-oxides was pH-dependent and was mostly caused by electrostatic attraction and ligand exchange between HA and nano-oxide surfaces. Surface hydrophilicity and negative charges of nano-oxides influenced their adsorption of HA. However, the highest adsorption of HA on nano-oxides were controlled by the surface area of nano-oxides. Phenolic OH and COOH groups of HA were accountable for its ligand exchange with nano-TiO₂ and nano-ZnO, respectively, while either HA COOH or HA phenolic/aliphatic OH was accountable for its ligand exchange with nano-Al₂O₃. HA adsorption reduced the micropore surface area of nano-oxides but not the exterior surface area because of the micropore blockage. HA adsorption also reduced the ζ -potential of nano-oxides, showing that HA-coated nano-oxides could be so easily dispersed and suspended and possess higher stability in solution than uncoated ones because of their improved electrostatic repulsion^[3]. The main mechanisms by which adsorption of NOM onto mineral surfaces occur include (1) anion exchange (electrostatic interaction), (2) ligand exchange, (3) hydrophobic interaction, (4) entropic effect, (5) hydrogen bonding, and (6) cation bridging. Amid these mechanisms, ligand exchange between mineral surfaces and carboxyl and hydroxyl groups of NOM is preferred to be the dominant interaction with three steps: (1) protonation of the surface hydroxyl, rendering it more exchangeable; (2) outer-sphere complexation of the carboxylate group with the protonated hydroxyl group; and (3) ligand exchange to yield an inner-sphere complex^[4]. The liberation of hydroxyl ions during the adsorption of humic substances to hematite in a sodium electrolyte (pH 4.5) has been taken as direct indication for the ligand exchange mechanism^[5].

OBJECTIVES

The objective of this study is to extract humic acid from bio-gas manure, prepare nano-ZnO and HA coated nano-ZnO and characterize the products using fourier transform infrared (FTIR), ¹H-NMR, X-ray diffraction and mass spectroscopy.

METHODS

Humic acid was extracted and purified according to the method described by Sanchez Monedero et al^[6]. Nano-ZnO was prepared using sol-gel method^[3]. Preparation of HA-coated nano-oxide Complexes was achieved by the method described by Kan Yang et al.^[3]

RESULTS



The obtained humic acid was characterized using fourier transform infrared (FTIR), mass spectroscopy and $^1\text{H-NMR}$ figs. (1), (2) and (3) respectively. Reaction of zinc acetate with oxalic acid produced a thick semi-gel. Subsequent drying at $80\text{ }^\circ\text{C}$ and burning this gel at $500\text{ }^\circ\text{C}$ produced ZnO as recognized by its powder X-ray diffraction pattern Fig. (3).

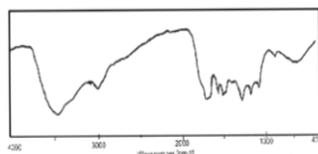


Fig. (1): FT-IR spectrum of humic acid

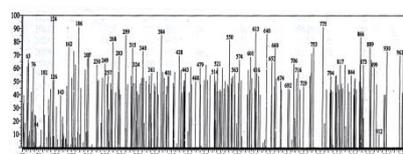


Fig. (2): mass spectra of humic acid.

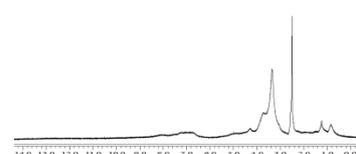


Fig. (3): $^1\text{H-NMR}$ spectrum of extracted humic acid

Enlargement of the X-ray bands allowed an estimate of the average particle size as $37\pm 5\text{ nm}$ using the Scherrer equation [7]. HA coated-nano-ZnO FTIR spectrum fig. (4) possess some typical features of an acetate salt [8], Two main peaks are founded at 1628 cm^{-1} and 1387 cm^{-1} corresponding to the asymmetric and symmetric stretching due to the carboxyl group respectively, the peaks at 3444 cm^{-1} and 2900 cm^{-1} are due to OH stretching and CH (acetate) stretching respectively, the weak peak at 493 cm^{-1} due to the Zn-O stretching. The nano-ZnO is dominated by a very strong band at 482 cm^{-1} due to the Zn-O stretching, the small band at 3411 cm^{-1} is probably due to the contact of the ZnO sample with air causing adsorption of a small amount of water vapor fig. (4)[9].

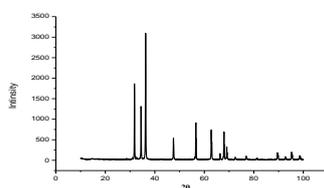


Fig. (3): X-ray powder diffraction plot of ZnO.

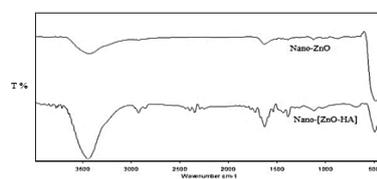


Fig. (4): FT-IR spectra of nano-ZnO and HA coated-nano-ZnO

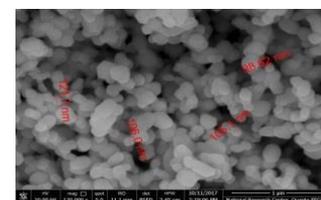


Fig. (5): SEM image of nano-ZnO

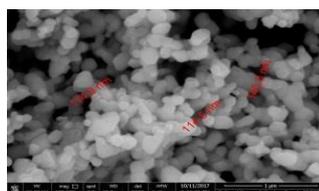


Fig. (6): SEM image of HA coated-nano-ZnO

Figs. (5), (6): represents nano-ZnO and HA coated-nano-ZnO scanning electron micrographs respectively. The SEM micrographs clearly show micro-structural homogeneities and remarkably different morphologies. An agglomeration of particles was observed in the case of HA coated-nano-ZnO and lower grains size in case of nano-ZnO. The FTIR spectrum and SEM indicates the adsorption of HA by nano-ZnO and formation HA-nano-ZnO composite.

CONCLUSION

A novel technique for the preparation for HA coated-nano-ZnO has been successfully performed. The obtained humic acid characterized using Fourier transform infrared (FTIR), mass spectroscopy and $^1\text{H-NMR}$ and the nano-ZnO characterised by XRD, FTIR and SEM. The particle size observed was 37 ± 5 . HA-nano-ZnO composite characterised by FTIR and The SEM micrographs which clearly show micro-structural homogeneities and remarkably different morphologies.

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PS-81: SPECTROMETRIC IMPEDANCE OF POLYACRYLAMIDE IONIC LIQUID FOR CORROSION RESISTANCE OF CARBON STEEL PETROLEUM PIPELINES IN 1M HCl

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ABSTRACT: Protecting steel from corrosion by using green methods becomes the aim of corrosion science. In this respect, Polymeric ionic liquid (PIL) based on ionic polyacrylamide derivative was investigated for corrosion inhibition by measuring the electrochemical impedance spectroscopy (EIS) in the absence and presence of different concentrations of the PIL inhibitor. It was observed that the values of R_c (charge transfer resistance) increased in the existence of inhibitor due to increasing the coverage area with PIL inhibitor on steel surface. As a result, the inhibition effectiveness increase confirming the corrosion protection efficiency of inhibitor and is greatly dependent upon inhibitor concentration. The inhibition occurs through adsorption of inhibitor on the metal surface.

KEYWORDS: Carbon Steel, Polyacrylamide, Ionic liquid, Corrosion.

INTRODUCTION

Carbon steel is a material generally utilized for the generation and transportation of unrefined petroleum in the oil industry because of its minimal cost and its remarkable mechanical properties but they are much subjected to a high corrosion rate [1, 2]. Large portions of corrosion inhibitors utilized for corrosion control in acidic media are harmful and environmentally unsafe materials. As a consequence, ionic liquids (ILs) have been fashioned in current years as green inhibitors [3].

Ionic liquids (ILs) are organic salts that are liquids composed of unpacked well ions, permitting a free movement, and consequently take the property of flow [4]. ILs have very small vapor pressure (will not vaporize); non-polluted environmentally friendly and less harmful metal corrosion inhibitors. The metal corrosion inhibited by PILs is because of its adsorption arranged on the metal surface [5].

Imidazolium ILs and their derivatives are one of the best effective and the most considered ILs that used as corrosion inhibitors at different corrosive media for carbon steel [6]. In addition, quaternary ammonium [7], phosphonium [8] and pyridinium salts ILs [4] could be used for protection of steel.

OBJECTIVES

In the present research, PIL based on acrylamide polymer was examined for green anticorrosion performance of carbon steel in 1 M HCl with lower concentrations by electrochemical impedance spectroscopy (EIS) (Nyquist plot).

METHODES

The working electrode used is carbon steel (X-65 type) obtained from petroleum unused pipeline. Voltalab 80 Tacussel Radiometer Potentiostat PGZ 402 was used to measure the EIS controlled by Voltmaster-4 programming software. The frequency range for EIS were measured among 100 kHz and 50 mHz using AC signals with an amplitude of 10 mV.

RESULTS & DISCUSSION

Figure 2 shows the impedance Nyquist plot without and with dissimilar concentrations of the PIL inhibitor (figure 1). In the existence of inhibitor, it was observed that the loop diameter becomes larger at higher inhibitor concentration due to increasing the coverage area with PIL inhibitor on steel surface. In addition, the values of C_{dl} (double-layer capacitance) decreased in the existence of PILs inhibitors. As a result, the inhibition effectiveness (IE %) values increased as increasing in inhibitor concentration as revealed in Fig. 2. These data confirm the corrosion protection efficiency of PIL.

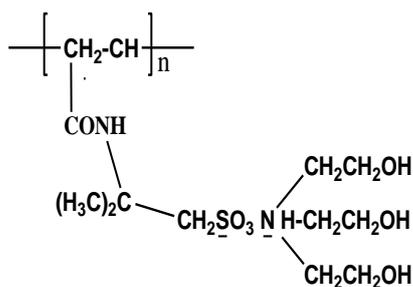


Fig.1: The prepared PIL.

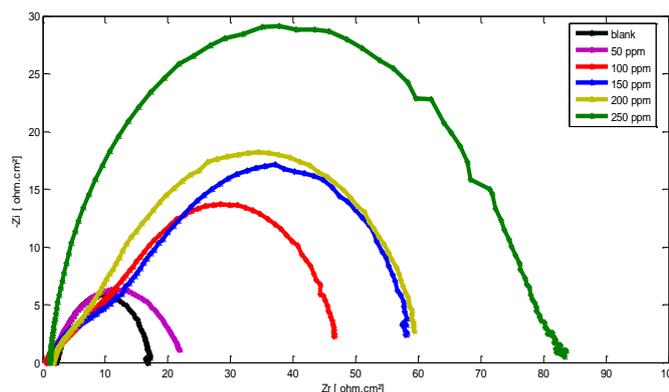


Fig.2: Nyquist plot for carbon steel in 1 M HCl solution with and without various concentrations of the PIL inhibitor.

CONCLUSION

PIL was prepared based on acrylamide polymers and was examined as corrosion inhibitor by EIS technique. EIS measurement exhibited that the synthesized PIL inhibitor has enhanced corrosion protection for carbon steel surface in acidic corrosive media.

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PS-82: ONE-POT, FOUR COMPONENT SYNTHESSES OF 4,6-DISUBSTITUTED 3-CYANO-PYRIDINE-2-ONES WITH ANTICIPATED BIOLOGICAL ACTIVITY

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ABSTRACT: This study reports a simple and appropriate for the synthesis of substituted pyridines by the one-pot multicomponent reaction. A series of 4,6-disubstituted-2-oxo-1,2-dihydropyridine-3-carbonitriles **3a-n** was obtained by refluxing the aromatic (aldehydes **1** and ketones **2**) in the presence of ethyl cyanoacetate and ammonium acetate in *n*-butanol as a solvent. The short reaction time with ease the reaction procedure and clean process makes this method one of the most effective methods for the synthesis of this class of compounds.

Keywords: One-pot synthesis, Multicomponent reactions, Pyridine-3-carbonitrile

INTRODUCTION

Multicomponent reactions making several bonds in a single interaction and it was one of the most powerful emerging synthetic tools for the creation of molecular diversity and complexity. They also have advantages in user and environmental friendliness because of the step reduction and atom economy associated with their use [1]. The pyridine skeleton is found in large naturally occurring compounds and also in over 700 existing drugs having various biological activities [2, 3]. Recent investigations of biological activities presented that pyridinone derivatives with unsaturated substituents have valuable properties and display a variety of biological activities. In particular, they can be used for inhibiting or treating a pathological condition or disorder linked to or mediated by a protein kinase in a mammal, or as positive allosteric modulators of MGLur-2 receptors [4–6]. 3-Cyano-2-pyridones reveals interesting anticancer activity due to their ability to interfere with different types of biological targets (e.g. PDE₃, PIM₁ Kinase and Survivin protein) [7].

OBJECTIVES

Find a simple method for synthesis of 4,6-disubstituted 3-cyano-2-pyridone with expected biological activity.

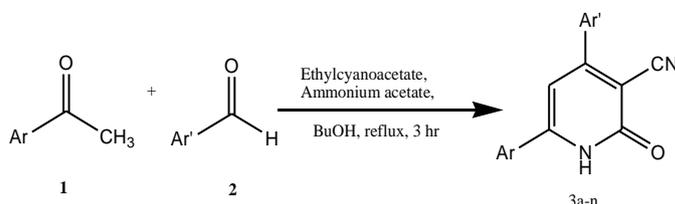
METHODS

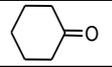
Synthesis of 2-oxo-4,6-diphenyl-1,2 dihydropyridine-3-carbonitrile derivatives (**3a-n**)

Reflux 0.01 mol of aromatic aldehydes, ketones, ethyl cyanoacetate and 0.08mol ammonium acetate in 20 ml *n*-butanol for 3 h, the obtained precipitate was filtered and washed with ethanol.

RESULTS & DISCUSSION

The structure of compound **3a** was elucidated from ¹H NMR, which showed singlet signal at 6.84 ppm for the proton of the pyridinone ring, multiplet signal between 7.57 ppm and 7.91 ppm refer to the aromatic protons, singlet signal at 12.77 ppm for NH - ring proton.



3 a-n	Ar	Ar'
a	H	H
b	m-NH ₂	H
c	p-NH ₂	H
d	p-Br	H
e	p-OCH ₃	H
f		H
g	H	p-OCH ₃
h	H	p-NO ₂
i	H	m-OCH ₃
j	H	p-N(CH ₃) ₂
k	H	
l	p-Cl	m-Cl
m	p-Cl	p-OCH ₃
n	m-NH ₂	p-OCH ₃

5- CONCLUSION:

We reported here an efficient method for synthesis of 2-pyridinone from different aromatic aldehydes and ketones for providing necessary conditions. The ease of experiment procedure makes this method more attractive for synthesizing many of derivatives.

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PS-83: SYNTHESIS OF NEW 3-CYANO-4,6-DIPHENYL-2-SUBSTITUTED PYRIDINE DERIVATIVES

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ABSTRACT: *This study deals with the synthesis of new pyridinone derivatives linked with other heterocycles. The pyridinone 1 was alkylated by alkylating agents in the presence of K_2CO_3 . The hydrazide 5 was obtained from hydrazinolysis of ethyl ester 4. The hydrazide 5 was cyclized to 1,3,4-oxadiazolethione 6 by reaction with CS_2 and phenyl semicarbazide, thiosemicarbazide 7, 8 by reaction with phenyl isocyanate, phenyl isothiocyanate respectively.*

KEYWORDS: *Pyridine, Alkylation, The hydrazide, Cyclized*

INTRODUCTION

Pyridine is heterocyclic compounds found in various therapeutic agents. Polyfunctional pyridines are highly reactive reagents that have been used widely in heterocyclic synthesis [1–4] and that possess biological and pharmacological activity [5–7]. Substituted pyridines are an important class of compounds in organic synthesis [8]. The structural of substituted pyridines is often found in natural products, biological activities compound, and functional materials [9]. Substituted pyridines are usually prepared to start from halo- or metallated pyridyl compounds. However, this method is commonly had problems and the formation of by-products. Different pyridine derivatives are well known to possess a group of physiological activities, such as anticancer, muscle relaxant, hypnotic, anti-inflammatory, diuretic, and antihypertensive activities [10–13].

OBJECTIVES

Synthesis and characterization of some new heterocyclic compounds containing pyridinone and 1,3,4-oxadiazolethione or phenyl semicarbazide or thiosemicarbazide.

METHODS

Compound **1** was alkylated by alkylating agents (benzyl bromide, phenacyl bromide and ethyl chloroacetate) in the presence of K_2CO_3 and acetone under reflux to produce **2**, **3** and **4**. Hydrazinolysis of **4** afforded the hydrazide **5** which was cyclized to 1,3,4-oxadiazolethione **6** by its reaction with carbon disulfide in ethanol containing aq. KOH then acidification. The reaction of hydrazide **5** with phenyl isocyanate and phenyl isothiocyanate afforded the semicarbazide **7** and thiosemicarbazide **8** respectively (Scheme 1).

RESULTS & DISCUSSION

The structures of **1–8** were determined by 1H NMR. The chemical shifts for the unreacted pyridine protons in **1–8** are found as: singlet signal at 7.33 ppm for the proton of pyridine ring, multiplet signal between 7.57 ppm and 8.27 ppm refer to the aromatic protons. 1H NMR of compound **1** appears singlet signal at 12.77 ppm for NH - ring proton. Benzylated pyridine **2** appears singlet signal at 5.19 ppm for the benzyl methylene protons and for compound **3** appears singlet signal at 6.03 ppm for methylene protons. The ester **4** appears the ethoxy protons (CH_3CH_2O) as triplet and quartet at 1.20 and 4.18 ppm, In addition to a singlet signal at 5.18 ppm for the methylene of $O-CH_2$. The hydrazide **5** appears two singlet signals at 4.3 and 9.39 ppm for $-NHNH_2$. The structure of **6** was assigned by 1H NMR, which appears singlet signal at 14.64 ppm for NH of oxadiazolethione. The structures **7**, **8** confirmed from the three NH signals that appeared around 5.19, 9.57 and 10.36 ppm.

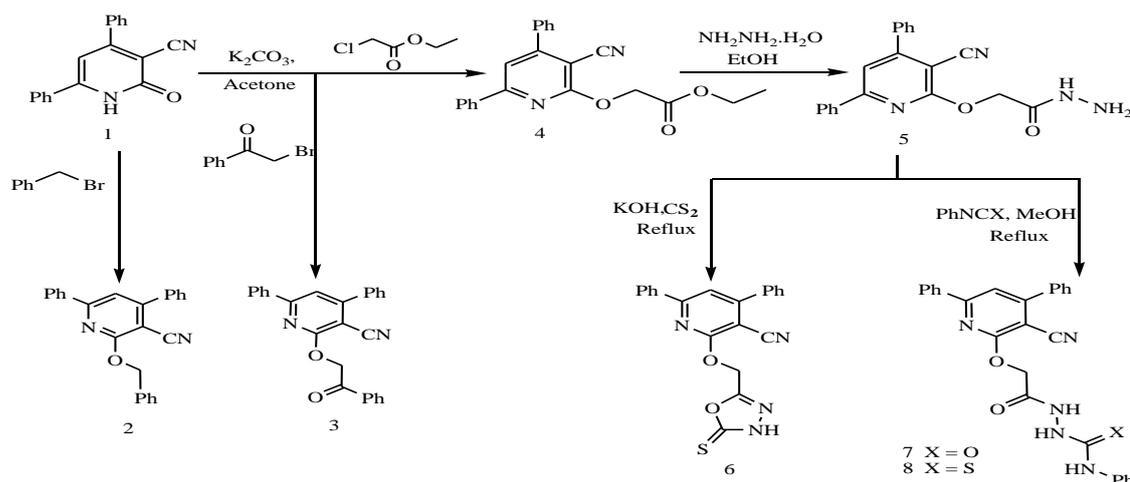
CONCLUSION

Alkylation of compound **1** afforded **2**, **3** and **4**. The hydrazide **5** was used for the synthesis of new heterocyclic system containing oxadiazolethione **6** and semicarbazide **7** or thiosemicarbazide **8**, the structures of newly synthesized compounds were confirmed from NMR spectroscopy.

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Scheme 1

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PS-84: NEW FLUORESCENT PROBE FOR DETECTION OF CIPROFLOXACIN DRUG IN WASTEWATER OF SUEZ CANAL UNIVERSITY HOSPITAL

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ABSTRACT: A new method has been developed for detection of ciprofloxacin drug in wastewater of suez canal university hospital at very low concentrations using fluorescent probe, this fluorescent probe composed of two fluorescent lanthanide complexes Eu(III)-(PDCA)_2 and Tb(III)-(PDCA)_2 with limit of detection $1.7 \times 10^{-7} \text{ molL}^{-1}$ and $7.9 \times 10^{-8} \text{ molL}^{-1}$ respectively which considered as rapid, sensitive and simple method.

KEYWORDS: Ciprofloxacin, fluorescent probe, Hospital wastewater

INTRODUCTION

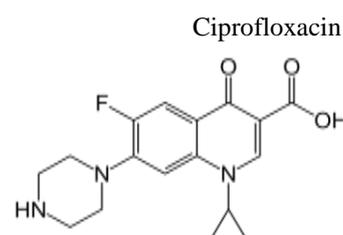
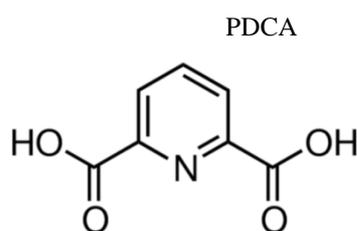
Ciprofloxacin (CIP) is a second-generation synthetic chemotherapeutic antibiotic of the fluoroquinolone drug class. This drug kills bacteria by interfering with enzymes that stop DNA and protein synthesis. It is a proven treatment for many bacterial infections such as bone and joint infections, it the most widely used quinolones in hospitals. Fluoroquinolones are partially metabolized and excreted as unchanged drug or active metabolite. They initially present in water bodies, rapidly transfer into the soil and sediments, due to strong adsorption on minerals and organic matter. Ciprofloxacin, for example, is 65% excreted in urine and only 25% in the feces. Ciprofloxacin (a fluoroquinolone) concentrations in hospital wastewater were present above the predicted no-effect concentration (PNEC) of 3–10 mg/L.

OBJECTIVES

To assess the concentration of ciprofloxacin (CIP) in hospital wastewater using relatively rapid, reliable, sensitive and simple method by lanthanide complexes (Eu(III)-PDCA complex and Tb(III)-PDCA complex) and compare the results obtained of the two complexes.

METHODS

Using lanthanide complexes by measuring the variation in the intensity of the fluorescence of the complex with the concentration of the studied analyte (CIP)

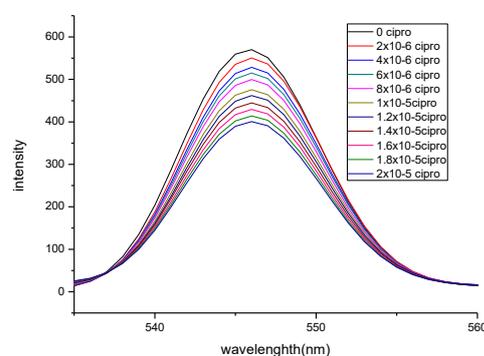
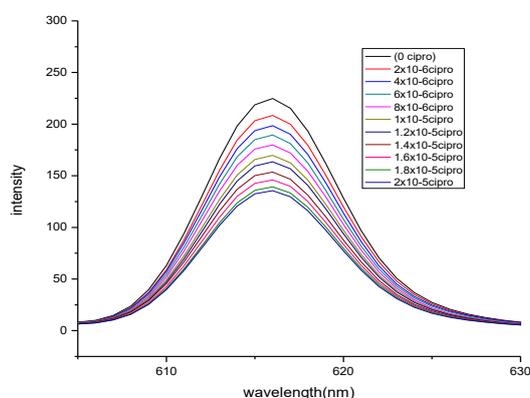


RESULTS & DISCUSSION

The interaction was between Ln(III)-PDCA complex (concentrations are 2×10^{-5} for Ln(III) and 4×10^{-5} for PDCA where Ln(III) means Eu(III) or Tb(III)) with ciprofloxacin in Tris-HCL buffer (pH = 7.4) in the concentration range 2×10^{-6} to $2 \times 10^{-5} \text{ molL}^{-1}$. The data are fitted in Stern-Volmer equation where the quenching constant values are 3.34×10^4 and $2.17 \times 10^4 \text{ mol}^{-1}\text{L}$ in case of Eu(III)-(PDCA)_2 complex and Tb(III)-(PDCA)_2 complex respectively. The limit of detection of CIP are calculated from the slope of the calibration straight line, where they are $1.7 \times 10^{-7} \text{ molL}^{-1}$ and $7.9 \times 10^{-8} \text{ molL}^{-1}$ respectively. The binding constant values between CIP and Eu(III)-(PDCA)_2 complex and Tb(III)-(PDCA)_2 complex are calculated using Modified-Stern Volmer equation and they are found to be 1.75×10^4 and 4.99×10^4 respectively.

Eu(III)-(PDCA)₂ complex

...

Tb(III)-(PDCA)₂ complex

Fluorescence spectra for the interaction of Eu (III)-(PDCA)₂ and Tb(III)-(PDCA)₂ complexes with ciprofloxacin(CIP)

CONCLUSION

Lanthanide complexes can be used as a fluorescent probe for detection of CIP where the interaction of CIP with the probe is accompanied by quenching of the fluorescence intensity of the complex, the probe can detect very low concentrations of the analyte (CIP) around the order of 10^{-8} molL⁻¹.

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PS-85: NEW PROBE FOR FLUORESCENCE DETECTION OF chlorfenvinphos

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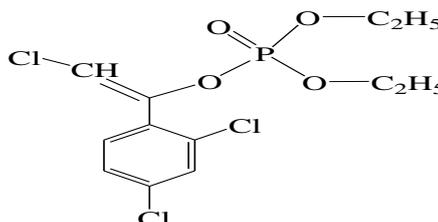
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ABSTRACT: Polymethyl methacrylate-Tb(III)-Methyl-3-allyl-2-hydroxybenzoate was tested as solid doped polymer for fluorescence detection of chlorfenvinphos. Luminescence was excited at 320 nm and emission was collected at 545nm. The detection of chlorfenvinphos has been carried out in methanol. The fluorescence intensity of [PMMA-Tb(III)-(L)₃] solid complex probe decreased regularly with gradual increase in the concentration of chlorfenvinphos (3×10^{-9} to 4×10^{-8} mol L⁻¹) indicating the possible interaction between the doped PMMA with chlorfenvinphos. The binding constant equals 3.62×10^8 mol⁻¹ L at 25°C. The limit of detection (LOD) for [PMMA-Tb(III)-(L)₃] solid probe with chlorfenvinphos was found to be 4.79×10^{-10} mol L⁻¹ at 25°C. A luminescence-based method for detecting of chlorfenvinphos utilizing the [PMMA-Tb(III)-(L)₃] solid complex probe has been developed which impel them a promising probe for determination of chlorfenvinphos.

KEYWORDS: Probe, Pesticides, Stoichiometry, Luminescence, chlorfenvinphos

INTRODUCTION:

Environmental pollution by organic chemicals is one of the world's main challenges to sustainable development. Many of these organic compounds enter the environment and cause air, water, and soil dessecration. Pesticide exposition can cause a variety of adverse health effects, ranging from simple agitation of the skin and eyes to more severe effects such as affecting the nervous system, simulating hormones causing reproductive problems, and also causing cancer. Chlorfenvinphos (P1) is categorized as a tremendously hazardous substance in the United States as defined in the U.S. It acquires the following structure.



The toxicity of chlorfenvinphos is mainly caused by its suppression of cholinesterase activity. Chlorfenvinphos reacts with the acetylcholine binding sites of enzymes that hydrolyze acetylcholine, thereby preventing their catalysis of this reaction.

OBJECTIVES

This study aims to search for novel polymeric compounds could be used for monitoring of chlorfenvinphos.

METHODS:

Polymethyl methacrylate-Terbium(III)-Methyl-3-allyl-2-hydroxybenzoate was tested as solid doped polymer for fluorescence detection of chlorfenvinphos. Luminescence spectra were acquired on a Jasco FP-6300 spectrofluorometer with 150 W xenon lamp source for excitation and quartz cells of 1cm path length. Luminescence was excited at 320 nm and emission was collected at 545nm. The detection of chlorfenvinphos has been carried out in methanol.

RESULTS & DISCUSSION

The fluorescence intensity of [PMMA-Tb(III)-(L)₃] solid complex probe decreased regularly with gradual increase in the concentration of chlorfenvinphos (3×10^{-9} to 4×10^{-8} mol L⁻¹) indicating the possible interaction between the doped PMMA with chlorfenvinphos. The most likely reason for such fluorescence quenching is due to ground state [PMMA-Tb(III)-(L)₃]-chlorfenvinphos complex formation or collisional quenching. The binding constant equals 3.62×10^8 mol⁻¹ L at 25°C. The limit of detection (LOD) for [PMMA-Tb(III)-(L)₃] solid probe with chlorfenvinphos was found to be 4.79×10^{-10} mol L⁻¹ at 25°C. Figure 1 shows the **calibration** plot for the effect of chlorfenvinphos concentration on the emission spectra of solid polymethyl methacrylate polymer doped with [Tb(III)-(L)₃] complex, weight of 5mg particle size (6.40 nm) and at 25°C. Lineweaver-Burk plot for interaction of doped [PMMA-Tb(III)-(L)₃] solid probe (size = 6.40 nm) weight of 5mg, with chlorfenvinphos at 25°C shown in Figure 2.

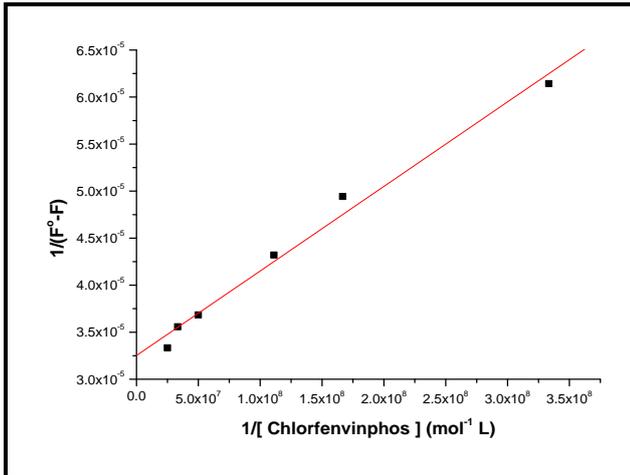


Fig. 1

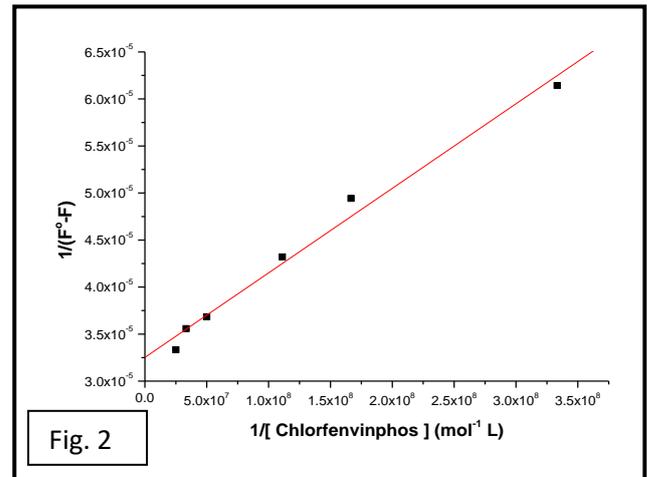


Fig. 2

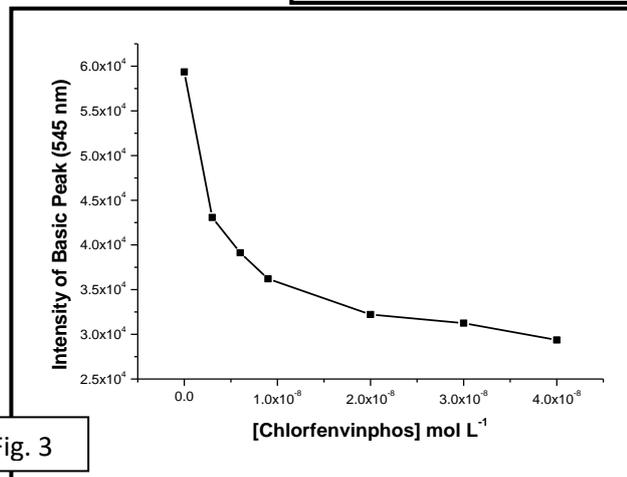


Fig. 3

CONCLUSION

A luminescence-based method for detecting of chlorfenvinphos utilizing the [PMMA-Tb(III)-(L)₃] solid complex probe has been developed which impel them a promising probe for determination of chlorfenvinphos.

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PS-86: a nOVEL LUMINESCENT Polymethyl methacrylate-TERBIUM-methyl-3-allyl-2-hydroxybenzoate FOR FLUORESCENCE SENSING OF cadmium

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ABSTRACT: Fluorescence sensing of cadmium was carried out using polymethyl methacrylate with Terbium (III)-methyl-3-allyl-2-hydroxybenzoate [PMMA-Tb(III)-(L)₃] as solid doped polymer in methanol. The F⁰/F ratio was found to be increased linearly with the cadmium concentration and a linear regression equation following Stern–Volmer relation was obtained. The fluorescence intensity of [PMMA-Tb(III)-(L)₃] solid complex probe decreased regularly with gradual increase in the concentration of cadmium (3x10⁻⁹ - 3x10⁻⁸ mol L⁻¹) indicating the possible interaction between the doped PMMA with cadmium. The binding constant (K_{LB}) for the concerned [PMMA-Tb(III)-(L)₃] solid probe with cadmium equals to 1.2 x 10⁸ mol⁻¹ L at 25°C. The detection limit was found to be 2.94 x 10⁻⁹ mol L⁻¹ at 25°C. A simple rapid, luminescence-based method for determination of cadmium using the [PMMA-Tb(III)-(L)₃] solid complex probe has been developed which make them promising probes for monitoring of cadmium.

KEYWORDS: Polymeric compounds, Luminescence spectra, Quenching, Emission, Cadmium.

INTRODUCTION

Several regulatory agencies classified cadmium compounds as human carcinogens. Cadmium is a severe pulmonary and gastrointestinal irritant, which can be fatal if inhaled or ingested. After acute ingestion, symptoms such as abdominal pain, nausea, vomiting, muscle cramps, vertigo, loss of consciousness and convulsions usually appear within 15 to 30 min. Chronic inhalation of cadmium causes pulmonary adenocarcinomas. Acute cadmium ingestion can also cause gastrointestinal tract erosion, hepatic or renal injury and coma, depending on the route of poisoning. It can also cause prostatic proliferative lesions including adenocarcinomas, after systemic or direct exposure.

OBJECTIVES

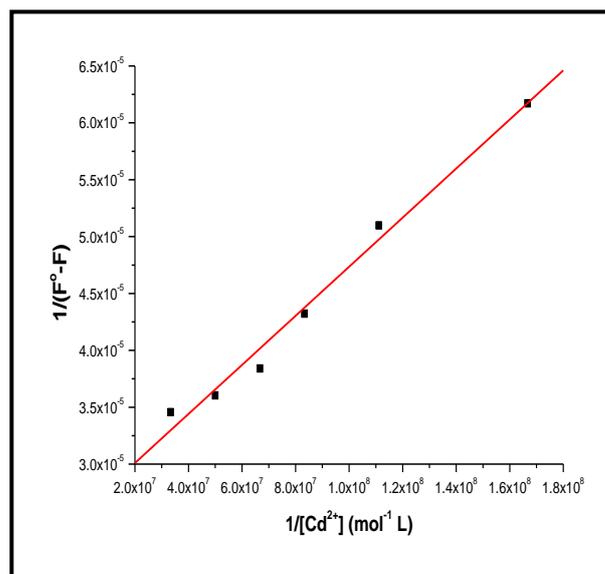
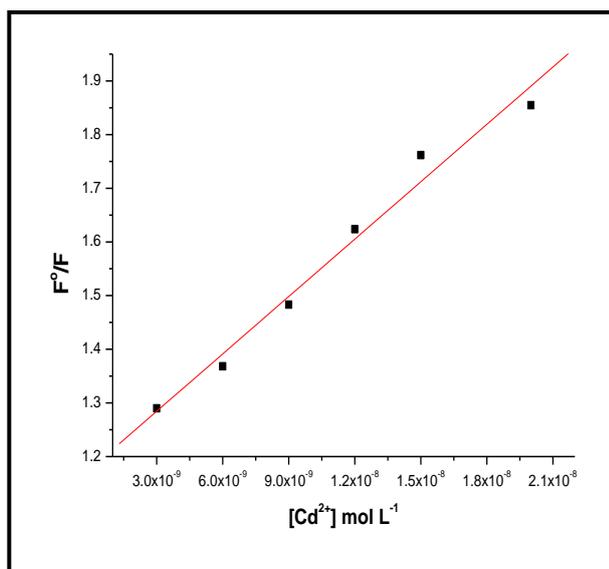
This study aims to search for new polymeric compounds could be used for monitoring of cadmium.

METHODS

Fluorescence sensing of cadmium was carried out using polymethyl methacrylate with Terbium (III)-methyl-3-allyl-2-hydroxybenzoate [PMMA-Tb(III)-(L)₃] as solid doped polymer. The detection of cadmium has been carried out in methanol. The time-resolved luminescence intensities were measured in a microtiter plate reader. Luminescence time –resolved measurements in microtiter plates (MTP) were performed using 96-well flat bottom colorless microplates. The instrument is equipped with the high energy xenon flash lamp. The instrumental parameters of the microtiter plate (MTP) reader were as follows: excitation filter of 320±10 nm and emission filter of 545±10 nm, 10 flashes per well, and the time gap between move and flash 100ms.

RESULTS & DISCUSSION

The F⁰/F ratio was found to be increased linearly with the cadmium concentration and a linear regression equation following Stern–Volmer relation was obtained. The relation between cadmium concentrations [Cd²⁺] and the ratio F⁰/F for each addition of cadmium is plotted in Figure 1, where F⁰ and F were represented the fluorescence intensities of small [PMMA-Tb(III)-(L)₃] in absence and presence of cadmium. The Stern–Volmer quenching constant (K_{sv}) was about 3.56 x 10⁷ mol⁻¹ L at 25°C for small [PMMA-Tb(III)-(L)₃] solid probe. Lineweaver–Burk equation was used to calculate the binding constant (K_{LB}) (Figure 2). Assuming a 1:1 stoichiometry ratio of the interaction between the complex probe and cadmium, the quenching data examined using the double reciprocal plot through which the binding constant were calculated as the ratio of the intercept to the slope. The fluorescence intensity of [PMMA-Tb(III)-(L)₃] solid complex probe decreased regularly with gradual increase in the concentration of cadmium (3x10⁻⁹ - 3x10⁻⁸ mol L⁻¹) indicating the possible interaction between the doped PMMA with cadmium. The binding constant (KLB) for the concerned [PMMA-Tb(III)-(L)₃] solid probe with cadmium equals to 1.2 x 10⁸ mol⁻¹ L at 25°C. The detection limit was found to be 2.94 x 10⁻⁹ mol L⁻¹ at 25°C. The most likely reason for such fluorescence quenching is due to ground state [PMMA-Tb(III)-(L)₃]-Cd²⁺ complex formation or collisional quenching.



CONCLUSION

A simple rapid, luminescence-based method for determination of cadmium using the [PMMA-Tb(III)-(L)₃] solid complex probe has been developed which make them promising probes for monitoring of cadmium.

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PS-87: NEW LUMINESCENT Probe For Detection Of Acenaphthene

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ABSTRACT: Acenaphthene as one of the polycyclic aromatic hydrocarbons (PAHs) pollutants is estimated using fluorescent probe Eu(III)-C1 binary complex, where the binding constant of acenaphthene with the probe equals to $2.30 \times 10^5 \text{ mol}^{-1} \text{ dm}^3$ while quenching constant is $7.67 \times 10^3 \text{ mol}^{-1} \text{ dm}^3$ and the limit of detections is $1.11 \mu\text{mol dm}^{-3}$

KEYWORDS: Polycyclic aromatic hydrocarbons (PAHs), Acenaphthene, Luminescent probe

INTRODUCTION

Polycyclic aromatic hydrocarbons (PAHs) are not synthesized chemically for industrial purposes. Many of them have a few industrial uses. They are predominately used as intermediaries in pharmaceuticals, agricultural products, photographic products, thermosetting plastics, lubricating materials, and other chemical industries [1]. Polycyclic aromatic hydrocarbons (PAHs) are a group of rebellious, bioaccumulative, semi-volatile organic pollutants that are widespread in the environment and enter environmental matrices via natural (such as volcanoes) and anthropogenic sources such as industrial activities [2].

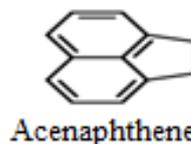
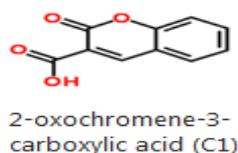
Several approaches and strategies including physical, chemical and biological strategies have been developed, optimized and utilized to improve PAH taint and manage polluted sites. Some of the available physical and chemical (conventional) techniques have been shown to have significant disadvantages as technological complexity, high cost and a general lack of acceptance so there is need for new methods and techniques for detection and assessment of such pollutant. For this study Acenaphthene is chosen, the general uses of it are: manufacture of pigments, dyes, plastics, pesticides and pharmaceuticals, the selection of acenaphthene as an example compound, because of its relatively simple structure and solubility capacity in organic solvents such as benzene which allowed easier simulation during laboratory experiments. Acenaphthene is a compound consisting of naphthalene with an ethylene bridge connecting positions 1 and 8[3].

OBJECTIVES:

Detection of Acenaphthene pollutant by using lanthanide complex Eu(III)-C1 as a luminescent probe which provide an environmentally friendly, fast and simple approach.

METHODS:

Using Luminescent probe (lanthanide complex Eu(III)-C1) by measuring the variation in the intensity of the fluorescence of the probe with the concentration of the studied poly cyclic aromatic hydrocarbon (Acenaphthene)



RESULTS & DISCUSSION

The interaction between Eu(III)-C1 complex as the luminescent probe where the concentration of the complex is as follows $1 \times 10^{-5} \text{ mol dm}^{-3}$ for [Eu(III)] and $2 \times 10^{-5} \text{ mol dm}^{-3}$ for [C1] in methanol with acenaphthene in benzene in the concentration range from 1 to $6 \mu\text{mol dm}^{-3}$. For calculating the bimolecular quenching constant K_{SV} the data is fitted in Stern-Volmer equation and it equals $7.67 \times 10^3 \text{ mol}^{-1} \text{ dm}^3$ and limit of detection is calculated from the slope of the calibration straight line which is $1.11 \mu\text{mol dm}^{-3}$. To calculate the binding constant of acenaphthene with the concerned complex Lineweaver-Burk equation is used where the binding constant is $2.30 \times 10^5 \text{ mol}^{-1} \text{ dm}^3$.

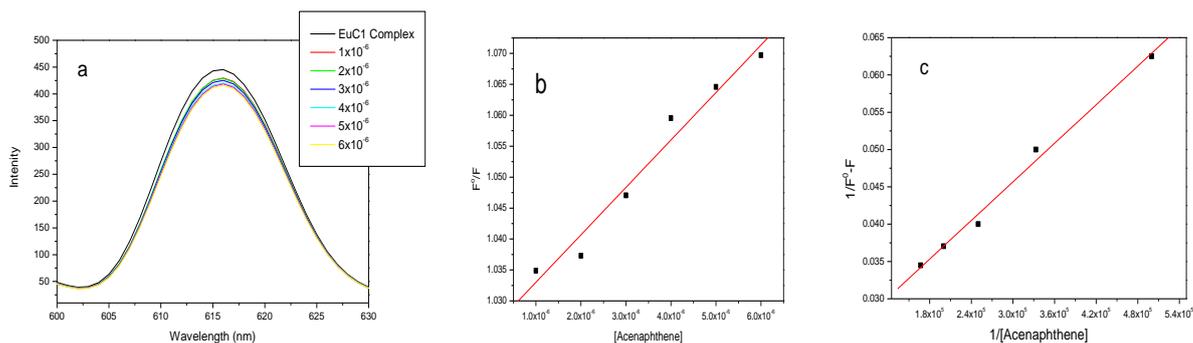


Fig.(1): Fluorescence spectra (a), calibration plots: Stern-Volmer (b) and Lineweaver-Burk relations (c)

for the interaction of Eu(III)-C1 binary complex in Methanol at $\lambda_{ex} = 334 \text{ nm}$, $\lambda_{em} = 616 \text{ nm}$ with Acenaphthene at 25°C.

CONCLUSION

Lanthanide complex can be used as luminescent probe for detection of Acenaphthene where the interaction of Acenaphthene with the probe is accompanied by quenching of fluorescence intensity of the complex. The studied probe can detect Acenaphthene in low concentrations around $10^{-6} \text{ mol dm}^{-3}$.

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Poster Session (S3)



PS-88: NEW LUMINESCENT Probe For Detection Of Nickel

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ABSTRACT: Nickel as one of the important heavy metals is estimated using fluorescent probe Eu(III)-C1 binary complex, where the binding constant of Ni(II) with the probe equals to $3.67 \times 10^5 \text{ mol}^{-1} \text{ dm}^3$, while quenching constant is $2.35 \times 10^5 \text{ mol}^{-1} \text{ dm}^3$ and the limit of detections is $1.34 \times 10^{-7} \text{ mol dm}^{-3}$.

Keywords: Heavy metals, Nickel, Luminescent probe

INTRODUCTION

Heavy metals are one the most intricate pollutants as they are non-biodegradable and can accumulate in environmental systems. In food chain systems, they will ultimately bring about food chemical contamination which can result in various diseases which threatens public health as well as public welfare [1]. Recently, the rapid growth of global economy and associated scientific development result in increased environmental interests [2].

