

مؤتمر شباب الباحثين الرابع للعلوم الأساسية والهندسية

كلية العلوم بقنا - جامعة جنوب الوادي

١٤-١٥ فبراير ٢٠١٨م

قطاع العلوم الأساسية وتطبيقاتها

قطاع العلوم الهندسية وتطبيقاتها

قطاع علوم الحاسبات والمعلومات وتطبيقاتها



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رئيس الجامعة



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نائب رئيس الجامعة للدراسات العليا والبحوث



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عميد كلية العلوم

معالي السيد الأستاذ الدكتور/ عباس محمد منصور رئيس الجامعة
السيد الأستاذ الدكتور/ محمود خضارى معله نائب رئيس الجامعة للدراسات العليا والبحوث
السيد الأستاذ الدكتور/ محمد أبو الفضل بدران نائب رئيس الجامعة لشئون التعليم والطلاب
السيد الأستاذ الدكتور/ يوسف غرباوى نائب رئيس الجامعة لتنمية البيئة وخدمة المجتمع
السادة عمداء وكلاء الكليات وروساء الأقسام
اساتذتى وزملائى الأفاضل اعضاء هيئة التدريس ومعاونيهم.
السادة الضيوف والحضور والجمع الكريم
اهلا و مرحبا بكم في رحاب كلية العلوم بجامعة جنوب الوادي
يسعدنى ويشرفنى ان اتقدم لكم جميعا بخالص شكرى وتقديرى لحضوركم الكريم فى مؤتمر شباب
الباحثين الرابع لقطاع العلوم الأساسية والهندسية والذى تشارك فيه ثلاثة كليات هي العلوم بعدد ٤٠ بحثا
والهندسة بعدد ٧ ابحاث والحاسبات والمعلومات بالأقصر بعدد ٣ ابحاث ليصبح اجمالى الأبحاث المقدمه فى
المؤتمر ٥٠ خمسون بحثا. وانها لسعادة بالغة ان يتم انعقاد هذا المؤتمر بكلية العلوم ، ونزداد فخرا ان يكون
رعاة هذا المؤتمر هم ابناء هذه الكلية، معالي السيد الاستاذ الدكتور/عباس محمد منصور رئيس
الجامعة الذى لا يدخر جهدا في دعم هذه الكليات في جميع المناحى والانشطه، والسيد الأستاذ الدكتور/
محمود خضارى معله نائب رئيس الجامعة للدراسات العليا والبحوث وصاحب فكرة المؤتمر وما تلاه من
تطورات ليصبح خمسة مؤتمرات بدلا من مؤتمر واحد.
يأتى هذا المؤتمر فى الوقت الذى تتضافر فيه الجهود من منسوبى الكليات المشاركة والذين نفخر
بهم بانهم حجر الزاوية في الانتاج العلمى المنشور باسم جامعة جنوب الوادى، يدفعهم الحرص على بذل
قصارى جهدهم في مجال البحث العلمى، لتكون كلياتهم وجامعتهم فى مستوى متقدم بين الكليات والجامعات
الأخرى داخليا وخارجيا، وكذلك يفتح المؤتمر المجال رحيبا لتلاقى الافكار بين باحثى الكليات المشاركة، مما
يشجع الابحاث المشتركة بين التخصصات و الاقسام المختلفه الذى هو احد متطلبات جودة التعليم العالى في
مصرنا العزيزة، أملين ان تكون جلسات المؤتمر والأبحاث المقدمة نافذة تطل منها هذه الكليات المشاركة
لفتح افاق المستقبل لأبحاث تطبيقية تعود بالنفع العام على المجتمع والمنطقة بآثرها ، وان ينتج عن ذلك
المؤتمر توصيات مثمرة وبناءة وان يحقق المؤتمر الهدف المرجو منه.
وفي الختام أود ان اتقدم بخالص الشكر والتقدير والوفاء لمعالي السيد الأستاذ الدكتور/ رئيس
الجامعة، السيد الأستاذ الدكتور/ نائب رئيس الجامعة للدراسات العليا والبحوث على دعمهم اللامحدود لهذا
المؤتمر، والشكر موصول لأعضاء اللجنة المنظمة للمؤتمر لما بذلوه من جهد لإظهار هذا المؤتمر بالصورة
المشرفة والتي تليق بهم، داعيين المولى عز وجل ان يكمل مجهودهم بالنجاح والتوفيق، ونأمل ان ينال
تنظيمنا المتواضع للمؤتمر اعجابكم.

والسلام عليكم ورحمة الله وبركاته



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I-Oral Presentations



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Section (1) Basic Sciences and Applications

Oral No. (1)

**Nanomaterials for Conservation Thebes Limestone
at Heritage Buildings Luxor–Egypt**

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ABSTRACT

Synthesis of Nano materials from the same materials of Thebes limestone are more harmony materials for protection of ancient buildings from Thebes limestone. Nano Calcium Carbonate and Nano Calcium Hydroxide are logically more efficient in treatment process. So aim of study is using Nano application for protection and restoration of Thebes limestone that were used in buildings from 18th B.C. century. Ball milling is the apparatus used in synthesis Nano Calcium Carbonate and Nano Calcium Hydroxide. Transmission Electron Microscope (TEM) was used to determine the sizes of Nano materials. Chemical analysis was used to compare between these using materials. These two Nano materials experiment for treatment Thebes limestone in three systems; Coating for weak and decay limestone, Treatment the minutes or no visible damage and Formation mortar for several restoration processes. The first systems is a consolidate that measured by compressive strength test, But the second test is (Three-Point Bending Single-Edge Notched Fracture Test with Plain)TPB or named (Fiber-Reinforced Concrete) FRC that used to explain stress-strain diagrams for treatment fracture, Whereas sculpture tests in addition to compressive tests are used in the mortar case. Scanning Electron Microscope (SEM) was used to investigate the results of treatment processes at all cases. From all results it can inferred and evaluate the efficient of Nano material in conservation Thebes limestone at Luxor heritage sites.

Keywords: Thebes limestone, Heritage buildings, Three Point Bending, Sculpture tests.

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Oral No. (2)

**Source