Nickel (Ni) is a naturally occurring element that is present in soil, water, air, and biological material. Though Ni is everywhere and it is crucial for the function of lots of living organisms, concentrations in some areas from both naturally varying levels and anthropogenic release may be poisonous to living organisms and exposure to high levels of nickel ion can cause many diseases. In humans, Ni is known to cause liver, kidney, spleen, and brain damage on severe exposure [3]. Nickel has been classified as carcinogen by various institutions and health agencies worldwide [4]. Considering this danger, many strategies have been established to control their levels in various systems [5].

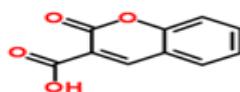
Chiefly, to minimize and block pollution by heavy metals, detection and monitoring of heavy metals are fundamental stages. Subsequently, precise detection and large-scale control of heavy metals contamination in the environment is very important.

OBJECTIVES

To assess the concentration of Nickel as one of toxic heavy metals using relatively rapid, reliable, sensitive and simple method by Luminescent probe europium complex Eu(III)-C1 moreover provide an environmentally friendly approach to detect Ni(II).

METHODS

Using Luminescent probe Eu(III)-C1 lanthanide binary complex by measuring the variation in the intensity of the probe fluorescence with the concentration of the studied heavy metal Nickel Ni(II).



2-oxochromene-3-carboxylic acid (C1)

RESULTS & DISCUSSION

The interaction between Eu(III)-C1 binary complex as the luminescent probe with Nickel is studied where the concentration of the complex is as follows $1 \times 10^{-5} \text{ mol dm}^{-3}$ for [Eu(III)] and $2 \times 10^{-5} \text{ mol dm}^{-3}$ for [C1] in methanol and Ni(II) in Ethanol with the concentration range from 0.2 to $1.1 \mu\text{mol dm}^{-3}$. For calculating the bimolecular quenching constant K_{SV} the data is fitted in Stern-Volmer equation and it equals $2.35 \times 10^5 \text{ mol}^{-1} \text{ dm}^3$ and limit of detection is calculated from the slope of the calibration straight line which is $1.34 \times 10^{-7} \text{ mol dm}^{-3}$. To calculate the binding constant of nickel with the concerned complex Lineweaver-Burk equation is used where the binding constant is $3.67 \times 10^5 \text{ mol}^{-1} \text{ dm}^3$.

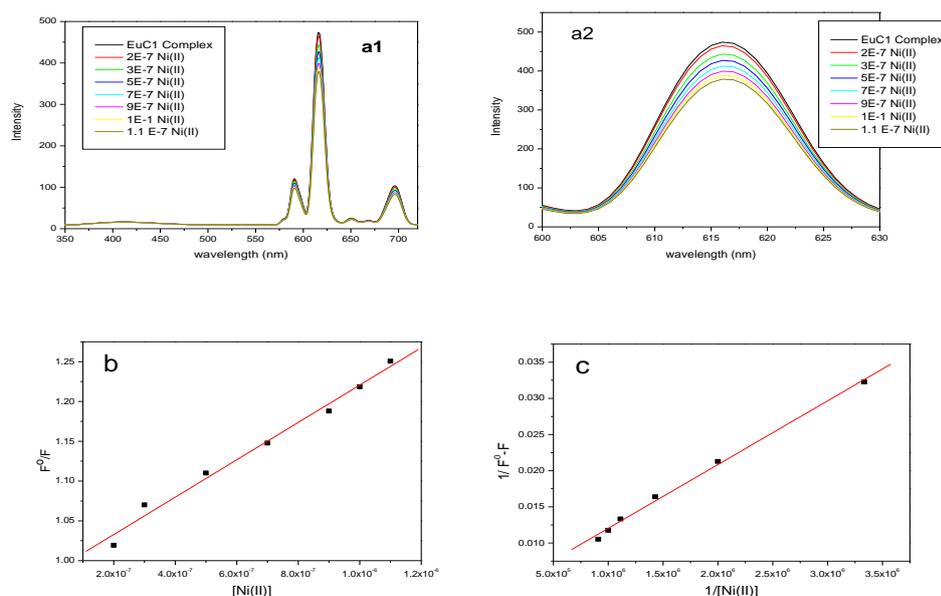


Fig.(1): Fluorescence spectra for the effect of concentration of Nickel(II) on the emission spectra of Eu(III)- binary complex (a1,2) , calibration plots: Stern-Volmer (b) and Lineweaver-Burk relations (c)

for the interaction of Eu(III)-C1 binary complex in Methanol at $\lambda_{\text{exc}} = 334 \text{ nm}$, $\lambda_{\text{em}} = 616 \text{ nm}$ with Ni(II) in the concentrations from 0.2 to $1.1 \mu\text{mol dm}^{-3}$ at 25°C .

CONCLUSION

Lanthanide complex can be used as luminescent probe for detection of Ni(II) where the interaction of Ni(II) with the probe is accompanied by quenching of fluorescence intensity of the complex. The studied probe can detect nickel in low concentrations around $10^{-7} \text{ mol dm}^{-3}$.

ACKNOWLEDGEMENTS

Gratitude to Prof Hassan Azab (may Allah have mercy on him) for using the Chemo and Biosensors Lab facilities and equipment. Deep special thanks to my research advisors for their continuous support, knowledge and guidance.

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PS-89: ASSESSMENT OF THE MYCOLOGICAL AIR QUALITY IN INTENSIVE CARE UNITS IN SUEZ CANAL UNIVERSITY HOSPITAL

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ABSTRACT: One year seasonal survey of outdoor and indoor air quality of patient rooms at Suez Canal University Hospital units was conducted, including; Liver Care Unit, Heart and Chest Care Unit, Intensive Care Unit (ICU), and Cardio Care Unit (CCU). Samples were collected by plate settling technique to assess fungal diversity and frequency of airborne fungi in these units. The highest indoor and outdoor viable counts were obtained during winter and autumn seasons, in the four studied units. In winter the counts from outdoor and indoor air from liver care were 2158 and 2985 CFU/m³, respectively. The most dominant indoor species was *Cladosporium sp* (32%) and the most predominant outdoor species were *Alternaria* (37%). The out and indoor air counts from heart and chest unit counts were 1256 and 1570 CFU/m³, respectively and the most common out and indoor species was *Cladosporium sp* (40%). The viable count of outdoor samples of both ICU&CCU was 2514 CFU/m³, while the viable counts of the indoor samples of both units were 1492 and 1569 CFU/m³, respectively. The outdoor and indoor total viable counts from liver care unit during autumn season were 3614 and 2121 CFU/m³, respectively and the most dominant out and indoor species were *Cladosporium sp* (74%). From Heart and chest unit the out and indoor counts were 2668 and 1492 CFU/m³, respectively and the most predominant out and indoor species was *Cladosporium sp* (74%). The viable count from outdoor samples of ICU&CCU was 2433 CFU/m³, while the indoor samples of both units yielded 2278 and 1728 CFU/m³, respectively. This study shows the total count and diversity of air mycoflora in the vital units, thus the infection control unit must perform more hygiene actions to reduce the contamination of air in these units.

KEYWORDS: Air mycoflora, Air quality, Seasonal variation hospital air contamination.

INTRODUCTION

The airborne microbiota in the hospital environment is formed mainly of filamentous fungi, especially those belonging to the genera *Aspergillus*, *Cladosporium*, *Paecilomyces*, *Penicillium* and *Scopulariopsis* (1, 2). Yeasts have also been recorded in some studies, such as *Candida*, *Rhodotorula*, *Cryptococcus* and *Trichosporon*, (3-7), although there is less understanding about how they remain suspended in the air. All the mentioned genera have been described as potential human pathogens (1), especially the genus *Candida*, which is the main causative agent of hospital fungemia (8). One of the most important factors that affects the distribution of fungi in the air, in quantitative and qualitative terms, is seasonal variation (9).

OBJECTIVES

This study aims to investigate the total count and diversity of indoor and outdoor airborne fungi, in Suez Canal University Hospital vital units including; liver care unit, heart and chest care unit, Intensive Care Unit (ICU) and Cardio Care Unit (CCU), among the four seasons, in an attempt to assess the air quality of the selected units.

METHODS

The present study was conducted in Suez Canal University Hospital in Ismailia. One thousand and eight air samples were collected by plate settling technique during twelve months (January 2017 to January 2018) in daytime for inside and outside the patients rooms of liver care, heart and chest care unit, Intensive care unit (ICU), and Cardio care unit (CCU) in the first and the third week. Plates were opened and exposed to air for 10 minutes, then closed and incubated at 28°C. We used czapek's and Sabouraud agar media for filamentous fungi. After 3-5 days of incubation at 28 °C, all the plates were examined and the colonies were counted, different colonies were identified microscopically (10), in addition, the fungal CFU/m³ air was calculated separately for each different colony observed on the plates from the formula: CFM = a X 78. 6 CFU/m³ where a – the number of fungal colonies grown from the air sample in one cubic metre of the air expressed in terms of the number of colony forming units in one cubic meter (cfu. /m³).

RESULTS & DISCUSSION

The present work was a seasonal survey during one year for air quality at Suez Canal University Hospital, in order to assess fungal diversity and frequency of airborne fungi in these units. A total of 14955 and 10442 CFU/ m³ fungal cells were isolated from the outside and inside air of patient's rooms respectively from the different units in the four seasons. However, it was recorded that, the highest indoor and outdoor viable counts were obtained during winter and autumn seasons, in the four studied units. The outdoor and indoor air fungal counts of liver units in autumn season were 3614 and 2121 CFU/ m³, and the most dominant isolates outdoor and indoor species were *Cladosporium sp* (55%, 74%), respectively.



Also, the viable outdoor air fungal counts from heart and chest unit in autumn season was 2668 CFU/ m³ and the indoor counts obtained during winter and autumn seasons were 1570, 1492 CFU/ m³, respectively and the most dominant isolates from both was *Cladosporium sp* (Figures 3b). In winter, the highest outdoor viable fungal counts were detected in air samples of Intensive care unit (ICU) and Cardio care unit (CCU) in which the counts were 2514 CFU/ m³ and *Penicillium* (Figures 3a) while the highest indoor fungal count was detected in liver care unit (2985 CFU/ m³) (Figures 1&2). The highest viable fungal counts from indoor air in autumn were detected in Intensive care unit (ICU) (2278 CFU/ m³) and the most predominant species *Cladosporium* (74%), while the highest outdoor fungal count was obtained in liver care unit (3614 CFU/ m³) (Figures 1&2).

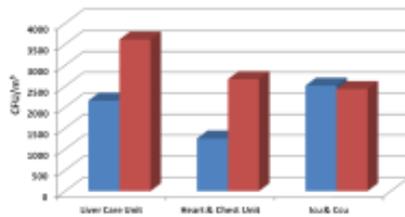


Figure (1): Total fungal viable count of indoor samples in the four studied units, during winter and autumn seasons

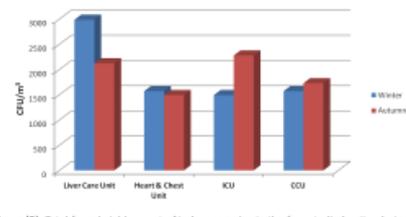


Figure (2): Total fungal viable count of indoor samples in the four studied units, during winter and autumn seasons.

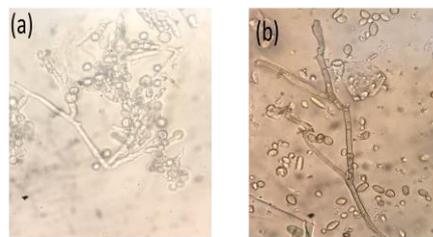


Figure (3): Microscopic examination of *Penicillium sp.* (a) and *Cladosporium sp.* (b), using light microscope (40X).

CONCLUSION

This study clearly indicated that there is a high count of indoor and outdoor air mycoflora in the vital units, in particular during winter and autumn seasons. Thereby, the Infection Control Unit must apply serious hygiene actions to reduce contamination of air in these vital units to reduce the risk of nosocomial infections.

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PS-90: MICROBIOLOGICAL QUALITY OF READY-TO-EAT MEAT MEALS IN ISMAILIA CITY

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ABSTRACT: This study was performed to evaluate the microbiological quality and safety of ready-to-eat meals in Ismailia governorate. Egypt. Sixty samples of ready to-eat meat meals including liver (kibda), hawawshy and shesh-tawook (20 samples each) were randomly collected and examined for microbiological indices. The mean values of total aerobic spore forming microorganisms in the examined liver (kibda) sandwiches, hawawshy and shesh-tawook samples were 3. 14, 2. 5 and 2. 8 cfu/g, respectively. Also, The mean values of *Staphylococcus aureus* counts in the previously mentioned samples were 3. 03, 2. 8 and 2. 9 2. 8 cfu/g, respectively. Total coliform was present with mean values of 16. 12, 6. 8 and 24 cfu/g, in the examined samples, respectively. Total Enterobacteriaceae mean values in the tested samples were 1. 9, 1. 6 and 1. 5 cfu/g, respectively. *Bacillus cereus* mean values were 3. 33, 1. 97 and 2. 6 cfu/g, respectively. Moreover, the mean values of total yeast were 1. 5, 1. 44 and 1. 94 cfu/g in the examined samples, respectively. Total mould was detected with mean values of 2. 26, 2. 04 and 2. 46 cfu/g, respectively. On the other hand, *Salmonellae spp* were not detected in all examined samples.

KEYWORDS: Ready-to-eat meals, Microbiological quality, food contamination, *Staphylococcus aureus*

INTRODUCTION

Ready-to-eat (RTE) foods are popular consumed all over the world including Egypt. The busy and hectic life schedule has opened the way for the fast food industry in most parts of the world. The consumers prefer and appreciated these foods for their unique flavours, convenience, low cost, nutrient value and ready availability for immediate consumption [1]. These foods could easily get contamination with various food-borne pathogens during the preparation through unsafe sources, contaminated raw food items, improper food storage, and poor personal hygiene during preparation. Inadequate cooling and reheating of food items with a prolonged time lapse between preparing and consuming food. Consequently, questions have been raised about the safety and microbiological quality of these meals, since such prepared foods are considered to be susceptible to post-preparation contamination by pathogenic bacteria [2].

OBJECTIVES

This study was conducted to evaluate the microbiological quality of ready to eat meat meals in Ismailia governorate.

METHODS

I. Collection and preparation of the samples: 60 samples of ready to eat meat meals, 20 each of (shesh-tawook, hawawshy and liver (kibda) sandwiches were collected from different vending shops in Ismailia province, Egypt. The samples were transferred immediately without delaying to the laboratory under complete aseptic conditions in clean ice box where prepared for the bacteriological examination. II. Preparation of the sample: was done according to [3]. III. Microbiological evaluation: 1. Determination of total aerobic spore forming count, total coliform, *staphylococcus aureus* count, total yeast and mould count [3], 2. Detection of *Salmonellae* [3], 3. Determination of total *Enterobactericea* count and *Bacillus cereus* [4].

RESULTS

It is evident from the results that the mean values of total aerobic spore forming in the examined samples liver, hawawshy and shesh-tawook were 3. 14, 2. 5 and 2. 8 cfu/g, respectively, these results are similar to previous study [5] but lower than [6], *Staphylococcus aureus* mean values were 3. 03, 2. 8 and 2. 9 cfu/g, respectively and it was detected by other authors [6, 7 & 8]. Total coliform mean values were 16. 12, 6. 8 and 24 cfu/g, respectively and the obtained results seem to be higher than [7 & 8]. Total *Enterobacteriaceae* mean values were 1. 9, 1. 6 and 1. 5 cfu/g, respectively and these obtained results seem to be similar to results were reported by [6, 9] and lower than [10]. *Bacillus cereus* mean values were 3. 33, 1. 97 and 2. 6 cfu/g, respectively and it detected by other author [11]. Total yeast mean values were 1. 5, 1. 44 and 1. 94 cfu/g, respectively and total mould mean values were 2. 26, 2. 04 and 2. 46 cfu/g, respectively and it similar to results were obtained by [7]. On contrary, *Salmonellae spp* were not detected in all examined samples and this agree with some authors [12, 13 &



14]. According to Gilbert [15], 20% and 40% of liver and shesh-tawook samples were unsatisfactory for *Staphylococcus aureus* count.

CONCLUSION

These results demonstrate that ready-to eat street meat meals sandwiches sold in Ismailia governorate constitutes slightly hazard to human health. This is due to high bacterial load of Staph. aureus. While there is still no microbial guideline value for Egyptian RTE foods, the adoption of the published guideline values of center of food (is U. S. environmental, non-profit organization, based in Washington, D. C. aim to protect human health and the environment) safety may be appropriately used until more comprehensive guideline values for Egyptian RTE foods are be established.

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PS-91: PROTECTIVE EFFECT OF *ARTEMISIA SANTONICA* AND *ORIGANUM SYRIACUM* EXTRACTS IN MICE EXPERIMENTALLY INFECTED WITH *SCHISTOSOMA MANSONI*: PARASITOLOGICAL AND HISTOPATHOLOGICAL ASPECTS

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ABSTRACT: schistosomiasis is one of the most important communicable diseases that affecting human. There is an increase in searching for antiparasitic drugs from natural sources, especially from plants. The present study was conducted to evaluate the antiparasitic effects of crude *Artemisia santonica* and *Origanum syriacum* and their aqueous (the polar constituents of the crude extract), hexane (the non-polar constituents of the crude extract) extracts against *Schistosoma. mansoni* infected mice. Male BALB/c infected mice (n=49) were grouped into 7 groups and treated with the crude extract of each plant and their aqueous and hexane extracts for 14 consecutive days. After the last dose, all animals were sacrificed to evaluate the efficacy of plant extract in the treatment of infection through parasitological, and histopathological examinations. There was a reduction in the total worm burden and egg load in the intestine and the liver. The oogram pattern showed a significant reduction in number of viable mature eggs and increasing in number of dead ova with treating with crude and aqueous extracts of both plants. The hepatocellular necrosis and hemorrhage diminished greatly around granulomas area in all treated infected mice. In conclusion, the crude, aqueous and hexane extracts of both plants may be considered as effective curative anti-schistosomal agents as they have schistosomicidal and ovicidal effects.

KEYWORDS: *Schistosoma mansoni*, *Artemisia santonica*, *Origanum syriacum*, SEM, Pathology.

INTRODUCTION

Schistosomiasis, a worldwide concern, affects more than 200 million people internationally, particularly children. Between the five schistosome species, *Schistosoma mansoni* is the richest in Egypt. Treatment of parasites depend on t usage of a drug poses serious concerns regarding the onset of resistance. So, the development of new and effective schistosomicidal agents is highly desirable. So, the need for bioactive natural products against schistosome has excessive importance for founding future strategies to control schistosomiasis (Mohamed et al., 2005).

OBJECTIVES

This study was conducted to assess the protective effect of crude *Artemisia santonica* and *Origanum syriacum* and their aqueous/ hexane extracts against *S. mansoni* infected mice.

METHODS

Male BALB/c mice were purchased from the animal unit from the Schistosome Biological Supply Centre (SBSC), Theodor Bilharz Research Institute (TBRI) (Giza, Egypt). Plant materials were collected from Arish, North Sinai, Egypt. *A. santonica* and *O. syriacum* and their aqueous and hexane extracts were prepared according to Azwanida (2015) The acute toxicity of *Artemisia santonica* and *Origanum syriacum* crude extract and their fractions administered via intraperitoneal route to mice were determined via Up-and-Down method Where all groups were treated with (100 mg/kg,)except groups were treated with hexane fraction administrated with (10 mg/kg,) administration was via intraperitoneal route to mice daily for two weeks. Male and female worms were recovered from the portal system and mesenteric veins by perfusion technique and counted (Smithers and Terry, 1965). Adult male worms were prepared for scanning electron microscopic examination (Glauert, 1974). The eggs number/g tissues (liver and intestine) were evaluated following digestion with 5% KOH (Cheever, 1968). The percentage of egg developmental stages (oogram pattern) was determined according to Pellegrino et al. (1962). Sampling slices from the liver tissue were taken from mice liver and fixed in 10% formalin and the associated histopathological changes were observed. Granuloma diameter was measured using an ocular micrometer (Jacobs et al., 1997). The collected data were tabulated and analyzed using IBM personal computer using SPSS 16 microstate software package.

RESULTS & DISCUSSION



The coupled worm's burden in groups treated with crude *O. syriacum* and *A. santonica* and their aqueous extracts significantly decreased. The oogram pattern showed significant reduction in the number of viable mature eggs and increase in the number of dead ova in groups treated with the crude and aqueous extracts of both *O. syriacum* and *A. santonica* compared to untreated infected mice. Additionally the egg load in liver and intestine tissues significantly decrease in treated groups in groups treated with the crude and aqueous extracts of both *O. syriacum* and *A. santonica*. Low content of mature eggs in these tissues is a key factor in the reduction of oviposition ability of female worms by either causing their death or causing adverse changes in its reproductive systems (Rabia et al., 2010). Scanning electron microscopy revealed alterations in male worm tegument including tubercles collapsing reduced spines, tegument swelling, tearing and presence of vesicles. Vesicle formation is indicators of stress and swelling of tegument and focal lysis of worm muscles (Zhang et al., 2009). Moreover, worm tegument tearing increases antigen exposure on worm surface to host immune system that subsequently resulted in worm death (Eissa et al., 2011). Histopathological investigations revealed heavy chronic inflammatory infiltration at portal areas in untreated infected mice. However, the hepatocellular necrosis and hemorrhage diminished greatly around granulomas area in all treated infected mice, with less granulomas size and consequently less severe pathological responses.

CONCLUSION

Crude *O. syriacum* and *A. santonica* and their fractions may be considered a promising effective anti-schistosomal drug as they have schistosomicidal and ovicidal effects, whereas they enhance the host's immune system against the disorders caused by *S. mansoni* in mice, effective in decreasing worm burden and the egg load in the intestine and liver. In addition to the reduction in granulomas size that reduced the disease.

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PS-92: BIOCHEMICAL EFFECTS OF ARTEMISIA SANTONICA AND ORIGANUM SYRIACUM EXTRACTS IN EXPERIMENTAL SCHISTOSOMIASIS MANSONI INFECTED MICE

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ABSTRACT: Schistosomiasis is one of the most common tropical parasitic diseases. Millions of people suffer severe sickness related to Schistosomiasis. A lot of efforts had been done to control it after finding out new drug-resistance strains of schistosomes. The present study was conducted to determine cytokine levels and liver enzymes activities in experimental schistosomiasis mansoni infected mice treated with *Artemisia santonica* (AT) and *Origanum syriacum* (OG) extracts and their aqueous (the polar constituents of the crude extract), hexane (the non-polar constituents of the crude extract) fractions. Male BALB/c mice (n=105) were grouped into 15 groups 7 each and treated with the crude extract of each plant and their aqueous and hexane fractions where, the acute toxicity of *Artemisia santonica* and *Origanum syriacum* crude extract and their fractions administered via intraperitoneal route to mice were determined via Up-and-Down method. All groups were treated with (100 mg/kg) except groups treated with hexane fraction were administered with (10 mg/kg,) administration was via intraperitoneal route to mice daily for two weeks. After the last dose, all animals were sacrificed to evaluate the cytokine patterns and liver enzymes activities in all mice. measuring the levels of cytokines (IL6, TNF- α & IL-1) were found to be significantly increased in infected mice compared to normal control while, treated groups with aqueous and crude extract of OG and AT showed significant decrease in TNF- α , IL-1, IL6 and IL10 levels compared to infected control. Regarding the effect on activity of liver enzymes, aqueous and crude extract of OG and AT decreased the activities of (AST), (ALT) and as well as (ALP) while the albumin level was increased. Also, treatment of infected mice with aqueous and crude extract of OG and AT led to significant increase in the activities of antioxidant glutathione when compared to control group and decrease the level of lipid peroxidation. In conclusion, treatment with AT and OG and their aqueous extracts in murine schistosomiasis have a hepato-protective activity by their effect on production of pro-inflammatory cytokines.

KEYWORDS: *Schistosoma mansoni*, *Artemisia santonica*, *Origanum syriacum*, cytokines.

INTRODUCTION

Schistosomiasis is a chronic parasitic disease caused by *Schistosoma* species (Gryseels et al., 2006). About 200 million people are globally infected. *Schistosoma* is still one of the most widespread epidemic disease in developing countries especially Egypt despite many efforts to control this infection over many years (El-Khoby et al., 2000). Current treatments depend on praziquantel (PZQ) (Zhang and Coultas 2013)., praziquantel does not treat early infection or avoid re-infection (Magnussen, 2003). In the last years, there is an obvious proliferation in searching for anti-parasitic drugs from natural sources, particularly from plants, that are the major source of biologically active constituents for the development of new treatments (Silva et al., 2009).

OBJECTIVES

to determine cytokine patterns and liver enzymes activities in experimental schistosomiasis mansoni infected mice treated with AT and OG extracts and their aqueous and hexane fractions.

METHODS

The study was conducted upon 105 mice that were divided into fifteen groups; 7 each: uninfected control group, normal animals treated with OG, AT and their fractions as well as DMSO, *Schistosoma mansoni* infected untreated mice (infected control), infected mice treated with crude OG, infected mice treated with aqueous OG and infected mice treated with hexane OG, infected mice treated with crude AT, infected mice treated with aqueous AT and infected mice treated with hexane AT. After 2 weeks of treatment all mice were sacrificed. The serum levels of cytokines (IL6, TNF- α , and IL-1), activity of liver enzymes (Gornal et al., 1949) and the activities of hepatic antioxidant glutathione (Beutler et al., 1963) & lipid peroxidation were evaluated in all groups (Satoh, 1978). The collected data were tabulated and analyzed using IBM personal computer using SPSS 16 microstate software package.

RESULTS & DISCUSSION

The levels of cytokines (IL6, TNF- α , and IL-1) were significantly increased in infected mice when compared with normal control mice. Groups treated with aqueous and crude extract of OG and AT showed significant decrease IL6, TNF- α & IL-1 levels when compared with infected control group. Regarding the effect of OG and AT extracts on activity of liver enzymes, aqueous and crude extract of OG and AT decreased the activities of ALT, AST and ALP while the albumin level was increased. Treating infected mice with aqueous and crude extract of OG and AT led to significant increasing in the activities of hepatic antioxidant glutathione when compared to infected control group and decreased the lipid peroxidation level.

CONCLUSION

Treatment with crude and aqueous extracts of both AT and OG in murine schistosomiasis has hepatoprotective activity by their action on producing of pro-inflammatory cytokines.

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PS-93: HEAVY METALS POLLUTION IN WATER AND THEIR IMPACT ON (*CLARIAS GARIEPINUS*) MUSCLES FROM DIFFERENT AQUATIC ENVIRONMENTS AT ISMAILIA PROVINCE, EGYPT

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ABSTRACT: Heavy metals in aquatic systems have received considerable attention due to their toxicity and accumulation in biota. In this study we investigate heavy metals concentrations (Cd, Pb and Ni) in water and muscles of African catfish (*Clarias gariepinus*) that were collected from Ismailia Canal, El- Temsah pond, El- Kantara and Abo Atwa pond during summer 2016. Fish and water samples were digested by acids then exposed to Atomic Absorption Spectrometry (AAS). The results showed that during summer (2016), Cd concentrations in water were significantly increased in El- Kantara, Ismailia- Canal, Abo Atwa pond when compared with permissible limit (0.003 ppm). High levels of some metals were detected in fish tissues which collected during summer (2016) which may affect their quality for use as food for human purposes.

KEYWORDS: *Clarias gariepinus*, heavy metals, pollution.

INTRODUCTION

Egyptian drains receive large quantities of partially treated or untreated domestic and industrial waste water and other human activities, which in turn ultimately discharge into River Nile, canals, lakes, or seas (EL-Sheikh et al., 2010). The pollution of the aquatic environment with heavy metals has become a worldwide problem during recent years, because they are indestructible and most of them have toxic effects on organisms (MacFarlane and Burchett, 2000).

OBJECTIVES

To investigate the presence of heavy metals contaminants like Cadmium (Cd), Lead (Pb) and Nickel (Ni) in fish musculature (*Clarias gariepinus*) and fresh water from some ponds in Ismailia province.

METHODS

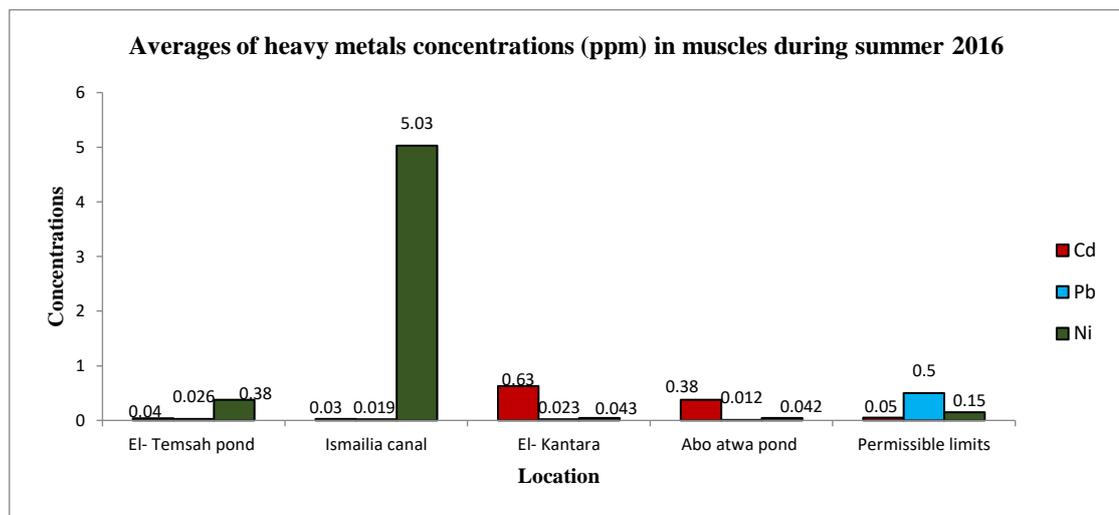
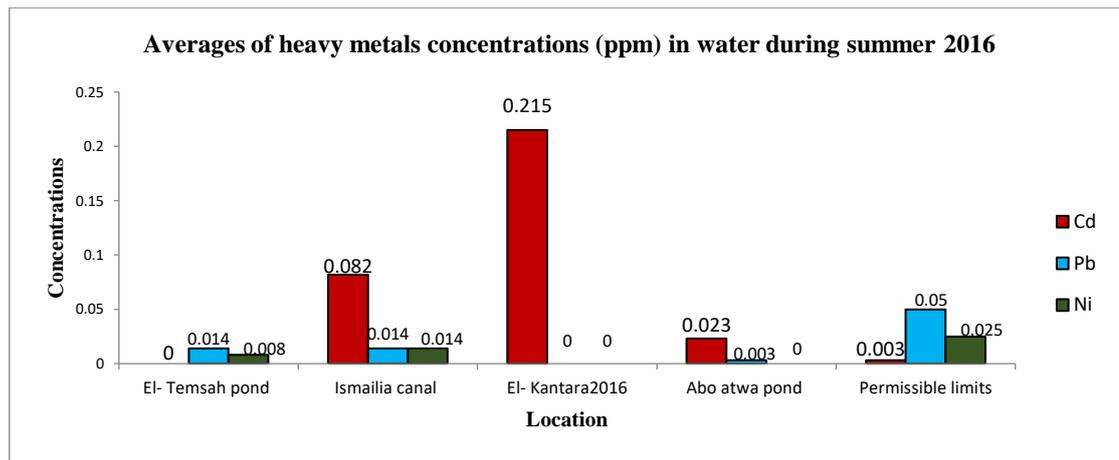
Fish and water samples (3 samples for fish and water from each location) were collected from 4 ponds (Ismailia Canal, El- Temsah pond, El- Kantara and Abo Atwa pond) during summer 2016. Muscle samples were digested according to method applied by (Agemain et al., 1980). While water samples were digested according to (AOAC, 1990). The digested samples were exposed to Atomic Absorption Spectrometry (AAS) for detection of Cd, Pb and Ni concentrations.

RESULTS AND DISCUSSION

During summer (2016), Cadmium concentrations in water samples were increased in El- Kantara, Ismailia- Canal and Abo Atwa pond (0.215, 0.082 and 0.023 ppm) respectively when compared with permissible limit (0.003 ppm) (WHO 2004 and E. O. S. Q. C 2005). While, Lead and Nickel concentrations levels in water showed lower concentrations than the permissible limits in all the examined locations. Concerning fish muscles during summer (2016), Cd concentrations were over the permissible limit in El- Kantara > Abo Atwa pond (0.625, 0.2 ppm) respectively when compared with permissible limit (0.05 ppm) (WHO 2000 and E. O. S. Q. C 2005). While, Ni concentrations in muscles were high in Ismailia- Canal > EL-Temsah Pond (5.027, 0.38 ppm) respectively when compared with permissible limit (0.15 ppm) (WHO 2000).

CONCLUSION

High levels of some metals were detected in fish muscles which collected during summer (2016) that may affect their quality for use as food for human purposes. It could be recommended that treatment of wastewater including sewage and domestic wastes before discharging into water bodies is a necessary process to protect the fish and the public health from the discharge of pollution.



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PS-94: SOME REPRODUCTIVE ASPECTS OF THE INDIAN SCAD *DECAPTERUS RUSSELLI* INHABITING THE GULF OF SUEZ

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ABSTRACT: Aspects of reproductive biology such as maturity, spawning season, sex-ratio and gonado-somatic index of *Decapterus russelli* were studied for a period of one year along the Gulf of Suez. The length at the onset of maturity was 15.5 cm. The length at which 50% of *D. russelli* attained maturity was estimated at 18.7 cm for female and 19 cm for male. Gonado somatic index (G. S. I) reached its maximum value in April (2.9). The presence of mature, ripe and spent gonads was observed from March to May indicating prolonged spawning season with a peak in April. The sex-ratio (male: female) varied from 1:0.87 in the commercial catches, showing dominance of male in the population except in February and March.

KEYWORDS: *Decapterus russelli*, Gulf of Suez, spawning season, Sex-ratio, Gonado- Somatic Index.

INTRODUCTION

The Indian scad, *Decapterus russelli* (Ruppell, 1828) belongs to family Carangidae. It is one of the most important and economic species in the trawl fisheries of Gulf of Suez. Most fishes are egg-layers, but many bear living young. *D. russelli* are considered egg-layers and heterosexual (there are separate male and female parents). Reproduction is the process by which species are perpetuated. The success of any fish species is ultimately determined by the ability of its members to reproduce successfully in a fluctuating environment. The environmental changes particularly temperature, day length and food supply. They have the greatest influence upon the gonadal development initiation and fecundity of the species. Many authors provided studies on the biology of the Indian scad, *Decapterus russelli* in different areas of the IndoPacific (Gjosaeter and Sousa (1983), Widodo, J. (1988), Murty (1991), Reuben et al., (1992), Raje. S. G. (1997), N. K Balasubramanian and P. Natarajan (2000), Manojkumar P. P. (2003) and Poojary, N. and Sundaram, S (2015). There has not been any recent attempt to study the biological aspects of *Decapterus russelli* in Egypt. The present study was undertaken to fill this need.

OBJECTIVES

Elucidate the reproductive biology *Decapterus russelli* in the studied site including estimation of the sex ratio, first sexual maturation, maturity stages, Gonado somatic index (G. S. I), spawning season.

METHODS

Random samples of 628 (292 female and 336 male) *Decapterus russelli* were collected monthly from October 2016 to April 2017 from Attaka landing site and caught by purse seine fishing gear for studying the following items:

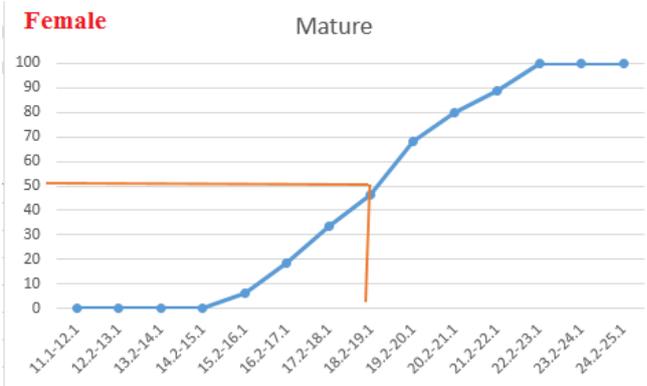
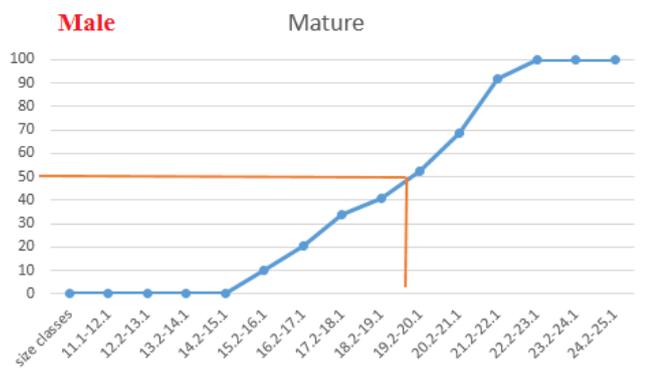
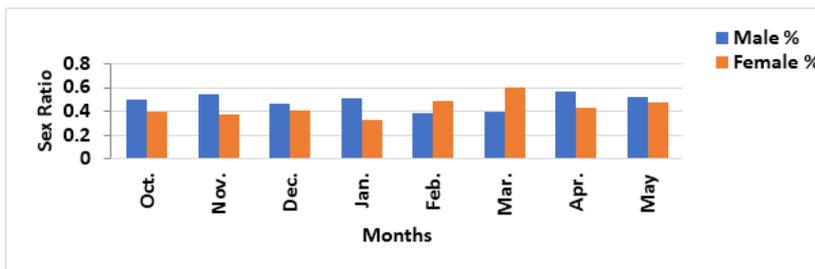
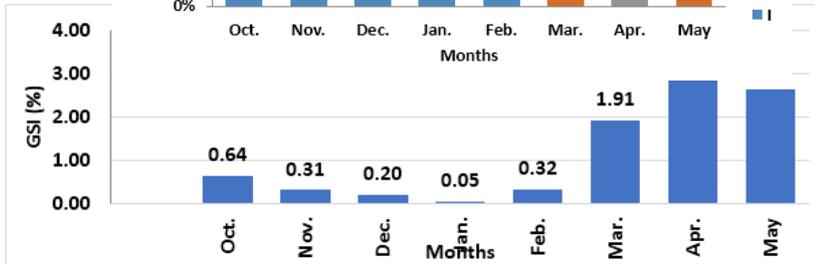
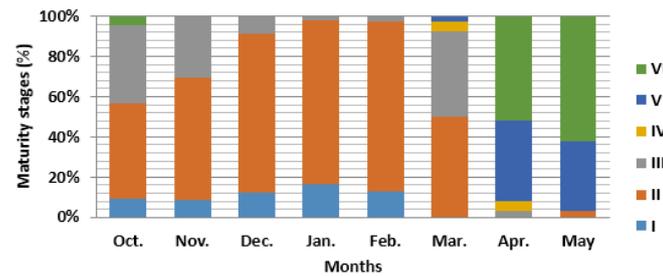
- Maturity stages: Including 6 stages (immature/ Mature/ Maturing/Full ripe/Running(spawning) /Spent)
- Sex ratio: It was determined as the percentage of males to females (M: F), this ratio was determined according to length and month also.
- Gonado somatic index: the percentage of weight of the gonad whether testes or ovaries on the total fish weight.

$$G. S. I. = \frac{gw}{GW} * 100 \text{ (gw= gonad weight GW = gutted weight of the fish)}$$
- Length at which 50 % of fish were mature during the spawning season.
- Spawning season was determined on the basis of distribution of different maturity stages of male and female during different months.

CONCLUSION

In the present study, The spawning period of *Decapterus russelli* was observed from March to May with extensive spawning in April. The length at the onset of maturity attained at 15.5 cm. The length at which 50% of *D. russelli* attained maturity was estimated at 18.7 cm for female and 19 cm for male. The sex-ratio (male: female) was 1:0.87 in the commercial catches, showing dominance of male in the population. Gonado somatic index (G. S. I) reach its maximum value in April (2.9).

RESULTS & DISCUSSION



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PS-95: POTASSIUM ADSORPTION CHARACTERISTICS OF THREE DIFFERENT TEXTURED SOILS

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ABSTRACT: Potassium adsorption isotherms for three soils in Egypt were studied to visualize the adsorption behavior. The soils vary widely in their physico-chemical properties. Potassium adsorption isotherms were constructed by equilibrating 5 g soil samples with 7 levels of K (0-250 mg L⁻¹) as K₂SO₄ in 25 ml solutions. Sorption time was 24 hours. Adsorption data were fitted to Freundlich and Langmuir adsorption equations. On an average amount of K adsorbed ranged from 13 to 62.6 % of added K. Freundlich equation explained K adsorption behavior better than the Langmuir adsorption equation as evidenced by higher correlation coefficient values ranging from 0.95 to 0.99.

KEYWORDS: Potassium adsorption, Freundlich, Langmuir, equation.

INTRODUCTION

Potassium is one of the most important nutrients in the soil surface with vital physiological roles in plant, improving their quality [1]. The availability of K in soil is affected by many soil processes including physical, chemical and biological ones [2]. K adsorption in soils, that is, change of water soluble K form to fixed form, influences the efficiency of fertilization in soil-plant system. Understanding the mechanism that contains adsorption of K in soil is significant because soils may contain quite variable pools of K that are possibly mobilized by chemical weathering of soil minerals [3]. The process of potassium adsorption is measured by the equilibrium among the potassium held by the interlayer sites, the surface and edge sites of mineral crystal lattice and the potassium in soil solution. The clay minerals types, pH, soil organic matter (SOM), aluminum hydroxide, soil moisture status, cation exchange capacity (CEC), fertilization and plowing system are the main factors affecting the equilibrium [4]. The K adsorption in soil is very complex and may not be described by simple and single reaction. To imagine the K adsorption in soil numerous equations or adsorption isotherms have been developed. Langmuir and Freundlich adsorption isotherms are typically employed for understanding the correlation between the amounts of K adsorbed per unit soil weight and the concentration of K in solution.

OBJECTIVES

The objective of this study is to study the adsorption of potassium with different soils.

MATERIALS AND METHODS

Soils samples: The soils used in the experiment were taken from 0-20 cm depths from different locations widely differ in their chemical and physical properties. The investigated soils were (S1) sandy from Ismailia Agriculture Research Station Farm, (S2) calcareous from El-Arish and (S3) Clay Loam from El-kantara.

Physical and chemical properties of the investigated soils: The Texture of the soil samples are varied from Loamy sand, to clay loam as shown in table (1). The clay content of different soil samples varied between 1.08 and 62.5 %, while the silt content varied greatly between 4 and 29.9 % and the sand content also varied greatly between 7.6 and 90.92 % in all soils. CaCO₃ content of the soil ranged from 0.2 to 11%. The organic matter contents of the soil ranged from 0.07 to 1.3%.

Table 1. Some basic physical and chemical properties of the selected soil

samples	E. C(dSm ⁻¹)	pH	CaCO ₃ %	O. M%	Sand%	Silt%	Clay%	Texture	K ⁺ (meq/l)(1:5)
S1	0.18	7.89	0.2	0.07	90.92	8	1.08	Loamy sand	0.16
S2	1.23	8.2	11.0	0.45	85.92	4	10.08	loamy sand	0.26
S3	1.5	8.3	2.97	1.3	7.6	29.92	62.48	Clay Loam	0.325

Potassium adsorption: Adsorption conducted with batch method [5, 6]. Surface samples (5 g) were taken and equilibrated in 50 ml plastic bottles for 24h after adding 25 ml solution at different K⁺ concentrations (0, 25, 50, 100, 150, 200 and 250 ppm) in 25 ml solution. Samples were shaken for 30 minutes at starting time, and then measured for potassium.

RESULTS

Adsorption isotherm: Adsorption isotherms for 3 soils were created by plotting the quantity of K adsorbed versus the concentration of K remaining in solution Figure 1, 2. From the results shown, it is obviously found that the three soils diverse to potassium adsorption. and the amount of K adsorbed increased as concentration increased in all samples. the highest adsorption was found in S3 clay loam 770. 25mg/kg (62. 6%) because of high clay content and followed by S2 Calcareous loamy sand 187. 225mg/kg (15%) and S1 Loamy sand 157. 95 mg/kg(13). K for these results, it could be concluded that adsorption mainly governed by the clay content of the soil.

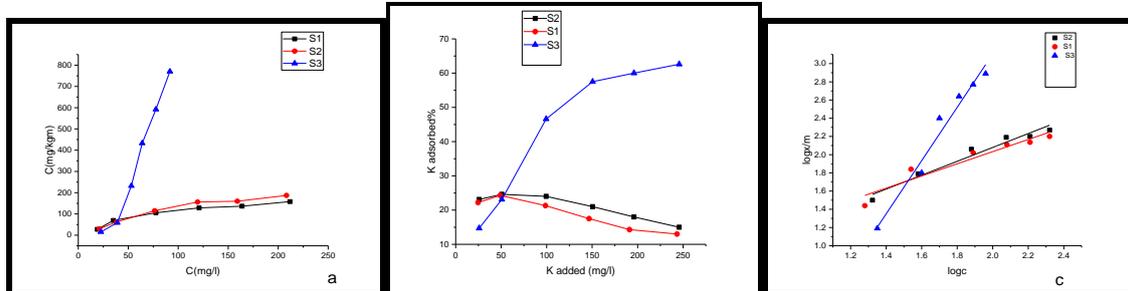


Fig (1) (1) potassium adsorption isotherms, (2) Percent of K adsorbed under different K concentration levels of three soils. (3) Freundlich adsorption isotherms for 3 soils.

Comparison of different adsorption models: Freundlich equation described sorption isotherm with a higher degree of accuracy table 2. The coefficient of determination values of 0. 95, 0. 96 and 0. 97 for S1, S2 and S3 respectively showed that Freundlich equation gave a better fit of equilibrium K adsorption data for these soils as the model suppose limitless adsorption sites having heterogeneous surfaces which connected better with the mixed mineralogy of soils. The results are supported by Gregory et al. (2005) [7], and Sidhu et al., (2004) [8]. Understandably, the distributions of different sites for adsorption depend on amount of clay minerals. their degree of reduction and integral ions. As Langmuir model assumes homogeneity of sorption sites with whole monolayer adsorption of solutes it could not appropriate well to the K sorption data of the soils under study. The Freundlich constant a and b table 2 may be taken as a measure of the range of adsorption and rate of adsorption or energy of adsorption. high adsorption capacity (2. 76mg mg g^{-1}) and intensity (2. 92) of clay loam and highest fraction of clay contents as compared to other soils table 1. The results are in line with the findings of Loannou et al. (1994) [9].

Table 2. Comparison of correlation coefficients (R2) for the Freundlich and Langmuir equations to the adsorption data of the soils

Location	Equation	R2	parameters of the Freundlich equation	
			adsorption capacity 'a' (mg /g)	Intensity of adsorption 'b'
S1	Freundlich	0. 95	0. 404	0. 8
	Langmuir	0. 68		
S2	Freundlich	0. 96	0. 55	0. 76
	Langmuir	0. 89		
S3	Freundlich	0. 97	2. 76	2. 92
	Langmuir	0. 745		

CONCLUSION

The three soils show different K adsorption characteristics. There is a significant positive relationship between the amount of potassium adsorption and clay content. The adsorption of K in all soils increased with the increase in concentration of added K. The adsorption isotherm was best described by Freundlich equation.

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PS-96: INFLUENCE OF Humic Acid-COATED NANO-ZINC OXIDE COMPOSITE ON POTASSIUM ADSORPTION IN DIFFERENT SOILS

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ABSTRACT: Nanoparticles of ZnO were prepared by using sol-gel method., the adsorption behavior of humic acids (HA) by nano-ZnO was examined in this study by Fourier transform infrared (FTIR) spectroscopy and scanning electron microscopy. Then study the effect of HA-Coated Nano-zinc oxide composite on Potassium adsorption isotherm with two different soils which were made by equilibrating 5 g soil samples with 7 concentrations of K (0-250 mg L⁻¹) as K₂SO₄ in 25 ml solutions and adding 0. 1 g HA-Coated Nano-zinc oxide complex Sorption time was 24 hours. Results shown increasing of K⁺ adsorption concentration by adding HA-Coated Nano-zinc oxide composite.

KEYWORDS: Humic acid, Nano-ZnO, Potassium.

INTRODUCTION

Potassium (K), which main component in all living cells is necessary to be exist in great amounts by plants, animals and humans [1]. It plays an important role in plant nutrition and physiology. absorbance of K by many plants is often larger than of nitrogen and phosphorus. This macronutrient is removed in large quantities by exhaustive cropping systems [2]. Humic acids are those parts of humic substances which are insoluble in water in acidic conditions but become soluble and extractable at high alkaline conditions. Humic acids have acidic groups such as carboxyl and phenolic OH functional groups, [3] and, therefore, provide organic macromolecules with an important role in the transport, bioavailability, and solubility of metals [4].

OBJECTIVES

The objectives of this study are is to prepare nano-ZnO and HA coated nano-ZnO and characterize the products using Fourier transform infrared (FTIR)-X-ray diffraction and scanning electron microscopy. Then study the effect of HA coated nano-ZnO on the adsorption of K⁺ with two different soils.

MATERIALS AND METHODS

Soils samples: The soils used in the experiment were taken from 0-20 cm depths from different locations widely vary in their chemical and physical properties. The investigated soils were (S1) sandy from Ismailia Agriculture Research Station Farm, and(S2) calcareous from El-Arish.

Preparation of HA-Coated Nano-zinc oxide Complex: Nano-ZnO was prepared using sol-gel method [5]. Preparation of HA-Coated Nano-oxide composite was achieved by the method described by Kan Yang et al [6].

Isothermal adsorption:

1-Potassium adsorption: Adsorption has been accomplished by the batch method [7, 8]. Surface samples (5 g) were taken and equilibrated in 50 ml plastic bottles for 24h after adding 25 ml solution at different K⁺ concentrations (0, 25, 50, 100, 150, 200and 250ppm). Samples were shaken for 30 minutes at starting time, and then measured for potassium.

2-Effect of HA-Coated Nano-zinc oxide Complex on adsorption of potassium with soils. Surface samples (5 g) were taken and equilibrated in 50 ml plastic bottles for 24h after adding 25 ml solution at different K⁺ concentrations (0, 25, 50, 100, 150, 200 and 250ppm) and 0. 1g HA-Coated Nano-zinc oxide Complex. Samples were shaken for 30 minutes at starting time, and then measured for potassium.

RESULTS

Characterization of Nano-zinc oxide: ZnO as detected by its powder X-ray diffraction pattern (Figure 1) Broadening of the X-ray bands allowed an approximate calculation of the average particle size as 37±5 nm using the Scherrer equation [9] From the FTIR spectrum (Figure 2) The nano-ZnO is dominated by a very strong band at 450 cm⁻¹ due to the Zn-O stretching.

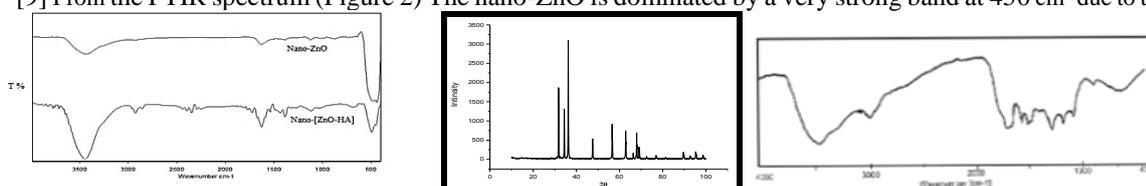


Fig. (1): X-ray powder diffraction plot of ZnO Fig. (2): FT-IR spectra of nano-ZnO and HA coated-nano-ZnO Fig. (3): FT-IR spectrum of humic acid

Characterization of HA-Coated Nano-zinc oxide composite: From the FTIR spectrum of HA coated-nano-ZnO Figure 2 by comparison with bulk HA Figure 4 (Figure 3) strong interactions of phenolic OH with nano- ZnO surfaces were observed and may be responsible for HA adsorption due to the disappearance of the phenolic OH peak at 1280 cm^{-1} [10] Strong interactions of COOH with nano-ZnO may be due to the marked diminishing of the peak at 1722 cm^{-1} [11]. Furthermore, the peak of nano-ZnO shifted to 495 cm^{-1} due to interaction between nano-ZnO and humic acid.

Figures 4, 5 represent scanning electron micrographs of nano-ZnO and HA coated-nano-ZnO respectively. The SEM micrographs clearly show micro-structural homogeneities and remarkably different morphologies. An agglomeration of particles was observed in the case of HA coated-nano-ZnO and lower grains size than in case of nano-ZnO. The FTIR spectrum and SEM indicates the adsorption of HA by nano-ZnO and formation HA-nano-ZnO composite.

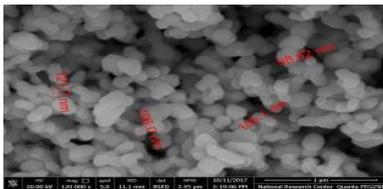


Fig. (4):SEM image of nano-ZnO

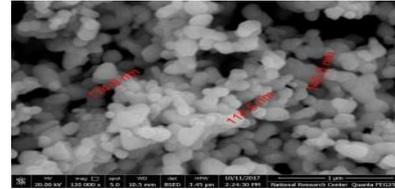


Fig. (5): SEM image of HA-coated nano-ZnO

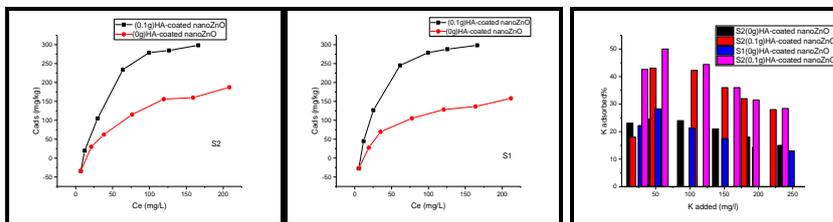


Fig (6) the effect of 0.1g HA-Coated Nano- ZINC oxide on the potassium adsorption with 2 soils Fig (7) Percent of K adsorbed

Potassium adsorption for soils: Adsorption isotherm for two soils were constructed by plotting the amount of K adsorbed versus the concentration of K remaining in solution (Figure 6). From the results shown, it is clearly found that the two soils varied in potassium adsorption and the amount of K adsorbed increased K concentration of solutions increased in all samples. The highest adsorption was found in S2 clay loam 187.2 mg/kg because of high clay content. With HA coated-nano-ZnO treatment the concentration of adsorbed potassium increased in low concentrations from 22.2% (24.57 mg/kg) to 42.6% (44.85 mg/kg) for S1 and from 24.6% (50.7 mg/kg) to 43.07% (109 mg/kg) for S2 and in high concentrations increased from 13% (157.95 mg/kg) to 28.4% (298.35 mg/kg) for S1 and from 15% (187.2 mg/kg) to 28.4% (298.35 mg/kg) for S2 (Figure 7). The reason of the result was likely related to the specifically adsorptive properties HA-Coated Nano-zinc oxide composite.

CONCLUSION

The preparation for HA Coated-Nano-ZnO composite has been successfully performed and it increased potassium adsorption on soils.

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PS-97: GENETIC VARIABILITY AND GENETIC ADVANCE OF Some MAIZE GENOTYPES (ZEA MAYS L.) UNDER SALINITY CONDITIONS

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ABSTRACT: Half diallel crosses were made among the six inbred lines resulting in 15 F₁ crosses. The F₁'s and their parental inbreeds were evaluated under four levels of salinity condition. The present investigation was carried out to assess the variability and genetic advance in 15 maize genotypes. The analysis of variance revealed the presence of significant variability among the maize genotypes for all traits in both conditions. Under control, Potassium content exhibited highest PCV (18.32) and GCV (17.47), whereas lowest PCV (2.04) and GCV (1.07) were recorded for days to 50% silking. While Under salinity stress, the GCV ranged from 1.29 in days to 50% silking to 21.99 in Potassium content and (PCV) ranged from 1.9 to 23.23. Under control, Potassium content exhibited highest PCV (18.32) and GCV (17.47), whereas lowest PCV (2.04) and GCV (1.07) were recorded for days to 50% silking. While Under salinity stress, the GCV ranged from 1.29 in days to 50% silking to 21.99 in Potassium content and (PCV) ranged from 1.9 to 23.23.

KEYWORDS: Maize Genotype, Salinity, PCV, GCV

INTRODUCTION

Soil salinity is a major problem for agriculture throughout the world. As the world population continues to increase, more food needs to be grown to feed the people. This can be achieved by an increase in cultivated land and by an increase in crop productivity per area. Maize (*Zea mays* L.) is moderately sensitive to salt stress; Chinnusamy et al. (2005). Genetic variability among individuals in population offers effective selection. The magnitude of genetic variability present in population is of paramount importance for the success of any plant breeding program. Heritability alone provides no indication of the amount of genetic improvement that would result from selection of individual genotypes. Hence knowledge about genetic advance coupled with heritability is most useful. The extent of variability is measured by GCV and PCV which provides information about relative amount of variation in different characters (Subandi and Compton, 1974).

OBJECTIVES

The objectives of this study were : 1) To know about nature and magnitude of genetic variability in the resulted crosses as an important step to continue study and apply appropriate breeding program. 2) to identify the selection criteria would be effective to select the high yielding ability and adapted genotypes under salinity soils.

METHODS

In summer 2014, half diallel crosses were made among the six inbred lines P₁ (45), P₂ (7), P₃ (1), P₄ (8M) P₅ (5) and P₆ (3) resulting in 15 F₁ crosses. The F₁'s and their inbred parents were evaluated under four levels of soil salinity condition (T₁) 1.5 (control), (T₂) 2.5, (T₃) 3.5 and (T₄) 5.5 dSm⁻¹ summer 2015 and 2016 at east bitter lakes Experimental Farm Faculty of Agric. Suez Canal University (Sinai). The phenotypic and genotypic coefficients of variation were estimated according to the method suggested by Burton and de Vane (1953). The extent of genetic advance to be expected by selecting five percent of the superior progeny was calculated by formula presented by Robinson et al. (1949). The genetic advance was classified as low, moderate and high as following by Johnson et. al. (1955).

RESULTS & DISSUSION

The results of GCV, PCV and expected genetic advance percentage over mean for various characters are presented in Table (1). The GCV under control ranged from 1.07 to 17.47 per cent for various characters under study. Under control, high GCV was observed for the character K content (17.47 %) followed by grain yield plant⁻¹ (13.35%) whereas moderate for Na gkg⁻¹ (10.47 %) and plant height (9.15%). Character days to 50% silking showed low magnitude of GCV (1.07 %). Under salinity stress, the GCV ranged from 1.29 in days to 50% silking to 21.99 per cent in K gkg⁻¹ dry weight for various characters under study. The results revealed increasing the GCV in salinity stress comparing with control condition in the most characters under study. Similar findings in maize were also reported by Rather et al., (2003). Under control, the PCV ranged from 2.04 to 18.32 for various characters. High PCV was observed for the character K gkg⁻¹ dry weight (18.32%) followed by grain yield plant⁻¹ (13.47%) and Peroxides activity (12.73%) whereas moderate for Na gkg⁻¹ (12.63 %) and prolin content (12.24 %). The character days to 50% silking showed low magnitude of PCV (2.04%). Abirami et al., (2005) reported high PCV and GCV values for grain yield per plant and ear length in maize. Under salinity stress, the PCV ranged from 1.9 to 23.23 per cent for various characters. High PCV was observed for the character K content (23.23 %)



followed by grain yield plant⁻¹ (21. 3%) and prolin content (16. 6 %). whereas moderate for plant height (12. 99 %) and ear length (12. 84%). The character days to 50% silking showed low magnitude of PCV (1. 90%). The previous results were indicative of increased PCV in salinity stress compare with control condition in the most characters under study. Expected genetic advance percentage GA over mean was estimated for different characters under control condition and it was observed that it was in the range of 1. 25 to 34. 32 per cent for different characters. GA having high value for K gkg⁻¹(34. 32%) followed by grain yieldplant⁻¹ (g) (27. 23%). GA for Plant height (18. 64%) while low lower value was estimated for days to 50% silking (1. 25%). While under salinity stress GA ranged from 1. 84 to 2. 9 per cent for different characters. High GA for K gkg⁻¹ (42. 9%) followed by grain yieldplant⁻¹ (g) (42. 83%). GA between 10 to 20% were observed for Ear height (19. 7%) and 100-grain weight (19. 43%) while low lower value were estimated for days to 50% silking (1. 84%). Similar findings in maize were also reported by Kumar et al., (2014).

Table (1) Estimates of PCV, GCV, GA and GA% for the crosses under control(1. 5dSm⁻¹) and 3rd salinity level (5. 5 dSm⁻¹) during 2015 & 2016 seasons.

Traits	GCV (c)		mean	GCV(s)		mean	PCV (c)		Mean	PCV (s)		mean	GA% (C)	GA% (S)
	2015	2016		2015	2016		2015	2016		2015	2016			
Days to 50% Anthesis	1. 39	1. 68	1. 54	1. 80	1. 20	1. 50	2. 00	2. 14	2. 07	2. 41	1. 66	2. 04	2. 42	2. 27
Days to 50% silking	0. 90	1. 24	1. 07	1. 59	1. 00	1. 29	2. 28	1. 80	2. 04	2. 14	1. 65	1. 90	1. 25	1. 84
PH (cm)	6. 62	11. 68	9. 15	14. 23	10. 74	12. 48	6. 78	11. 73	9. 25	15. 06	10. 93	12. 99	18. 64	24. 71
Ear height (cm)	3. 98	5. 20	4. 59	9. 38	10. 74	10. 06	4. 39	5. 32	4. 85	10. 24	10. 93	10. 59	8. 96	19. 72
No. of leavesplant ⁻¹	4. 00	4. 65	4. 33	2. 80	3. 79	3. 29	7. 22	6. 52	6. 87	8. 12	8. 68	8. 40	5. 70	2. 70
Ear length (cm)	9. 56	7. 83	8. 69	9. 80	12. 03	10. 91	10. 11	9. 07	9. 59	10. 74	14. 93	12. 84	16. 26	19. 19
No. rowsEar ⁻¹	2. 73	4. 46	3. 59	7. 83	4. 02	5. 92	7. 64	7. 57	7. 61	12. 36	10. 79	11. 58	3. 71	6. 65
100 - g. w(g)	5. 94	8. 59	7. 26	8. 75	11. 01	9. 88	6. 17	9. 17	7. 67	9. 03	11. 67	10. 35	14. 17	19. 43
Shelling %	1. 41	0. 76	1. 08	1. 13	1. 47	1. 30	1. 65	3. 28	2. 47	1. 37	2. 62	1. 99	1. 49	2. 02
Grain yieldPlant ⁻¹ (g)	13. 47	13. 22	13. 35	20. 07	22. 01	21. 04	13. 58	13. 37	13. 47	20. 41	22. 19	21. 30	27. 23	42. 83
R. W. C	2. 64	1. 50	2. 07	2. 33	5. 03	3. 68	3. 24	2. 74	2. 99	4. 46	6. 70	5. 58	3. 07	5. 14
Prolin (mgg ⁻¹)	9. 35	8. 36	8. 85	17. 82	12. 33	15. 07	10. 40	14. 08	12. 24	18. 02	15. 17	16. 60	13. 77	28. 47
Peroxides activity	13. 77	9. 62	11. 69	8. 26	4. 37	6. 32	14. 61	10. 84	12. 73	9. 59	5. 89	7. 74	22. 15	10. 68
Spad	2. 74	5. 82	4. 28	11. 53	7. 08	9. 31	3. 38	7. 71	5. 54	12. 33	8. 62	10. 47	6. 81	17. 10
K gkg ⁻¹ dry weight	17. 47		17. 47	21. 99		21. 99	18. 32		18. 32	23. 23		23. 23	34. 32	42. 90
Na g/kg	10. 47		10. 47	6. 64		6. 64	12. 63		12. 63	8. 65		8. 65	17. 75	10. 51

CONCLUSION

Phenotypic coefficient of variation (PCV) in salinity stress increased comparing with control condition in the most characters under study. Potassium content and grain yieldplant⁻¹ expressed high genetic advance under genotypes and salinity levels condition conditions, which indicated the preponderance of additive gene action in controlling these traits. Hence direct selection of such characters would be effective in improving the yield. Emphasis should be given on these characters, while selection to improve yield potential of crop.

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PS-98: COMBINING ABILITY OF MAIZE INBRED LINES AND THEIR CROSSES UNDER SALINITY CONDITIONS

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ABSTRACT: This study was conducted to estimate GCA and SCA of some maize for agronomic traits and Yield and yield components by using diallel analysis under soil salinity conditions. The best parental inbreeds were those showing positive and significant GCA effects for all studied traits except earliness traits. Analysis of variance displayed significant mean squares associated with general and specific combining abilities under control (T1) for all traits under study in both seasons except GCA and SCA mean squares for days of 50% silking and No. of rows ear⁻¹, revealing that, both non-additive and additive gene were determination the performance Under salinity stress levels, analyses of variance, indicated significant mean squares due to both GCA and SCA for all studied traits except GCA and SCA mean squares for number of leaves plant⁻¹, No. of rows ear⁻¹ and Shelling % both seasons, revealing the importance of additive as well as non-additive genetic effects.

KEYWORDS: Maize, inbred lines, Salinity, GCA, SCA

INTRODUCTION

Maize is increasingly cultivated in Egypt. As the world population continues to increase, more food needs to be grown to feed the people. This can be achieved by an increase in cultivated land and by an increase in crop productivity per area. Maize (*Zea mays* L.) is moderately sensitive to salt stress. Genetic variability among individuals in population offers effective selection. The magnitude of general and specific combining ability present in population is of paramount importance for the success of any plant breeding program. Heritability alone provides no indication of the amount of genetic improvement that would result from selection of individual genotypes.

OBJECTIVES

The objective of this study was to estimate the amount of combining abilities (GCA and SCA) for some maize inbred lines under four soil salinity conditions.

METHODS

In summer 2014, half diallel crosses were made among the six inbred lines P₁ (45), P₂ (7), P₃ (1), P₄ (8M) P₅ (5) and P₆ (3) resulting in 15 F₁ crosses. The F₁'s and their inbred parents were evaluated under four levels of salinity condition (T1) 1. 5 (control), (T2) 2. 5, (T3) 3. 5 and (T4) 5. 5 dSm⁻¹ in summer 2015 and 2016 at east bitter lakes Experimental Farm Faculty of Agric. Suez Canal University (Sinai). Estimation of combining ability ANOVA of GCA and SCA and their effects were computed according to method II, model I of Griffing (1956) using computer program software dial 98 version 2

RESULTS & DISCUSSION

Analysis of variance under control (T1) displayed significant mean squares associated with general and specific combining abilities for all studied traits in both seasons except GCA and SCA mean squares for days of 50% silking and No. of rows ear⁻¹, revealing that, both additive and non-additive types of gene action were involved in determining the performance of single-cross progeny. Under salinity stress levels, analyses of variance for the studied traits indicated significant mean squares due to both GCA and SCA for all studied traits except GCA and SCA mean squares for no. of leavesplant⁻¹, no. of rows ear⁻¹ and Shelling % both seasons, revealing the importance of additive as well as non-additive genetic effects. To find out the relative importance of each genetic variance type, GCA/SCA ratio was computed for each irrespective case. GCA/SCA ratio was fluctuated according to salinity stress. High ratios largely exceeded unity were obtained for days to no. of leaves plant⁻¹, ear length, 100-grain weight, grain yield plant⁻¹ (g), POD activity, SPAD reading, K and Na(gkg⁻¹) under both conditions, indicating that the largest part of the total genetic variance was a result of additive and additive x additive types of gene action in controlling these traits. While, the other traits with low values at control and salinity stress which less than unity indicating that non-additive type gene action had more important part of the total genetic variability. These findings are in agreement with those of El-Ghonemy (2015) and Hassan et al. (2016).

2- general combining ability

The best parental inbreeds were those showing positive and significant GCA effects for all studied traits except earliness traits. For days to 50 % anthesis and days to 50% silking, negative estimates (GCA) and significant are considered desirable



as those were observed to be associated with earliness. The data of parental lines P₁, P₃ and P₄ showed negative and significant general combining ability effects and they considered as the best general combiners for these traits. For plant height and ear height under both conditions results showed that the parental lines P₁, P₂ and P₃ expressed significant positive effects and had more genes for tallness. The results of GCA effects in the lines for number of leaves plant⁻¹ showed that the parental lines P₂ and P₃ had significant positive values for GCA effects. While P₅ and P₆ showed significant negative GCA effects for this trait under both conditions. It is of great attention to note that inbred lines P₁ and P₂ gave positive and significant GCA effects for yield and yield components in most cases under study, revealing that these inbred lines are good combiners for yield. Mousa (2014) reported that GCA effects were desirable and significant for grain yield and its components. The results of GCA effects for relative water content, prolin content, peroxides activity and spad reading showed the highest positive values of GCA effects were exhibited by P₁ and P₂. Regarding to K content under control and salinity levels, the parental lines P₁, P₂ and P₃ had positive and significant effects for this trait. On the other hand the parental lines P₄, P₅ and P₆ showed negative general combining ability effects. On the contrary regarding to Na content, parental lines P₄ and P₅ showed positive general combining ability effects. While the parental lines P₁, P₂ and P₃ had negative and significant effects in most cases for this trait.

2. Specific combining ability effects

For days to 50% anthesis and silking the results presented showed that the most superior crosses to give the earliest ones of these traits were P₁×P₂, P₁×P₃ and P₅×P₆, since they had negative and significant effects in both seasons. The crosses P₁×P₄, P₂×P₃, P₃×P₄ and P₅×P₆ had positive and significant SCA effect for plant height in both seasons. Number of leaves plant⁻¹ showed significant positive SCA effects for crosses P₁×P₅, P₂×P₃ and P₄×P₆ in both seasons, P₁ ×P₂ in the 2nd season. In the both season, also, cross P₃ × P₅ in control (1. 5dSm⁻¹) P₁ × P₃ in 3rd soil salinity levels (5. 5dSm⁻¹) showed significant positive SCA effects. While P₁×P₄, P₁×P₆, P₂×P₄ and P₄×P₅ showed significant negative SCA effects for this trait in both conditions. Regarding to grain yield plant⁻¹ and 100-grain weight 5 crosses out of 15 cross combinations showed positive and significant sca values, P₁×P₄, P₂×P₃, P₅×P₆, P₁×P₅ and P₄×P₆ were the top best specific combinations. This must be due to gene complementation between the parents, which has led to increased grain yield plant⁻¹. These results were in agreement with reports of El-Shamarka et al. (2015).

CONCLUSION

The best parental inbreds were those showing positive and significant general effects for all studied traits except earliness traits. The inbred lines p₁ and p₂ were good combiners for grain yield and most of the yield component traits under inbred lines and soil salinity levels conditions. The best specific combining ability effects for grain yield were P₁×P₄, P₂×P₃, P₅×P₆, P₁×P₅ and P₄×P₆. These top crosses might be of interest in breeding programs to improve grain yield under both conditions.

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PS-99: INFLUENCE OF SOME WATER CHEMICAL PROPERTIES ON THE SOLUBILITY OF PHOSPHATE SALTS

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ABSTRACT: Phosphorus (P) plays an important role on Earth ecosystems. Moreover, excess of soluble P could exacerbate environmental hazards such as eutrophication in water. However, the solubility of different sources of inorganic phosphate in water has been not well investigated in Egypt. The objective of this study was to investigate the effect of some chemical properties (ionic strength, SAR, adj. SAR) of six different water sources from Suez Canal region on the solubility of three phosphate salts (ordinary superphosphate OSP ($\text{Ca}(\text{H}_2\text{PO}_4)_2 + \text{CaSO}_4$), pure tricalcium phosphate TCP ($\text{Ca}_3(\text{PO}_4)_2$) and rock phosphate (RP). The water sources used were collected from well water (WW), blended water (BW), farm fish water (FFW), Nile water (NW), agricultural drainage water (ADW) and sea water (SW). These waters were filtered and analyzed for some chemical parameters. Under laboratory conditions, 1 g of each salt was applied to 50 ml of each water source, shaken for 30 min., left for equilibrium. After 3 days was shaken again for 30 min., filtrated through Whatman paper grade 44. The filtrates were analyzed for dissolved P using spectrophotometer with the molybdenum-blue method. Generally, the obtained results indicate that the solubility of P from OSP, TCP and RP was observed in SW that has ionic strength and SAR 0. 6 mol dm^{-3} and 40. 4, respectively, when compared to other water sources. However, the lower solubility of P in NW that has ionic strength and SAR 0. 007 mol dm^{-3} and 1. 3, respectively. These findings could be partially explained by the formation of ion association (ion complex and ion pair). Increasing in ionic strength reduce the attractive force between ions. From previous results, the solubility of P was varied based on the chemical properties of water particularly ionic strength and electrical conductivity (EC). Consequently, lead to an increase of soluble P and water pollution.

KEYWORDS: Ionic Strength, SAR, Adj. SAR, Phosphate salts, Solubility

INTRODUCTION

Phosphorus plays an important role in chemical and biochemical processes and is a key factor in the eutrophication of surface water. Water eutrophication is one of the most worldwide environmental problems. The mechanisms of eutrophication are not fully understood, but excessive amount of P into aquatic ecosystems is the major factor [1]. Rock phosphate (RP) is used as a raw material in the manufacture of inorganic phosphorus fertilizers and can be applied directly to the soil. Direct application of RP can slightly increase PO_4^{3-} level, consequently increases crop yield. Therefore, the solubility of inorganic phosphate salts has an important impact in agriculture, aquaculture, biochemistry, industrial chemistry, and environmental chemistry [2]. The solubility of a salt in water can be depends on type of salt, ionic strength, temperature etc. However, few studies focused on the effect of salinity or ionic strength on P solubility in water.

OBJECTIVES

The objective of this study was to investigate the effect of some chemical water properties (ionic strength, SAR and adj. SAR) of six different water sources from Suez Canal region on the solubility of three phosphate salts; OSP, pure TCP and RP under laboratory conditions ($25 \pm 2^\circ$).

METHODS

Water samples were collected from Suez Canal region (Table 1) during March 2016, kept in plastic bottles and brought to the laboratory for further investigations. The water samples were filtrated and analyzed [3]. Some selected parameters were calculated; Ionic strength, SAR and adj. SAR [4, 5]. Three phosphate salts; ordinary superphosphate ($\text{Ca}(\text{H}_2\text{PO}_4)_2 + \text{CaSO}_4$) (OSP), pure tricalcium phosphate ($\text{Ca}_3(\text{PO}_4)_2$) (TCP) and rock phosphate (RP) were sieved through 60 mesh (0. 25 mm). One gram of each salt was applied to 50 ml of each water source in plastic bottle (100 ml), shaken for 30 min., left for equilibrium. After 3 days the bottles were shaken again for 30 min and filtrated through Whatman paper grade 44. Soluble P was measured in the filtrates spectrophotometrically with the molybdenum-blue method [6].

RESULTS AND DISCUSSION

Table 1 shows the locations of water sources and some chemical properties. The results indicate that EC, SAR and adj. SAR were higher in SW and WW than other water samples. The major cations (Na^+ , Ca^{2+} , and Mg^{2+}) comprise around 90% from cations. The ionic strength of water samples ranged from 0. 007 to 0. 6 mol dm^{-3} and soluble P ranged between 0. 013 and 0. 933 mg l^{-1} (Table 1). The results reveal that ionic strength play a significant role in increasing the solubility of



sparingly inorganic phosphate salts as shown in Fig. 1. It can be observed that the solubility for every salt was raised as increasing of water ionic strength. The increases in solubility of OSP, pure TCP and RP were observed in SW that has ionic strength and SAR 0.6 mol dm⁻³ and 40.4, respectively, while the lower solubility of P in NW has ionic strength and SAR 0.007 mol dm⁻³ and 1.3, respectively. Similarly, the results also indicate that the increase in EC or ionic strength cause an increase in solubility of sparingly inorganic phosphate salts in waters. These findings could be partially explained by the formation of ion association (*e. g.* ion complex and ion pair). Several studies reported that the formation of ion association (decrease in activity coefficient) consequently, could increase the solubility of an electrolyte [7].

Table1. Some chemical properties of tested water, (I) ionic strength and (P) soluble P.

Location	Water sources	EC (dSm ⁻¹)	pH	SAR	Adj. SAR	I (mol dm ⁻³)	P (mg l ⁻¹)
Sarabium	well water (WW)	5.72	7.73	13.1	33.0	4*10 ⁻²	0.082
El-Salam Canal	blended water (BW)	1.16	7.17	3.10	8.06	8*10 ⁻²	0.329
Om-Elkora	farm fish water (FFW)	4.55	7.17	1.66	5.41	6*10 ⁻²	0.933
Abo-sultan	Nile river water (NRW)	0.374	7.82	1.30	2.83	7*10 ⁻³	0.013
Kabrait	agricultural drainage water (ADW)	2.22	7.30	0.22	0.710	3*10 ⁻²	0.082
Abo-sultan	Sea water (SW)	45.5	7.75	40.4	98.0	6*10 ⁻¹	0.041

$$\text{SAR} = \frac{\text{Na}^+}{\sqrt{\frac{\text{Ca}^{+2} + \text{Mg}^{+2}}{2}}} \quad \text{Adj. SAR} = \text{SAR} [1 + (\text{pH} - 8.4)] \quad \text{Ionic Strength (I)} = \frac{1}{2} \sum m_i Z_i^2 \text{ (mol dm}^{-3}\text{)}$$

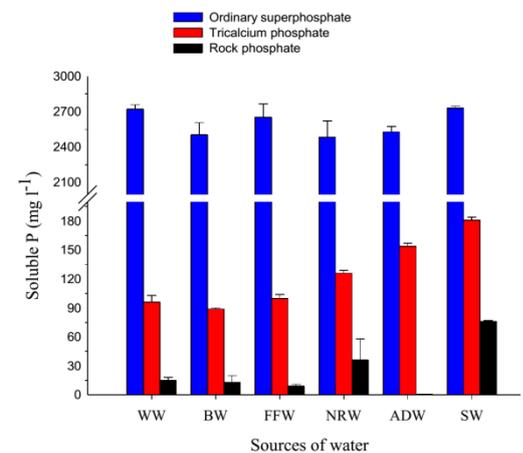


Fig. 1. Effect of water sources on the solubility of P salts

CONCLUSION

The solubility of inorganic phosphate salts was varied based on the chemical properties of water (ionic strength, EC and SAR). It can be concluded that phosphate pollution increased in marine ecosystems (more environmental problems) as compared to fresh water ecosystems.

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PS-100: EFFECT OF PHOSPHATE SOLUBILIZING MICROORGANISMS ON PLANT GROWTH AND SOIL ENZYME ACTIVITY

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ABSTRACT: The goal of this research was to assess the performance of phosphate dissolving bacteria (PDB) (*Pseudomonas fluorescens*, *Serratia marcescens*, *Bacillus megaterium* and *Bacillus subtilis*) to solubilize rock phosphate (RP) in broth medium. The synergistic effects of mycorrhizae and PSB with and without RP on wheat growth, yield and the activity of phosphatase in a natural unsterile sandy P-insufficient soil were evaluated under greenhouse pot experiment. In general, the levels of dissolve P increased with longer incubation periods and the amount of P that was released into the NBRIP broth medium was dependent on the type of strain. The amount of P solubilized of RP reached 46.31, 10 days after an inoculation with *Pseudomonas fluorescence* and the pH values of the medium were reduced from initial value of 7.3 to value 4.20. *Pseudomonas fluorescence* strain was the most efficient strain in solubilizing RP and in decreasing the pH value. The inoculation with PDB strains and mycorrhizae significantly increased the alkaline phosphatase activity of the rhizosphere soil of wheat plants when compared to single inoculation. Similarly, the combined inoculation with mycorrhizae and PDB synergistically increased wheat plant growth and yield when compared to the single inoculations. From previous results, co-inoculation of mycorrhizae and PSB improved wheat growth, yield and increased the activity of alkaline phosphatase.

KEYWORDS: AM fungi, Phosphate solubilizing bacteria, wheat, alkaline phosphatase

INTRODUCTION

Phosphorus is one of the common essential macronutrients for plants and is added to soil as phosphatic fertilizers. However, a enormous amount of available inorganic phosphate added to the soil is rapidly fixed and converts to unreachable for plants [1]. Many newly reclaimed soils in Egypt already under excessive applications of chemicals and pesticides, and signs of severe environmental and health impacts have already been detected. Arbuscular mycorrhizal (AM) fungi and phosphate dissolving bacteria (PDB) could be an important biotechnological tool for sustainable agriculture by their positive effect on soil fertility, crop productivity and quality and could reduce the costs for chemical fertilization and pesticides [2, 3]. In soils with a low P bioavailability, PDB could release P ions from sparingly soluble inorganic and thereby contribute to an increase in the soil P pool that is available for the extraradical mycelium of the AM fungus and that can be moved to the host [4]. The presence of P-solubilizers in the soil increases the positive effect of mycorrhizal interactions on P nutrition and solubilization of P from rock phosphate [5]. Previous studies involving the inoculation with PDB and AM fungi have been conducted in sterile soils where competition from indigence microorganisms is disregarded [3, 5]. However, few studies conducted with non-disinfected soils under pot conditions and study the impact of dual inoculation with PDB and AM fungi on dry matter production and nutrients uptake.

OBJECTIVES

The targets of this research were to 1) investigate the performance of local four phosphate dissolving isolates for releasing P from rock phosphate in broth medium and 2) evaluate the synergistic effects of AM fungi and phosphate solubilizing rhizobacteria with and without rock phosphate on wheat growth, yield and the concentration of NPK in a natural unsterile sandy P-insufficient soil under greenhouse pot experiment. The impact of phosphate dissolving rhizobacteria alone or in combination with mycorrhizae on the activity of alkaline phosphatase was also examined.

METHODS

The capability of tested isolates to dissolved RP was evaluated *in vitro* using National Botanical Research Institute's phosphate (NBRIP) broth medium [6]. The trial was carried in 100 ml conical flask containing 40 ml of sterilized NBRIP broth medium. To each flask, 0.5 g RP was added and inoculated by adding 0.5 ml aliquots of actively growing isolates. The preliminary pH was regulated to 7.3 to ensure a minimum concentration of soluble phosphate. The flasks were incubated at 30°C and triplicate samples were booked after 0, 2, 3, 7, 10, 12 and 14 days post inoculation. Soluble P in the supernatants was determined spectrophotometrically using the molybdenum blue method [7]. The pH of the broth medium was also measured with a digital pH meter after consistent periods. A pot experiment was also conducted in the greenhouse at the Experimental Farm of the College of Agriculture, Suez Canal University, Ismailia. The soil was uniformly packed in plastic pots each of 30 cm height at a rate of 25.0 kg pot⁻¹. The soil was completely mixed with 250 g air-dried chicken manure. The experimental layout involves 2 blocks one with and the other on without AM inoculation. Each block divided into ten different sections, five rhizobacteria treatments (non-inoculated control or inoculation with one of the four P-solubilizing



rhizobacterial strains) and two fertilizer treatments (control soil and RP application). All these treatments replicated three times, giving a total of 60 experimental units that organized in a randomized complete block (factorial) design. Eight inoculated wheat seeds (*Triticum aestivum* cv. Gemeza 9) were sown in each pot and irrigated to almost soil field capacity with Ismailia canal water. The seedlings were reduced to 4 regular plants pot⁻¹ after 2 weeks from sowing. The plants were harvested after 69 days (vegetative stage) and 130 days (ripeness stage) from sowing, dried at 65 °C and shoot dry weight, straw and grains were recorded, then analyzed for N, P, K. Soil samples were also collected at the two abovementioned growth stages for determined available P, pH and measured the activity of alkaline phosphatase.

RESULTS & DISCUSSION

In general, the level of dissolve P increased with longer incubation periods and the quantity of P that was released into the NBRIP broth medium was dependent on the type of strain. The quantity of P solubilized of rock phosphate (RP) reached 46.31, 10 days after an inoculation with *Pseudomonas fluorescens* (Fig. 1) and the values of pH in the medium were reduced from initial value of 7.3 to value 4.20. The reduction of pH values evidently indicates the excretion of organic acids by phosphate dissolving bacteria (PDB) strains [8]. It has suggested that the isolates that decreased the medium pH through growth are effective P solubilizers. Additionally, chelate compounds may be also responsible for solubilization of RP [9]. At vegetative stage, the dual inoculation with AM fungi and PDB increased shoot dry weight of wheat when compared to non-inoculated plants or single inoculations. The application of RP enhanced shoot dry weight of wheat in AM-inoculated plant but slightly affect in non-AM-inoculated plant. The maximum shoot dry weight was recorded in the soil amended with RP and inoculated with *Bacillus subtilis* in AM fungi inoculated soil. The application of AM fungi and bacterial inoculations alone or in combination had a positive impact on soil enzymes like alkaline phosphatase (data not shown).

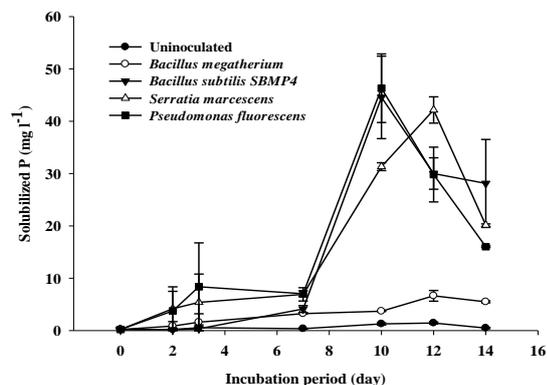


Fig. 1 Solubilized P during rock phosphate solubilization by tested strains. Error bars denote the standard deviations

CONCLUSION

Pseudomonas fluorescens strain is an efficient P solubilizers in liquid culture. The inoculation with AM fungi and/or phosphate dissolving bacteria increased wheat plant growth, yield and increased the activity of alkaline phosphatase under greenhouse pot experiment.

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PS-101: HYDRAULIC CALIBRATION OF SIMPLE ECONOMIC LOW HEAD COILED-TUBE EMITTER

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ABSTRACT: Clogging, complex design with 100kPa operating pressure have been the main problems in trickle irrigation emitters. To overcome these problems a laboratory experiment was examined the coiled-tubes hydraulic characteristics as emitter. The coiled-tubes diameter (C_d) of 3.8, 5.2 and 6.8mm with lengths (C_l) of 0.5, 0.75 and 1.0 m were evaluated under operating pressures of 3, 6, 9, 12 and 15kPa. The discharge (C_q) of 3.8mm C_d with all lengths increased from 21.6 to 76.5ℓ/h under tested pressures. While the C_q of 5.2mm C_d with all lengths increased from 60.23 to 168.5ℓ/h under tested pressures. Whilst the C_q of C_d 6.8mm with all lengths increased from 116.16 to 323.07ℓ/h under tested pressures. The coiled-tube exponent x was between 0.4 to 0.6 which considered turbulent flow. The manufacturer's coefficient of variation (C_v) was between 0.007 to 0.049 which classified as excellent for all.

KEYWORDS: Emitter, Design, Low Head, Coiled-Tube, Laboratory, Discharge, exponent, Classification.

INTRODUCTION

The design of trickle irrigation emitters is sophisticated and typically operated at 100 kPa and exposed to clogging problems. Most rural communities in devolving countries consists of smallholder farmers whose low income hinders those can't adopt with complex techniques. Using the small tubes as an alternative to current emitters can be a solution to these problems. The factors affecting coiled-tube hydraulic design were diameter, length, operating pressure. The main objective of emitter hydraulic design is calculating the head losses. Watters and Kellers (1978) calculated the head losses for smooth small diameter pipes (4 to 12 mm) by using Blasius formula. Several studies have been reported that the Blasius equation is an accurate predictor of the Darcy-Weisbach friction factor Von Bernuth and Wilson, (1989). Hydraulic performance evaluation which is used to determine and verify the characteristics of the coiled-tube emitter. The hydraulic calibration parameters are including coefficient of manufacturing variation (C_v) and (k, x) parameters.

OBJECTIVES

The objective of this work was to study the effect of operating pressures for different lengths and diameters of mean coiled-tube discharge and manufacturer's coefficient of variation and discharge equation constants k, x .

METHODS

A laboratory experiment (Fig. 1) was carried out to measure the coiled-tube discharges at different effective operating pressures (3, 6, 9, 12 and 15kPa) with different lengths of 1, 0.75 and 0.5m for diameters of 3.8, 5.2 and 6.8mm. Then the coiled-tube discharge equation constant k and exponent x was calculating:

$$C_q = k h^x$$

Where C_q : coiled-tube discharge rate (ℓ/h), k : dimensionless constant of proportionality that characterizes each coiled-tube, h : operating Pressure head (m). x : dimensionless discharge exponent.

The coiled-tube manufacturer's coefficient of variation (C_v). was calculated by measuring the discharge from a sample of the coiled-tube after ASABE EP405. 1 (2008) as follows:

$$C_v = \frac{S_d}{\bar{X}}$$

Where C_v : the coiled-tube manufacturer's coefficient of variation, S_d : the standard deviation of the coiled-tube discharge in the sample (ℓ/h), and \bar{X} : mean coiled-tube discharge (ℓ/h)

As shown at Table 1, Increasing operating pressure from 3 to 15kPa increases coiled-tube discharge diameter 3.8mm from 21.6, 28.7 and 32.2 to 58.3, 68.5 and 76.5ℓ/h with coiled-tube length of 1.0, 0.75 and 0.5m, respectively. While the coiled-tube diameter 5.8mm, increasing operating pressure from 3 to 15kPa increase the coiled-tube discharge from 60.23, 70.48 and 78.26 to 139.75, 155.57 and 168.59ℓ/h with length of 1.0, 0.75 and 0.5m, respectively. Whilst increasing the operating pressure from 3 to 15kPa increases the coiled-tube discharge from 116.16, to 252.76, 154.73 to 171.37, 308.85 and 323.07ℓ/h for coiled-tube diameter 6.8 mm with length of 1.0, 0.75 and 0.50, respectively. Then the coiled-tube discharge equation exponent x was ranged between 0.4 to 0.6 which considered turbulent flow. C_v values were ranged between 0.007 to 0.049. The manufacturing variation coefficient classification was considered excellent.

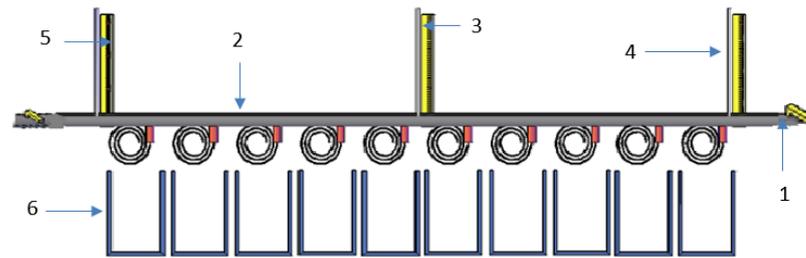


Figure (1): Setup diagram for coiled-tube calibration. 1: Valve, 2: Lateral pipe, 3: Steel tape, 4: Piezometer tube, 5: coiled-tube and 6: Plastic collector.

RESULTS

Table (1): Mean coiled-tube discharge, (C_q) and manufacturer’s coefficient of Variation, (C_v) at different effective pressures, (p_e) for different lengths, (ℓ) and diameters of 3. 8, 5. 2 and 6. 8 mm.

coiled-tube diameter	p_e , kPa	$\ell= 1\text{ m}$				$\ell= 0.75\text{ m}$				$\ell= 0.5\text{ m}$			
		C_q , ℓ/h	k	x	C_v	C_q , ℓ/h	k	x	C_v	C_q , ℓ/h	k	x	C_v
3. 8 mm	3	21. 5	44. 7	0. 6	0. 049	54. 0	0. 5	0. 049	32. 7	59. 8	0. 5	0. 048	
	6	32. 8			0. 047			41. 9	0. 041			47. 1	0. 041
	9	42. 3			0. 039			51. 9	0. 033			58. 6	0. 037
	12	50. 4			0. 033			61. 1	0. 031			68. 2	0. 034
	15	58. 7			0. 029			69. 5	0. 029			77. 6	0. 028
5. 2 mm	3	60. 2	112. 0	0. 5	0. 047	126. 2	0. 5	0. 033	78. 3	136. 7	0. 5	0. 049	
	6	85. 0			0. 046			98. 0	0. 013			108. 4	0. 047
	9	104. 7			0. 045			120. 4	0. 013			132. 3	0. 039
	12	123. 9			0. 043			136. 0	0. 009			147. 1	0. 036
	15	139. 7			0. 037			155. 6	0. 007			168. 6	0. 029
6. 8 mm	3	116. 2	205. 1	0. 5	0. 018	259. 6	0. 4	0. 039	171. 4	274. 4	0. 4	0. 035	
	6	162. 1			0. 022			210. 0	0. 024			226. 7	0. 022
	9	189. 6			0. 020			247. 3	0. 021			262. 3	0. 022
	12	224. 8			0. 021			280. 7	0. 026			293. 9	0. 016
	15	252. 8			0. 022			308. 9	0. 028			323. 1	0. 019

CONCLUSION

The results indicated that the discharge of coiled tube increasing proportionally with operating pressure and inversely with coiled-tube length. The coiled-tube discharge exponent x was turbulent flow which ranged between 0. 4 to 0. 6. The manufacturer’s coefficient of variation (C_v) values was excellent classification between 0. 007 to 0. 049.

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PS-102: A NEW LOW HEAD IRRIGATION EMITTER

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ABSTRACT: Water is one of the most precious resources in worldwide, improving agricultural water use efficiency is vitally important by innovative irrigation systems. Energy costs are high in most countries. There is a need to reduce significant energy being used in an irrigation system. The objective of this study is developing a low head emitter manufactured from clay soil and organic materials. The work was divided into two calibration experiments which carried out in Agriculture Engineering Department, Faculty of Agriculture, Suez Canal University, Ismailia, Egypt. The emitter was fabricated from bentonite clay with straw by three percentages of 1%, 2% and 4 % for emitters Em₁, Em₂ and Em₃, respectively. Two calibration criteria to evaluate the developed emitters were specified. The first criterion was Hydraulic Characteristics of a design of the clay emitter; the second criterion was hydraulic calibration of the developed emitter. Emitters discharges were measured, then emitters exponents x , and coefficients of manufacturing variation, CV, were calculated at five low head operating pressures of 0. 2, 0. 4, 0. 6, 0. 8, and 1. 0 meter. Suitable design for the clay emitter was the hollow cylindrical shape. Em₃ was having maximum average discharge.

KEYWORDS: Clay Emitter, Discharge, Pressure Head, Coefficients of Manufacturing Variation (CV), Soils.

INTRODUCTION

Low head microirrigation is a technique that enables us to save water and energy while economical, less laborious and more efficient irrigation can be achieved (Ngigi, 2008). Energy costs are more significant than water costs in most countries. Today most irrigation techniques have been developed for conditions under which fossil energy sources deliver pump energy as needed (Rashad, 2013).

Subsurface clay emitter irrigation is comparatively a new method of irrigation. It is widely considered to be a very promising method for small scale irrigation in arid and humid regions. Additionally, it can be used to improve irrigation uniformity and water use efficiency in a number of different cropping systems. The method allows one to supply the required amount of water by seepage from below the soil surface to the crop at the right place and the right time. The greatest advantages of clay emitter are that it consumes very low energy and water.

OBJECTIVES

Find a suitable proportion of clay and straw for making clay emitter. Find a suitable design for the clay emitter. Study clay emitters' discharge, then emitters' exponents x , manufacturer's coefficient.

METHODS

In these study three types of clay emitter was fabricated. The most important component of suction irrigation system is the emitters. These emitters can be fabricated locally by mixing clay and straw at specific proportions. Type Em₁ was made from 99% pure clay (bentonite) and 1% straw, Type Em₂ was 98% clay and 2% straw, and Type Em₃ was 96% clay, 4% fine straw.

Emitter fabrication: This emitter was fabricated by mixing clay and straw at specific proportions. Shaping the emitter can be done using moulds or specially designed extruders. The emitter is dried in the shade and then fired to about 105° C for 24 hours. The water emission rates of emitters will depend on the proportion of clay and straw wall thickness, surface area, and type of soil. The emitter is connected to the tank with water using plastic tubes.

Emitter calibration: This Laboratory experiment was undertaken to evaluate the hydraulic performances of three clay emitters under laboratory conditions. Main objectives were to: Measure emitter discharges at five operating pressures and compare these results with manufacturers' rated discharges, determine the emitter discharge exponents, x , and evaluate the flow regime of each type of emitter and calculate the coefficients of manufacturing variation, CV, at five operating pressures, in order to establish the emitters flow rate sensitivity to pressure.

Coefficient of variation (CV): The manufacture's coefficient of variation is determined from flow rate measurements for several identical emission devices and is computed with the following equation as follows (ASABE, 2008):

$$Cv = SD/qa$$



Where: C_v = manufacturer's coefficient of emitter variation, q_a = the mean discharge of emitters in the sample at a REFERENCES pressure head (L/h), SD = standard deviation of the discharge of the emitters in the sample at that REFERENCES pressure head (L/h).

The emitter exponent (x): The emitter discharge exponent (x); is a measure of the sensitivity of the emitter flow rate to changes in pressure. This exponent is dimensionless and it is independent of the units used to measure flow rate and pressure (Smajstrla et al., 2011).

RESULTS & DISCUSSION

The obtained results have been led to the following recommended points:

- 4- The clay emitter developed were three type **Em₁** (1% straw and 99%clay) **Em₂** (2% straw and 98%clay) and **Em₄** (4% straw and 96%clay), Suitable design for the clay emitter was the hollow cylindrical shape because it is the best in surface area and because its streamline shape and easier in field operation and EM3 was the best in average discharge at all experiment.
- 5- The CV values were relatively insensitive to operating pressure head 0. 2, 0. 4, 0. 6, 0. 8, and 1 meter For **Em₁** was 0. 59, 0. 52, 0. 44, 0. 42 and 0. 37, for **Em₂** was 0. 15, 0. 16, 0. 16, 0. 186 and 0. 19 and for **Em₃** was 0. 11, 0. 07, 0. 12, 0. 09 and 0. 12.
- 6- The emitter exponent (x) was 0. 39, 0. 28 and 0. 055 for Em1, Em2 and Em3 respectively.

CONCLUSION

From result a new low head emitter will be a promising system because it consumes very low energy and water. **Em₃** was the best in average discharge, Coefficient of manufacturing variation (CV) and the emitter exponent (x).

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PS-103: ENHANCING PERFORMANCE OF CIRCULAR HOLLOW SECTION T-JOINTS

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ABSTRACT: Structures with tubular members are widely used in steel structures, due to their economical and functional advantages. Applications of tubular joints in steel structures are found in steel bridges, space trusses, trussed Frames & steel latticed towers. In this study, the Enhancing performance of circular hollow section T-joints using vertical brace member and chord member with steel plate stiffener shall be investigated analytical under axial load mode. Finite element method is used in the analytical part of the research on stiffened and un-stiffened T-joints with different dimensions parameters. Results developed by finite element analysis are compared with numerical method result by CIDIC code for un-stiffened circular T-joints.

KEYWORDS: circular hollow section, T-joint, stiffened hollow-section, Yield stress.

INTRODUCTION

Circular hollow steel sections are becoming increasingly popular. The ultimate and reserve strengths of such structures depend significantly on the member and joint responses. There are many limits of applicability to the use of stiffened circular hollow sections. Most current standards for steel structures are the American Institute of Steel Construction (AISC, 2005), and (CIDECT 2008). It is necessary to investigate the ductility of these stiffened circular hollow sections and structural behavior.

OBJECTIVES

The objective of this study as following:

- I) Determine the overall behavior and load capacity of stiffened and un-stiffened tubular T-joints under loadings using analytical methods.
- II) Provide designers with recommended strength of stiffened tubular T-joints under brace compression force loadings.
- III) Provide equations and curves for the strength of stiffened tubular T-joints that can be included in design codes in future.

METHODS

- The geometry and some normalized geometrical parameters commonly used for describing tubular T-joint are shown in Fig. Without stiffener and Fig. (2) with 2 stiffeners, Fig. (3) with 4 stiffeners.
- Determination of allowable static axial force in brace member by design code CIDECT for T-joints N which is the minimum of:
 - For the limit state of chord plastification,
$$N_1 = [fy_0 t_0^2 (2.8 + 14.2 \beta_2) \gamma^{0.2} \cdot f(n')] / (\sin \theta_1)$$
 - For the limit state of shear yielding (punching),
$$N_p = [fy_0 t_0 \pi d_i (1 + \sin \theta_1)] / 3^{0.5} \cdot 2 (\sin \theta_1)^2$$
- Material properties of steel: Elastic Modulus = 200 (GPa), Yield Strength = 240 (MPa), Ultimate Tensile Strength = 360 (MPa)
- The numerical study for each joint was carried out using the nonlinear finite element program (ANSYS, R14).

RESULTS & DISCUSSION

- From Chart (1) shows the comparison between maximum force N from analysis and design code for different joints parameter values, it is appearing the compatibility between finite element result and CIDICT equations results for un-stiffened joint.
- From Chart (2) shows the comparison between maximum forces N from un stiffened, stiffened joints for different joints parameter values, it is clear how the capacity of the joints increased by using two stiffeners with joints and this increasing is more in using four stiffeners than using two stiffeners.

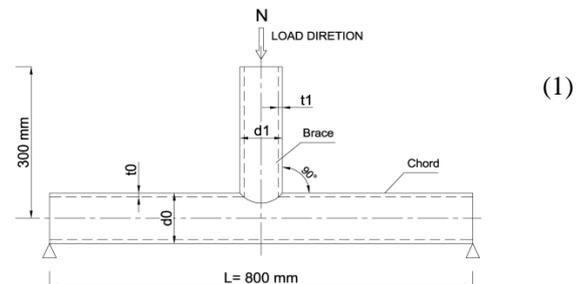


Fig (1): Dimensions of un-stiffened T-joint

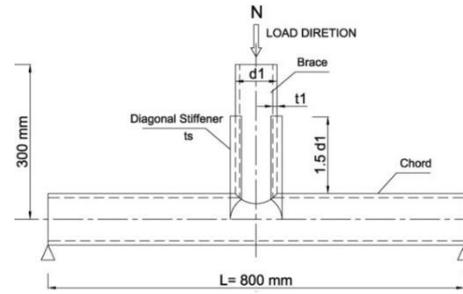
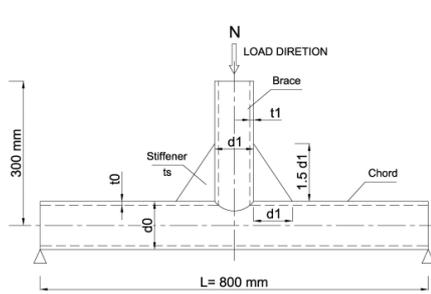


Fig (2): Dimensions of stiffened T-joint With 2 side stiffeners Fig (3): Dimensions of stiffened T-joint With 4 stiffeners

Table (1): Joints Table Results:

No.	Joint	$\beta = d_i/d_0$	N_c (CIDECT)	Un-stiff N_u (finite)	2 stiffeners N_2 (finite)	4 stiffeners N_4 (finite)	N_u/N_c	N_2/N_u	N_4/N_u
1	1	0.22	2.51	2.377	2.801	3.717	0.949	1.178	1.564
2	2	0.33	3.13	3.168	3.688	5.400	1.011	1.164	1.705
3	3	0.44	4.01	4.075	4.511	6.138	1.016	1.107	1.506
4	4	0.55	5.14	5.046	5.346	6.758	0.982	1.059	1.339

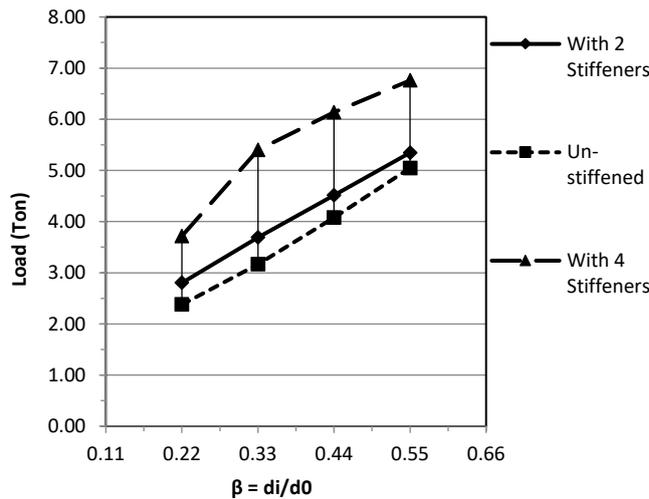


Chart (2) Comparison between N_{finite} for un-stiffened, with two stiffeners and with four stiffeners joints.

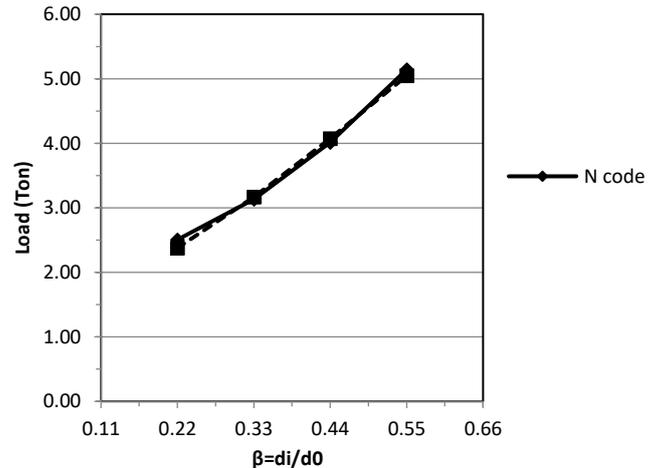


Chart (1) Comparison between N_{CIDECT} and N_{finite} analysis for un-stiffened joints

CONCLUSION

Enhancing T-joints subjected to brace axial compression forces using stiffeners was proven numerically and analytically to be an effective technique. In case of using two side stiffeners, the strength increasing is found to be 10-18%. In case of using four side stiffeners, the strength increasing is found to be 30-70%. This result is a significant gain compared to the cost and self-weight added. Additionally, it is found that by Increasing number of stiffeners closely to saddle area of the joints increases the joint capacity than closely to the crown of the joints.

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PS-104: NUMERICAL ANALYSIS OF CRUCIFORM WELDED STEEL CONNECTIONS REPAIRED WITH FRP MATERIALS

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ABSTRACT: Steel cruciform welded connection with adhesively bonded FRP materials were investigated regarding the fatigue performance. Full penetration weld was proposed as the type of welding. The (2-D) finite element method (FEM) was utilized and modeled for two cases. The first Case to evaluate the effect of using FRP only on stress intensity factors (SIF), while the second case was to study the effect of FRP materials fixed with head plate and bolts on SIF (K_I). SIF of mode I (K_I) were calculated for unrepaired and repaired specimens with various FRP materials by J-integral approach. In addition, FEA results of the unrepaired cruciform joint were verified with an analytical results approach. The reduction of stress intensity factors for two cases were clarified. Parametric studies were conducted by linear elastic finite element analysis using Ansys software.

KEYWORDS: Stress Intensity Factor (SIF), FEM, FRP materials, Repair, LEFM, Weld toe crack

INTRODUCTION

Fatigue damage of existing metallic structures is a specific case of deterioration and occurs when the structure is subjected to cyclic loading during their service life. welded joints are weak points for fatigue strength. according to [1, 2], fatigue cracks initiate in the joints at the high stress concentration regions. These regions are weld toe and weld root. Several researches assumed & considered toe cracks because it is very simple to detect with the naked eye as well as with destructive test, they are often found in many applications of engineering welded components. Moreover, there is a high stress concentration located at these points [3]. Many strengthening methods of metallic structures have been adopted to prolong fatigue life. In recent years, repair by adhesively bonded with fiber reinforced polymer (FRP) materials for metallic structures has shown as a hopeful retrofitting approach. This technique was also employed for several materials such as steel or aluminum. In recent years, Chen T et al. [2] conducted fatigue tests on non-load carrying cruciform joints vulnerable to tensile fatigue loading. Fatigue test results showed that the number of cycles enhance to two times compared to control ones. Numerous researches conducted experimental and numerical results have shown that a composite materials patch can delay crack growth propagation and extend the life of welded joints[4]. In this work the SIFs of cracked load-carrying cruciform welded joints initiate from weld toe and bonded with FRP materials have been calculated using a two-dimensional finite element analysis (FEA).

OBJECTIVES

To investigate numerically using finite element analysis the effects of SIF(K_I) of opening mode on strengthening evaluation. The investigation covers strengthening using FRP materials, in addition to FRP materials fixed with head plate and bolts.

METHODS

The geometry configuration of load-carrying welded connection adopted in this research was made of steel head plate (stiffener plate) which is welded to attach main plates at both sides as presented in Fig. 1. Analytical formulae of the SIF for a crack at weld toe of cruciform joint butt weld, according to Maddox SJ [5], was employed. The loading main plate was subjected to 100 Mpa tension stress range. An initial crack length, "a" perpendicular to the loading axis is supposed to exist at the weld toe. The steel specimen's surfaces are adhesively bonded with GFRP sheets as first layer & other four layers were bonded with CFRP sheets. Both, steel welded joint together with the adhesive and FRP materials and fixed with head plate and bolts were simplified to a half (2D) plane strain model due to symmetric. The FEA model was meshed with PLANE183 which is a higher order 2-D, 8-node or 6-node element and having two degrees of freedom at each node. A symmetrical boundary as supports were defined for all nodes at left part which is the center of stiffener plate as shown in Fig. 2. The values of stress intensity factor (SIF), is calculated by the J-integral method which can be perfect with FEA using Ansys 14. 5. The stress intensity factors for unrepaired welded joint under 100 MPa stress range are determined numerically and compared with the analytical formulas results.

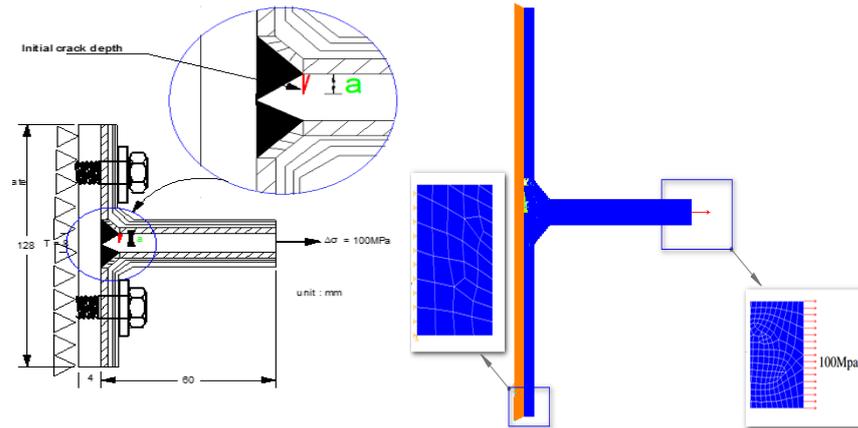


Fig. 1: Geometry configuration model

Fig. 2: 2- D FEA meshing with supports and loading of 100MPa

RESULTS & DISSUSION

Results are shown graphically (Fig. 3 and 4) for these parameters and stress intensity factor (KI). The following Results can be made: The FRP patch layers, had a direct effect on the decreases SIF(KI), the reduction of SIF ranged between (16 - 45) %. The effect of adhesive modulus was insignificant, the reduction reached 7% for small crack depth, while reached 14% for deeper crack length. A higher GFRP or CFRP modulus resulted in more reduction in SIF(KI), this reduction in SIF ranged between (10-17) %.

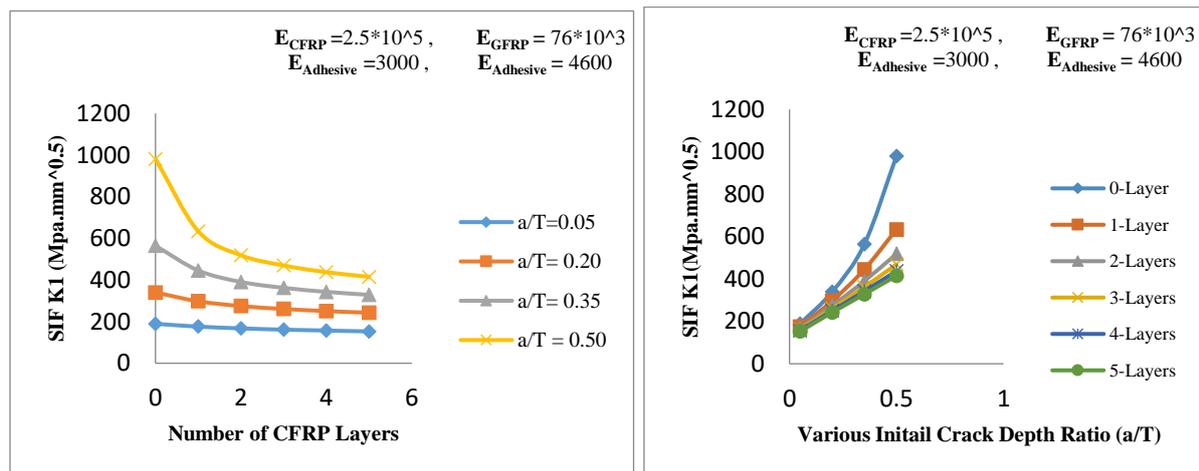


Fig. 3: Relation between SIF and number of FRP layers Fig. 4: Relation between SIF (KI) and the initial crack length

CONCLUSION

The effects of many parameters on SIF of opening mode I (K_I) at the tip of crack were calculated using the finite element method by J-integral approach for the two cases. To demonstrate the efficiency of these calculations, cruciform welded joint was investigated and developed numerically & analytically. The results of analytical method and FEM showed good correlation, although some deviations existed with small and large crack depth. The reductions in the SIF(K_I) were obvious for the two cases.

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PS-105: OPTIMAL DEMAND-SIDE MANAGEMENT IN A SMART ELECTRIC GRID BASED ON LOAD SHIFTING

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ABSTRACT: Demand-side management "DSM" has been usually seen as a tool of reducing maximum demand so that electric utilities can delay building additional power stations. DSM has several useful effects that include decreasing electrical system crises, decreasing those numbers of blackouts and increasing system reliability. In this work, DSM based on load-shifting is optimized to reduce the system maximum load and electric utility income and to reduce customer electricity bill. Based on smart metering, day ahead load-shifting method is expressed as a minimization problem and is solved by a novel Antlion optimization (ALO) technique. Simulations are executed on a smart-grid that include a different load in these sectors (residential customers, commercial customers, and industrial customers). Simulation results ensure the advantage of the optimized DSM method in savings of both electric utility and consumers, while decreasing the maximum demand of the grid.

KEYWORDS: DSM, Demand-Side Management, Load Shifting, Smart Grid, Antlion Optimization.

INTRODUCTION

Demand-side management (DSM) is considered as a serious function in power managements of coming smart grids. It has been habitually seen as a tool of reducing maximum demand so that electric utilities can postpone constructing additional power plants. Achievable benefits can also include reshape the demand curve for energy consumption, reducing reliance on expensive incoming fuel, reducing energy bills, and raise the grid continuity by decreasing the total cost and carbon-emission levels to the environment [1]. The planned demand side management system should therefore able to make communication between the central controller and loads that can be controlled. The last, but not the least, gauges for determining the best load consumption can vary largely [2]. There is an inclusive range of DSM-techniques [3]. Programs of demand-side management are growing in replay to the increasing in load and the rising price and time needed taking additional generation add to the service [4]. The load forms which show every-day or every-season electricity demands of residential, commercial and industrial customers between high consumption and low consumption periods be reformed by ways of six methods; peak-clipping (PC), valley-filling (VF), strategic-conservation (SC), load-shifting (LF), strategic load-growth (SLG), and flexible load-shape (FLS). In general, these are the potential demand-side management methods that we can employment for future grid [5, 6].

OBJECTIVES

The objective of this work is to propose a novel optimization method called antlion (ALO) to solve the DSM problem. The DSM problem is the modification of shape load curves by minimizing the overall load of the electric network during the high consumption times and shifting these demands to other suitable times to decrease the price of the network. Also applying the suggested optimization technique on an electric network comprises types of loads; residential, industrial and commercial with different load curves.

METHODS

Load shifting based DSM is executed as after: at each time, load energy (devices number) is decreased by an assured percentage and the residual consumption power is moved with an assured time stride.

The two main constraints in this problem are: proportion of load decreasing at t time, and time stride's number at which the residual of the decreased load will be transferred. It should be announced that load-shifting is used only on loads that can be controlled and has flexible to be transferred. This load-shifting problem is solved to reduce the high demand and consequently minimizing price of power consumption. ALO is applied to solve this problem. ALO simulates the tracking mechanism of antlions (ALs) in nature. The life cycle of ALs containing two essential stages: larvae and adult. A normal life-time take about three years, which generally happens in larvae (only three – five weeks for adulthood). They principally tracking in larvae and the adulthood phase is for propagation. An AL larva Excavations an etcher format pit in the sand and moving in a circulate path and declamation out sands with its massive jaw. After drilling the gin, the larva hides beneath the bottom of the etcher and stay waiting for the prey to be restricted in the pit. The rim of the etcher is acute enough for ants to fall to the down of the gin easily. Once the AL senses that a victim is in the gin, it trying to hunt it [7].

RESULTS

Simulation results are obtained by applying the ALO on electric network with three different loads and with different load curves. The data of the test system, forecasted and objective load curves, is given in [2]. The suggested algorithm has effectively and efficiently controlled huge number of different types of loads that can be controlled. The results of the simulation show that in all three load sectors, using optimized DSM techniques, the maximum load demand is decreased, as shown in Figs. 1 -3, and consequently the energy cost is reduced as shown in Table 1. Where for residential load sector, the energy cost consumption is reduced from 2302.9 \$ to 1951 \$ and with a percentage reduction equals 15.2 %. For commercial and industrial load sectors, the costs of energy consumption are decreased with percentage reductions equal 19.6 % and 18.1 %, respectively.

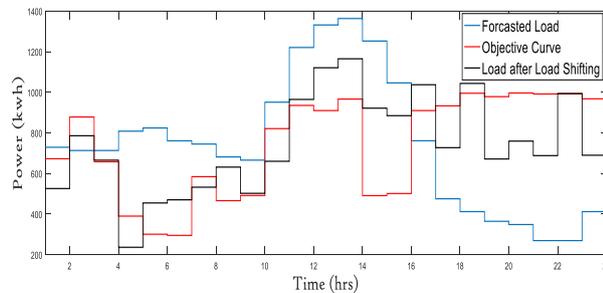


Fig. 1 load-shifting results of residential zone

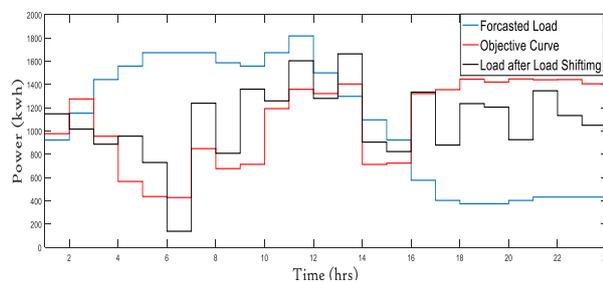


Fig. 2 load-shifting results of commercial zone

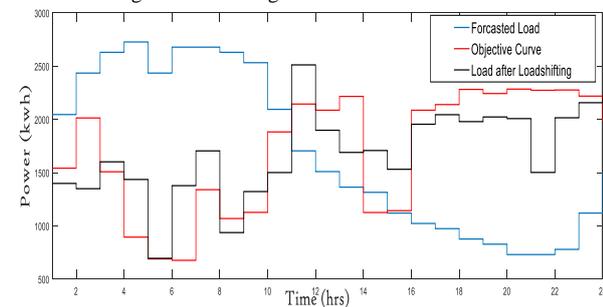


Fig. 3 load-shifting results of industrial zone

Table II. comparison of Cost Reduction without and with DSM

Area	Cost without DSM(\$)	Cost with DSM(\$)	Percentage reduction (%)
Residential	2302.9	1951.00	15.2 %
Commercial	3626.6	2915.52	19.6 %
Industrial	5712	4679.7	18.1 %

CONCLUSION

This paper presents a demand-side management strategy for smart-grids. The DSM technique supports both consumer and utility concerning energy-management particularly during high consumption hours. This strategy is based on load-shifting technique that has formulated as a minimization problem. The essential objective of the demand-side management planning is to realize the least operation cost by load-shifting. The proposed DSM utilizes and develops Antlion optimization algorithm to solve this problem. Simulations are applied on a smart-grid that includes three various types of consumer zones. Simulation results Describe that the algorithm used can control a big number of devices of various kinds, and to achieve energy consumption savings by decreasing the maximum load-demand.

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PS-106: EFFECT OF ORGANIZATIONAL CULTURE ON PERFORMANCE BASED ON CAMERON AND QUINN MODEL (CVF) in Egyptian hotels

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ABSTRACT: *As competition increases, hotels seek to gain more market share, increase their profitability, create a competitive advantage, and hence improve performance. One method of improving performance is organizational culture (OC). Moreover, OC relates vigorously towards employee performance by upgrading individual performance and improving employee retention through a set of behavior patterns, beliefs, values, and work styles that is implemented by a certain firm or hotel as a form of the identity of that hotel or firm. The study aims to investigate the impact of OC on performance based on Cameron and Quinn model in hotel Egyptian industry. According to the importance of the issue, Cameron and Quinn model (CVF) is used to investigate the dimensions of OC and (occupancy percentage, ADR, RevPAR) are used to evaluate the dimensions of hotel performance. According to OC studies in hotels has shown that there is a low level of implementing OC types in the hotel under research because of some obstacles such as the lack of adequate understanding and awareness of OC; there is a strong positive impact on types of OC (clan culture, adhocracy culture, and market culture) and performance; there is a weak negative impact on hierarchy culture and performance; OC related to TQM practices strongly, In addition to, TQM practices effect on performance directly, and positively. As a result, OC has direct and indirect positive effect on performance. Finally, in order to support successful OC and the hotel performance, the research recommends hotel establishments in Egypt to apply the concept of OC to improve performance through training courses for employees which explain the importance of OC and its advantages to hotel and employees.*

KEYWORDS: *Organizational Culture (OC), Competing Value Framework (CVF), Performance.*

INTRODUCTION

As competition increases, hotels seek to gain more market share, increase their profitability, create a competitive advantage, and hence improve performance. One method of improving performance is organizational culture (OC). Moreover, OC relates vigorously towards employee performance by upgrading individual performance and improving employee retention through a set of behavior patterns, beliefs, values, and work styles that is implemented by a certain firm or hotel as a form of the identity of that hotel or firm [1].

OBJECTIVES

Investigate the impact of organizational culture on performance based on Cameron and Quinn model in Egyptian hotels.

METHODS

Several studies on OC have reviewed especially, related to hospitality industry. According to, Cameron and Quinn model (CVF) is used to investigate the dimensions of OC because it to be the most suitable for the objective of this research; (2) it is additionally one amongst the most critical and extensively used models for constructing the profile of OC and (occupancy percentage, ADR, RevPAR) are used to evaluate the dimensions of hotel performance [2, 3, to 11].

RESULTS

Findings have shown that (1) there is a low level in implementing OC types in the hotel under research because of some obstacles such as the lack of adequate understanding and awareness of OC; (2) there is a strong positive impact between types of OC (clan culture, adhocracy culture, and market culture) and performance; (3) there is a weak negative impact between hierarchy culture and performance; (4) OC related with TQM practices strongly, In addition to, TQM practices effect on performance directly, and positively.

CONCLUSION

OC has direct, positive effect on performance and indirect through TQM, so future work will focus on investigating the impact of OC on performance through a moderator TQM. The research recommends hotel establishments in Egypt to apply the concept of OC to improve performance through training courses for employees which explain the importance of OC and its advantages to hotel and employees.

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PS-107: TQM PRACTICES IN HOSPITALITY INDUSTRY AND THEIR EFFECT ON PERFORMANCE: ARTICLE REVIEW

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ABSTRACT: *TQM is a management philosophy that tries incorporate every organizational function to concentrate on meeting client needs and organizational quality targets. It is one amongst the most well-applied approaches to the contemporaneous innovations, for example, JIT, six sigma to achieve business excellence, over the most recent two decades a substantial number of companies working in product and service industries had understood the great significance of adopting and implementing TQM process keeping in mind the end goal to keep up a sustainable competitive advantage in a quickly changing environment. The aim of the research is to determine TQM practices in Egyptian hotel through literature survey, investigate their impact on performance, and propose the conceptual framework of TQM implementation. Previous studies on TQM from (1989 to 2017) have reviewed especially, related to tourism, and hospitality to determine the practices which measure TQM. The findings have shown that TQM practices are human resource management development, top management leadership, quality systems and culture, customer focus, process quality management, quality data and reporting, continuous Improvement, supplier quality management, communication, benchmarking, and product and service design; the fruitful usage of TQM will bring about immediate and backhanded advantages such as improving quality, employee participation, and teamwork, working relationships, customer satisfaction, employee's satisfaction, productivity, communication, and market share; there is a strong positive effect on TQM practices and performance; the hotels focus only on five or six of these TQM practices, so the research recommends hotels to apply all of TQM practices.*

KEYWORDS: *Tourism and Hospitality Industry. Total Quality Management (TQM), Quality Gurus, TQM practices, Performance.*

INTRODUCTION

TQM is a management philosophy that tries incorporate every organizational function to concentrate on meeting client needs and organizational quality targets. It is one amongst the most well-applied approaches to the contemporaneous innovations, for example, JIT, six sigma to achieve business excellence, over the most recent two decades a substantial number of companies working in product and service industries had understood the great significance of adopting and implementing TQM process keeping in mind the end goal to keep up a sustainable competitive advantage in a quickly changing environment [1].

OBJECTIVES

The aim of the research is to determine TQM practices in Egyptian hotel through literature survey, investigate their impact on performance, and propose the conceptual framework of TQM implementation.

METHODS

Previous studies on TQM from (Saraph et al., 1989 to Aamer et al., 2017) have reviewed especially, related to tourism, and hospitality to determine the practices, indicators which measure TQM. The research of Saraph et al. (1989) is considered the first research that wrote on TQM [2, 3, to 12]. SPSS is used to determine the most practices that Frequencies in the studies.

RESULTS

The findings have shown that: (1) TQM practices are human resource management development, top management leadership, quality systems and culture, customer focus, process quality management, quality data and reporting, Continuous Improvement, supplier quality management, communication, benchmarking, and product and service design; (2) the fruitful usage of TQM will bring about immediate and backhanded advantages such as improving quality, employee participation, and teamwork, working relationships, customer satisfaction, employee's satisfaction, productivity, communication, and market share; (3) There is a strong positive effect on TQM practices and performance, moreover, the hotels focus only on five or six of these TQM practices.

CONCLUSION

TQM practices have a positive effect on performance in Egyptian hotel industry, so future work will focus on investigating this impact by using questionnaire. To achieve the benefits of TQM, hotels should apply all of TQM practices, not focus only on five or six of these TQM practices,

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PS-108: الطرق و المنشآت الدينية المطلة عليها في العصر المملوكي بمدينة القاهرة (648- 923هـ/1250-1517م) دراسة أثرية معمارية

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المخلص: تعتبر العمارة هي السجل الذي نعرف من خلاله تاريخ العصور السابقة بما فيها من تقدم وازدهار أو تخلف، وارتبطت هذه العمان ارتباطاً وثيقاً بالعوامل البيئية والفقهية وأيضاً السياسية والاجتماعية وتطورها على مر العصور. ويعد العصر المملوكي (648- 923هـ/1250-1517م) بشقيه البحري والبرجي عصرًا غاية في الأهمية والثراء والخصوصية في كل جوانبه وعناصره.

في العصر المملوكي لم تشيد عواصم جديدة بل نشأت أحياء جديدة تتبع مركز السلطة أينما كان، و لكن ظلت العواصم القديمة بما فيها القاهرة في تزايد مستمر و تكس سكانها، ولهذا فإن مباني العصر المملوكي لم تكن عمان ابتداء كما كان الحال في العواصم الأولى بل كان ولا بد من هدم مبان قديمة لإقامة المباني الجديدة على مساحته.

وتعتمد هذه الدراسة في بناء النموذج التفسيري على دراسة العلاقة بين الأثر و الطريق في ضوء أحكام الفقه التي حددت وظيفته و ملامحه و أيضا التحول السياسي و الدعائي، هو ما يطلق عليه ابن خلدون العصبية السياسية التي تقوم عليها الدول و الذي يوضح فيه قوة الدولة وقيمة منشئها.

يهدف هذا البحث بدراسة الطرق و تصميم المنشآت الدينية المملوكية الباقية بمدينة القاهرة، لذا ترصد الرسالة بحث العلاقة التبادلية بين تصميم المنشأة و الطرق المطلة عليه ومدى تأثير الأحوال السياسية و الفقهية و الاجتماعية على منشآت ذلك العصر، ومن هنا نستطيع الكشف عن معرفة المزيد عن حياة المجتمع الحضارية و المعمارية، و تفسير كثير من البقايا الأثرية المعمارية وظيفياً بالكشف عن الأسباب التي أدت إلى إنشائها أو تعديلها أو تغييرها من فترة إلى أخرى، و هذه الرؤية مهمة لمنهج البحث الأثري القائم على تفسير الظواهر المعمارية بصفة خاصة و بقية الظواهر بصفة عامة.

الكلمات الدالة: العمارة المملوكية، حق الطريق، أحكام الفقه، تصميم المنشأة، المدينة و المنشآت الدينية، عناصر الإنتفاع

المقدمة

تكشف العلاقة بين المدينة و شوارعها عن مدى إتزام المعمار المسلم بحق الطريق، و لعل أروع الأمثلة على ذلك ما نراه في مقاسات بوابات المدن بالقاهرة، فبرغم الحرص على تحصين المدينة و الإرتفاع بأسوارها و تقليل أبوابها قدر المستطاع، يلاحظ إتساع هذه البوابات و إرتفاعها و هو أمر يكشف في المقام الأول عن مراعاة المعمار المسلم لحق الطريق، فهذه البوابات تربط المدينة بخارجها، لذا وجب أن يراعى فيها الإتساع و إرتفاع ما يعلوه من مبان بقدر ما حدده الفقهاء.

و لقد أخذ الفقه الإسلامي يعين الاعتبار جملة من العوامل، الطبيعية و السياسية و الاقتصادية و الأمنية في تأسيس مفهوم المدينة كامتداد للبيانات بما يتوافق و تخطيط المباني من حيث التجاور أو التلاصق للمباني و إرتفاعها، و من حيث توزيع عناصر التهوية و الإضاءة و الإطلال بالطريقة التي توفر الوقاية و تمنع الضرر، و تحول دون كشف حرمت المساكن، و جاءت أحكام الفقهاء مساندة لتطور حركة العمران، فالبيئة العمرانية الإسلامية في مجملها، شيدت من قبل مصممين سواء كانوا معماريين أو مخططين على أسس و وضعتها الشريعة، و كذلك وفق تراكم الخبرات جيلاً بعد جيل فضلاً عن العرف.

و لقد أثرت البيئة العمرانية المحيطة في تصميم المسجد، حيث لجأ مهندسي المنشآت الدينية في بعض الأوقات إلى معالجة الفراغ الداخلي ليلائم إتجاه القبلة الذي جاء منحرفاً عن إتجاه الشوارع و الأبنية المحيطة، و من أهم هذه المعالجات إنكسار المحور الرئيسي عند المدخل و عمل دواليب و وحدات معمارية بأعمق مختلفة في جهة الإنحراف كمسجد الأقمر و مسجد السلطان حسن.

و لقد إستخدم المعمار المسلم عدة عناصر لتساعد على التفاعل بين البيئة و المنشأة فإستخدم الصحن المشكوف و المداخل المنكسرة و المجاز القاطع، و كذلك الإضاءة عن طريق الشبائيك الجصية أعلى الجدار، و الشخشيخة و ملاقف الهواء لتسهيل التهوية الطبيعية، و كذلك بناء القباب و المآذن و كيف إستطاع المعمار المسلم إنجاح التفاعل بين عناصر الإتصال المختلفة بالمنشأة و بين البيئة.

إذا هناك علاقة تبادلية هامة بين الطريق و المنشآت المدنية أثر كل منهما على الأخر و هو ما سيتم تناوله بالشرح في متن البحث.

أهداف البحث

1-إلقاء الضوء على زاوية جديدة في التفسير الأثري و التاريخي و الحضاري للعمارة الدينية في القاهرة كنموذج لمصر بصفة عامة بصفتها شاهدة على الدولة المملوكية ومدى تأثير العمارة بالعوامل الخارجية.

2-دراسة دور البيئة المحيطة بالمنشأة و تأثيرها بشكل مباشر و غير مباشر في تصميم و تخطيط العمان المملوكية.

3-مناقشة تطور العمارة الدينية في ضوء العلاقة الوظيفية بين عناصر الإتصال و بين الوظيفة المنوطة بها المنشآت الدينية.

4-رصد التطورات و المتغيرات الحادثة على الطرق بالمدينة الإسلامية و تأثيرها على تخطيط المنشأة.

5-إلقاء الضوء على تطور وظائف المنشآت ومدى مطابقة تلك الوظائف لنصوص الإنشاء و السوقف.

منهجية البحث

تعتمد الدراسة على المنهج الأثري - المنهج الوصفي - المنهج التحليلي اعتماداً على المصادر و المراجع و التحليل الأثري من واقع الريارات الميدانية

النتائج والمناقشة

- 1- دور الأحكام الفقهية و تأثيرها على العمارة الإسلامية بالعصر المملوكي بالقاهرة ومدى إمكانية ذلك في تحديد ملامح تطور الحياة الدينية والروحية والعلمية في مصر على نطاق واسع من خلال الفترة الزمانية محل الدراسة.
- 2- تأثير الفتاوى و رؤى العلماء حول البنين واضح على العمارة الإسلامية ، و مدى إستجابة العامة لتلك الفتاوى.
- 3- هل كان لطرق التنفيذ وتطورها علاقة مباشرة بهذه الأحكام الفقهية؟ أم أن هذا التطور التقني كان وليد المصادفة؟
- 4- مدى إمكانية الوقوف على الأوضاع السياسية والاجتماعية والتوجهات المذهبية والطائفية التي كانت تمر بها البلاد سواء كانت في حالة حرب أو استقرار .
- 5- تأثير البيئة المحيطة واضح على العناصر المعمارية التي إستخدمها المعماري المسلم على المنشآت الدينية. 6- تأثير الطرق على عناصر الإتصال بالمنشأة الدينية وتخطيط المنشأة .

الخلاصة

لقد عبرت العمارة والفنون في مضمونهما الإسلامي عن تعاليم الإسلام بشكل مباشر، وآخر غير مرئي (روحاني)، مكن القارئ من استنباط الشعور بالتواصل البصري والفيزيائي سواء أكان ذلك بالفراغات المعمارية أو الزخارف والنقوش والتي كان كل خط يحمل في طياته بعداً روحانياً مميزاً يخدم الوظيفة التي وضع لأجلها بشكل فعال وبيعت في عقل الناظر الحاجة إلى التأمل والتدبر طويلاً ، فالعمارة عند المسلمين اهتمت كجزء من أولوياتها بالحاجة الاجتماعية للمسلمين فكانت المباني المعمارية نموذجاً مباشراً لتلبية الوظيفة الاجتماعية، ومن جهة أخرى فلقد أبدع المعماري المسلم بالنواحي الإنشائية، فبالرغم من وصول عدة أنظمة إنشائية مختلفة من حضارات أخرى ، إلا أن الإنشاء عند المسلمين تطور إلى درجة الحدائق، فظهر العديد من الأنظمة الإنشائية المتطورة سواء بالجدران الحاملة أو المآذن والقباب والمقرنصات وغيرها والتي لم تكن منفصلة عن النظام المعماري الفني الكلي بل كانت معونة ومكملة له. و من هنا نجد أن العمارة الإسلامية كانت تتميز دائماً بأنها فن يخدم الحياة في كل أساليبه وطرقه ، ولهذا ظلت العمارة الإسلامية باقية معنا حتى يومنا هذا نستخدماً في حياتنا ونتمتع بما بقي من آثارها السابقة من عمائر وتحف وأوان ذات قيم جمالية وفنية عالية .

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الملخص: من الظواهر ذات الآثار الاجتماعية التي اتسم بها تاريخ مصر في العصور الوسطى بوجه عام و عصر المماليك بوجه خاص ظاهرة تعرض البلاد لأحوال اقتصادية متغيرة سواء كانت فترات رخاء أو أزمات بجانب المجاعات والأوبئة التي كانت تصحبها ليس في إقليم واحد فقط ، بل كافة الأقاليم ، و يتأثر بها البلاد و العباد ، ثم لا تلبث أن تترك بصماتها واضحة في أحوال المجتمع و أوضاعه المالية و المعمارية بل و الفنية أيضا مما يجعل منها ثمة خطيرة من سمات العصر جديدة بالدراسة و البحث .

يحفل عصر المماليك مكان الصدارة في إهتمام الباحثين في حقل تاريخ الشرق الأدنى في العصور الوسطى، فإذا كان النشاط السياسي و الحربي في ذلك العصر قد ظفر حتى الآن بقسط وافر من الدراسة فإن الجوانب الاقتصادية متمثلة في النواحي المالية و الحضارية لا زال تحتاج مزيد من المجهود البحثي للوصول إلى إثبات بعض الحقائق .

تتمن أهمية البحث موضوع الدراسة في أنه يمثل جانب الربط و التضمين من خلال الأحوال الاقتصادية في العصر المملوكي بشقيه البحري و البرجي و أثرها على النواحي المالية و الحضارية التي تظهر بوضوح في الآثار المادية التي خلفت وقت الرخاء و الأزمات الاقتصادية باعتبارها دليلا قانما لاتطرق الشك إلى شهادته بأي حال من الأحوال .

و لما كانت الآثار هي السجل المادي الباقي لحوادث التاريخ فقد رأيت دراسة أثر الأحوال الاقتصادية و التي تكرر حدوثها في العصر المملوكي على العمارة بمدينة القاهرة، و عن طريقها و في ضونها يمكن تتبع ما ورد عن الأحوال الاقتصادية في الوثائق و المصادر المختلفة ، و من ثم معرفة الأحوال المعيشة في ظل تلك الأحوال الاقتصادية و مدى تأثيرها على الإنشاء و البناء في ذلك العصر. لقد تعرضت مصر طوال عهدها للعديد من التغيرات الاقتصادية و التي أشار إليها العديد من المؤرخين كالمقريزي في جميع ما ألفه من كتب سواء كان منها الخطط ، السلوك ، إغاثة الأمة ، و ابن إياس في كتابه بدائع الزهور في وقائع الدهور ، و القلقشندي في صبح الأعشى وغيرهم .

فمن هنا دراسة السوق المصرية في العهد المملوكي لها أهمية خاصة في معرفة الأحوال الاقتصادية ، فالسوق هي المرأة التي تعكس مدى قوة اقتصاد المجتمع و من هنا كان من الضروري أن تلقى نظرة عامة شاملة على السوق المصري في ذلك الوقت .

الكلمات الدالة: العمارة المملوكية، الأزمات الاقتصادية و العمارة، الأسواق المملوكية .

المقدمة

للأزمات الاقتصادية أسباب عديدة يتصدر نهر النيل الأهمية المطلقة فيها من زيادة أو نقصان فيه ، حيث يؤدي كلا منهما إلى تدهور حال الأرض الزراعية و حدوث الجفاف و بالتالي زيادة الأسعار التي يعقبها الغلاء ثم الوباء ، و للأزمات أسباب أخرى مثل توالي أشخاص غير جديرين بالمناصب العليا في الدولة مما يهدد إهدار موارد الدولة و يحدث اضطرابا يخل بالأمن و من ثم يحدث أهمالا لمرافق الدولة. و قد أثرت التغيرات السياسية و الاقتصادية و الاجتماعية على الإنتاج المعماري و الفني و بمعنى آخر أثر الاقتصاد سواء في فترات الرخاء أو الشدة على حركة البناء و التشييد في العصر المملوكي و أثر ذلك على أحجام المباني و عدد أروبنها و وظيفتها و نصوصها التأسيسية الذي يوضح لنا هل هذه المنشأة أنشئت وقت الأزمات الاقتصادية أو أن إفتتاح المنشأة تم بعد حدوث أو إنتهاء الأزمة و الأوقاف التي جعلت من أجلها، و هل بالفعل أثرت الأحوال الاقتصادية على حركة البناء أو التشييد أم السلاطين و الأمراء المماليك لا يتأثرون بذلك و يفعلوا ما يحلو لهم. هذا و قد شيّد المماليك مختلف أنواع العمارات من دينية و مدنية و حربية ، فمن الشئ الملاحظ أن حب سلاطين المماليك لتخليد ذكراهم من خلال المنشآت المعمارية هو ما دفعهم إلى التنافس في التشييد و البناء ، فمن حيث العمارات الدينية فد أنشئت المساجد للعبادة و المدارس للتعليم ، و الخانقاوات للصوفية ، و في مجال العمارات المدنية أنشئت الأسبلة و فوقها الكتاتيب و بُنيت البيمارستانات لعلاج المرضى و شيّدت الوكالات و الخانات و الأسواق و القصور و ربما قد أنشأوا سلاطين و أمراء المماليك تلك المنشآت رسالة واضحة للتعبير عن إمكاناتهم الاقتصادية الكبيرة، أو قصدا للتنافس المعماري فيما بينهم ، و ربما إشباعا لهوايتهم و تلبية لرغبتهم ، و ما زالت تلك الآثار باقية في خطط و شوارع و أزقة القاهرة. و ما زالت آثار تلك المنشآت المعمارية باقية و متناثرة بأحياء القاهرة بأحياء و أخطاط القاهرة ، تشهد بعظمة دولة المماليك و تقدمهم الحضاري، و خير مثال لهذا المنشآت المعمارية التي أنشئت في عصر أبناء السلطان المنصور بن قلاوون و كيف كانت شاهدة على قوة الدولة إقتصاديا و عسكريا و قد سار المماليك على نهج سابقيهم فأكثرُوا من تشييد المدارس و غيرها من المنشآت الدينية ، ولسنا هنا بصدد الحديث عن كل منشأة على حدا سواء العمارات المعمارية أو زخارفها و أجزائها و غير ذلك من العناصر المعمارية ، فهذا قد تحدثت عنه كتب العمارة و الفنون باستفاضة شديدة إلى جانب الرسائل العلمية التي زخرت بها مكنتبات الجامعات المختلفة، و لكننا سوف نقتصر بالحديث عن المنشأة و حجمها التي ربما قد تكون تأثرت بالأحوال الاقتصادية المختلفة، و كذلك تاريخ المنشأة ، و عدد أروبنها ، و نصوص التأسيس الذي يوضح الحالة الاقتصادية التي أنشئت فيها المنشأة .

أهداف البحث

- 1-مناقشة تطور العمارة الدينية في ضوء العلاقة الوظيفية بين نصوص الإنشاء و الوقف و بين الوظيفة المنوطة بها المنشآت الدينية في العصر المملوكي و مدى تأثيرها بالأحوال الاقتصادية للبلاد.
- 2-إبراز أهمية النصوص الإنشائية و نصوص الوقف في إبراز التنافس لأصحاب المنشآت الدينية سواء كانت هذه التنافس سياسي أو اجتماعية خاصة وأن معظم هذه المنشآت كانت تقام في النطاق السكني لمنشئها الأمر الذي يحمل دلالات عدة جديرة بأن توضع في الاعتبار.
- 3-إلقاء الضوء على تطور وظائف المنشآت ومدى مطابقتها تلك الوظائف لنصوص الإنشاء و الوقف.
- 4-إلقاء الضوء على تطور طرق التنفيذ لنصوص الإنشاء و الوقف على العمارات الدينية، و دور طرق التنفيذ و علاقته بالأحوال الاقتصادية حينها.
- 5-إلقاء الضوء على تطور الطرق التجارية و كيف كان بمثابة أحياء علاقة قوية بين الشرق و الغرب يكمن تمركزها في مصر.
- 6- إلقاء الضوء على التبادل التجاري الذي كان عاملا هاما في الإقتصاد و مدى تأثير حركة البناء و التشييد.

7- العلاقة بين الأحوال الاقتصادية المتغيرة و نظام الوقفي مصر .

منهجية البحث

تعتمد الدراسة على المنهج التاريخي الأثري والمنهج الوثائقي بالإضافة إلى الزيارات الميدانية للمنشآت المملوكية .

النتائج والمناقشة

1. الإقتصاد ودوره في التنمية الشاملة في النواحي المالية و الإدارية ومدى تأثيره على حركة العمران و البناء على العمائر الدينية في القاهرة حتى نهاية العصر المملوكي ومدى إمكانية ذلك في تحديد ملامح تطور الحياة الدينية و الروحية و العلمية و الاجتماعية و السياسية و الاقتصادية في مصر على نطاق واسع من خلال الفترة الزمانية محل الدراسة.
2. هل كان للمتغيرات الإقتصادية أثر في تغير حجة المنشآت و الغرض و الوظيفة التي أعدت من أجلها ؟
3. هل هناك علاقة بين نصوص التأسيس و الأحوال الإقتصادية وقت إنشاء العمائر؟
4. هل أثرت الأحوال الإقتصادية على نظم الوقف و رواتب الموظفين؟
5. هل كانت رواتب الموظفين ثابتة فكل الأحوال الإقتصادية و في كل المنشآت المعمارية؟
6. هل كان لطرق التنفيذ و تطور ها علاقة مباشرة بالأحوال الإقتصادية؟ أم أن هذا التطور التقني كان وليد المصادفة؟
7. هل تغيرت وظائف المنشأة مع مرور الزمن و تغير الأحوال الإقتصادية أم ظلت كما كانت معدة حسب رغبة الواقف؟
8. مدى تأثير حجم المنشأة و كذلك مدة البناء تبعاً للظروف الإقتصادية ؟
9. ما هو دور الإقتصاد في تحديد دوافع بناء المنشآت الدينية في القاهرة و حتى نهاية العصر المملوكي؟
10. هل كان هناك تطابق بين نصوص الإنشاء و بين نصوص الوقف؟ أم انه كان يوجد اختلاف في الصياغة أو المعنى؟ وهل هذا الاختلاف النصي كان عن طريق العمدة لتأدية رسالة معينة أم لا؟
11. هل كان هناك تطابق بين نصوص الإنشاء و الوقف و بين الوظيفة التي كانت تؤديها المنشآت الدينية في ذلك العصر أم لا؟
12. ما أثر العوامل الاقتصادية و التوجهات المذهبية و الأوضاع الاجتماعية على طريقة تنفيذ تلك النصوص وإخراجها؟

الخلاصة

من خلال العرض التحليلي بمنن البحث يتضح أن للأحوال الاقتصادية أثر كبير على المنشآت المعمارية المملوكية سواء في أوقات الرخاء أو الأزمات مما جعل سلاطين و أمراء المماليك يتأثرون فيما بينهم في الإنشاء و التعمير مما له دلالة واضحة على التطور الإقتصادي لدى أهل تلك القرون، وأن الرسائل التي نقشت إنما عبرت عن عقيدة العصر الذي سجلت فيه؛ سواء كان عصر جهاد وفتوحات أو عصر غلبة و رخاء، أم أنه عصر دعة أو غلاء، وما إلى ذلك من العناصر الدقيقة التي تحتاج إلى دراسات مستقلة لا يمكن لأى بحث جاد أن يغض الطرف عنها لوضع تصور كامل للتطور المجتمعي في أي عصر أو مكان .

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المخلص: مما لا شك فيه أن الموارد البشرية هي أعظم الأصول في مؤسسات الخدمات، وقد كان تحسين الموارد البشرية دائما دافع هام للمنظمات الربحية وغير الربحية، و وفقا لخبراء في الإدارة يعتبر تقييم الأداء استراتيجية مناسبة لتحسين الموارد البشرية، وعلاوة على ذلك ينبغي أن يكون الغرض من تقييم الأداء هو تحسين إنتاجية الموظفين، وفي هذا الصدد يتم الدفع بموضوع التسويق الداخلي، فالتسويق الداخلي يساعد الشركات على تعزيز قدرات الموظفين في تحقيق الأهداف التنظيمية، و هدف البحث هو دراسة رضاء العاملين عن سياسات التسويق الداخلي بمطار شرم الشيخ، و دراسة الرضاء الوظيفي العام عن تطبيق سياسات التسويق الداخلي بمطار شرم الشيخ، و دراسة العلاقة بين تطبيق سياسات التسويق الداخلي و مستوى جودة الأداء في مطار شرم الشيخ، و تم استخدام المنهج الوصفي التحليلي في هذه الدراسة، و نتائج الدراسة أكدت أهمية دور تطبيق سياسات التسويق الداخلي المتمثلة في (توضيح أدوار العاملين في المطار كمنظمة خدمية، و الاهتمام بتنمية المهارات و المعارف من خلال التدريب، المحافظة على العاملين من خلال الحوافز المادية و المعنوية، الإهتمام بتطوير الاتصالات، و تمكين العاملين لتحقيق الاستفادة القصوى من إمكاناتهم المتعددة) مما يساهم بقوة في تحسين أداء مطار شرم الشيخ الدولي، و إنتهت الدراسة بوضع إستراتيجية لتطوير سياسات التسويق الداخلي للمساهمة في تحسين جودة أداء مطار شرم الشيخ الدولي.

الكلمات الدالة: التسويق الداخلي، أداء العاملين، مطار شرم الشيخ

المقدمة

نظرا للدور التي تلعبه الموارد البشرية خاصة في صناعة الخدمات، أصبح هاما لكافة المنظمات أن تجد الطرق والأساليب المختلفة التي تمكنها من الإستخدام الأمثل لهذا المورد الهام بكفاءة و فاعلية، بل والحفاظ عليه و تطويره، ومن هنا ظهر التسويق الداخلي كإتجاه جديد و حديث في الإدارة [1] هنا بدأ الإهتمام بمفهوم التسويق الداخلي Internal Marketing كأحد الإتجاهات الحديثة في تسويق الخدمات، والذي يعتمد على خلق الميزة التنافسية للشركة اعتمادا على الابتكار والتجديد والوصول مباشرة إلى العملاء الخارجيين من خلال الإهتمام بالعاملين (العلاء الداخليون) عن طريق تطبيق سياسات وبرامج تتعلق بالتدريب، التحفيز، الاتصالات، وضوح الأدوار والمهام، وتمكين العاملين داخل الشركة. [2] [3] وانطلاقا من إدراك أهمية الموارد البشرية واعتبارها أحد الأصول التي تتطلب التنمية والتطوير، توجت هذه الدراسة لإلقاء الضوء على التسويق الداخلي والاهتمام بمدى تطبيق سياساته وبرامجه التي تتعلق بالعاملين في المطارات ك بوابة أولى و أخيرة للزائر، وأثر ذلك في تحقيق مستوى متميز من جودة الأداء .

أهداف الدراسة

1. دراسة رضاء العاملين عن سياسات التسويق الداخلي منفردة بمطار شرم الشيخ.
2. دراسة الرضاء الوظيفي العام عن تطبيق سياسات التسويق الداخلي بمطار شرم الشيخ.
3. دراسة العلاقة بين تطبيق سياسات التسويق الداخلي و مستوى جودة الأداء في مطار شرم الشيخ.
4. التعرف على مدى إدراك العاملين في المطارات المصرية لأهمية الالتزام بتطبيق التسويق الداخلي لتحسين أداء العاملين.
5. وضع التوصيات التي تساهم في تطبيق سياسات التسويق الداخلي بمطار شرم الشيخ.

منهجية الدراسة (مشكلة الدراسة)

من خلال مقابلة واستطلاع رأي المسؤولين، وعينة من العاملين في مطار شرم الشيخ للتعرف على أهم المشكلات التي تتعلق بمستوى أداء مطار شرم الشيخ و أبعاد التسويق الداخلي، كان من أهم نتائجها ما يلي :

عدم ربط الأجور والمكافآت بمستويات ومعايير الأداء المعمول بها.

شكوى بعض العملاء الداخليين (العاملين) والخارجيين من تدهور بعض الخدمات و طول مدة الإستجابة للشكاوى.

غياب الإهتمام بالبرامج التدريبية المنتظمة لبعض العاملين التي من شأنها تحسين مستوى الأداء مقارنة بالمطارات العالمية.

قام الباحث بتوزيع عدد من إستمارات الإستبيان على مجموعة من العاملين بمطار شرم الشيخ الدولي و قد بلغ عدد الإستمارات الموزعة على العاملين 225 إستمارة إستقصاء، و قد بلغ مجموع الإستمارات التي تم جمعها 157 إستمارة، في مقابل نسبة فاقد 68 إستمارة، ثم إستبعاد 19 إستمارة لم يتم الإجابة فيها على الغالبية العظمى من الأسئلة و بالتالي فإن عدد الإستمارات التي تم تحليلها بالفعل بلغ عدد 138 إستمارة بنسبة 61,3% من إجمالي الإستمارات الموزعة، بنسبة 26% من مجتمع الدراسة حيث يبلغ عدد العاملين التابعين لإدارة مطار شرم الشيخ 525 موظف طبقا لتعداد ديسمبر 2017، و تم توزيع عشر إستمارات على الخبراء و إستلامها كلها .

إعتمدت الدراسة الميدانية في سبيل إختبار صحة فروض الدراسة وهي

الفرض الرئيسي: توجد علاقة ارتباط ذات دلالة إحصائية معنوية بين التطبيق الفعلي لسياسات التسويق الداخلي، وبين جودة الأداء بمطار شرم الشيخ

الفروض الفرعية للدراسة:

توجد علاقة ارتباط ذات دلالة إحصائية معنوية بين وضوح الدور الوظيفي، وبين جودة الأداء بمطار شرم الشيخ.

توجد علاقة ارتباط ذات دلالة إحصائية معنوية بين التدريب، وبين جودة الأداء بمطار شرم الشيخ.

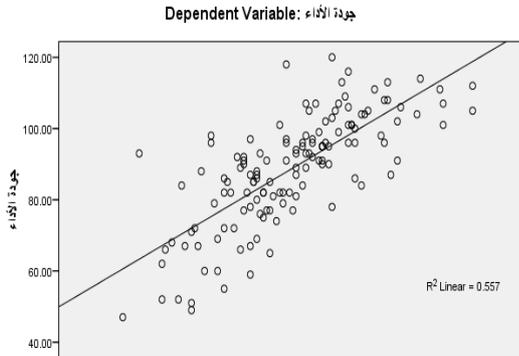
توجد علاقة ارتباط ذات دلالة إحصائية معنوية بين الأجور و الحوافز، وبين جودة الأداء بمطار شرم الشيخ.

توجد علاقة ارتباط ذات دلالة إحصائية معنوية بين الإتصالات ، وبين جودة الأداء بمطار شرم الشيخ.

توجد علاقة ارتباط ذات دلالة إحصائية معنوية بين التمكين ، وبين جودة الأداء بمطار شرم الشيخ.

تم توزيع إستثمارات الاستبيان الموجهة لعدد من العاملين بمطار شرم الشيخ في شهر ديسمبر لسنة 2017، و تم استخدام أساليب الإحصاء الوصفي و أيضا التحليل الإحصائي الاستدلالي لاختبار فروض الدراسة .

النتائج



مفهوم التسويق الداخلي أصبح أعم و أشمل من مجرد محاولة تحقيق رضا العاملين داخل المنظمة، أو تحفيزهم لزيادة اهتمامهم بالعمل، بل تعدى ذلك ليشمل كل الجهود التي تؤدي إلى تقليل الصراعات التنظيمية، وتفعيل الاتصالات الداخلية من أجل تحقيق التنسيق والتكامل بين الوظائف المختلفة، وهذا من شأنه جعل التسويق الداخلي أداة تساهم في التنفيذ الفعال للاستراتيجيات الوظيفية داخل المنظمة.

الفرق بين التسويق الداخلي وإدارة الموارد البشرية يكمن في كون الثاني يركز على إدارة العاملين وأدائهم الذي يعود بالنفع على المنظمة، أما التسويق الداخلي فهو يركز على العاملين كعملاء داخليين لا يبد من معرفة متطلباتهم والعمل على إشباعها مما يساعد على تحقيق الرضا الوظيفي لديهم بما يعود بالفائدة على كل من المنظمة والعاملين بها.

يؤثر التسويق الداخلي على تحسين الأداء الوظيفي العام، مما يجعل المنظمات التي تطبق برامجه تستجيب للتحديات المختلفة، كما تؤثر في تخفيض التكاليف لأقل مستوى ممكن وتحقيق مركز تنافسي متميز .

ظهر من الدراسة الميدانية أن الأغلبية العظمى من العاملين ذوى خبرة تتعدى العشر سنوات، و نفس الأغلبية من الحاصلين على الدرجة الثانية، و عمر هذه الشريحة من 31 : 40 ، و نفس النسبة حاصلة على مؤهل عالي، لكن عدد الدورات التدريبية لهذه النسبة لا تتعدى ثلاث دورات تدريبية، و شريحة تقترب من نصف العينة فكرت في ترك العمل في عام 2017، الأغلبية من العاملين من الذكور .

من خلال تحليل إستمارة الإستقصاء وجد أن هناك علاقة قوية بين تطبيق سياسات التسويق الداخلي المتمثلة في (توضيح أدوار العاملين في المطار كمنظمة خدمية، و الاهتمام بتنمية المهارات و المعارف من خلال التدريب، المحافظة على العاملين من خلال الحوافز المادية و المعنوية، الإهتمام بتطوير الاتصالات، و تمكين العاملين لتحقيق الاستفادة القصوى من إمكانياتهم المتعددة) و جودة الأداء مطار شرم الشيخ الدولي.

الاستنتاج

إعتمادا على الدراسة النظرية ،ثم نتائج الدراسة الميدانية و التي أشارت لمجموعة من المؤشرات الإيجابية في تنفيذ سياسات التسويق الداخلي في مطار شرم الشيخ، و كذلك بعض القصور في بعض العناصر، يمكن طرح بعض التوصيات و الإقتراحات لتطبيق إستراتيجيات التسويق الداخلي بفاعلية كوسيلة لتحسين جودة الأداء بمطار شرم الشيخ من خلال الخطوات التالية:

في مجال وضوح الدور الوظيفي: ضرورة تحديث الوصف الوظيفي بالإعتماد على البيانات الفعلية المقدمة من كل إدارة ،مع وجود خبرات قادرة على نقل المعلومات و البيانات و إتخاذ القرارات، و عمل دليل العاملين لتوضيح حقوق و واجبات العاملين.

يجب تعديل بطاقات الوصف الوظيفي طبقاً لمهام عمل كل وظيفة بالاشتراك مع القائم بمهام الوظيفة.

يجب عمل قائمة مهام (Task List) بجانب بطاقة الوصف الوظيفي (Job Description) على أن تكون قائمة المهام تشمل جميع الأعمال بصورة مفصلة وواضحة.

في مجال التدريب: ضرورة إدراك إدارة المطار لأهمية التدريب أنه ليس فقط لتحسين أداء العمل و الارتقاء بمستوى جودة الخدمة ، بل أيضا لتحقيق الرضا الوظيفي و انتماء العاملين للمطار .

عند تنفيذ البرنامج التدريبي، لابد من التأكد من تعريف المشاركين بالبرنامج التدريبي وأهدافه، والتأكد من تهيئة المكان وتحديد الوقت الملائم للتدريب، والتعرف على توقعات المشاركين وملاحظاتهم عن سير البرنامج التدريبي.

إستخدام الأساليب الحديثة مثل التعليم عن بعد، و تفعيل المستمر لبرتوكولات التعاون مع المطارات الدولية.

في مجال نظم الأجور والحوافز: وضع معايير صحيحة أكثر موضوعية و البعد عن التحيزات الشخصية، و إعادة تفعيل الموظف المثالي، و ربط الأجر بالإنتاج و مستوى الأداء، وضع معايير صحيحة أكثر موضوعية و البعد عن التحيزات الشخصية، و إعادة تفعيل الموظف المثالي، و ربط الأجر بالإنتاج و مستوى الأداء، و الإطلاع على النظم المطبقة في المطارات المناظرة إقليمياً و عالمياً، و معرفة آراء و مقترحات الخبراء و المستشارين، للمفاضلة بين النظم المتاحة و اختيار أفضلها.

التقليل قدر الممكن من التميز لأنه يتسبب في بعد العاملين عن الابتكار، و يهدد روح الفريق بين العاملين، و يضعف المنافسة بين العاملين.

في مجال الاتصالات: إعطاء مرونة أكبر لعملية الإتصالات و العمل على إستخدام و تفعيل الوسائل الإلكترونية الحديثة لتدعيم عملية الإتصالات، و سرعة نقل المعلومات و البيانات و إتخاذ القرارات.

عمل إجتماعات دورية منتظمة للعاملين، و تفعيل نظام قوى للتقارير .

فى مجال تمكين العاملين: يجب الاعتماد بصورة أكبر على من يظهر تميزه فى مهام عمله واسناد الأدوار الاشرافية له. يجب وضع أسس لتقييم العاملين وترقيهم طبقاً لتمييزهم، وجودة عملهم وليس طبقاً لنظام الأقدمية والترقى الحكومى.

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PS-111: أثر العلاقات الداخلية و الخارجية للعاملين على جودة خدمات المطارات بالتطبيق على مطار شرم الشيخ الدولي

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المخلص: إن الانتماء إلى جماعة في شكل علاقة قائمة بين أعضاء جماعة العمل هو محفز لرفع أداء العاملين بشكل عام، فالتفاعل المستمر بين الفرد وزملائه يضمن الشعور بالارتياح والطمأنينة ما دام الهدف واحد والتضامن محقق، وعليه يشار إلى أن الجماعات التي تخلو من النزاعات الفردية، نجد العامل بها ذا أداء مرتفع ودرجة عالية من الرضا، وفي المقابل سيتوتر العامل إذا ما انضم إلى جماعة تسودها النزاعات مما يعرقل تقدمه في الأداء ونجده غير راض عن عمله، وفي ذلك يذكر أنه من الطبيعي أن يتوقف أثر جماعة العمل على الرضا، على الفرص المتاحة للفرد للتفاعل مع أفراد آخرين في العمل، أما عندما تعيق طبيعة العمل إمكانية تفاعل الفرد مع أفراد آخرين، يمثلون مصدر إشباع أو ارتياح بالنسبة له، فإن رضا الفرد يكون منخفضاً وأما عندما تيسر طبيعة العمل فرص الاتصال والتفاعل فإن رضا الفرد سيرتفع، وفي مجال الخدمات يمثل العاملون عاملاً مهماً في العلاقة مع العميل حيث أن سلوك العاملين يكون حاسماً لرضا العميل والحفاظ على العلاقة معه، وأن النظرة التي يحملها العميل عن المنظمة لا تعتمد كثيراً على حالة عدم الرضا من منتجات وخدمات المنظمة بقدر ما تعتمد على المعاملة التي يتلقاها العميل من العاملين في هذه المنظمة وهدف البحث هو التأكد من مستوى رضا العاملين بمطار شرم الشيخ عن مستوى العلاقات الداخلية و الخارجية، و دراسة الرضا الوظيفي العام للعاملين بمطار شرم الشيخ، وكذلك دراسة العلاقة بين تحسين العلاقات الداخلية و الخارجية للعاملين ومستوى جودة الخدمات في مطار شرم الشيخ، و تم استخدام المنهج الوصفي التحليلي في هذه الدراسة، وأشارت نتائج الدراسة إلى رضا العاملين عن مستوى العلاقات الداخلية بين العاملين بعضهم البعض و بين العملاء، مما ساهم بقوة في تحسين جودة الخدمة بمطار شرم الشيخ الدولي، و إنتهت الدراسة بوضع توصيات إستراتيجية لتطوير العلاقات الداخلية و الخارجية للعاملين بمطار شرم الشيخ الدولي و التي لها دور كبير في تحسين جودة الخدمات بالمطار .

الكلمات الدالة: العلاقات الداخلية للعاملين ، علاقة العاملين بالعملاء ،جودة الخدمات ، مطار شرم الشيخ

المقدمة

يمثل العاملون عاملاً مهماً في العلاقة مع العميل حيث أن سلوك العاملين يكون حاسماً لرضا العميل والحفاظ على العلاقة معه، وأن النظرة التي يحملها العميل عن المنظمة لا تعتمد كثيراً على حالة عدم الرضا من منتجات وخدمات المنظمة بقدر ما تعتمد على المعاملة التي يتلقاها العميل من العاملين في هذه المنظمة (Awan, et al, 2015)، كذلك فإن الإطار الخاص بإعادة أو تكرار الشراء من قبل العميل، والذي يعني بأن العميل هو راض أو راض جداً أو مبتهج، غالباً ما يعتمد على علاقات شخصية مع العاملين (Yacout, 2010)، من هنا تظهر أهمية فلسفة جودة الحياة الوظيفية التي تدعو إلى دعم قدرات ومهارات العاملين لكي يكونوا أكثر اجتهاداً وأكثر اهتماماً بخدمة ورضا العميل، أيضاً التفاعل المستمر بين الفرد وزملائه يضمن الشعور بالارتياح والطمأنينة ما دام الهدف واحد والتضامن محقق، وعليه يشار إلى أن الجماعات التي تخلو من النزاعات الفردية، نجد العامل بها ذا أداء مرتفع ودرجة عالية من الرضا، وفي المقابل سيتوتر العامل إذا ما انضم إلى جماعة تسودها النزاعات مما يعرقل تقدمه في الأداء ونجده غير راض عن عمله، وفي ذلك يذكر أنه من الطبيعي أن يتوقف أثر جماعة العمل على الرضا، على الفرص المتاحة للفرد للتفاعل مع أفراد آخرين في العمل، أما عندما تعيق طبيعة العمل إمكانية تفاعل الفرد مع أفراد آخرين، يمثلون مصدر إشباع أو ارتياح بالنسبة له، فإن رضا الفرد يكون منخفضاً وأما عندما تيسر طبيعة العمل فرص الاتصال والتفاعل فإن رضا الفرد سيرتفع (عاشور، 1997)، الترابط بين الثلاثية – مؤسسة، عامل، رئيس - ضرورية لتحقيق أهداف المؤسسة، وما يمكن استخلاصه أن ارتفاع كفاءة الأداء عند العمال مرهون بتوفر مشرفين على درجة من الكفاءة في عملية الإشراف، وترتفع الكفاءة كلما اتسعت رقعة قنوات الاتصالات بين الرؤساء والمرؤوسين (سرار، 2003) .

أهداف الدراسة

1. تقييم رضا العاملين عن سياسات العلاقات الداخلية بالزملاء و الخارجية بالعملاء في مطار شرم الشيخ.
2. دراسة الرضا الوظيفي العام للعاملين بمطار شرم الشيخ.
3. دراسة العلاقة بين تطبيق سياسات العلاقات الداخلية بالزملاء و الخارجية بالعملاء ومستوى جودة الأداء في مطار شرم الشيخ.
4. تقديم توصيات لتحسين العلاقات الداخلية و الخارجية للعاملين بمطار شرم الشيخ الدولي.

مشكلة الدراسة

لاحظ الباحث من خلال الدراسة الإستطلاعية أن البيئة الداخلية و طبيعة ظروف العمل في مطار شرم الشيخ في اللأونة الأخيرة هرت بعض الصراعات بين العاملين بعضهم البعض و بين العملاء من بعض الشركات الأخرى مما قد يؤثر على جودة الأداء بمطار شرم الشيخ، مما دفع الباحث للبحث عن سبب هذه الصراعات و وضع بعض التوصيات لتطوير هذه العلاقات .

إعتمدت الدراسة الميدانية في سبيل إختبار صحة فروض الدراسة على توزيع عدد من إستمارات الإستبيان الموجهة لعدد من العاملين بمطار شرم الشيخ الدولي، و قد تم توزيع إستمارات الإستبيان في شهر ديسمبر لسنة 2017 .

قام الباحث بتوزيع عدد من إستمارات الإستبيان على مجموعة من العاملين بمطار شرم الشيخ الدولي و قد بلغ عدد الإستمارات الموزعة على العاملين 225 إستمارة إستقصاء، و قد بلغ مجموع الإستمارات التي تم جمعها 157 إستمارة، في مقابل نسبة فاقد 68 إستمارة، ثم إستبعاد 19 إستمارة لم يتم الإجابة فيها على الغالبية العظمى من الأسئلة و بالتالي فإن عدد الإستمارات التي تم تحليلها بالفعل بلغ عدد 138 إستمارة بنسبة 61, 3% من إجمالي الإستمارات الموزعة، بنسبة 26% من مجتمع الدراسة حيث يبلغ عدد العاملين التابعين لإدارة مطار شرم الشيخ 525 موظف طبقاً لتعداد ديسمبر 2017،

منهجية الدراسة والنتائج

إختبار الفرض الأول:

ينص الفرض الأول للدراسة على أنه:

توجد علاقة ارتباط ذات دلالة إحصائية معنوية بين العلاقات الداخلية ، وبين جودة الأداء بمطار شرم الشيخ .

ومن الجدول رقم 3-22 في الفصل الثالث الخاص بالدراسة الميدانية تم إثبات ما يلي :

وجود علاقة طردية قوية ذات دلالة معنوية بين العلاقات الداخلية كمتغير فرعي مستقل، وبين جودة الأداء بمطار شرم الشيخ كمتغير تابع. حيث بلغت قيمة معامل الارتباط 0.604 عند مستوى معنوية أقل من 0.05 .a

عامل العلاقات الداخلية يؤثر تأثيراً معنوياً حقيقياً على تحسين جودة الأداء بمطار شرم الشيخ. حيث بلغت قيمة معامل الانحدار الجزئي، 0201 عند مستوى معنوية 0,009

تم إثبات صحة هذا الفرض في الدراسة النظرية في عرض إستنتاجات (سرار، 2003؛ عاشور، 1997؛ علي، 1981) الذين أكدوا على أن التفاعل المستمر بين الفرد وزملائه يضمن الشعور بالارتياح والطمأنينة ما دام الهدف واحد والتضامن محقق، وعليه نشير أن الجماعات التي تخلو من النزاعات الفردية، نجد العامل بها ذا أداء مرتفع ودرجة عالية من الرضا، وفي المقابل سيتوتر العامل إذا ما انضم إلى جماعة تسودها النزاعات مما يعرقل تقدمه في الأداء ونجده غير راض عن عمله،

اختبار الفرض الثاني:

ينص الفرض الثاني للدراسة على أنه:

توجد علاقة ارتباط ذات دلالة إحصائية معنوية بين التفاعل بين العاملين و العميل ، وبين جودة الأداء بمطار شرم الشيخ .

ومن الجدول رقم 3-23 في الفصل الثالث الخاص بالدراسة الميدانية تم إثبات ما يلي :

وجود علاقة طردية قوية ذات دلالة معنوية بين التفاعل بين العاملين و العميل كمتغير فرعي مستقل، وبين جودة الأداء بمطار شرم الشيخ كمتغير تابع. حيث بلغت قيمة معامل الارتباط 0.413 عند مستوى معنوية أقل من 0.05 .a

التفاعل بين العاملين و العميل يؤثر تأثيراً معنوياً حقيقياً على تحسين جودة الأداء بمطار شرم الشيخ. حيث بلغت قيمة معامل الانحدار الجزئي، 0136 عند مستوى معنوية 0.033

على عكس الدراسة النظرية في الفصل الأول جاء هذا العامل ضعيف التأثير في تحسين الأداء طبقاً لدراسة كلا من (Yacout, 2010 ; Awan, et al,) (2015) العاملون يمثلون عاملاً مهماً في العلاقة مع العميل حيث أن سلوك العاملين يكون حاسماً لرضا العميل والحفاظ على العلاقة معه ، وأن النظرة التي يحملها العميل عن المنظمة لا تعتمد كثيراً على حالة عدم الرضا من منتجات وخدمات المنظمة بقدر ما تعتمد على المعاملة التي يتلقاها العميل من العاملين في هذه المنظمة

الاستنتاج

في مجال العلاقات الداخلية

العمل على تحسين العلاقات الداخلية و تشجيع العمل الجماعي ، و عدم عزل الإدارات عن بعضها ، و تشجيع العلاقات الغير رسمية الموضع نحو الهدف.

الإهتمام بمزيد من الأنشطة الثقافية و الإجتماعية للعاملين.

ضرورة تقوية العلاقات الداخلية و تبادل المعلومات بعضهم البعض و بيت الإدارة و العاملين ، لأن كل موظف يحتاج المعلومة لخدمة زميله أو لخدمة عميل.

الإهتمام بالعلاقات الداخلية يساهم في التعرف على إتحافات العاملين و إزالة أى غموض حول القرارات و الإجراءات الإدارية بالمطار.

و هناك الكثير من الخطوات التكتيكية لتنفيذ هذه الإستراتيجية مثل:

تنظيم حفلات أعياد الميلاد، و المناسبات و المشاركة في المناسبات الشخصية، تنظيم رحلات مشتركة بين الإدارات المختلفة، مشروبات مجانية أو إفطار جماعي مجاني، توفير سيارة للعاملين في الأعياد للذهاب لتجمعات الإحتفالات، التأكيد على الإحترام المتبادل بين الجميع أفراداً و جماعات، التصرف مع الزملاء بطريقة مهذبة

في مجال التفاعل بين العاملين و العميل

دعم العلاقات القائمة مع العملاء من شركات الطيران و السياحة و شركات الوكالة من خلال الإجتماعات المنتظمة.

إستمرار تنظيم ورش عمل منتظمة تجمع بين العاملين و العملاء.

التفاعل الغير رسمي عن طريق تطبيق بعض الأنشطة مثل الأنشطة الرياضية و الثقافية و حفلات التكريم للموظفين المثاليين.

و هناك الكثير من الخطوات التكتيكية لتنفيذ هذه الإستراتيجية مثل:

تدريب و توجيه العاملين على أن يكونوا مهذبين دائماً، تقديم الخدمة بطريقة إحترافية، أن يكون متوفر دائماً لخدمة العملاء، تقييم مستوى الخدمة بإستمرار، و التركيز على بناء علاقات طيبة مع العملاء طويلة الأجل، توفير أماكن إجتماعات، للعملاء و العاملين، تهيئة بيئة نظيفة بدرجة حرارة مناسبة، منع الأكل و الشراب أثناء العمل و على مكاتب العمل، ندشين موقع للمطار على شبكة الإنترنت بعد نجاح صفحة المطار على موقع الفيس بوك في التواصل السريع مع العملاء و شركاء العمل .

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PS-112: السياحة العلاجية كأحد الأنماط البديلة خلال وقت الأزمات في مصر

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المخلص: أن النشاط السياحي يتعدد أنماطه ومن أهم هذه الأنماط السياحة العلاجية وهي من أهم الأنماط السياحية التي تهتم بها الدول المتقدمة سياحياً نظراً لأهميتها الاقتصادية وقد تم تصنيف السياحة العلاجية الى عدة أنواع من أهمها السياحة الاستشفائية التي تعتمد على المقومات الطبيعية التي يمتلكها المقصد السياحي المصري وقد انتشرت في مصر العيون الكبريتية والمعدنية التي تمتاز بتركيبها الكيميائي الفريد. والذي يفوق في نسبته جميع العيون الكبريتية والمعدنية في العالم. علاوة على توافر الطمي في برك هذه العيون الكبريتية بما له من خواص علاجية تشفى العديد من امراض العظام وامراض الجهاز الهضمي والجهاز التنفسي والامراض الجلدية وغيرها، كما ثبت ايضا الاستشفاء لمرضى الروماتيزم المفصلي عن طريق الدفن في الرمال. كما اكدت الأبحاث أن مياه البحر الاحمر بمحتواها الكيميائي ووجود الشعاب المرجانية فيها تساعد على الاستشفاء من مرض الصدفية. وتتعدد المناطق السياحية التي تتمتع بميزة السياحة العلاجية في مصر وهي مناطق ذات شهرة تاريخية عريقة مثل : حلوان ، عين الصيرة ، العين السخنة ، الغردقة ، الفيوم ، منطقة الواحات ، اسوان ، سيناء ، واخيراً مدينة سفاجا الرابضة على شاطئ البحر الاحمر والتي تمتلك جميع عناصر السياحة العلاجية والتي تزورها الأفواج السياحية وتأتي شهرتها بأن الرمال السوداء لها القدرة على التخلص من بعض الأمراض الجلدية.

ولقد أدركت الدولة الأهمية الطبية والعلاجية لهذه الأماكن فقامت على رعايتها والاهتمام بها حيث صارت من أرقى أماكن الاستشفاء العالمية. وهكذا احتلت مصر موقعاً متميزاً على خريطة السياحة العلاجية واصبحت مقصداً لراغبي الاستشفاء من جميع انحاء العالم حيث يأتي اليها السائحون للاستمتاع بالمناخ الصحي والعلاج الطبي الطبيعي تحت رعاية أطباء متخصصين في جميع الفروع والمستشفيات الحديثة التي يتوافر بها أحدث الاجهزة العالمية يسانداهم أخصائيو في التمرين والعلاج الطبيعي على أعلى مستوى من الخدمة. الى جانب تقديم برامج سياحية متنوعة لزيارة الاماكن السياحية الفريدة في مصر.

مشكلة البحث يعانى المقصد السياحي المصري من عدم التنوع في الأنماط السياحية البديلة التي يمكن الاعتماد عليها في وقت الأزمات والتي يمكن ان تساهم في زياده النصيب السياحي من الطلب السياحي العالمي في غير اوقات الأزمات. ومن هنا يأتي دور السياحة العلاجية كنمط بديل يمكن الاعتماد عليه وتأتي فروض البحث يمكن الاعتماد على السياحة العلاجية كنمط بديل في وقت الأزمات وغير وقت الأزمات بهدف البحث الى استكشاف دور السياحة العلاجية كنمط سياحي بديل في اوقات الأزمات وتسلط الضوء على نمط السياحة العلاجية في مصر واهمية هذا النمط في ترويج المناطق الاستشفائية والعلاجية في مصر، وجاءت نتيجة الدراسة الميدانية أنه يمكن الاعتماد على السياحة العلاجية كأحدى الأنماط البديلة التي تمثل استراتيجية بديلة في إدارة الأزمات وكيفية تعريف السائح بمناطق الاستشفاء في مصر وأن المناطق السياحية الاستشفائية في مصر غنية بالمياه الكبريتية والمعدنية مثل حمامات فرعون وعيون موسى وسفاجا وجنوب سيناء وشمال سيناء ومنطقة جنوب الوادي وأسوان وأبو سمبل.

أعتمد الباحث على الأسلوب الكمي في البحث من خلال الاعتماد على إستمارة الإستقصاء لجمع البيانات من السائحين و خبراء وزارة السياحة وهينة التشييط السياحي، كما اعتمدت الدراسة على برنامج (SPSS) في تحليل البيانات المجمعة وذلك لتحقيق هدف الدراسة في معرفة تخطى الأزمات السياحية في مصر وكيفية النهوض بالسياحة العلاجية.

الكلمات الدالة: السياحة العلاجية، إدارة الأزمات، السياحة العلاجية كأحدى الأنماط البديلة خلال وقت الأزمات في مصر.

المقدمة

تعتبر مصر في مقدمة الدول التي تحقق عائد إقتصادي كبير في تصدير السياحة العلاجية حيث يتوفر في مصر بينابيعها المعدنية والكبريتية ذات الخصائص الطبيعية والتي تختلف في منطقة لاخرى في العمق والسعة ودرجة الحرارة وتصلح هذه العيون المائية لشفاء الكثير من الأمراض لاحتوائها على أعلى نسبة من عنصر الكبريت مقارنة بالآبار المنتشرة في شتى أنحاء العالم.

حيث ترجع الأهمية الاقتصادية للسياحة العلاجية إلى أن السائح العلاجي يمتاز عن نظيره العادي بطول مدة الإقامة في المدينة التي يعالج فيها والتي تتراوح ما بين أسبوعين و أربعة أسابيع وبالإضافة إلى الإنفاق على الخدمات الطبية والعلاجية المقدمة للسائح المريض ، وهناك الإنفاق على الخدمات السياحية والفندقية التي تقدم له أيضا ومن خلال النزهة والتسوق الى جانب السائح العلاجي في غالب الأحوال سوف يمد زيارته للتمتع بالمناطق والمزارات التاريخية والأثرية السياحية الأخرى المنتشرة في كل أنحاء مصر.

وأخيرا هل حان الوقت لتعريف وحث رجال الأعمال المصريين على الإستثمار في مناطق السياحة العلاجية الطبيعية المنتشرة في مصر وما تتمتع بها هذه المناطق من مميزات سياحية علاجية.

هل حان الوقت لتنظيم البرامج الإعلامية الجيدة والتي تساهم فيها الصحافة والإذاعة والفضائيات للتعريف والأهتمام بالسياحة العربية القادمة لمصر بوصفها أقرب الأسواق إلينا بما يتجاوز مجرد القرب الجغرافي وأن السائح العربي أجدر بالرعاية والأهتمام لأنه الأطول إقامة والأكثر إنفاقا لذا يجب التخطيط للتعامل مع الأسواق السياحية العربية دون الاعتماد على أن السائح العربي قادم دون بذل أي جهد تنشيطي.

هل حان الوقت لتحقيق الحلم الذي يراود بعض علماء الطب والمرضى من جميع بلدان العالم حيث يسمعون ويقرأون عن علاجات لأمراضهم تحت شمس الساطعة وعلى أراضيها وداخل رمالها وفي عيونها الطبيعية الكبريتية الفريدة من نوعها.

هل حان الوقت كي نصدر الشمس والماء والهواء للسائحين الأجانب والذي يدفع السائح أكثر من 3 آلاف دولار في أسبوع علاجي أو الأستجماع في عيون "مونت كانتر بايطاليا" أو " بادن بألمانيا " أو مصحات البحر الميت بالأردن.... والتي لا يمكن مقارنة أي منهما بعيون مصر الكبريتية.

إنه تصدير سياحي علاجي بأقل جهد و أقل تكلفة و أعلى ربح وأسرع وقت انه تصدير بلا تصدير... وإستغلال نمط السياحة العلاجية وقت الركود والأزمات السياحية بمصر.

مشكله البحث

يعانى المقصد السياحى المصرى من عدم التنوع فى الأنماط السياحية البديله التى يمكن الاعتماد عليها فى وقت الأزمات والتي يمكن ان تساهم فى زياده النصيب السياحى من الطلب السياحى العالمى فى غير أوقات الأزمات. ومن هنا يأتى دور السياحة العلاجية كنمط بديل يمكن الاعتماد عليه

فرض البحث

يمكن الاعتماد على السياحة العلاجية كنمط بديل فى وقت الأزمات وغير وقت الأزمات

أهداف البحث

يهدف البحث الى إستكشاف دور السياحة العلاجية كنمط سياحى بديل فى أوقات الأزمات وتسلط الضوء على نمط السياحه العلاجية فى مصر واهمية هذا النمط فى ترويج المناطق الاستشفائية والعلاجية فى مصر.

المنهج العلمى

أعتمد الباحث على الأسلوب الكمي فى البحث من خلال الإعتداع على إستمارة الإستقصاء لجمع البيانات من السائحين و خبراء وزارة السياحة و هيئة التنشيط السياحى، كما اعتمدت الدراسة على برنامج (SPSS) فى تحليل البيانات المجمعمة وذلك لتحقيق هدف الدراسة فى معرفة تخطى الأزمات السياحية فى مصر وكيفية النهوض بالسياحة العلاجية.

النتائج

وجاءت نتيجية الدراسة الميدانية بعد توزيع أستمارات الأستقصاء والمقابلات الشخصية تبين:

هناك تقصر فى أليات التسويق المستخدمة فى الفنادق والمنتجعات وأعتداهم الكلى على المجلات والمطبوعات اى كان منتج أو فندق وهذا ليس كافى لجذب السائحين.

هناك نقص شديد فى تدريب المعالجين وسوء اختيار المعالجين الحاصلين على أى دبلوم غير متخصص فى العلاج الطبيعى.

أثبتت الباحثة أن وجود نقص شديد فى البحوث العلمية التى تخص السياحة العلاجية والأستشفائية على مستوى العالم.

تبين قيام بعض السائحين بعمل جلسات الدفن فى الرمال الصفراء عن طريق الشركة السياحية التابع له بدون إشراف طبى.

أنه يمكن الأعتداع على السياحة العلاجية كأحدى الأنماط البديله التى تمثل استراتيجية بديله فى إدارة الأزمات وكيفية تعريف السائح بمناطق الأستشفاء فى مصر

حيث أثبتت الدراسات أن ارمال السطحية لمنطقة أبو سمبل إحتوائها على عدة عناصر من السيلت والكربونات كما أثبتت البحوث أن النشاط الأشعاعى بهذه الرمال فى الحدود الأمانة ذات الخواص العلاجية وايضا تبين هناك منتجعات بمراكز إستشفاء كاملة ولكنها غير مستغله.

وجود نقص من قبل هيئة التنشيط السياحى المصرى و وزارة السياحة فى قلة وضع خطط تسويقية جيدة توضح مميزات مصر فى السياحة العلاجية.

الخاتمة

تم تناول مقومات السياحة العلاجية بمصر وطرق ادارة الازمات والنهوض بالسياحة العلاجية بمصر ووضع مصر على الخريطة السياحية العلاجية مره أخرى حيث يوجد العديد من المناطق والمنتجعات الأستشفائية الشهيرة فى علاج بعض الأمراض.

لذا يهدف البحث الى إستكشاف دور السياحة العلاجية كأحدى الأنماط البديله فى الأزمات السياحية والقاء الضوء على أهم مقومات مصر الإستشفائية كأحدى المناطق الهامة للإستشفاء واستغلال المناطق والمنتجعات فى السياحة العلاجية.

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PS-113: تنشيط سياحة المهرجانات والمناسبات الخاصة في محافظة الاسماعيلية

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الملخص البحثي: تناول البحث تنشيط سياحة المهرجانات في محافظة الاسماعيلية باختلاف أشكالها وأنواعها وطريقة عرضها حيث تناول البحث أيضا تنشيط هذا النمط السياحي والعمل على إزالة المعوقات التي تحد من انتشار هذا النمط السياحي وجعل المهرجانات في الاسماعيلية أكثر تنافسية. ويهدف البحث إلى دراسة كيفية تنشيط سياحة المهرجانات في محافظة الاسماعيلية بالإضافة إلى توضيح دور وزارة السياحة وهيئة تنشيط السياحة في تنشيط سياحة المهرجانات ودراسة الوضع الحالي لسياحة المهرجانات في محافظة الاسماعيلية.

وتتمثل مشكلة البحث في عدم اهتمام الأجهزة السياحية المعنية بالترويج لسياحة المهرجانات والمناسبات الخاصة بمحافظة الاسماعيلية، وقد اعتمد البحث على المنهج الوصفي التحليلي من خلال تحليل المقومات والعناصر الأساسية لموضوع البحث وصولاً إلى استنباط النتائج التي تعالج مشكلة البحث بالإضافة إلى استطلاع آراء خبراء السياحة في وزارة السياحة المصرية وهيئة التنشيط السياحي عن طريق المقابلات الشخصية وتوزيع استمارة الإستقصاء لجمع البيانات من خبراء وزارة السياحة وهيئة التنشيط السياحي، كما اعتمدت الدراسة على التحليل الإحصائي لبيانات الدراسة باستخدام برنامج التحليل الإحصائي (SPSS) في تحليل البيانات المجمعّة وذلك لتحقيق هدف الدراسة، وتوصلت الدراسة الميدانية إلى وجود علاقة إحصائية ذات دلالة معنوية بين استغلال المناطق السياحية وتنشيط سياحة المهرجانات بالاسماعيلية، وكذلك وجود علاقة إحصائية ذات دلالة معنوية بين الحملات التنشيطية لهيئة التنشيط السياحي ووزارة السياحة المصرية وتنشيط نمط سياحة المهرجانات والمناسبات الخاصة بمحافظة الاسماعيلية.

وقد توصلت الدراسة إلى عدد من التوصيات بهدف تنشيط سياحة المهرجانات بالاسماعيلية أهمها استخدام الوسائل المختلفة للترويج السياحي (إعلانات، نشرات سياحية، الانترنت...) للترويج لسياحة المهرجانات والمناسبات الخاصة في محافظة الاسماعيلية.

الكلمات الدالة: التنشيط السياحي، سياحة المهرجانات، الاسماعيلية.

المقدمة

تمثل السياحة مصدر هام لكثير من دول العالم لما لها من فوائد على كافة المستويات الاجتماعية، الاقتصادية، السياسية، البيئية والتنموية، فضلاً عن كونها مصدر هام للدول للحصول على العملات الصعبة وتوفير فرص العمل (برهوم وآخرون، 2013).

وتحتل سياحة المهرجانات مكانة خاصة في الأجندة السياحية لكثير من الدول حيث تجذب أنماط متنوعة من السائحين للمشاركة بتلك المهرجانات والتمتع ببرامجها وفعاليتها، ونتيجة للمنافسة بين الدول في المجالات السياحية أصبحت المهرجانات السياحية أحد الأنشطة الهامة لجذب السياح لما تحتويه من برامج ترفيهية وثقافية وتسويقية وفعاليتها جاذبة تقام خلال فترات محددة (عقيل، 2007).

وتعد سياحة المهرجانات في مصر من أهم وسائل الجذب السياحي بما تحققه من عائد اقتصادي كبير، كما أنها تعد أحد عناصر الترويج السياحي التي ترعاها وزارة السياحة بهدف تنويع المنتج السياحي في بلادنا، ومن أنجح المهرجانات التي تقام في مصر هو مهرجان الاسماعيلية للفنون الشعبية الذي تنظمه محافظة الاسماعيلية كل عام وتشارك فيه فرق متنوعة للفنون الشعبية العالمية، ويعتبر أحد الوسائل التي لها أثر سياحي كبير في جذب العديد من السائحين للمحافظة (عمران، 2008).

مشكلة البحث

من خلال الدراسة الاستطلاعية التي قامت بها الباحثة في محافظة الاسماعيلية تم ملاحظة غياب الاهتمام بالتنشيط السياحي لسياحة المهرجانات والمناسبات الخاصة بالاسماعيلية، حيث يقتصر على بعض الأنشطة الموسمية الأخرى وتتمثل مشكلة البحث في عدم اهتمام الأجهزة السياحية المعنية بالترويج لسياحة المهرجانات والمناسبات الخاصة بمحافظة الاسماعيلية.

فروض البحث

- توجد علاقة إحصائية ذات دلالة معنوية بين استغلال المناطق السياحية وتنشيط سياحة المهرجانات بمحافظة الاسماعيلية
- توجد علاقة إحصائية ذات دلالة معنوية بين استخدام حملات ترويجية وتنشيطية فعالة من قبل الأجهزة السياحية في مصر والترويج لسياحة المهرجانات بمحافظة الاسماعيلية.

أهداف البحث: يهدف البحث إلى تنشيط سياحة المهرجانات في محافظة الاسماعيلية من خلال عدة أهداف فرعية وهي:

- دور وزارة السياحة في تنشيط سياحة المهرجانات في مصر. -دراسة المعوقات التي تقف حائلا أمام تنشيط سياحة المهرجانات في المحافظة.

المنهج العلمي

اعتمد البحث على الاسلوب الكمي في البحث من خلال الاعتماد على إستمارة الإستقصاء لجمع البيانات من خبراء وزارة السياحة وهيئة التنشيط السياحي، كما اعتمدت الدراسة على برنامج (SPSS) في تحليل البيانات المجمعّة وذلك لتحقيق هدف الدراسة في تنشيط سياحة المهرجات في محافظة الاسماعيلية وتم وضع مقترحات لتنشيط سياحة المهرجانات.

نتائج البحث

جاءت نتائج الدراسة الميدانية كالتالي:

- 1- يمكن تنشيط سياحة المهرجات من خلال النشرات السياحية التي تعدها وزارة السياحة وهيئة التنشيط السياحي.
- 2- هناك عدم إستغلال كافي للمقومات الطبيعية والحضارية والتراثية والثقافية التي تتمتع بها محافظة الاسماعيلية.
- 3- وجود العديد من القيود الأمنية واقتصادية المصاحبة لكل حدث.
- 4- إقامة مهرجانات تقليدية وعدم مواكبة التكنولوجيا أو تحقيق متطلبات السائحين نتيجة قلة الدعم المالي المخصص لهذه المهرجانات.

الخاتمة

تعتبر سياحة المهرجانات من أهم الأنماط السياحية في مصر ولذلك تحتاج إلى تنشيط وتخطيط لتحقيق الهدف المنشود منها، ويهدف البحث إلى التعرف على دور وزارة السياحة وهيئة التنمية السياحية في تنشيط سياحة المهرجانات بالاسماعيلية، وكانت أهم التوصيات أن التخطيط الفعال لسياحة المهرجانات يساعد على تجديد وصيانة الموارد السياحية والاستفادة منها بشكل مناسب.

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PS-114: نحو نظام رقابي متكامل للتدقيق الداخلي في مؤسسات التعليم الجامعي: دراسة ميدانية في جامعة تكريت

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المخلص: أهدف البحث وضع نظام رقابي متكامل للتدقيق الداخلي في جامعة تكريت. وقد تناول الباحث هذا الموضوع من خلال جانبين: تمثل الأول بالجانب النظري حيث تناول الإطار العام للتدقيق الداخلي، من حيث طبيعته ومفهومه وكذلك ماهية التدقيق الداخلي في ضوء التدقيق المتكامل. وكذلك قام الباحث بتوضيح النظام الرقابي المقترح. أما الجانب الثاني فتمثل بالجانب الميداني من خلال قائمة استبيان أعدت لهذا الغرض وزعت على العينة المستهدفة في الدراسة. وقد توصلت الدراسة الى مجموعة من النتائج أهمها: انه لا يوجد اختلاف معنوي بين مفردات عينة البحث حول تطبيق النظام المتكامل المقترح لتطوير عمل المدقق الداخلي بشكل عام مع وجود بعض الفروقات في آراء العينة المستهدفة حول خطوات تنفيذ النظام المقترح، مع التأكيد على أن هذه الاختلافات لا تؤثر في الأخير على النتائج المرجوة من الدراسة. وقد أوصت الدراسة بضرورة تطبيق النظام المتكامل والمقترح من أجل تطوير مهنة التدقيق الداخلي في مؤسسات التعليم الجامعي بشكل عام وجامعة تكريت بشكل خاص .

الكلمات المفتاحية: النظام الرقابي، التدقيق الداخلي، التدقيق المتكامل، مؤسسات التعليم الجامعي .

المقدمة

ان الاهتمام بوظيفة التدقيق الداخلي قد إزداد في العقد الأخير بشكل ملحوظ من قبل مؤسسات التعليم الجامعي، وذلك من خلال قيام الإدارات العليا في الجامعات بتشكيل إدارات خاصة بهذه المهنة ورفدها بالكادر البشري ذو الكفاءة العالية في العمل، وذلك في ضوء ما تفرضه سوق المنافسة الذي تواجهه الجامعات الحكومية من قبل جامعات القطاع الخاص وما تتطلبه الإعتمادات الأكاديمية وكذلك ما تتضمنه مفاهيم الجودة الشاملة. وكذلك أصبح للتدقيق الداخلي أهمية مميزة في الهيكل التنظيمي لمؤسسات التعليم الحكومية باعتباره عنصر مهم لحماية أموال الدولة والموارد العامة، وكذلك التأكد والضمان من إنها ستستخدم بالشكل الأمثل، وإن هناك إدارة فاعلة تسهم في تطوير السياسات، وزيادة الكفاءة الإنتاجية والخدمية بما يعود في الأخر بالمنفعة على جميع قطاعات المجتمع داخل الدولة. وخلال السنوات القادمة يتوقع إتساع وازدياد دور المدققين الداخليين بشكل اكبر، من خلال تحملهم مسؤوليات أوسع من ذي قبل وخاصة فيما يتعلق بإدارة المخاطر وكذلك فيما يخص مستوى تكاليف التنظيم والمشاركة في تطوير عمليات وإستراتيجيات الحوكمة وتمثيها .

الاهداف

الوقوف على واقع أجهزة التدقيق الداخلي في مؤسسات التعليم الجامعي، وتحديد نقاط الخلل والضعف فيها ومحاولة إيجاد الحلول لها، ومقارنة هذا الواقع مع ما يجب أن تكون عليه في الفترة المستقبلية.

وضع آلية لتطوير معرفة ومهارات المدققين الداخليين وتأهيلهم وتحسين جودة الاداء المهني لهم لمواجهة التحديات المستقبلية.

وضع نظام رقابة داخلية يمتاز بالكفاءة والفاعلية للمساهمة في حماية المؤسسات الجامعية من المخاطر والتحديات التي تواجهها.

منهجية البحث

أولاً: المنهج الاستقرائي: وفيه تناول الباحث جوانب المشكلة واستعرض عدد من الدراسات السابقة بالاعتماد على المقالات والأبحاث والدراسات المختلفة والمتعلقة بمتغيرات الموضوع محل الدراسة سواء كانت دراسات باللغة العربية او باللغة الاجنبية .

ثانياً: المنهج الاستنباطي: من خلال هذا المنهج قام الباحث بإختبار الفروض الخاصة بالبحث إحصائياً من أجل تحديد مدى صحة الفروض من عدمها، وذلك من خلال تصميم قائمة استقصاء معده لهذا الغرض تم توزيعها على أساتذة المحاسبة والتدقيق في كلية الادارة والاقتصاد وعلى جميع عناصر أجهزة التدقيق الداخلي في الكليات بالإضافة الى عناصر قسم الرقابة والتدقيق الداخلي في رئاسة الجامعة، وكذلك مدققي ديوان الرقابة المالية في محافظة صلاح الدين .

النتائج والتوصيات

تمثلت النتائج بالآتي:

1. هناك العديد من العوامل المؤثرة على وظيفة التدقيق الداخلي وهي عوامل داخلية (متغيرات داخل المؤسسة) وعوامل خارجية (متغيرات في البيئة المحيطة) .
2. ان التقييم المتكامل أمراً هاماً كآلية أساسية للتأمين الداخلي في الضوابط المالية العامة وكأداة لرصد وتقييم أنشطة الإدارة المالية في المؤسسات الحكومية. وانه يساعد المؤسسات الحكومية على تحقيق المساءلة والنزاهة، وتحسين تنفيذ برامجها المخططة.
3. بينت الدراسة الميدانية أن مستوى إدراك المستقصى منهم لمتغيرات البحث (أي مراحل تطبيق النظام المقترح لتطوير عمل المدقق الداخلي) مرتفعاً نسبياً مما يدل على إدراك المستقصى منهم لضرورة تطبيق النظام الرقابي المتكامل والمقترح لتطوير عمل المدقق الداخلي في المؤسسات التعليمية الحكومية بالعراق .
4. بينت الدراسة الميدانية وجود بعض الفروقات في آراء العينة المستهدفة حول خطوات تنفيذ النظام المقترح، مع التأكيد على أن هذه الاختلافات لا تؤثر في الأخير على النتائج المرجوة من الدراسة .

أما التوصيات فقد تمثلت بالآتي:

1. ضرورة تطبيق النظام المتكامل والمقترح من أجل تطوير مهنة التدقيق الداخلي في مؤسسات التعليم الجامعي بشكل عام وجامعة تكريت بشكل خاص .



2. ضرورة قيام التدقيق المتكامل بإعطاء المدقق الداخلي نفس الاهتمام الذي اعطاه للمدقق الخارجي, إذ انه لا تقل أهميته في الوقت الحالي عن أهمية ودور المدقق الخارجي .

الخلاصة

من خلال هذا البحث تم اقتراح نظام رقابي متكامل لتطوير عمل المراجعة الداخلية في الجامعة يتكون من عدد من الخطوات متمثلة في التقييم الشامل لأجهزة الرقابة الداخلية, ووضع برنامج تدريبي شامل, ثم تطبيق عمل المراجعة من خلال اعتماد الدليل الإرشادي لديوان الرقابة المالية, والمتابعة والمراقبة ومن ثم اعداد التقارير النهائية. وهذه المكونات اذا ما اتصلت ببعضها البعض فإنها ستكون نظام رقابي يتفاعل ويتأقلم مع جميع الظروف المتغيرة, حيث من المعلوم انه كلما كان نظام الرقابة الداخلية جزء من البنية الأساسية للمؤسسة فإنه سيكون قادر على تحقيق الجودة في الاداء وتحقيق الأهداف التي تسعى المؤسسة لتحقيقها .

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PS-115: محددات الشمول المالي واثره علي جودة الأصول لرفع كفاءة الأداء في البنوك

هبة خليل هببه

جامعة طنطا، كلية التجارة، قسم محاسبة

المخلص : ان عملية تقييم الأداء في البنوك لها أهمية خاصة، إذ أن البنوك تتميز بطبيعة اقتصادية خاصة تقتضي المحافظة على سلامة مراكزها المالية بما يحقق خدمة العملاء من ناحية ورفع كفاءة الأداء من ناحية أخرى. ولكي تحقق البنوك أهدافها تظهر الحاجة الي البحث عن وسائل فعالة لتحسين الأداء، تتناسب مع أهداف الإدارة الاستراتيجية في البنوك في ظل التحديات المصرفية الحديثة. ويعتبر مدخل الشمول المالي هو أحد الأساليب الحديثة الذي يظهر أثره علي جودة أصول البنوك لرفع كفاءة وفعالية الأداء بهذه البنوك حيث استحوذت الابتكارات الأخيرة في التكنولوجيا على خيال الناس في جميع أنحاء العالم، واهتمام العالم المصرفي. وفي الوقت الذي يستعد فيه الجميع لعصر جديد في مجال الخدمات المصرفية الرقمية ، أصبح الوقت الحالي فرصة فريدة للاستفادة من قوة الابتكار من أجل منفعة لا جدال فيها ، حيث كانت الابتكارات في الشمول المالي مفيدة في تقديم الخدمات المالية إلى أولئك الذين هم في أشد الحاجة إليها وهم ذوي الدخل المتدني حيث تقدم الخدمات المالية بتكلفة يمكن تحملها وتشمل هذه الخدمات المالية المتنوعة الائتمان، التوفير، التأمين، تسهيلات الدفع والتمويلات. حيث أن الشمول المالي من الخدمات المالية التي لها تأثير إيجابي في الأسواق المصرفية وهو بديل لزيادة المنافسة بين المصارف. حيث نجد أن البنوك الأكثر قدرة على المنافسة تفضل النمو الثابت فقط

الكلمات الدالة : الشمول المالي، إدارة البنوك، الخدمات المصرفية، أصول البنوك

مقدمة

شهدت الخريطة المصرفية تغيير كبير في ملامحها نتيجة ظاهرة العولمة التي أدت الي الاتجاه نحو التحرر من القيود التي كانت تمنع انطلاق الخدمات المصرفية لمجال أوسع بالإضافة الي التقدم التكنولوجي والقواعد المصرفية والمالية الجديدة للجنة بازل في مجال الرقابة المصرفية ، فجميعهم بشكلوا ضغوطا جديدة علي البنوك في مجال تدعيم وتقوية مراكزها المالية لذا فمن الضروري مواجهة تلك التحديات باتخاذ الخطوات الملائمة التي تساعد علي الاندماج في الاقتصاد العالمي ومواجهة البنوك العالمية من خلال تطبيق مدخل الشمول المالي لذلك أعطت الحكومات الأولوية لتوسيع الخدمات المصرفية للجميع لجعل الشمول المالي حقيقة واقعية فتشير النتائج الي أن هناك صلة قوية بين الشمول المالي واستقرار البنوك. فالبنوك هي المسؤولة عن توفير الجزء الأكبر من الخدمات المالية للأسر/الشركات في أي اقتصاد، والواقع الصارخ هو أن معظم الفقراء في العالم لا يزالون يفتقرون الي إمكانية الحصول علي الخدمات المالية المستدامة، الائتمان أو التأمين. والتحدي الكبير الذي يواجهنا هو التصدي للقيود التي تستبعد الناس من المشاركة الكاملة في ذلك القطاع المالي.

الاهداف

يمثل الهدف الرئيسي في رفع كفاءة وفعالية الأداء في البنوك التجارية وتحسين ترتيبها دوليا في ظل التحديات التي تواجهها والمخاطر والمشكلات المالية وظروف المنافسة العالمية ويتحقق ذلك من خلال :-

- 1- استخدام الشمول المالي واثره علي رفع كفاءة الأداء في البنوك
- 2- التعرف علي أهم المفاهيم المرتبطة بتقييم جودة الأصول بالبنوك
- 3- التعرف علي محددات و آليات تطبيق الشمول المالي في البنوك
- 4- أثر تطبيق الشمول المالي في تقليل المخاطر التي يتعرض لها البنك مثل مخاطر الايرادات والائتمان مما يؤثر علي جودة أصول البنوك
- 6- أثر الشمول المالي علي عمليات الائتمان المصرفي التجاري وغير التجاري، وتخفيض المخاطر الائتمانية والاهتمام بالاستثمارات المالية بها .

منهجية البحث

اعتمد البحث استخدم المنهج الوصفي التحليلي استنادا الي طبيعة الموضوع و المعلومات سيتم الحصول عليها من خلال المراجع والكتب والدراسات السابقة والدوريات .

النتائج والمناقشة

بناء على الاطار النظري والدراسات السابقة التي تناولت موضوع الدراسة وفي ضوء ما توصلت اليه الدراسة يمكن استخلاص النتائج كما يلي:-

- 1- سنبده يتعريف الشمول المالي، حيث أنه مصطلح أطلق عليه العديد من التعريفات، ولعل أبرزها: إدخال أو دمج الفئات التي يطلق عليها مهمشة ماليا أو من ذوي الدخل المالي المنخفض الذي لا يسمح لها بالانخراط في عمليات النظام المصرفي، بالتعامل مع الجهاز المصرفي من خلال منظومة العمل الرقمية باستخدام الهاتف المحمول، بمعنى إتمام جميع التعاملات المالية بطريقة إلكترونية، ويهتم الشمول المالي بتقديم الخدمات المالية باستخدام الطرق السهلة والبسيطة وبأقل التكاليف، مثل الدفع عن طريق الهاتف المحمول
- 2- أثبتت الدراسات وجود علاقة وثيقة بين الشمول المالي والاستقرار المالي للبنوك، حيث أنه يساعد علي زيادة إيرادات البنك من خلال المنتجات المالية التي يصدرها لجميع الفئات مما يحد من مخاطر الايرادات التي يتعرض لها البنك نتيجة لتناقص الايرادات بسبب عوامل داخلية أو خارجية بسبب الظروف الاقتصادية العامة التي يساعد الشمول المالي في تقليل أثرها مما يؤثر تأثير إيجابي علي جودة أصول البنوك مما يؤدي لرفع كفاءة أداء البنوك.

3-ترجع أهمية الشمول المالي لوجود علاقة وثيقة بينه وبين الاستقرار المالي والنمو الاقتصادي، فمثلاً عند توفير وإتاحة تمويل للشركات الصغيرة والمتوسطة يعمل ذلك على دعم النمو الاقتصادي، كما يؤثر الشمول المالي على الجانب الاجتماعي من حيث الاهتمام الأكبر بالفقراء ومحدودي الدخل، والوصول إلى الأفراد والمشروعات المتوسطة والصغيرة ومتناهية الصغر

4-تحرص البنوك المركزية على تحفيز القطاع المالي، خصوصاً البنوك، لنشر الثقافة المالية مع كيفية تعزيز الشمول المالي في إطار التوسع في شبكات تقديم الخدمات المالية، من خلال التوسع في شبكة فروع مقدمي الخدمات المالية والاهتمام بإنشاء فروع أو مكاتب صغيرة لتمويل المشاريع متناهية الصغر، مع زيادة عدد الصرافات الآلية أو ماكينات "ATM" لإتاحة الخدمات المصرفية وتوفيرها بين طبقات المجتمع، مع تطوير نظم الدفع والتسوية، مستخدمة في ذلك الاتصالات، لتقديم الخدمات المالية الرقمية عن طريق الدفع عبر الهاتف المحمول وذلك بهدف زيادة منتجات وإيرادات البنك

الخاتمة

ان مسؤولية تحقيق الشمول المالي لا تقتصر فقط على المؤسسات والجمعيات، ولكنها من صميم دور المصارف لتوفير الأموال وإدارة الثروات، والمشاركة الفاعلة في صناعة الاستقرار

ضرورة التوعية المالية للشباب، وإشراكهم في النظام المالي، وتمكين الأفراد ومؤسسات الأعمال من الحصول على الخدمات المالية واستخدامها بفعالية وبطريقة مسؤولة

ضرورة دعم البنية التحتية المالية، مثل تطوير نظم الدفع، توفير قواعد بيانات شاملة، تعزيز الانتشار الجغرافي وغيرها

العمل على إنشاء قواعد بيانات شاملة تتضمن سجلات البيانات الائتمانية التاريخية للأفراد والشركات الصغيرة والمتوسطة، إضافة إلى قاعدة بيانات تسجيل الأصول المنقولة

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المخلص: تحليل المعطيات يحمل شقين، فقد يكون وفقا للتحليل الكمي أو الرقمي كما يمكن أن يكون تحليليا كفيًا نوعيًا، وهو ما يعرف بتحليل المضمون، تحليل المضمون هو تقنية منهجية تعمل على اعطاء وصف كمي موضوعي ومنظم ومنسق للمضمون الظاهر لموضوع ما في المحاسبة وتحقيق المحتوى يتطلب التدقيق والتحليل من كمية كبيرة من المنهجية ويعتبر جدول التكافؤ تسهيل لتحليل المضمون ويحمل بواسطة مركز البيانات ويستخدم للإشارة المرجعية لمعايير المحاسبة المالية ذات الصلة. ويلاحظ الآتي: إن استخدام وسيلة جمع البيانات يخضع لنوعية المنهج المتبع في البحث. فإذا كان المنهج هو المنهج التجريبي فإنه يستخدم الاستبيان ذو الأسئلة المغلقة، وإذا كان البحث يتبع المنهج الوصفي تستخدم إحدى وسائل جمع البيانات المختلفة، وقد يتعدد استخدام وسائل جمع البيانات في البحث الواحد. ولتحليل المضمون تعريفات متعددة، منها: محاولة الوصول إلى وصف سببي للمضمون، من أجل الكشف، موضوعيًا، عن طبيعة المثيرات وعمقها النسبي يسعى تحليل المضمون إلى تحديد المعاني التي ينطوي عليها نسق الاتصال بطريقة منطقية وكمية يُشير تحليل المضمون إلى الوصف الكمي الموضوعي لأي سلوك مؤثر أسلوب للبحث يستهدف الوصف الكمي الموضوعي المنظم للمحتوى الظاهر للاتصال.

ويعتبر جدول التكافؤ تسهيل لتحليل المضمون ويحمل بواسطة مركز البيانات ويستخدم للإشارة المرجعية لمعايير المحاسبة المحلية مع المعايير الدولية للتقارير المالية ذات الصلة والهدف من هذا الجدول أيضا تحديد أي من المعايير الدولية لإعداد التقارير المالية المفقودة في المعايير المحاسبية

كما إن لتحليل المضمون عدة تعريفات منها: محاولة الوصول إلى وصف سببي للمضمون وتحديد المعاني والوصف الكمي والموضوعي لأي سلوك مؤثر، وفي النهاية سيتعرض البحث لمشاكل تحليل المضمون وسيحاول إيجاد حل لها وسيعرض لخصائصه ويحاول اسقاطها على الواقع البحثي

بعض المصطلحات:

- التحليل هو عملية تستهدف متابعة التطبيقات المحاسبية الفعالة بالمنشآت عن طريق فصل عناصر الظواهر المحاسبية عن بعضها
- المضمون هو كل ما يقوله المحاسبين من عبارات شفوية أو مكتوبة من خلال البحوث أو ما يتم تطبيقه عمليا
- وحدة الموضوع ويقصد بها الوقوف على العبارات أو الأفكار الخاصة بمسألة معينة ويعتبر الموضوع اهم وحدات تحليل المضمون عند دراسة الآثار الناجمة عن الاتصال وتكوين الاتجاهات
- التحليل الكمي هو ترجمة المحتوى إلى ارقام ونسب واعداد واحصائيات ومعدلات ثم حساب التكرار
- التحليل الكيفي هو تفسير وتحليل النتائج وكشف أسبابها وخلفياتها والمقصود منها

الكلمات المفتاحية: التحليل، المضمون، وحدة الموضوع، التحليل الكيفي، التحليل الكمي

المقدمة

تحليل المضمون أحد ادوات البحث المستخدمة بكثرة في البحوث التي جعلت البعض يعتبرها أحد مناهج البحث التي يمكن الاكتفاء باستخدامها. وتحليل المضمون أسلوب واداة للبحث العلمي يمكن ان يستخدمها الباحثون في أدوات بحثية متنوعة قد يؤدي تحليل أكثر تفصيلا الي غير ضروري مثل تقييم الاسهم أقل من التكلفة وصافي القيمة القابلة للتحقيق ايها أقل على غرار تقييم الأسهم في التكلفة أو صافي القيمة السوقية في أي وقت بين اثنين وتحقيق المحتوى يتطلب التدقيق والتحليل من كمية كبيرة من المنهجية. ويعتبر جدول التكافؤ تسهيل لتحليل المضمون ويحمل بواسطة مركز البيانات ويستخدم للإشارة المرجعية لمعايير المحاسبة المالية ذات الصلة. ويحدد أربع خطوات في التحليل: اولا تحديد وثيقة مقنعة ثانيا تحديد ترميز يمكن الاعتماد عليه، ثالثا تطوير كود مناسب، رابعا ترميز المعلومات.

قد يؤدي تحليل أكثر تفصيلا الي غير ضروري مثل تقييم الاسهم أقل من التكلفة وصافي القيمة القابلة للتحقيق ايها أقل على غرار تقييم الاسهم في التكلفة أو صافي القيمة السوقية في اي وقت بين اثنين وهناك مسألة هامة في تحليل المضمون وهي الموثوقية أولا يجب ترميز البيانات باستمرار من قبل المبرمج المشكلة التي تنشأ في الترميز هو تكرار نظام الترميز لشخص آخر وقد تم هذا النوع حتى الآن حيث تم استخدام الترميز لمقارنة محتوى المعايير المحاسبية .

كما اننا سنتطرق لخصائص تحليل المضمون مثل: تحليل الدوافع والاهداف وتوضيحها وصف المضمون الصريح للمادة وعدم تركيزه على المحتوى فقط وانما يشمل الجوانب الشكلية كذلك وخضوعه للمتطلبات المنهجية

الهدف من الدراسة

اولا الكشف عن الاتجاهات المحاسبية

ثانيا المقارنة بين البحوث المحاسبية بالنسبة لموضوعاتها واتجاهاتها وأهدافها

ثالثا تحليل المضمون لتقارير المراجعين وتقارير لجان المراجعة ومجلس الإدارة

رابعا تحليل المضمون للدراسات السابقة للبحوث المحاسبية

خامسا بيان خصائص تحليل المضمون واسقاطها على الواقع العملي

سادسا عرض مشاكل تحليل المضمون ومحاولة حلها محاسبيا

سابعا محاولة دمج الدراسة مع الواقع العملي والأبحاث المحاسبية

منهجية البحث

وصفية تحليلية من خلال المراجع والدراسات السابقة وعقد مقارنات تاريخية لمعرفة مدى استخدام تحليل المضمون في البحوث المحاسبية، كما سيتم عقد استبيانات ومقارنات بين الدراسات السابقة والحالية واستخدام المنهج الاستقرائي لعقد تلك المقارنات ثم استخدام المنهج الاستنباطي لبيان أثرها واستخدام المقارنات البيانية وجداول التكافؤ لبيان الآثار عمليا

النتائج والمناقشة

اثبتت الدراسات أهمية استخدام تحليل المضمون في البحوث المحاسبية وتصنيف البيانات استخدام تحليل المضمون هام في تحليل البيانات التاريخية وفعال مستقبلا استخدام المحاسبون في المجال المحاسبي تحليل المضمون كأسلوب بحثي لجمع الأدلة التجريبية وتقييم الأثر البيئي ويتم استخدام تحليل المضمون لمقارنة المحاسبة المحلية للمعايير الدولية وهو طريقة لتصنيف عناصر مختلفة الي عدد من الفئات وتحليل كمية كبيرة من البيانات النوعية

عرض خطوات تحليل المضمون وتحديدها وترتيبها

الوصول لخصائص الأداة البحثية والتحليل للجوانب الموضوعية والشكلية

اسقاط خصائص تحليل المضمون على الواقع العملي والأبحاث المحاسبية

الاستنتاج

1/ تشهد الأبحاث المحاسبية انخفاض تناول تحليل المضمون من 23% الي 15% في الفترة بين 1999 – 2003

لذا نوصي باستخدامه مستقبلا لاعتماده على الجوانب الشكلية والموضوعية وارتباطه بالمشكلة وفروضها

2/ تحديد مشاكل تحليل المضمون مثل صعوبة فحص جميع المحتويات واقتصاره على ثلاث محاور فقط والعمل على حل ذلك

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PS-117: تصميم برنامج تقني للمراجعة الداخلية لحساب درجة المخاطر الائتمانية للمنشأة للمساهمة في عملية التقييم المستمر لعملية إدارة المخاطر الائتمانية¹

هبة الله وجدي الشاذلي، طلعت عبد العظيم متولى

قسم المحاسبة، كلية التجارة – جامعة طنطا

ملخص البحث: إن المراجع الداخلي في حاجة لبرنامج إلكتروني للمراجعة المستمرة الفورية لإدارة المخاطر الائتمانية، حيث أن هناك قصور في الدراسات السابقة في هذا المجال، مميزات البرنامج: زيادة الكفاءة والفعالية في التعامل مع البيانات المالية والتحليل المالي - توفير الوقت والجهد على المستخدم عند حساب درجة الجدارة الائتمانية - إعداد تقارير للجهات الداخلية بصورة أسرع وفي التوقيت المناسب، مما يساعد بشكل كبير على اكتشاف نقاط الضعف في نظام الرقابة الداخلية، تتمثل مخرجات البرنامج في: معدل الإقراض - درجة مخاطر المنشأة - تقرير عن درجة مخاطر الشركة يقدمه المراجع الداخلي لإدارة الشركة ويشتمل على معدل الإقراض ودرجة المخاطر والتوصيات من المراجع الداخلي لإدارة الشركة بشأن التعامل مع تلك المخاطر، تتمثل بعض مدخلات البرنامج في: النسب المالية كالمسئولية وهيكل رأس المال ونسبة تغطية الديون باعتبارها أداة من أدوات التحليل المالي - العوامل الحكيمة وتعتمد على الحكم الشخصي للمراجع الداخلي والتي منها مدى ملائمة موقع العمل، رفض توقيع عقود مع عملاء - متغيرات نتائج الأعمال والتي منها (مخاطر الصناعة - جودة الإدارة - استمرارية المنشأة)، لغة البرمجة المستخدمة Access + Soft Visual Basic application

الكلمات المفتاحية: المراجعة المستمرة - برنامج إلكتروني لحساب درجة المخاطر الائتمانية - المراجع الداخلي - إدارة المخاطر .

مقدمة البحث

يشهد العالم اليوم كثيرا من التطورات السريعة والمتلاحقة نتيجة للتغيرات في تقنية المعلومات وظروف عدم التأكد والمخاطر التي تحيط ببيئة الأعمال، وكان من أهم مظاهر هذه التطورات التركيز على إدارة المخاطر التي أصبحت ضرورة ملحة وعنصر هام لاستمرارية الوحدات الاقتصادية. كما بات من الضروري وجود إدارة شاملة للمخاطر بالمنشأة لكي تؤدي دورا فعالا مع حالة عدم التأكد والمخاطر المرتبطة بها، ومساعدة الإدارة في الاستفادة من الفرص المتاحة لها، من خلال منهجية واضحة لتطوير وتصميم عملية إدارة المخاطر، ونظم الرقابة الداخلية وحوكمة الشركات، ومن هنا جاءت أهمية المراجعة الداخلية وكذلك ارتباطها بمهنة المراجع الداخلي، الذي أصبح من الضروري أن يكون قادرا على رصد المخاطر التي تواجه المنشأة بالتواصل مع الإدارة في الوقت المناسب وبالطريقة المناسبة، ومتابعة هذه المخاطر بصورة مستمرة، وهذا ما أكدته كل من قانون Sarbanes Oxley Act (SOX) في الولايات المتحدة والدليل الموحد لحوكمة الشركات في المملكة المتحدة، على ضرورة وجود إدارة للمخاطر فعالة والتقارير عن هذا الموضوع للمساهمين، لذلك تكون هناك حاجة ماسة لتطوير مهام المراجعة الداخلية لتتبنى مدخل المراجعة على أساس الخطر. كما أن أمام المراجع الداخلي تحديات في ظل تبني هذا المدخل بسبب النمو المتزايد في طاقات تقنية المعلومات؛ وزيادة حجم العمليات المالية والتشغيلية، وفي ظل استخدام نظم المحاسبة الفورية (Real Time Accounting Systems)، مما أدى إلى تطورات في بيئة عملية المراجعة الداخلية، وتحديات تواجه المراجعين الداخليين في القيام بعملية الرقابة على إدارة المخاطر المحيطة بأنظمة المعلومات، لذلك كان لا بد من استخدام مداخل جديدة تلائم بيئة الأعمال الحديثة والتي منها المراجعة المستمرة .

هدف البحث

يتمثل الهدف الرئيسي للبحث في: " تقييم المراجع الداخلي للإدارة الشاملة لمخاطر المنشأة باستخدام المراجعة المستمرة في بيئة تقنية المعلومات " وتتمثل الأهداف الفرعية للبحث في:

- تحديد الدور الذي تلعبه المراجعة الداخلية في تقييم إدارة المخاطر في بيئة تقنية المعلومات .
- تحديد العوامل التي يعتمد عليها المراجع الداخلي في تقييم والاعتماد على نتائج الإدارة من عملية المراقبة المستمرة .
- تحديد مدى تأثير قيام المراجع الداخلي بتقييم الإدارة الشاملة لمخاطر المنشأة من خلال عملية المراجعة المستمرة على تحسين كفاءة وفعالية إدارة مخاطر المنشأة في ظل بيئة تقنية المعلومات.

منهج البحث

يعتمد البحث على المنهج الإيجابي في صورة النموذج الاستنباطي، وفي هذا النموذج يقوم الباحث بمراجعة الدراسات السابقة - بطريقة غير انتقادية - ومنها يتم اختيار مجموعة من الفروض والتي يمكن اختبارها، ثم يحاول الباحث بعد ذلك تجميع حقائق عن هذه الفروض في الواقع، ويتم اختبار هذه الفروض باستخدام مقاييس إحصائية ورياضية، وإذا ثبت عدم صحة هذه الفروض فيعاد تكوين فروض جديدة، أما إذا ثبت صحة هذه الفروض فتصبح جزءا من المعرفة وتضاف للنظرية الموجودة أو تحل محلها .

النتائج والمناقشة

خلص الباحث الى أنه يساعد برنامج حساب درجة المخاطر الائتمانية باعتباره برنامج مراجعة مستمرة المراجعين الداخليين في معرفة مدى قدرة الشركة على الاقتراض، من خلال حساب وتحديد درجة المخاطر الائتمانية، والتي تعتبر أحد أنواع المخاطر التي تسعى الإدارة إلى إدارتها بكفاءة وفعالية، كما يساعد برنامج لغة أوامر المراجعة ACL المراجعين الداخليين على تقييم فعالية أنشطة إدارة المخاطر، وقد قام الباحث في هذا المحور باستخدام برنامج ACL لتحديد ما إذا كانت هناك مدفوعات / فواتير مكررة Duplicate Invoices داخل أحد أقسام المنشأة، وذلك لتقييم فعالية الرقابة الداخلية للقسم، ولتجنب المدفوعات غير

¹ تم توثيق البرنامج بالحصول على شهادة إيداع وتسجيل مصنف حاسب آلي برقم 2595 من مكتب حماية حقوق الملكية الفكرية ببيئة تنمية صناعة تكنولوجيا المعلومات - بوزارة الاتصالات وتكنولوجيا المعلومات .

الضرورية ، وخلص الباحث إلى أنه يمكن للمراجع الداخلي مراقبة كل عمليات المدفوعات بواسطة ACL ، للتحقق من وجود تلاعب وانتهاكات بالمدفوعات من عدمه ، مما يمثل مخاطر حقيقية للمنشأة .

الاستنتاج :أصبح استخدام مدخل المراجعة المستمرة أمر ضروري لمواجهة الاستجابة للأثار المهنية الجوهرية لتكنولوجيا المعلومات ، والتي ساعدت على أن تصبح المعلومات الإلكترونية أسهل في تخزينها وتلخيصها وتنظيمها ، كما أصبح استخدام مدخل المراجعة المستمرة أمر ضروري لمواجهة حاجة متخذ القرار لتخفيض خطر المعلومات لأغراض اتخاذ القرارات الفورية ، وكذلك حاجة الملاك للرقابة المستمرة على الإدارة باعتبار المراجعة المستمرة أداة للرقابة الخارجية المستمرة من الملاك على مجلس إدارة المنشأة . ، وتمكن المراجعة المستمرة المراجعين الداخليين من التركيز على مناطق ذات مستويات الخطر الأعلى ، وعلى ذلك فإن دور المراجعة المستمرة هو الإشارة إلى مناطق قصور الرقابة الداخلية أو مناطق الزيادة في المخاطر ذات المستويات الأعلى ، كما يعتبر نظام المراجعة المستمرة جزء أساسي أو حاسم من عملية إدارة مخاطر المنشأة ، لأنها تتعرف على مناطق الخطر و توصيل هذه المخاطر للإدارة ، لذلك يمكن أن تتكامل مع عملية التخطيط الاستراتيجي للمنشأة .

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المخلص : يعد استخدام المعلومات المحاسبية الالكترونية والمحوسبة في عملية صنع القرارات من اهم تطورات الثورة الصناعية الرابعة حيث يعيش العالم اليوم ثورة تكنولوجية الكترونية متسارعة وفي تجديد مستمر حيث تعتبر تكنولوجيا المعلومات والتقنيات الالكترونية موردا لا يقل اهمية عن الموارد البشرية والمادية ، اذ اصبح الاهتمام بتكنولوجيا المعلومات ومدى مواكبة تكنولوجيا المعلومات ميزة تنافسية لدى الشركات التى تستغل العامل التكنولوجى استغلالا امثلا لتحقيق اهدافها ورسالتها ورؤيتها ،ففى البداية يجب الاعتراف ان المعلومات المحاسبية لها اثر فى تقدم عمل المراقب المالى وفاعليته فى الاداء وان **IDEA (INTERACTIVE DATA EXTRACTION AND ANALYSIS)** التطور السريع فى عالم المعلومات وتولد الوعى بضرورة التحول من الانظمة اليدوية الى الالكترونية وذلك باستخدام برنامج وهويرنامج التدقيق الخاص باستخلاص وتحليل البيانات وله الاثر فى التغيير الجوهرى لطبيعة العمل (**DATA EXTRACTION AND ANALYSIS**) المهنى والمحاسبى والتدقيقى وان الوظائف التى يقدمها البرنامج هى استخراج بيانات مكررة وهنا ياتى دور الادارة والقرارات المالية على المستوى الكلى والمفاضلة بين منهجية اتخاذالقرارات ومنهجية صناعة القرارات وتم التوصل الى انه يجب تطبيق منهج صناعة القرار بدلا من اتخاذ القرارات الذى كان متبعا فى اغلب الدول النامية والتعرف على مراحل صناعة القرارات ونماذج صناعةالقرار مع التركيز على نظامدعم القرار ونظام الخبير.... وفى المرحلة التالية يجب التعرف على مجالات دعم المعلومات الالكترونية لعملية صناعةالقرار على المستوى الكلى والتعرف على دور المعلومات الالكترونية فى دعم عملية صناعة القرار واختبار فرض هذا البحث المصاغ بشكل سوال بحثى مفادة ان هل للمعلومات المحاسبية الالكترونية دور فى ترشيد صناعة القرارات على المستوى الكلى ؟؟.. وهنا كانت الاجابة بنعم..... ويلى تلك المرحلة مرحلة اخرى وهى التعرف على اهمية تطبيق منهج الادارة الحديثة على المستوى الكلى والتركيز على الكفاءة والفاعلية فى العمل الكلى كما يتم التعرف على معوقات صناعة القرار والتعرف على عوامل نجاح صناعة القرار وبذلك لم يعد لدى الحكومات رفاهية الاختيار بين صناعة القرار على اساس ودلائل معلوماتية ونماذج كمية معتمدة على الحاسب او الاعتماد على التقدير الشخصى والخبرات الشخصية فالمنهج العلمى فى صناعة القرارات خاصة تميز الامم المتقدمة بقدرها اصبحت ضرورة والتزاما دوليا على الدول النامية لمواكبة سير التقدم... ويأتى هنا دور اختبار خصائص المعلومات المحاسبية والتمثلة فى التوقيت الملائم والقدرة على التنبؤ والتغذية العكسية وصدق التعبير والحيادية وتثبيت المعلومة والمقارنة والبرمجيات المستخدمة فى الشركات.. وللتعرف على انظمة المعلومات المحاسبية تم حصرها فى 7 عناصر وهى : (1) الاهداف والخطط (2) قاعدة البيانات (3)المدخلات (4)العمليات (5) المخرجات (6)التغذية العكسية (7)المستخدمون... والتعرف على تلك العناصر بالتفصيل وسيتم عرض المحددات لاستخدام خصائص جودة المعلومات المحاسبية التى تشتمل على :اولا الموازنة بين التكلفة والنفقة ثانيا الاهمية النسبية اى التقدير النسبى ويمكن تحديد معايير عامة لقياس جودة المعلومات المحاسبية وفق الاتى :الدقة كمقياس لجودة المعلومات/المنفعة كمقياس لجودة المعلومات /الفاعلية كمقياس لجودة المعلومات/ التنبؤ كمقياس لجودة المعلومات/الكفاءة كمقياس لجودة المعلومات... كما تعد المعلومات المحاسبية المحوسبة من اهم المعلومات بسبب الاتى : 1- توفر الاساس لعملية المساءلة ويقصد بالمساءلة تقديم تفسيرات عن الاداء الى السلطات التشريعية او جهة لها الحق فى ذلك وسواء كانت هذه المساءلة مالية او ادارية تتعلق بالاداء 2/ توفر الاسس للقيام بعملية تقويم اداء المنظمة من خلال مقارنة النتائج الفعلية مع المخططة بموجب الموازنة الكترونية 3/بيان نتائج الاداء المالى ونتائج العمليات الحاصلة خلال فترة زمنية معينة باللحظة 4/ تسهم فى عملية صنع القرارات المختلفة ورسم السياسات العامة

الكلمات الدالة : المعلومات المحاسبية / الالكترونية / المحوسبة

المقدمة

شهدت الفترة الاخيرة تطورا ملحوظا فى منهجية صناعة القرار من خلال الدعم المتبادل بين فروع المعرفة المختلفة والاساليب العلمية المستخدمة فى صناعة القرار واعتماد هذه النظمعلى المعلومات والنماذج الكمية لانتاج المعلومات الكمية بواسطة النظم المحاسبى باعتبار ان هذا النظام هو اجدر فئات منتجى المعلومات وهم الاقدر على توظيف مالىه من بيانات مالىه وما لدى المحاسب من قدره على تحديد التكاليف المختلفة للقرارات المختلفة وترشيد الوظائف الادارية المختلفة للقرارات المختلفة وترشيد الوظائف الادارية المختلفة التى تحتاج لمعلومات كمية عن الانتاج والطاقة وحجم الطاقة على الخدمات وتشغيل هذه البيانات لانتاج معلومات مختلفة لاغراض الادارة المختلفة وخاصة اعراض لصناعة القرارات التى اعتمدت فى الفترة الاخيرة على نماذج عدة لصناعة القرارات مثل نظام دعم القرار ونظام الخبير ونظام ادارة المعرفة. وفى زمن اقتصاد المعرفة اصبح يقاس تقدم الدول بما تملك من معرفه بعدما كان يقاس بالتقدم الصناعى واصبح ينظر للمعلومات على انها واحد من ثلاث اما انها مورد او انها سلعة او اصل وفى الوضع الراهن اصبحت نظم المعلومات الالكترونية تتكون من عدة عناصر سواء الاجهزة او نظم التشغيل او المعالجة او التخزين والنقل للمعلومات فى شكل الكترونى وهو مايعرف بنظم انتاج المعلومات ووسائل الاتصال وشبكات الربط واجهزة الفاكس وغيرها من الاجهزة الداعمة ويقوم نظام المعلومات بتشغيل البيانات وتحويلها لمعلومات وتقديمها للمستخدمين بمختلف انواعهم سواء على المستوى الجزئى او الكلى كماان جودة المعلومات المحاسبية فى ظل الاى تى يجب ان تنصف بالدقة والتوقيت المناسب وبدرجة الموثوقية المطلوبة ومتصفة بالثبات كما اصبحت عملية اتخاذ القرارات بالاعتماد على النظم المتقدمة امر فى غاية الاهمية لتوجيه الموارد النادرة لاستخدامات اكثر كفاءة مما يعظم القيمة المضافة للقرار على المستوى الكلى

مشكلة

تعانى مصر والدول العربية من مشكلة الادارة وينعكس ذلك على القرارات على المستوى الكلى والذى يعانى من مشكلات متباينة وتتمثل مشكله البحث فى ضرورة قيام المعلومات الالكترونية التى ينتجها نظام محاسبى على المستوى الكلى بالعمل على مساندة الادارة على هذا المستوى فى صناعة القرارات المختلفة وتدعمها بالاستفادة بما افرزته التطورات والتغيرات فى مجال انتاج المعلومات باعتبار ان النظام المحاسبى اجدر وسيلة لانتاج المعلومات الالكترونيه ويمكن بلورة مشكلة البحث فى الاسئلة الاتية وهى (1: ماهيه المعلومات المحاسبية والمعلومات الالكترونية؟ 2) ماهي خصائص ومحددات جودة المعلومات المحاسبية ؟ 3)هل يمكن تطوير صناعة القرارات على المستوى الكلى ؟ 4)ماهى مساهمة المعلومات الالكترونية فى دعم صناعة القرار على المستوى الكلى ؟ وماهى الجهات المستفيدةمن ذلك؟

الأهداف

يهدف هذا البحث الى تحديد دور المعلومات المنتجة من النظام الالكتروني في ترشيد صناعة القرارات ويمكن ان نحدد اهداف هذا البحث بنقطين وهما: 1- تحديد ماهية المعلومات المحاسبية والمعلومات الالكترونية 2-تحديد طبيعة وخصائص صناعة القرارات كليا 3 -دور المعلومات الالكترونية في دعم صناعة القرارات على المستوى الكلي

منهج البحث

تحقيقا لاهداف البحث واختبارا لفروضه تتم دراسته تحليلية انتقادية لتحديد طبيعة خصائص الادارة على المستوى الكلي وخصائص وطبيعة خصائص الادارة على المستوى الكلي وخصائص وطبيعة قراراتها ودعم المعلومات الالكترونية في ترشيدها وصياغة منهجية ملائمة لترشيد القرارات على المستوى الكلي بدعم المعلومات المنتجة من النظم الالكترونية المتطورة ودعم نماذج صناعة القرار

النتائج والمناقشة

بناء على الاطار النظري و الدراسات السابقة التي تناولت موضوع الدراسة وفي ضوء ماتوصلت اليه الدراسة الميدانية يمكن استخلاص النتائج كما يلي: 1- اثبتت الدراسة انه يوجد علاقة بين نظم المعلومات الالكترونية وصناعة القرارات المختلفة وتدعيمها والاستفادة منها 2-استنتاج خصائص ومحددات جودة المعلومات المحاسبية المحوسبة 3-اثبات ان المعلومات الالكترونية المحوسبة اسهمت في دعم صناعة القرار على المستوى الكلي وتحديد الجهات المستفيدة من ذلك.

الاستنتاج

تفعيل البرامج والدورات التدريبية المتخصصة في مجال الحاسوب وتكنولوجيا المعلومات بصورة مستمرة والعمل على الحاق صانعي القرار ممن تتقهم مثل هذه الدورات لرفع كفاءتهم العملية والمهنية ولتحسين مستوى ادائهم وتطويره بما يتلائم مع التطورات المستمرة في بيئة الانظمة الالكترونية بكافة اشكالها وضرورة ابراز اهمية تكنولوجيا المعلومات في صناعة القرار وذلك من خلال تفعيلها

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PS-119: تأثير التقنية السحابية والبيانات الكبيرة على كفاءة وفاعلية التدقيق الخارجي باستخدام النظرية المجردة

محمد نبوي عبد المقصود نمر

قسم محاسبة، كلية التجارة، جامعة طنطا

المخلص: هدفت هذه الدراسة إلى التعرف على مدى كفاءة مهارات مدقق الحسابات الخارجي في جمع وتقييم أدلة الإثبات في ظل استخدام التقنية السحابية والبيانات الكبيرة ولتحقيق هذا الهدف أتبع الباحث المنهج الوصفي التحليلي نظراً لملاءمته لموضوع الدراسة، حيث تم إعداد استبانة تكونت من 40 فقرة، وتم توزيعها على عينة الدراسة المتمثلة في 61 مدققاً مزاوياً لمهنة تدقيق الحسابات وتم استرداد 51 استبانة صالحة للتحليل، وتم استخدام برنامج لاختبار الفرضيات وتحليل النتائج SPSS التحليل الإحصائي وقد توصلت الدراسة إلى عدة نتائج من أهمها: تتوافر لدى مدقق الحسابات الخارجي مهارات ذات كفاءة تساعده في جمع وتقييم أدلة الإثبات عن طريق استخدام التقنية السحابية والبيانات الكبيرة. كما بينت الدراسة أنه يوجد علاقة ذات دلالة إحصائية بين كل من قيام مدقق الحسابات الخارجي (بفحص النظام المحاسبي، وفحص نظام الرقابة الداخلية، وتقييم المخاطر الناشئة عن العمل في بيئة التقنية السحابية، وكذلك الإلمام بمعايير التدقيق الدولية، والإلمام بالبيانات الكبيرة، والنظرية المجردة)، وكفاءة مهارات مدقق الحسابات الخارجي بغرض جمع وتقييم أدلة الإثبات في ظل استخدام التقنية السحابية والبيانات الكبيرة والنظرية المجردة. وقد خلصت الدراسة إلى عدة توصيات من أبرزها: ضرورة تفعيل البرامج والدورات التدريبية المتخصصة في مجال الحاسوب وتكنولوجيا المعلومات بصورة مستمرة، لتحسين مستوى أداء مدققي الحسابات بما يتلائم مع التطورات المستمرة في بيئة أنظمة التقنية السحابية والبيانات الكبيرة ضرورة تدخل الجهات المنظمة للمهنة لوضع قواعد لضبط عملية تدقيق أنظمة التقنية السحابية والبيانات الكبيرة، وذلك بتصنيف شركات ومكاتب التدقيق القائمة بناء على الإمكانيات الفنية لطاقتهم المكتب وتحديد مدى قدرته على فحص مثل هذه الأنظمة. كما أوصت الدراسة بالتوسع في استخدام أساليب التدقيق بمساعدة الحاسوب لما لها من أثر في تخفيض الوقت والجهد والتكلفة المبدولة في عمليات التدقيق، ولما لها من مزايا في تحقيق الدقة والسرعة في جمع وتقييم أدلة الإثبات. وأخيراً ضرورة متابعة المدققين المزاولين للمهنة المعايير وبيانات التدقيق الدولية المتعلقة بتقنية المعلومات واتباع الإرشادات للتمكن من تدقيق أنظمة التقنية السحابية والبيانات الكبيرة عن طريق استخدام النظرية المجردة على الوجه الأمثل.

الكلمات الإفتتاحية: التقنية السحابية، النظرية المجردة، البيانات الكبيرة

المقدمة

يعد استخدام التقنية السحابية والبيانات الكبيرة والنظرية المجردة في عملية التدقيق الخارجي من أهم تطورات الثورة الصناعية الرابعة حيث يعيش العالم اليوم ثورة تكنولوجية إلكترونية متسارعة وفي تجديد مستمر، حيث تعتبر تكنولوجيا المعلومات والتقنيات الإلكترونية مورداً مهماً لا يقل أهمية عن الموارد البشرية والمادية، إذ أصبح الاهتمام بتكنولوجيا المعلومات ومدى مواكبة التطور التكنولوجي ميزة تنافسية لدى الشركات التي تستغل العامل التكنولوجي إستغلالاً أمثلاً لتحقيق أهدافها ورؤيتها، ويعتبر استخدام تكنولوجيا المعلومات في مجال تدقيق الحسابات من القضايا المعاصرة التي إنبثقت عن إدراك مدققي الحسابات لأهمية مثل هذا الاستخدام لما يوفره من مساعدة المدقق في إختيار عينة التدقيق وبالتالي زيادة مصداقية نتائج المعاينة في التدقيق. حيث أصبحت عملية معالجة البيانات إلكترونية ضرورية في المؤسسات كبيرة وصغيرة الحجم على حد سواء والتي تهدف إلى تحقيق فاعلية أكبر في أنشطتها، فقد برزت أهمية التدقيق على هذه المؤسسات بسبب ظهور بيئة رقابية جديدة تختلف عن البيئة الرقابية التقليدية، وقد تم استخدام الحاسوب لأداء خدمات مهمة في هذا المجال، فالمشاكل التي تواجه مدقق الحسابات بالطرق التقليدية خصوصاً في المؤسسات الكبيرة التي تبلغ من الكبر حداً بحيث يجعل عملية التدقيق صعبة وشاقة ومكلفة في أن واحد، ولكن مع بدء استخدام الحواسيب، تغيرت المعايير بحيث سمحت لمدققي الحسابات بإجراء رقابة دقيقة وشاملة على حسابات المؤسسة مما يسهل عملهم. (عبد الله وأحمد، 2011). إن بيئة المعالجة الإلكترونية لا تغير من جوهر التدقيق، لكنها تؤثر في طريقة تخزين ومعالجة وتخزين البيانات المحاسبية وما يتبع ذلك من وجوب تطويع إجراءات التدقيق اليدوية لملاءمة بيئة المعالجة الجديدة التي تختلف جذرياً في طبيعتها عن نظم المعالجة اليدوية، حيث يجب على مدقق الحسابات في ظل ظروف المعالجة الإلكترونية للبيانات أن يفهم المكونات المادية للحاسب، وكذلك البرامج الجاهزة، ونظم المعالجة الإلكترونية، بالقدر الذي يمكنه من تخطيط عملية التدقيق، وتفهم آثار استخدام الحاسب في تقييم ضوابط الرقابة الداخلية، وتطبيق إجراءات التدقيق، وبخاصة أساليب التدقيق الفنية المساعدة، كما يجب على المدقق أن يكون على قدر كافٍ من الإلمام بمعالجة البيانات المحاسبية لتنفيذ إجراءات التدقيق اعتماداً على منهج التدقيق. (المطبق) مسلم، 2006..

الهدف

يتمثل الهدف الرئيسي لهذه الدراسة في التعرف على العوامل المؤثرة على كفاءة وفاعلية التدقيق الخارجي من خلال استخدام نظم المعلومات المحاسبية المحوسبة وذلك من خلال الآتي:

1. التعرف على أهمية استخدام التقنية السحابية والبيانات الكبيرة بالنسبة للمدققين الخارجيين.
2. بيان دور استخدام التقنية السحابية والبيانات الكبيرة على زيادة كفاءة وفاعلية التدقيق الخارجي باستخدام النظرية المجردة.
3. بيان أثر مخاطر استخدام التقنية السحابية والبيانات الكبيرة على زيادة كفاءة وفاعلية التدقيق الخارجي باستخدام النظرية المجردة.
4. التعرف على أهم المفاهيم المرتبطة بالتدقيق وأهدافه وأهميته مزاياه، وجودة عملية التدقيق في ظل استخدام التقنيات الإلكترونية.
5. التعرف على المتطلبات الأساسية للرقابة على جودة عملية التدقيق.

منهجية البحث

اعتمد البحث المنهج الوصفي التحليلي استناداً إلى طبيعة الموضوع المعلومات الثانوية سيتم الحصول عليها من خلال الاطلاع على الكتب والمراجع والدراسات السابقة والدوريات، أما المعلومات الأولية فسيتم الحصول عليها عن طريق الاستبانة التي تم إعدادها لهذا الغرض باستخدام البرنامج الإحصائي SPSS.

النتائج والأستنتاج

بناء على الإطار النظري والدراسات السابقة التي تناولت موضوع الدراسة وفي ضوء ما توصلت إليه الدراسة الميدانية يمكن استخلاص النتائج كما يلي:

- 1- أثبتت الدراسة أن هناك علاقة طردية بين قيام مدقق الحسابات الخارجي بفحص النظام المحاسبي ومهارته في جمع وتقييم أدلة الإثبات في ظل بيئة التقنية السحابية والبيانات الكبيرة. وهذا يوجب على مدقق الحسابات ضرورة فحص واختيار مكونات النظام المحاسبي والتأكد من تحقيقها لمواصفات الجودة. ضرورة استخدام أساليب التدقيق بمساعدة الحاسوب (التدقيق حول الحاسوب، التدقيق من خلال الحاسوب، التدقيق باستخدام الحاسوب) والاستفادة القصوى من مزايا هذه البرامج لما تحققة من سرعة ودقة في تنفيذ المهام الروتينية لينصب تركيز المدقق على القضايا الجوهرية.
- 2- يوجد دور مهم لمخاطر استخدام التقنية السحابية والبيانات الكبيرة، النظرية المجردة سواء كانت من حيث (مصدرها، المتسبب في حدوثها، العدمية الآثار الناتجة عنها أو علاقتها بمراحل النظام) على كفاءة التدقيق الخارجي.
- 3- أثبتت الدراسة أن هناك علاقة طردية بين قيام مدقق الحسابات الخارجي بفحص نظام الرقابة الداخلي ومهارته في جمع وتقييم أدلة الإثبات في ظل بيئة التقنية السحابية والبيانات الكبيرة. وهذا يتوجب على مدقق الحسابات التأكد من قدرة النظام على ضمان اجراءات رقابية كافية ضمن برامج الحاسوب للتأكد من معالجة البيانات التي تم إدخالها. والتأكد من تسجيل النظام للبيانات المحاسبية بما يتفق مع المبادئ والقواعد المحاسبية المقبولة قبولاً عاماً ويمنع حالات الغش والتلاعب. التأكد من مواكبة التغيرات التكنولوجية التي تحدثت في بيئة أنظمة المعلومات المحاسبية لتوفير نظام رقابة داخلي متزامن مع التغيرات التكنولوجية.
- 4- أثبتت الدراسة أن هناك علاقة طردية بين قيام مدقق الحسابات الخارجي بتقييم المخاطر الناشئة عن العمل في ظل بيئة التقنية السحابية والبيانات الكبيرة ومهارته في جمع وتقييم أدلة الإثبات في ظل بيئة أنظمة التقنية السحابية والبيانات الكبيرة والنظرية المجردة. وهذا يتوجب على مدقق الحسابات الاحتياط من أن الأدلة الإلكترونية قد تتوافر في فترات زمنية معينة بلغة الآلة فقط، وبعد مرور فترة من الزمن لا يمكن الحصول عليها أو استرجاعها إذا ما تم تغيير الملفات، لذا يجب طباعة مدخلات العمليات ومحتويات الملف الرئيس دورياً بأشكال مختلفة من التقارير، للعودة إليها عند الحاجة. التأكد من الفصل بين المهام للأفراد المسؤولين عن الوظائف التالية (محللو النظم، المبرمجون، مشغلو النظم، حافظو البيانات، مراقبو النظم) لضمان عدم استغلال المعرفة بالنظام لتحقيق منافع شخصية.
- 5- أثبتت الدراسة أن هناك علاقة طردية بين إمام مدقق الحسابات الخارجي بمعايير المراجعة الدولية المتعلقة بالتقنية ومهارته في جمع وتقييم أدلة الإثبات في بيئة أنظمة التقنية السحابية، البيانات الكبيرة، النظرية المجردة. وهذا يتوجب على مدقق الحسابات متابعة آخر التطورات في معايير التدقيق الدولية والعمل وفق ما تم تطويره أو استحداثه تماشياً مع متطلبات المهنة والتطور السريع في البيئة الحالية.
- 6- يحتاج النظام المحاسبي الى ان يكون قابلاً للتطوير والتعديل حيث يتماشى مع التطورات التكنولوجية المتسارعة وبالتالي الاستجابة لاحتياجات مستعملين البيانات والمعلومات المحاسبية، وهذا لا يتحقق الا باستخدام البيئة التكنولوجية الحالية.

الخاتمة

تفعيل البرامج والدورات التدريبية المتخصصة في مجال الحاسوب وتكنولوجيا المعلومات بصورة مستمرة، والعمل على إلحاق مدققي الحسابات ممن تنقصهم مثل هذه الدورات لرفع كفاءتهم العملية والمهنية، ولتحسين مستوى أدائهم وتطويره بما يتلائم مع التطورات المستمرة في بيئة الأنظمة لالكترونية بكافة أشكالها (الحواسيب الشخصية، الحواسيب المباشرة، قواعدالبيانات).

ضرورة إبراز أهمية تكنولوجيا المعلومات في مهنة تدقيق الحسابات، وذلك من خلال تفعيلها بالمؤتمرات والمحاضرات والندوات والدورات التدريبية وضرورة مواكبة التطورات وملاحقة الأنظمة الحديثة وخاصة في مجالات تدقيق الحسابات وأنظمة الرقابة الداخلية، وتدريب القائمين والعاملين عليها من خلال رفع الكفاءة لديهم، باعتبار عملية تشجيع مكاتب التدقيق على تدريب كوادرها على استخدام توظيف تكنولوجيا المعلومات في عملية التدقيق من المتطلبات الأساسية للرقابة على الجودة برامج التدقيق الإلكتروني، خصوصاً لدى تدقيق حسابات العملاء الذين يستخدمون التقنية السحابية والبيانات الكبيرة.

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PS-120: عوامل النجاح الحاسمة لنظام محاسبي يتواءم مع نظام انتاجي رشيد مرن

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المخلص: وقد نوقش مفهوم الموائمة أو التوافق بين عوامل النجاح الحاسمة لنظام محاسبي وبين نظم الإنتاج المرنة و الرشيدة لكن في هذا البحث سوف تطرح تلك الموائمة بالاعتماد على التكنولوجيا الحديثة ، التي أصبحت مصر الان على مشارف استغلالها للنهوض بمجالاتها العلمية. المشكلة الرئيسية تكمن في ندرة الموارد في مصر لذلك فان اتباع نظام رشيد مرن ، فانه يوفر الكثير من الموارد و يقلل من التكاليف و هنا يكمن دور محاسبة التكاليف و المحاسبة الادارية في ادارة و تحريك النظام الرشيد. فالموائمة بين نظام انتاجي و نظام المحاسبة هي عملية استراتيجية تتطلب و قنا حتى يظهر نتائجها. فأي نظام محاسبة يستخدم لتوليد المعلومات و التي تشكلها و تتبناها الثورة الصناعية الرابعة. من ضمن المشاكل التي تعالجها هذه الموائمة هو جعل مصر تدخل المنافسة العالمية بالاعتماد على استغلال الموارد بكفاءة و استخدام الرقمنة الحديثة في ادارة النظام بفاعلية ، و تقليل الفاقد و خفض التكاليف ، وفتح افاق جديدة للشركات صغيرة و متوسطة الحجم للدخول في المنافسة و تحسين الاقتصاد القومي. في هذا البحث سنتعرف على اهم خصائص النظام الرشيد المرن و الذي تتبعه اكبر الشركات ، و كيفية الانتقال من النظام التقليدي الذي تتبعه مصر في معظم شركاتها للانطلاق نحو عصر البيانات الهائلة و استخدام الحوسبة السحابية انتقال المعلومات بسرعة و سهولة. نظم الإنتاج الحديثة تتطلب استثمار راس المال من اجل احداث نقله في عمليات الإنتاج. الثورة الصناعية الرابعة لم تغير نظام انتاجي فحسب ، بل غيرت في المجتمع بأكمله لذا يجب علينا ان نجريها و نلحق بركبها فالتخلف عن الثورة الرابعة هو تخلف عن العالم بأسرة ، فكل الثورات الصناعية السابقة كانت ثورات مادية، لكن هذه الثورة الحديثة هي ثورة رقمية تتغير معها ملامح العالم .

الكلمات الدالة: عوامل النجاح الحاسمة لنظام محاسبي ، نظام الإنتاج الرشيد المرن ، الثورة الصناعية الرابعة ، الرقمنة البسيطة

المقدمة

بعد الاستخدام الكبير للتكنولوجيا الرقمية التي تقدمها الثورة الصناعية الرابعة ، فانه لا بد من استخدام هذه الثورة في نظم الإنتاج المرنة و ذلك بالموائمة مع عوامل النجاح الحاسمة لنظام المحاسبة ، فمصر في حاجة شديدة لنظام انتاجي يحولها الى مكانه الدوله المتقدمه و ذلك في ظل ندرة الموارد وارتفاع تكاليف المواد الخام ، فهنا يتحدث النظام الرشيد بانه هو القادر على هذا التحدي مستخدمين عوامل نجاح المحاسبة و بالاعتماد على ذكاء الثورة الصناعية الرابعة. الاصلاح الحقيقي يؤدي الى تحقيق مستويات اداء تنافسية عالمية او على الاقل يضاهاى مستويات و نماذج الاداء الناجحة عالمياً، و ذلك من خلال البحث عن القيمة المضافة فالنظام الانتاجي الرشيد يبحث عن القيمة المضافة ولكن مع عوامل النجاح و تكنولوجيا الرقمنة سيصبح الانتاج اسهل و ابسط .

اهداف البحث

عرض ملخص نظري عن فوائد الاعتماد التكنولوجي الحديثة في الموائمة بين عوامل نظام محاسبي ناجح و بين نظام انتاجي رشيد.

تلخيص لاهم النظم الانتاجية الحديثة التي شاهدها العالم في الفترة الاخيرة.

استخلاص النتائج و التوصيات اللازمة للتشجيع على استخدام نظم الإنتاج الحديثة في مصر.

منهجية البحث

يغلب على منهجية البحث استخدام اسلوب البحث الارشيفي بالاضافة الى استخدام الدراسة الاستكشافية لتوضيح اهمية الاعتماد على نظم الإنتاج الحديثة و الاشارة الى اوجه القصور ان وجدت .

النتائج و المناقشة

سنبدأ بتعرف النظام الانتاجي في المنظمة: هو ذلك الجزء المسؤول عن انتاج المنتجات ، وهو عبارة عن مزيج متكامل من المواد ، العمليات ، انظمة الالات ، الافراد ، الهياكل التنظيمية تدفق المعلومات ، و نظام محاسبي قادر على التعامل مع النظام بالاضافة الى تكنولوجيا متطورة. فهناك انظمة كثيرة يمكن تطبيقها و لكن الانظمة التي تستطيع التعامل مع الرقمنة البسيطة هي ، نظام انتاج شركة نويوتا ، نظام انتاج خالي من الفاقد ، نظام انتاج رشيد مرن سريع ، و هذا الاخير اهم نظام الانه استطاع ان يضم الانظمة التي تسبقه و يضيف عليها استخدام التكنولوجيا و يجعل من الانظمة التقليدية انظمة مرنة اكثر سهوله و متطورة مع استخدام التكنولوجيا الرقمية. فخصائص هذا النظام كما سبق و ذكرنا انه معتمد بشكل كافي على تكنولوجيا الإنتاج و تكنولوجيا المعلومات. اما عوامل النجاح الحاسمة لنظام محاسبي متطور ، فهي تنقسم الى نوعين اولاً: العوامل الداخلية: هي كافة الموارد البشرية، و المادية، و البرمجية التي تتوفر في نظم المعلومات المحاسبية، بمشاركة البيانات المتاحة و النشاطات المستخدمة في تشغيل هذه النظم. العوامل الخارجية: هي كافة الأمور الموجودة خارج نطاق المنشأة، و تتمثل بحاجات النشاطات التشغيلية من المعلومات الخاصة بالتطورات التكنولوجية، و السوق، و المنافسة، مع دور نظم المعلومات المحاسبية بتوفير المعلومات للمستثمرين، و المؤسسات الحكومية عند حاجتهم لها. ففي حالة الموائمة بين هذه العوامل و بين النظام الانتاجي المرن تتولد عملية المنافسة و التطوير للمنظمة .

الاستنتاج

بعد ان قدم البحث تعريفا للنظام الانتاجي المستغل باستخدام التكنولوجيا الحديثة و المعلومات المتطورة و في الموائمة مع عوامل محاسبية ناجحة ، فانه لا بد على نظم الإنتاج في مصر النهوض لمواكبه التطورات السريعة التي أصبحت فيها دول العالم المتقدم ، و ان تقدم للعالم ميزات تنافسية جديدة و متطورة

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PS-121: أثر الثورة التكنولوجية الحديثة على مبادئ الحوكمة للشركات المساهمة

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الملخص: تهدف هذه الدراسة في دور حوكمة الشركات والتكنولوجية الحديثة في تحقيق أفضل حماية وتوازن بين مصالح مديري الشركة والمساهمين فيها و تكمن حوكمة الشركات في جذب الاستثمارات المحلية والأجنبية وتخفيض تكلفة التمويل و الحد من هروب رؤوس الأموال إلى الخارج وهجرتها و مكافحة الفساد الإداري والمالي ومكافحة ما يترتب عليه من فقر وبطالة و ضمان حصول المستثمرين على عائد مجز على استثماراتهم و تجنب الانزلاق في مشاكل محاسبية ومالية ومما لا شك فيه أن الحوكمة أصبحت تحتل أهمية كبيرة على مستوى العالم الآن، في ظل ما يشهده العالم اليوم من التحول إلى النظام الاقتصادي الرأسمالي، ولعل هذا الموضوع يزداد أهمية في مصر، نظرا لزيادة دور شركات القطاع الخاص في الاقتصاد المصري، بما يمثله ذلك من ضرورة متابعة أداء تلك الشركات، والوصول بإدائها إلى أفضل مستوى ممكن وأن غياب التشريعات الموائمة للتطور السريع جدا في منظومة التكنولوجيا والثورة الصناعية الرابعة هو أبرز التحديات التي تواجه هذا التقدم ولا بد من تجربة التكنولوجيات الحديثة بشكل أكبر وزيادة الاستثمار في الأفراد والمهارات من أجل تعظيم قدرة الشركات على تطوير الابتكارات وتقديمها إلى السوق

الكلمات الدالة: الثورة التكنولوجية، الذكاء الاصطناعي، الشركات المساهمة

المقدمة

الأثر الإيجابي لإدارة الشركات على مختلف أصحاب المصلحة هو تقوية الاقتصاد، وبالتالي الإدارة السليمة للشركات هي أداة من أجل التنمية الاقتصادية والاجتماعية ويعتبر مصطلح الحوكمة من المصطلحات التي أخذت بالانتشار السريع على المستوى الدولي نتيجة للقصور الذي أصاب القوانين والتشريعات التي تحكم ممارسة الأعمال والأنشطة التجارية مما أدى إلى حدوث كثير من حالات الإفلاس والعسر المالي للعديد من الشركات الضخمة وتضرر عدد كبير من المساهمين وأصحاب رؤوس الأموال وعليه بدأ العالم بالاهتمام بحوكمة الشركات وتطبيق معاييرها وقواعدها في العديد من اقتصاديات العالم ومما لا شك فيه أن الحوكمة أصبحت تحتل أهمية كبيرة في مكافحة الفساد، خاصة في ظل ما يشهده العالم اليوم من تحول إلى اقتصاد السوق، والذي تلعب فيه الشركات الخاصة دورا كبيرا ومؤثرا، بما يستتبعه ذلك من ضرورة مراقبة هذا الدور وتقويمه. وأن التقدم العلمي والتكنولوجي هو المحرك الرئيسي للتنمية الاقتصادية الحديثة. فقد برهن الاقتصادي الأمريكي البارز روبرت سولو Robert Solow منذ العام 1950 بشكل قاطع على أن هذا التقدم التكنولوجي إياه، المتجسد في الابتكارات، هو المصدر الرئيسي للنمو الاقتصادي، وهو ما حصل لقاءه على جائزة نوبل. وأظهر أن نسبة أكثر من 75٪ من معدل نمو الاقتصاد الحديث مصدرها التقدم التكنولوجي

الأهداف

- الوصول للشفافية والعدالة ويكون تحقيقها من خلال العدالة والامانة والصدق
- اعطاء حق المسألة والرقابة على مدراء الشركة والمسؤولين
- التوقف من استغلال السلطة في غير المصلحة العامة
- تنمية الاستثمار وتشجيع تدفقه تنمية المدخرات وتشجيع تدفقها بما يؤدي لتنمية الاستثمارات
- توافر فرص عمل جديدة
- زيادة الأرباح
- وتوفير متطلباتهم مراعاة مصالح العمل من خلال العمال
- زيادة دور سوق المال وهو سوق الأوراق المالية ورفع عير إضافة وتحديث أدوات تلعب دور هام في الحرص على إستخدامها في الأسواق
- الحفاظ على حقوق صغار المستثمرين
- ضمان استقرار وتوازن السوق ويجنب القاعدة الكبيرة من صغار المستثمرين مخاطر على سلامة واستقرار الأسواق حماية حقوق المتعاملين فيها

منهجية البحث

يساعد المراجعون الخارجيون الشركات على تحقيق المساءلة والنزاهة وتحسين العمليات فيها ، ويغرسون الثقة بين أصحاب المصالح والمواطنين بشكل عام. ويقوم المراجعون الداخليون من خلال الأنشطة التي ينفذونها بزيادة المصداقية ، العدالة ، تحسين سلوك الموظفين العاملين في الشركات المملوكة للدولة وتقليل مخاطر الفساد الإداري والمالي .

النتائج والمناقشة

تكمن حوكمة الشركات فيما يلي:

- جذب الاستثمارات المحلية والأجنبية وتخفيض تكلفة التمويل.
- الحد من هروب رؤوس الأموال إلى الخارج وهجرتها.
- مكافحة الفساد الإداري والمالي ومكافحة ما يترتب عليه من فقر وبطالة.
- ضمان حصول المستثمرين على عائد مجز على استثماراتهم.
- تجنب الانزلاق في مشاكل محاسبية ومالية

الخاتمة

أن الذكاء الاصطناعي هو موجود اليوم في كل مكان حولنا، من السيارات ذاتية القيادة والطائرات المسيرة (بدون طيار) وبرمجيات الترجمة أو الاستثمار وغيرها الكثير. تم إغراز تقدم مثير للإعجاب في حفل الذكاء الاصطناعي في السنوات الأخيرة، مدفوعا بالتطورات الهائلة في القدرة الحاسوبية وتوافر كميات

هائلة من البيانات، من البرمجيات المستخدمة لاكتشاف أدوية جديدة الى الخوارزميات المستخدمة للتنبؤ باهتماماتنا المختلفة. وفي الوقت نفسه فان تكنولوجيا التصنيع الرقمية، تتفاعل مع عالمنا البيولوجي بشكل مستمر. يجمع المهندسون والمصممون والمهندسون المعماريون بين التصميم الحاسوبية والطباعة ثلاثية الابعاد وهندسة المواد، والبيولوجيا التركيبية لخلق بيئة تعايش بين الكائنات الحية الدقيقة، وبيننا والمنتجات التي نستهلكها، وحتى المباني الذي نعيش فيه .

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PS-122: A Task-Based Program to Develop some Study Skills of Secondary EFL Learners

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ABSTRACT: *This study aimed to develop some study skills named; note-taking skill, composition writing, and oral presentation. In order to achieve such an aim, the researcher developed two study skills tests. Each of them consisted of three parts: part one and two represented note-taking and composition writing referring to the writing dimension while part three represented oral presentation referring to the oral dimension. Those tests were administrated to the first secondary stage EFL learners at Al-Salam Secondary School in Ismailia (N=26) pre and post the intervention. The intervention was a Task-Based Program for Study Skills (TBPSS). The data obtained were collected and analyzed statistically using t-test. Results revealed that there were statistically significant differences between the mean scores of the pre and post-study skills test of the study group in favor of the post tests. It can be concluded that the proposed program had a significant effect on developing some study skills, named note-taking, composition writing, and oral presentation, among the study participants. The study recommended that: study skills should be included in EFL set courses at the secondary stage in order to prepare the learners for their university study, and teachers should receive more formal study skills training courses in order to provide be able to provide good study skills instruction.*

KEYWORDS: *Task Based Language Teaching (TBLT), study skills, note-taking skills, composition writing, oral presentation.*

INTRODUCTION

English language –like other languages - is used as a communicative tool and serves as a study means. Study skills are considered one of the necessary tools that help master its main skills. Besides, they are essential for effective study behavior; and the lack of appropriate study skills may cause learners to leave their study early. Many studies such as Thorpe's (2010) discovered that successful learners not only possess knowledge of good study skills, but also the ability to select the appropriate skills and monitor their usage while studying. Some other researchers (Jansoen & Suhre, 2010; Simmons, 2006) stated that learners need to receive study skills instruction in which the instructor not only models the proper usage of a variety of study skills but also monitors their application to ensure that they select appropriate skills and use them correctly. Moreover, it is important to link study skills instruction to content or tasks to be meaningful. At the university level, different programs for developing study skills were proposed, (e. g. Khallaf, 2009; Pope, 2012). Similarly, some secondary school learners' study skills were developed by Darifa (2012), Habib(2001), Jansen and Suhar (2010). Seeing that study skills are important at an early stage, Al-Taieb (2010) and others developed preparatory stage learners' study skills preparing them to better practice their English communicatively.

Having reviewed the related literature and previous studies, and in light of the results of the pilot study, the problem of this study was reflected in the poor level of the secondary stage EFL learners in some study skills especially in note-taking, composition writing, and oral presentation. Therefore, the researcher proposed a Task-Based Program that might develop some study skills for the study participants.

OBJECTIVES

This research aimed to develop some study skills for secondary EFL learners and assess the impact of the proposed Task-Based Program on developing the study skills needed by EFL learners.

METHOD

The researcher adopted the pre-posttest quasi-experimental design. The study was delimited to 26 first secondary stage EFL learners from Al-Salam Secondary School, Ismailia, and some study skills were reflected in note-taking skill, composition writing, and oral presentation. A task-based program for study skills, and two study skills tests were developed to achieve the purpose of the study.

RESULTS & DISCUSSION

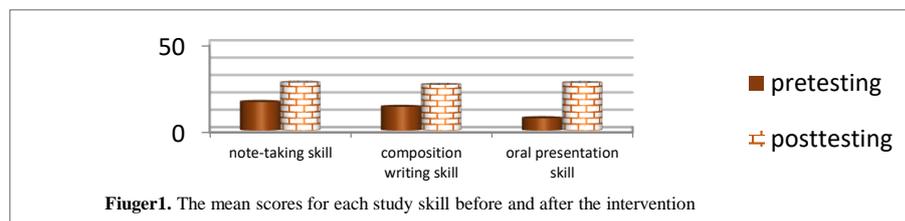
The difference in the mean scores of the study group between pre study skills test and post study skills test was investigated using t-test, in order to find out if any significant difference in the dependent variable has occurred, namely the difference in the mean scores of the study group between pre- and posttest of the targeted study skills. Table 1 shows the difference in the mean scores of the study group between the pretest and the posttest of study skills.



Table1. The difference in the mean scores of the study group between the pretest and the posttest of study skills.

	Test	Mean	Std. Deviation	t-value	df	Sig. (2-tailed) (p<. 01)
Note Taking skills	Pretest	16. 53	4. 965	-10. 86	25	. 000
	Posttest	27. 65	2. 226			
Composition writing skills	Pretest	13. 73	4. 366	-16. 64	25	. 000
	Posttest	26. 40	2. 379			
Oral presentation skills	Pretest	7. 21	2. 90	-44. 01	25	. 000
	Posttest	27. 46	1. 93			
Overall study skills	Pretest	37. 19	9. 449	-28. 045	25	. 000
	Posttest	81. 85	4. 315			

Furthermore, the results of this research revealed that TBPSS developed overall targeted study skills as well as each sub skill individually: note-taking skill, composing writing, and oral presentation. The following figure 1 shows the mean scores for each study skill before and after the intervention. It can be seen how far each skill has improved.

**Figure1.** The mean scores for each study skill before and after the intervention

The previously mentioned results indicate that the implementing of TBPSS developed the learners' note-taking skill, composition writing, and oral presentation. This finding could be attributed to the nature of the task-based language teaching which focused on the language production and the meaning rather than the form. Moreover, the tasks used in the program provided opportunities for learners to use language meaningfully. That encouraged the learners to participate in different tasks effectively. All of that can help them to be self-dependent learners. According to that, TBPSS provided learners interesting and authentic input materials which motivated them to interact effectively. Interestingly, the results of this study are in line with the work of other researchers (Ahmed, 2013; Kasap, 2005; Phuong, 2014) investigating the effect of using task-based approach on various kinds of study skills.

CONCLUSION

Based on the previously mentioned results, the researcher concluded that implementing the Task-Based Program for Study Skills (TBPSS) is effective in developing some study skills of secondary stage EFL learners.

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PS-123: LEARNING STYLES-BASED ACTIVITIES FOR DEVELOPING PRIMARY PUPILS' ENGLISH SPEAKING SKILLS

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ABSTRACT: *The aim of the present study was to investigate the effectiveness of learning styles-based activities in developing the primary pupils' English speaking skills. The sample of this study included (60) sixth year primary pupils at Al Shaheed Mohammad Joudah Primary School, Sharqia Governorate. The instruments of the study included speaking skills checklist required for this stage, a questionnaire for identifying the participants' learning style preferences and EFL speaking skills test. The study followed the two groups pre and posttest design. In this design, the dependent variable was measured before and after the experiment. The EFL speaking skills test was administered to the sample prior implementing the activities as a pretest. After implementing the learning styles-based activities to the study sample, the EFL speaking skills test was post administered. Findings of the study revealed that speaking skills of the participants were developed as a result of the learning styles-based activities. Therefore, it can be concluded that learning styles-based activities are effective in developing EFL speaking skills among the primary stage pupils.*

Keywords: *learning styles- based activities, EFL speaking skills, primary stage pupils.*

INTRODUCTION

EFL speaking has always been considered as an important skill (Dorgham, 2011:9). In the past, traditional classroom speaking often took the form of one-way direction. The teacher talked and the pupils were passive listeners (Abu Sharbain, 2009: 22). Recently, manipulating the speaking skills according to the pupils' learning styles preferences is regarded to be effective.

OBJECTIVES

1. Identifying the English speaking skills required for the sixth year primary pupils.
2. Developing teaching activities adopting the participants' learning styles.
3. Measuring the effectiveness of the proposed strategy in developing English speaking skills of the sixth year primary pupils.

METHODS

The two groups pre and posttest design was used. Three instruments were developed and used in the study:

1. A checklist to identify the English speaking skills that may be relevant for the target groups.
2. A questionnaire for identifying the participants' learning style preferences
3. A test for assessing the development that might happen in the speaking skills. It was used before and after applying the learning styles activities.

RESULTS & DISCUSSION

Table 1. Mann Whitney U and effect size of the speaking skills Post-test of the "Audio, visual and kinesthetic learners"

Type of learning Style	Sample	N	Mean Rank	Sum of Ranks	Mann Whitney U	Z	Sig. Value	Sig. level	Effect size
Audio	Control	10	5.50	55	.000	3.022	.000	0.05	0.70 large
	Experimental	10	15.50	155					
Visual	Control	10	5.50	55	.000	3.303	.000	0.05	0.73 large
	Experimental	10	15.50	155					
Kinesthetic	Control	10	5.50	55	.000	3.833	.000	0.05	0.79 large
	Experimental	10	15.50	155					



As indicated in Table (1), the Man Whitney U-test reveals that:

1. There is a statistical difference between the mean ranks of the control group (5.50) and that of the experimental group (15.50). The z-value is (-3.022). The Sig. value ($\alpha = 0.00$) is less than the sig. level (0.05). This indicates that the difference is statistically significant. The effect size is (0.70). Therefore, it can be concluded that training the sixth year primary pupils on audio learning style was effective. This result supports the findings of Blerkom (2008) which indicated that audio learner could express verbally what s/he learns, by listening the new material and discussing it.
2. There is a statistical difference between the mean ranks of the control group (5.50) and that of the experimental group (15.50). The z-value is (-3.303). The Sig. value ($\alpha = 0.00$) is less than the sig. level (0.05). This indicates that the difference is statistically significant. The effect size is (0.73). Therefore, it can be concluded that training the sixth year primary pupils on visual learning style was effective. This result supports the findings of Stash (2007) which showed that visual style learners retain vocabulary items they had learned visually better than the items they had learned aurally.
3. There is a statistical difference between the mean ranks of the control group (5.50) and that of the experimental group (15.50). The z-value is (-3.833). The Sig. value ($\alpha = 0.00$) is less than the sig. level (0.05). This indicates that the difference is statistically significant. The effect size is (0.79). Therefore, it can be concluded that training the sixth year primary pupils on kinesthetic learning style was effective. This result supports the findings of Gerdy (2001) which indicated that kinesthetic learners learn best by experience and by being involved physically in classroom experiences.

CONCLUSION

In the light of the previous results, it can be concluded that activities manipulated the learning styles were effective in developing primary pupils' English speaking skills.

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PS-124: A task-based English program for developing career and employability skills of EFL students at Suez Canal University

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ABSTRACT: *The main purpose of this research was to use a Task-Based English Program (TBEP) in order to develop career and employability skills of EFL students at Suez Canal University. To achieve this, a TBEP was developed. The program consists of thirteen sessions tackling two main dimensions. The career skills dimension is composed of four components: self-exploration, occupational exploration, decision making and action taking while the employability skills dimension contains two components: team building and communication skills. The program was applied to freshmen EFL students at the Faculties of Pharmacy, Engineering, Commerce, and Arts and Humanities after administering the Career and Employability Skills Pretests. Having concluded the TBEP, the posttests were administered. Data were collected and analyzed statistically. The findings of the study include: (1) students' mastery of their interests, potential work values and skills when conducting the self-exploration process, (2) sound matching between the self-exploration skills and students' occupational choices, (3) stressing the importance of career planning skills in taking action towards potential occupations. Some recommendations include (1) tailoring cover letters and résumés to targeted companies, (2) relating workplace success to team building stages (e. g. forming, storming, norming, performing and adjourning), and (3) communication skills (e. g. skills of inquiry and persuasion) as key employable skills.*

KEYWORDS: *Task-Based English Program (TBEP), Career Skills, Employability Skills, EFL Students, Suez Canal University.*

INTRODUCTION

Career and employability skills are considered the essential skills that EFL students should master in their academic years. The reason why these skills are very important lies mainly in the fact that the current jobs, with their new descriptions and requirements, demand highly qualified graduates who are expected to meet the standards of these jobs (Harris-Bowlsbey, Suddarth & Reile, 2012). Students cannot secure a better career unless they master the skills required. Developing skills for career becomes a fundamental requirement for EFL students. Skills such as self-exploration (e. g. identifying values, interests and skills), career planning, occupational exploration and job seeking (e. g. cover letter writing, résumé writing and interviewing skills) qualify students to secure a better career. In addition, developing employability skills (e. g. team building and communication skills) helps students to be best suited for the current jobs as they are considered the basic demand of all employers in the labor market. Using the (TBEP) to develop career and employability skills is effective as learners play a major role in learning and acquiring new knowledge and skills.

OBJECTIVES

The overall purpose of this paper was to investigate the effect of using a proposed Task-Based English Program (TBEP) for developing EFL students' career and employability skills. Specifically, it aimed at:

1. Identifying the career and employability skills that EFL students need to develop.
2. Determining the features of a Task-Based English Program (TBEP) for developing the EFL students' career and employability skills.
3. Testing the effectiveness of the TBEP in developing career and employability skills.

METHOD

The researcher utilized the experimental method in this research. Employing this design, the researcher tested all the participants of the study on career and employability skills before the experiment. The whole study sample consisted of 120 students (first-year students from four different Faculty backgrounds: 30 students from the Faculty of Arts and Humanities, 30 students from the Faculty of Commerce, 30 students from the Faculty of Pharmacy, and 30 students from the Faculty of Engineering at Suez Canal University. The study sample was randomly drawn. In order to test the hypotheses of the study, the researcher prepared the instruments: a career and employability skills questionnaire, a career and employability skills two-part test, and task-based English program (TBEP) for the treatment. During the experiment, all the study groups received treatment. Upon the completion of the experiment, all the study groups were posttested. Gain scores for each group's pretest and posttest were evaluated then differences in gain scores between the four groups' posttests were evaluated.

RESULTS & DISSUSION

In order to get the study results, two statistical analyses were used. First, Paired t-test was used to test the difference in the mean scores of each study group (Arts and Humanities, Commerce, Pharmacy, and Engineering students) between the pretest and the posttest of career and employability skills. In an attempt to determine to what extent the statistical differences for each of the four study groups (Arts and Humanities – Commerce – Pharmacy – Engineering) was significant, the researcher used Scheffe' test (See Table 1).

Variable	Study Group	Arts and Humanities		Commerce		Pharmacy		Engineering	
		Mean difference	Sig.	Mean difference	Sig.	Mean difference	Sig.	Mean difference	Sig.
Career and Employability Skills Test	Arts and Humanities	—	—	57.2	.0493	23.3-	285.0	63.3	189.0
	Commerce	—	—	—	—	80.5-	008.0*	07.1	936.0
	Pharmacy	—	—	—	—	—	—	87.6	001.0*

* statistically significant at (0.05)

Table 1: Scheffe's test of multiple comparisons for the four groups' mean scores of the four study groups in the posttests of career and employability skills.

As indicated in Table 1, Scheffe's test of multiple comparisons revealed that statistically significant differences existed between the mean scores of the study samples: Commerce and Pharmacy at 0.008 level and Pharmacy and Engineering at 0.001 level in the posttests of career and employability skills. The test also revealed that no statistically significant differences existed between the mean scores of the study samples: Arts and Humanities and Commerce at 0.493 level, Arts and Humanities and Pharmacy at 0.285 level, Arts and Humanities and Engineering at 0.189 level, and Commerce and Engineering at 0.936 level in the posttests of career and employability skills.

Second, Wilcoxon Signed Ranks test was used to test the difference in the mean scores of each study group between the pretest and the posttest of speaking-based career and employability skills. In order to determine whether any change in speaking-based career and employability skills in the posttests was greater for one of the study groups than for the other, the researcher used One Way ANOVA test between the four study groups. The test revealed that no statistically significant differences at (≤ 0.05) existed between the mean scores of the four study groups in the posttests of speaking-based career and employability skills since "f value" reached (0.231) at (0.05) level, and the significance was (0.869) which is more than (0.05).

CONCLUSION

Using a TBEP for developing career and employability skills of EFL students at Suez Canal University is significantly effective. TBEP helps increase the students' communicative competence. That is to say, meaning comes first and form comes second in importance. Interviewing and communication skills, for instance, are enhanced because students are asked to focus on meaning rather than form. This point is seconded by Ellis (2003), as meaningfulness in Task-Based Language Teaching (TBLT) offers an authentic, purposeful and intentional background for understanding and using language and it is encouraging for the EFL learners. In addition, TBEP task cycle sequence (i. e. pre-task activity, while-task, and post-task) is best suited for developing EFL students' career and employability skills as it is based on tasks and activities that encourage students' participation and performance. In the pre-task phase, students are given the opportunity to activate/build background knowledge as well as relevant schemata. In the while-task phase, students start planning and reporting their answers (e. g. identifying their points of strengths and weaknesses, values, interests and various types of skills: technical, personal and transferable skills). In post-task phase, teacher makes clear any difficult structures, vocabulary and other formal aspects of language. Finally, the four language skills (i. e. listening, speaking, reading and writing) are enhanced while developing the career and employability skills. This goes along with the notion that much attention is paid to a tool for communication that helps the learners improve their productive skills and better express themselves (Nunan, 2004).

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PS-125: STEM EDUCATION: A WINDOW ON A NEW CONTRIBUTING TO THE INDUSTRIAL REVOLUTION

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ABSTRACT: *This paper focuses on how can Egypt competitive widely by adopting STEM education concept. The researcher used analytical descriptive to know how to involve STEM thinking in the industrial product in light of the experiences of some countries and improvise, adapt, overcome ways should be taken to get Egypt in 30 top countries area as recommended in Sustainable Development Strategy: Egypt Vision 2030. Findings indicated much weakness such as technological poor infrastructure, lack of STEM concept awareness and poor school laboratory equipment. Hence, it was recommended that some procedure can lead Egypt to higher economy's ranks.*

KEYWORDS: *Competitiveness, STEM education, industrial revolution, Integration of Science, Technology, Engineering and Mathematics (STEM)*

INTRODUCTION

Governments strive to stay up in a good rank globally by raising education opportunities and create a new level by involving some newer technique through the integration of STEM into the classroom setting which is reshaping our school in coming years to competitive countries ranks. STEM acronym for Science, Technology, Engineering, and Mathematics. There is two theory about how (STEM) began as known nowadays first it starts as Science, Engineering, Technology (SET) then they add Mathematics field to Become (STEM). In another hand, it begins as Mathematics, Science, and Technology (MST) (Bryan, Fennel: 2009) (1). It is one of the advancing entry points in the field of scientific and technological education. It is one of the entrances to technological education which starts from socio-economic needs as a result of the reality of the global economic crisis in the major industrial countries in recent decades. The importance of this approach stems from the fact that it integrates the aspects of scientific knowledge, applied practical skills, and engineering design training. It also seeks to achieve lifelong learning and education for sustainable development. It supports the development of scientific thinking and innovation. And advances the role of technological means in learning and production. Projects that integrate the STEM disciplines align more closely with real-world problems. Cause of the importance of this approach countries begin to adopt (STEM) concept, Australia, China, England, Korea and Taiwan development (STEM) integrative approach discipline and built separated (STEM) secondary Schools. France, Japan, South Africa implement STEM out-Schools and development STEM summer courses. STEM is a key driver of innovation and real-world's problem solve which led to economic growth. So, Ireland set STEM education as priority of their STEM Education Policy Statement 2017–2026 as the heart of the technological revolution, while America focuses on it as a driver of racing to the top global competitiveness ranking by setting \$4. 3 billion in federal 5-year strategic plan and making STEM a priority in more of the Administration's education efforts by integrated (STEM) curriculum, aligned with state, national, international and industry standards (2). In 2015, all Australian education ministers agreed to the National STEM School Education Strategy 2016–2026 between schools, industry, and the tertiary education sector to build efficient and effective knowledge industries and an adaptable economy(3). Moreover, several initiatives have been undertaken to set STEM initiatives in a primary, secondary and higher education in India and begin the India STEM Foundation which is the National Affiliate Partner of FIRST -USA based not-for-profit public charity founded in 1989- and has been instrumental in India since 2009. In Arab Region, Egypt has already began the STEM education road by establishing the first school in 2010 for boys and built the second one in 2011 and spread to cover Egypt's governorates, we are putting the basis now to prepare for the Egypt of tomorrow but Egypt's STEM education still suffers from many weakness such as technological poor infrastructure as in the global competitiveness report 2016-2017, lack of STEM concept awareness and poor school laboratory equipment (4). Furthermore, STEM education would lead Egyptian economy throw global competitiveness ranking as implied in Sustainable Development Strategy: Egypt Vision 2030 (5).

OBJECTIVES

- 1- The study aims at shedding the light on integration STEM education in the industrial field in other countries.
- 2- How to improve powerful links between teachers, schools and the ICT industry to enhance the transfer of ICT and teaching knowledge and expand teacher's professional skills and re-energize their teaching by taking on a new challenge.
- 3-Suggest proposed procedures to develop STEM schools in Egypt in the light of comparison countries' experiences. Besides, help Decision-makers with the experience of some other countries.



METHODS

The study applies analytical descriptive design in reviewing the literature related to STEM school generally and the possibility of benefiting Egypt.

RESULTS & DISCUSSION

1- Egypt cut long-term in STEM education in spite of Schools struggle with technological poor infrastructure, lack of STEM concept awareness and separate STEM education, Technical & Vocational High School Diploma.

2- The suggested proposal depends on three procedures:

- A- Establishing STEM education department within faculty of education to graduate teacher who is able to deal with the renewable changes and STEM teacher sustainable Development programs should be considered.
- B- Provide STEM students with the critical thinking, problem solving and brain storm for real- Community problems and strengthen the relation between STEM-school, industrial factory and science lab.
- C- Establish centers of Preparation STEM workforce which can add worth, productivity, and renewal of the economy with labors for huge logistic Service projects such as technological valley in Ismailia and Ain-Sokhna port

CONCLUSION

In sum, a number of suggestions and recommendations related to STEM school generally and the possibility of benefiting Egypt:

- Egypt will be poised to take the real steps to lead the competitive economy in STEM-based instruction to ensure a strengthened position on the national and global STEM front.

- Egypt will have to depend on deep technical insights to build STEM industries and an adaptable economy. Moreover, planning sustainable STEM development programs that meet economic development needs.

- This study helps decision-maker and stakeholders to produce an integrated STEM Education industrial Policy. Furthermore, develop people awareness of the importance of STEM education in leading the innovation economy.

- Get more related post-secondary educational pathways. But also, start a new college department for STEM teacher.

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PS-126: THE EFFECTIVENESS OF A DEVELOPED UNIT IN SOCIAL STUDIES IN LIGHT OF THE AIMS OF SUSTAINABILITY DEVELOPEMENT TO DEVELOP WATER AWARENESS OF PREPAROTRY SCHOOLERS.

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ABSTRACT: *The current research paper aimed at developing water awareness of preparatory students by incorporating the dimensions and components of water awareness in a proposed unit. The results of this study showed the effectiveness of the current research in determining a prominent progress of water awareness for students as a result of using the experimental processing materials included in the proposed unit. The results of the research proved the importance and effectiveness of the independent variable in developing the dependent variable through the change that occurred in the experimental group that studied the proposed unit. The findings of the study include: (1) stressing the need to review the current curricula and develop them in order to be compatible with the dimensions and components of water awareness, (2) providing social studies teachers with training programs in order to achieve the goals of sustainable development and sustainable water awareness, (3) generalizing the programs tackling sustainable development and water development, and (4) getting students to be knowledgeable about sufficient facts, concepts and information about water awareness and ways to sustain freshwater in Egypt helps them to improve their behaviors and attitudes towards freshwater sustainability in Egypt.*

KEYWORDS: *Sustainable Development, Water Shortage, Water Awareness.*

INTRODUCTION

Water is one of the most important elements in our planet. It is the secret of life as there is no life without water, and most of the great civilizations and ancient cities were created not far from water sources. All civilizations stressed the importance of water in all aspects of life. In addition, the usages of freshwater are many and range from the agricultural and industrial to domestic usages. Accordingly, sustainable development seeks to preserve the natural resources of the environment from depletion, of which freshwater is the most important. One of the most important factors for the emergence of sustainable development is freshwater consumption as well as the deterioration of its quality. So, the UNESCO report for sustainable development issued in 2016 recommended that development cannot be achieved without water⁽¹⁾.

Freshwater in Egypt encounters some problems since Egypt's share of the Nile water is fixed at 55.5 billion cubic meters of water per year, which is very small in comparison with the continuous increase of population. As a result, the individual's share of freshwater is being reduced to less than 700 m³ per year⁽²⁾, which is a very low. Perhaps, this may put Egypt under the water poverty line of water. In addition, Ethiopia has begun to build "Al-Nahdha" Dam, which will have a clear impact on Egypt's share of the Nile water. This, in fact, requires the educational institutions to play an important role in spreading the culture of sustainable water awareness⁽³⁾.

There is no doubt that the risks we face today are grave because water security is a key factor in achieving sustainability. It is also vital for the formation of communities where peace prevails. However, billions of people are still at risk of water scarcity, water quality degradation and water-related natural disasters such as floods and droughts.

OBJECTIVES

The current research aims at developing a unit in the social studies curriculum of first grade preparatory students by incorporating the dimensions and components of water awareness that should be available in the social studies curriculum to achieve the goals of sustainable water education.

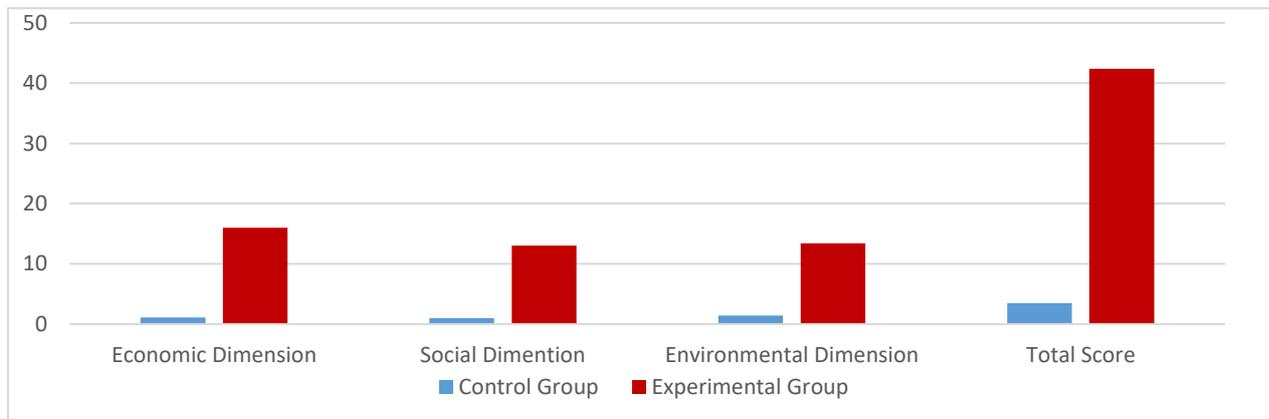
METHODS

The research was based on the descriptive and experimental methods by randomly selecting a sample consisting of 70 first grade preparatory students. They were divided into two groups: the control group consisted of 35 students studying the traditional unit, and the experimental group consisted of 35 students studying the proposed unit. Then, situations pre-test and post-test were applied measuring water awareness in order to measure the effectiveness of the proposed unit.

RESULTS & DISSUSION

Having applied the research tools, it became clear that there was a significant increase in water awareness among the experimental group in the post-test. This confirmed the fact that there were statistically significant differences at a statistical

significance level (0.05) between the mean scores of the experimental and control groups in the water awareness post-test as a whole, and its sub-dimensions in favour of the students of the experimental group. Accordingly, the research hypothesis has been validated, and can be illustrated in the following graph:



CONCLUSION

The current study was based on the measurement of the effectiveness of a proposed unit in social studies in light of the objectives of sustainable development (independent variable) for the development of water awareness (dependent variable) among the preparatory students. The results of the research proved the importance and effectiveness of the independent variable in developing the dependent variable through the change that occurred in the experimental group that studied the proposed unit. This emphasizes the need to review the current curricula and develop them in order to be compatible with the dimensions and components of water awareness. Also, it is important to provide social studies teachers with training programs in order to achieve the goals of sustainable development and sustainable water awareness. It is also essential to generalize the programs tackling sustainable development and water development. Generally speaking, getting students to be knowledgeable about sufficient facts, concepts and information about water awareness and ways to sustain freshwater in Egypt helps them to improve their behaviors and attitudes towards freshwater sustainability in Egypt.

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PS-127 تصور مقترح لتحسين الأداء الإداري للهيئة العامة لتعليم الكبار بمصر في ضوء بعض المداخل الإدارية الحديثة

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المخلص : هدفت الدراسة إلى تعرف الأسس الفلسفية للأداء الإداري ومبررات الحاجة إلى تحسينه في المنظمات بوجه عام، وتعرف واقع الأداء الإداري للهيئة العامة لتعليم الكبار، كذلك التعرف على الإطار الفكري لمداخل (إدارة الجودة الشاملة-الإدارة بالأهداف-الإدارة الإلكترونية) كمداخل إدارية حديثة لتحسين الأداء الإداري، وأخيراً وضع تصور مقترح لتحسين الأداء الإداري للهيئة العامة لتعليم الكبار في ضوء مدخل إدارة الجودة الشاملة والإدارة بالأهداف والإدارة الإلكترونية، مستخدمة في سبيل ذلك المنهج الوصفي لجمع البيانات من خلال أدواته (المقابلة، والاستبانة)، كذلك استخدمت الدراسة المنهج الأثنوجرافي.

الكلمات المفتاحية: تحسين الأداء الإداري، الهيئة العامة لتعليم الكبار، إدارة الجودة الشاملة، الإدارة بالأهداف، الإدارة الإلكترونية

المقدمة

تعد الهيئة العامة لتعليم الكبار إحدى المؤسسات التعليمية بجمهورية مصر العربية؛ المسنولة عن وضع الخطط والبرامج اللازمة لمحو الأمية وما بعد محو الأمية، وتنفيذ ومتابعة تلك الخطط والبرامج، وتقوم العمليات المختلفة على مستوى فروع الهيئة بالمحافظات، وهي جزء من النظام التربوي العام، وتطوير أدائها الإداري جانب من جوانب إصلاح النظام التعليمي بشكل عام، ذلك لأن الدور الذي تقوم به الهيئة العامة لتعليم الكبار في قيادة الفعاليات المختلفة في جميع فروعها على مستوى الجمهورية وتوجيهها والإشراف عليها يعتبر ركناً أساسياً في تطوير وتحسين تعليم الكبار .

وقد أوضحت نتائج العديد من الدراسات أن المؤسسات على اختلاف مهامها وأحجامها تعاني العديد من المشكلات المتعلقة بالأداء وتتجلى هذه المشكلات في اعتماد القيادات والعاملين في هذه المنظمات على أسلوب المحاولة والخطأ، ولا شك أن هذا الأمر يمثل أحد الأسباب الهامة التي قد تؤدي إلى فشل تلك المنظمات في تحقيق درجة عالية من الكفاءة والفاعلية في أداء العاملين لديها مما يتطلب من هذه المنظمات أن تسعى إلى إيجاد جهود إبداعية من أجل النهوض بمستواها وتطوير أداء العاملين لديها .

ولعل من مداخل تحسين الأداء الإداري الأكثر جدوى تلك التي تعتمد على دراسة الواقع وتحاول تشخيصه وإظهار ما به من مواطن قوة ومواطن ضعف، وتقديم تصوراً علمياً له، كذلك التي تعتمد على مشاركة العاملين بالمؤسسة في وضع الأهداف والخطط اللازمة لتحقيق تلك الأهداف. ومن هذه المداخل مدخل إدارة الجودة الشاملة؛ والإدارة بالأهداف والإدارة الإلكترونية .

الهدف من الدراسة

هدفت الدراسة إلى وضع تصور مقترح لتحسين الأداء الإداري بالهيئة العامة لتعليم الكبار في ضوء بعض المداخل الإدارية الحديثة (مدخل إدارة الجودة الشاملة، الإدارة بالأهداف، الإدارة الإلكترونية) .

المنهج المستخدم

استخدمت الدراسة المنهج الوصفي المسحي بهدف جمع البيانات حول الأداء الإداري بالهيئة العامة لتعليم الكبار من خلال الممارسات الإدارية بها والمعوقات التي تواجهها، كذلك استخدمت المنهج الأثنوجرافي نظراً لعمل الباحثة بالهيئة العامة لتعليم الكبار لفترة طويلة من الزمن ومعايشتها للمشكلات الإدارية المختلفة بهدف تحليل الممارسات الإدارية بالهيئة .

أدوات الدراسة

استخدمت الدراسة الأدوات الآتية:

- 1- استبانة موجهة لمديرية الإدارات بالهيئة العامة لتعليم الكبار بهدف التعرف على الممارسات الإدارية المتبعة بالهيئة العامة لتعليم الكبار، ومقترحات دعم تطبيق المداخل الإدارية الحديثة لتحسين الأداء الإداري بالهيئة العامة لتعليم الكبار.
- 2- المقابلة الشخصية: قامت الباحثة بعمل مقابلات شخصية مع عدد من القيادات المسنولة عن الهيئة العامة لتعليم الكبار هدفت إلى تعرف واقع الأداء الإداري بالهيئة ومستوي احتياج الهيئة لتطبيق مداخل حديثة لتطوير الأداء الإداري بها.

مصطلحات الدراسة

تمثلت مصطلحات الدراسة في الآتي:-

- تحسين الأداء الإداري: يقصد بتحسين الأداء الإداري إجرائياً في هذه الدراسة بأنه استخدام بعض المداخل الإدارية لتحسين جميع الممارسات والأعمال المرغوبة التي يقوم بها العاملون بإدارات الهيئة العامة لتعليم الكبار، سواءً على المستوى الفردي أو الجماعي وفقاً لمعايير محددة
- الهيئة العامة لتعليم الكبار: هي هيئة ذات شخصية اعتبارية، تتبع وزير التربية والتعليم. وتتولى وضع خطط وبرامج محو الأمية وتعليم الكبار ومتابعة تنفيذها والتنسيق بين الجهات المختلفة التي تقتسم مسؤولية تنفيذ هذه الخطط والبرامج في الدولة.

النتائج والمناقشة

توصلت الدراسة من خلال الإطار النظري إلى العديد من النتائج من أهمها أن الهيئة العامة لتعليم الكبار تواجه العديد من الصعوبات للقيام بأدوارها المنوطة بها والتي تحد من مستوي أداء إدارتها المختلفة، تمثلت تلك الصعوبات في:-

صعوبات خاصة بالعاملين بالهيئة: تمثلت في:-

- (1) قلة أعداد الموظفين في بعض الإدارات بما لا يتناسب مع الأعمال التي تقوم بها الإدارة.
 - (2) ضعف السمات الشخصية للعاملين والتي تؤهلهم لشغل وظائفهم.
 - (3) تدني العائد المادي للعاملين بالهيئة بالنسبة لمتطلبات الحياة.
 - (4) انخفاض درجة الرضا الوظيفي للعاملين بالهيئة، انخفاض مستوى تدريب العاملين بالهيئة.
 - (5) نقص مهارات العاملين في التعامل مع التقنيات الحديثة.
- أ- **صعوبات خاصة بالوظيفة:** وتمثلت في :-
- (1) إسناد أعباء وظيفية للعاملين بالهيئة تتعدي مهام وظائفهم.
 - (2) تضارب القرارات الإدارية بتغيير القيادات.
 - (3) ضعف إدراك العاملون بالهيئة بمهام وظائفهم.
 - (4) ضعف وضوح معايير الترقى من وظيفة لأخرى.
- ب- **صعوبات خاصة ببيئة العمل:** تمثلت في:-
- (1) الأثاث المكتبي في كثير من الإدارات لا يساعد على العمل فترات طويلة.
 - (2) ضعف الثقة بين الرؤساء والمرؤوسين ببعض إدارات الهيئة العامة لتعليم الكبار.
 - (3) ضعف الثقة في قيادات الهيئة.
 - (4) ضعف تناسب عدد الأجهزة والوسائل التكنولوجية مع القوة البشرية بالهيئة.
 - (5) ضعف شبكات الإنترنت مما يؤدي إلى استهلاك وقت طويل في عملية الاستعلام ونقل البيانات.
 - (6) الانقطاع المتكرر لشبكات الإنترنت مما يؤدي إلى تعطل العمل لفترات طويلة.
- يتضح من خلال النتائج السابقة أن الهيئة العامة لتعليم الكبار تواجه صعوبات عديدة تحد من القيام بأدوارها التي حددها قانون رقم (8) لسنة 1991م، مما أدى إلى طول بعض العمليات الإدارية، كذلك ضعف تحقيق أهداف الهيئة في القضاء على الأمية خلال السنوات السابقة .

الاستنتاج

توصلت الدراسة إلى العديد من الاستنتاجات والمقترحات التي تسهم في تحسين الأداء الإداري للهيئة العامة لتعليم الكبار منها:-

1. دعم والتزام الإدارة العليا من خلال انتهاج استراتيجيات متعددة للتغلب على المعوقات التي تواجه الأداء الإداري، كذلك نشر ثقافة الجودة بين العاملين بالهيئة، ورصد احتياجات العاملين والعمل على تحقيق الرضا الوظيفي لهم، كذلك دعم إدارة الهيئة للتحسين المستمر لتحقيق جودة الخدمات التي تقدمها.
2. ضرورة تدريب العاملين بالهيئة من خلال تحديد احتياجاتهم التدريبية واخضاعهم لدورات تدريبية تتعلق بتحسين الأداء، كذلك تدريبهم على وضع الأهداف الخاصة بإداراتهم وكيفية تحقيقها، وعلى استخدام التقنيات الحديثة في مجال عملهم.
3. ضرورة تحفيز العاملين بالهيئة مادياً ومعنوياً من خلال تبني الهيئة نظام للحوافز والمكافآت يشجع على إتقان العمل وتحسين الأداء.
4. ضرورة مشاركة العاملين بالهيئة في اتخاذ القرارات المتعلقة بتطوير العمل الإداري (أهداف، معايير أداء، حوافز، تخطيط العمل، تحديد الأولويات).
5. ضرورة بناء نظام معلوماتي ومعرفي جيد يسهم في تفعيل الاتصال الإداري الإلكتروني بين الإدارات المختلفة، وتبادل المعلومات والبيانات مع الجهات الشريكة إلكترونياً.

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فاعلية استخدام أنشطة مراكز التعلم في تنمية الذكاء الأخلاقي لدى طفل الروضة: PS-128

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الملخص : هدف البحث الحالي إلى التحقق من فاعلية استخدام أنشطة مراكز التعلم في تنمية الذكاء الأخلاقي لدى عينة من أطفال الروضة في المستوى الثاني. اتبع البحث المنهج شبه التجريبي، وتكونت عينة البحث من (60) طفل وطفلة تم سحبها عشوائياً: و تقسيمها بالتساوي بين مدرسة هيئة قناة السويس الخاصة كمجموعة ضابطة ومدرسة أمون الخاصة كمجموعة تجريبية. لتحقيق هدف البحث تم تصميم مقياس الذكاء الأخلاقي (إعداد الباحثة) وتطبيقه قبلها وبعدياً على المجموعتين الضابطة والتجريبية، وبعض أنشطة مراكز التعلم (إعداد الباحثة) وتم تطبيقها على المجموعة التجريبية. وبعد جمع البيانات وتحليلها إحصائياً باستخدام t-test وجد فرق دال إحصائياً عند مستوى دلالة (0.05) بين متوسطي درجات الكسب لأطفال المجموعتين الضابطة والتجريبية في التطبيق البعدي لاختبار الذكاء الأخلاقي المصور لصالح أطفال المجموعة التجريبية. أثبتت النتائج فاعلية استخدام أنشطة مراكز التعلم في تنمية الذكاء الأخلاقي لدى طفل الروضة. أوصى البحث بضرورة متابعة نمو الذكاء الأخلاقي لدى طفل الروضة كما يمكن الاستعانة بأدوات الدراسة .

الكلمات المفتاحية: طفل الروضة، مراكز التعلم، الذكاء الأخلاقي .

المقدمة

تعد مرحلة الطفولة المبكرة من أهم المراحل في حياة الإنسان؛ حيث تتشكل فيها شخصية الطفل وتنمو استعداداته من جميع الجوانب. فتنمو ذكاءات الطفل خاصة الذكاء الأخلاقي حيث امتلاك الفضائل والاحترام المتبادل مع الآخرين وفهم الصواب من الخطأ، والقدرة على تطبيق المبادئ والقيم الأخلاقية والسلوك الأخلاقي (Matchadow:2008, 461). وانطلاقاً من أن طبيعة الطفل في تلك المرحلة المبكرة تتطلب تقديم خبرات تربوية تعتمد على اللعب التربوي، والحرية الموجهة، وحب الاكتشاف عبر طرق وأساليب تعتمد على الأنشطة التربوية داخل وخارج حجرات مؤسسات الطفولة المبكرة (وزارة التربية والتعليم: المعايير القومية لرياض الأطفال في مصر: 2008، 16) تنبثق أهمية مراكز التعلم في تنمية الذكاء الأخلاقي لأطفال الروضة. وعليه فقد أشارت البساط وبشير (البساط:2014، 99-98؛ بشير: 2015، 17) لمراكز التعلم وأهميتها باعتبارها المكون الأساسي لبيئة التعلم في الروضة، حيث تتميز مراكز التعلم بأنها تبنى على خبرات تعزز التعلم الأكاديمي للطفل فيما بعد، وتنمي مهارات التواصل لديه إضافة إلى الاستقلالية والقدرة على الاختيار المناسب ونمو المفاهيم الإيجابية نحو الذات وتطويرها وصولاً للاستقرار النفسي، وبناءً على ذلك نحن بحاجة لاستخدام الأنشطة المختلفة لتطوير الذكاء الأخلاقي. ومن ثم تعتبر مراكز التعلم أفضل مكان لتوفير تلك الأنشطة. وعليه تسعى هذه الدراسة لقياس فاعلية استخدام أنشطة مراكز التعلم في تنمية الذكاء الأخلاقي لدى طفل الروضة.

الأهداف

تهدف هذه الدراسة إلى تنمية الذكاء الأخلاقي لدى طفل الروضة والتحقق من فاعلية أنشطة مقترحة قائمة على مراكز التعلم في تنمية الذكاء الأخلاقي لدى طفل لروضة

المنهجية:

يستخدم البحث المنهج شبه التجريبي، واداة القياس المتمثلة في اختبار الذكاء الأخلاقي لطفل الروضة (اختبار مواقف مصور)، والمادة المعالجة هي أنشطة مراكز التعلم.

النتائج والمناقشة

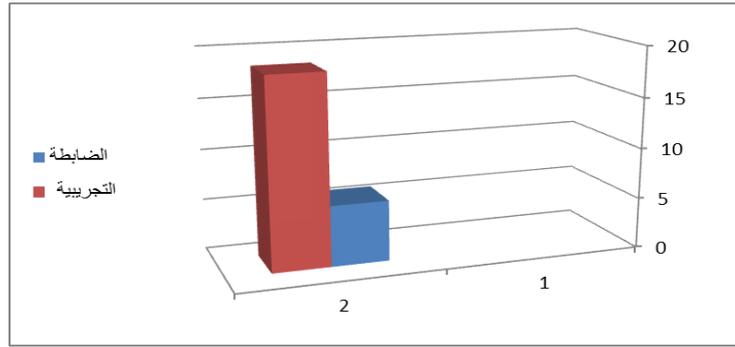
تم التحقق من الفرض الإحصائي الذي نص على "وجود فرق دال إحصائياً بين متوسطي درجات الكسب لأطفال المجموعتين الضابطة والتجريبية في التطبيق البعدي لاختبار الذكاء الأخلاقي المصور لصالح أطفال المجموعة التجريبية" باستخدام اختبار "ت" لعينتين مستقلتين. وكانت النتائج كما هي موضحة بالجدول الآتي .

جدول (1) الفرق بين متوسطي درجات المجموعتين الضابطة والتجريبية في الاختبار البعدي .

الاختبار الذكاء الأخلاقي	المجموعة الضابطة		المجموعة التجريبية		قيمة (ت)	مستوى الدلالة	درجة الحرية	قيمة (μ)	مستوى التأثير	الدلالة الإحصائية
	المتوسط	الانحراف المعياري	المتوسط	الانحراف المعياري						
الدرجة الكلية	96,5	29,1	53,18	27,1	7,49	00,0	58	97,0	كبير	دالة

فيوضح أنه يوجد فرق ذات دلالة إحصائية بين متوسطي درجات المجموعتين الضابطة والتجريبية في التطبيق البعدي لاختبار الذكاء الأخلاقي لصالح درجات المجموعة التجريبية، وذلك بالنسبة للمجموع الكلي، حيث كانت قيمة ت المحسوبة في كل منها أكبر من قيمة ت الجدولية (7,49) عند مستوى الدلالة (0.05)، وبذلك هذا على أن قيمة ت دالة إحصائياً عند مستوى الدلالة (0.05) لصالح درجات المجموعة التجريبية. وإعتماداً على مؤشر الدلالة العملية مؤشر هيز (μ) تم إيجاد حجم التأثير لدلالة الفرق بين متوسطي درجات أطفال المجموعتين الضابطة والتجريبية في التطبيق البعدي لاختبار الذكاء الأخلاقي، لصالح المجموعة التجريبية، من النوع الكبير. وهذه النتيجة تتفق مع ما توقعته الباحثة وعبر عنه في الفرض الإحصائي، وبناءً على ما سبق تم قبول الفرض الإحصائي. والشكل (1) يوضح الفرق بين المجموعتين الضابطة والتجريبية في التطبيق البعدي لاختبار الذكاء الأخلاقي المصور.

شكل (1) مقارنة بين متوسطي درجات المجموعتين الضابطة والتجريبية في الاختبار البعدي



وما سبق يؤكد على فاعلية أنشطة مراكز التعلم المقترحة في تنمية الذكاء الأخلاقي لدى أطفال الروضة، حيث أكدت عدد من الدراسات على أهمية تنمية الذكاء الأخلاقي لدى الطفل باستخدام بيانات التعلم المختلفة مثل دراسة (Clarken:2010) التي أوضحت أن غياب التعليم الأخلاقي والقدوة يؤثر سلباً على الأطفال ، مما يشكل أخلاقياتهم في إطار خاطئ ، فالتعليم يؤثر على تطوير الأخلاقيات الفردية والجماعية ، وما يحدث في قاعات الدراسة بإمكانه أن يشجع أو يثبط من القدرة على فعل الخير والصواب، وقد اتفق ذلك مع دراسات كل من الناصر (الناصر: 2009) والتي أكدت فاعلية برنامج تعليمي-تعلمي في تنمية الذكاء الأخلاقي لدى الأطفال المساء معاملتهم، ودراسة بشار (بشارة: 2013) والتي أكدت أثر برنامج تدريبي مستند إلى نظرية بوربا في تنمية الذكاء الأخلاقي لدى أطفال قرى SOS في الأردن، ودراسات عديدة في مراكز التعلم كدراسة (Kim Yookyung:2003) التي أشارت إلى تأثير مراكز التعلم الشاملة على تصرفات الأطفال الواقعية في مرحلة ما قبل المدرسة، ونتائج دراسة (Stuber :2007) التي أكدت على أثر ممارسة الأطفال للأنشطة المختلفة على سلوكهم في مركز قاعة النشاط، ودراسة (إبراهيم:2014) التي أكدت على فاعلية برنامج لتنمية بعض المهارات الإجتماعية لدى طفل الروضة باستخدام مراكز التعلم .

الاستنتاج

في ضوء النتائج السابقة وتفسيرها، أثبتت الدراسة فاعلية استخدام أنشطة مراكز التعلم المقترحة في تنمية الذكاء الأخلاقي لدى طفل الروضة.

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PS-129: تطبيقات الإصلاح التربوي بمؤسسات رياض الأطفال في كندا وأستراليا وإمكانية الاستفادة منها في مصر

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² جامعة قناة السويس، كلية التربية مدرس بقسم التربية المقارنة والإدارة التربوية، الاسماعيلية، مصر .
³ جامعة قناة السويس، كلية التربية باحث دكتوراه بقسم التربية المقارنة والإدارة التربوية، الاسماعيلية، مصر .

المخلص: إن إدارة مؤسسات رياض الأطفال تعاني العديد من المشكلات من أهمها: (مركزية إدارة التعليم، من حيث تخطيطه ورسم سياسته ووضع مناهجه وبرامجه، معظم الأسر تنظر إلى رياض الأطفال على أنها غير مهمة كأهمية المدرسة). كما أوضحت العديد من الدراسات ما يؤكد ذلك مما يلزم إعادة هيكلة وتطوير هذه المؤسسات التربوية، وذلك من خلال مداخل الإصلاح وهي: (المنظمة المتعلمة – الحوكمة – الإدارة الذاتية) والاستفادة من الدول الأجنبية في تطبيق الإصلاح التربوي وتطوير تلك المؤسسات، بما يتناسب مع ظروف وإمكانات المجتمع المصري .

الكلمات المفتاحية: الإصلاح التربوي، مؤسسات رياض الأطفال

المقدمة:

يبدأ طريق النهضة والتقدم حسبما يرى أهل العلم والمعرفة من خلال ما تبذله الشعوب والمجتمعات في مجال رعاية الطفولة فيها، ليس فقط لأنها ثروة المستقبل لأي وطن يبحث عن التقدم والازدهار ولكن أيضاً لأن مرحلة الطفولة تعتبر البداية الأولى للتطور والنمو الانساني. وبما أن الطفل يتأثر إما إيجابياً أو سلباً بحسب الخبرة التي يتعرض لها، فالمجتمع في أمس الحاجة إلى إعداده للحياة عن طريق تطوير سماته الشخصية والارتقاء بكل ما لديه من قدرات واستعدادات. وعلى هذا الأساس تسعى مختلف النظم التعليمية إلى البحث عن طرق متعددة لتعليم هذا الطفل، وإحاطته بالبيئة التعليمية المناسبة له .

الهدف من الدراسة

هدفت الدراسة إلى:

- التعرف على الواقع الحالي لمؤسسات رياض الأطفال في مصر . وأهم المعوقات التي تحول بينها وبين تنفيذ مسؤولياتها.
- الكشف على اهم ملامح الإصلاح التربوي بمؤسسات رياض الأطفال في كندا، استراليا.

المنهج المستخدم

استخدمت الدراسة المنهج المقارن باستخدام أسلوب جورج بيريداي المتمثل في (وصف الواقع من خلال جمع البيانات، وتفسير وتحليل وتقييم المعلومات التربوية للبلاد موضع الدراسة، والمقارنة حيث تتضمن هذه الخطوة تحديد نقاط التشابه والاختلاف استناداً إلى التطبيقات الخاصة بالإصلاح التربوي بمؤسسات رياض الأطفال في كندا، وأستراليا ومدى الاستفادة منها في مصر بما يتناسب مع المجتمع المصري .)

أدوات الدراسة

استخدمت الدراسة الأدوات الآتية من أجل تقصى واقع تطبيقات الإصلاح التربوي بمؤسسات رياض الأطفال بمصر وهي:

- استبانة موجهة لمديري ومعلمات رياض الأطفال بمصر في المحافظات التالية: (السويس، الإسماعيلية، الجيزة، الشرقية، الغربية، أسوان).
- المقابلة الشخصية: قامت الباحثة بعمل مقابلات شخصية مع موجهات، موجهات أوائل، موجهات عموم رياض الأطفال بالمحافظات السابقة.

النتائج

توصلت الدراسة من خلال الإطار النظري إلى العديد من النتائج من أهمها أن مؤسسات رياض الأطفال في مصر تواجه العديد من القضايا والتحديات التي تتعلق بالإتاحة والجودة وإدارة النظام والتي يمكن توضيحها في النقاط التالية :

الإتاحة: ضعف الوعي عند أولياء الأمور بأهمية مرحلة رياض الأطفال لأنها ليست في السلم التعليمي، التصاق رياض الأطفال بالتعليم الابتدائي، وعدم وجود إدارة مستقلة عن التعليم الابتدائي .

الجودة: قلة وجود مديرات لمؤسسات رياض الأطفال مؤهلات تأهيلاً تربوياً. والاختيار غير السليم للقيادة المسؤولة عن إدارة مؤسسات رياض الأطفال أو تلك المسؤولة عن تطوير القوانين واللوائح التي تحكم سير العمل بها .

النظم: جمود تنظيم الإدارة التعليمية، مما ينجم عنه خلل في عمليات الاتصال وضعف التنسيق (أو انعدامه) بين الأجهزة التعليمية، وعدم تحديد المسؤوليات والاختصاصات، والاحجام عن تفويض السلطة .

كما أن من نتائج الدراسة ما يلي:

- فصل إدارة الروضة عن المدرسة الابتدائية بحيث يكون لها هيكلها الإداري الخاص بها.
- الإستعانة بالمختصين في تربية الطفل لشغل الوظائف الإدارية بمستوياتها المختلفة (القومي، والإقليمي، الإجرائي).
- تفعيل دور مجالس الآباء بالروضة، ويعقد بصورة دورية لمناقشة ما يستجد من أعمال ووضعها موضع التنفيذ، وإحداث الإتصال بين الأسرة والروضة.
- عدم وجود التخصص بين (مديري – مديرات) رياض الأطفال في المجال نفسه.
- مؤسسات رياض الأطفال الكندية تسعى لإتاحة الفرصة للمعلمين والآباء وأعضاء المجتمع المحلي للمشاركة في صنع القرار، ودعم المشاركة المجتمعية من خلال مشاركة أفراد المجتمع المحلي في صنع القرارات التعليمية على المستوى المدرسي في جميع أنحاء الولايات الكندية.



- تتمتع أستراليا باستقلالية ذاتية لولاياتها الست، مما انعكس هذا على التعليم فأصبحت كل ولاية لها الإستقلال التام في إدارة شئونها العامة وكذلك التعليمية حيث يقوم كل قسم للتعليم بكل ولاية بإدارة وصناعة القرارات التعليمية بالولاية، نظراً لاهتمام أستراليا بمؤسسات رياض الأطفال.

مناقشة النتائج

بمناقشة نتائج الدراسة تبين ما يلي:

- 1- شدة ارتباط رياض الأطفال بأحوال المجتمع الذى يقدم فيه، وتشابك مشكلاته مع مشكلات المجتمع. مما يجعل تطوير إدارته ينعكس على تطوير المجتمع ككل.
- 2- تأتى هذه الدراسة في إطار تصاعد الجهود المبذولة في إصلاح مؤسسات التعليم المصرى بصفة عامة وإصلاح مؤسسات رياض الأطفال بصفة خاصة.
- 3- تلبية نداء التوجه نحو اللامركزية في إدارة التعليم العام بصفة عامة، ومن ثم إدارة رياض الأطفال بصفة خاصة.
- 4- ما أسفرت عنه الدراسة من نتائج قد يفيد في ترشيح الجهود المبذولة لتطوير مؤسسات رياض الأطفال من خلال تدعيم مقومات التطوير ومواجهة معوقاته.

الاستنتاج

لعله من الضروري ونحن بصدد الحديث عن إصلاح وتطوير مؤسسات رياض الأطفال وتجديدها، أن نسلط بعض الأضواء على معطيات التجارب العالمية وذلك بقصد الاسترشاد بمعطياتها وموجهاتها، متى ما تناغمت وتلاءمت مع احتياجاتنا وخصوصياتنا. فقد سعت كندا وأستراليا منذ السبعينيات والثمانينيات لزيادة الفاعلية من خلال الاستقلال الذاتى الكامل لمؤسسات رياض الأطفال خاصة والتعليم العام عامة ومنحها المزيد من الحرية في صنع القرارات والعمل على زيادة المشاركة المجتمعية والودية في التعليم بهدف الإصلاح والتجديد.

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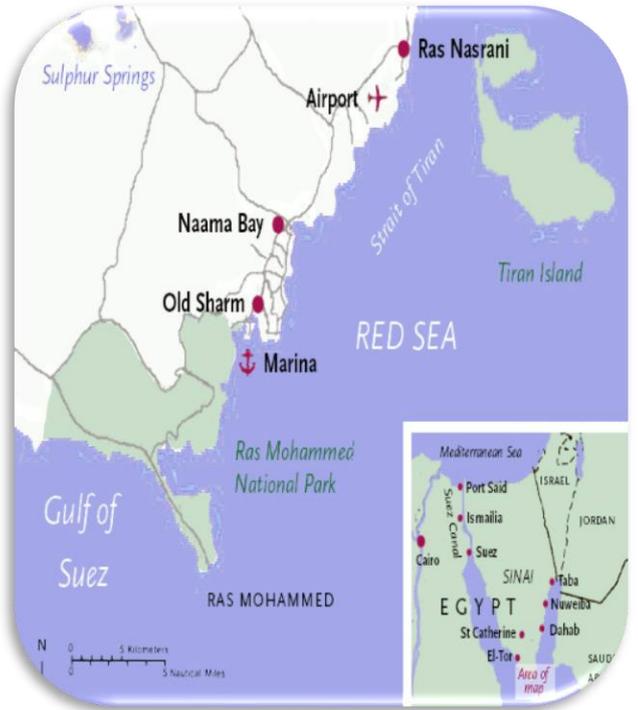


General Information



SUEZ CANAL

The Suez Canal is . It's known for its long beaches and clear waters.



Ismailia
Suez
Portsaid

Sinia is a major diving destination, with coral life around the Shark and Yolanda reefs and the Thistlegorm wreck. It is now a holiday resort and significant center for tourism in Egypt.



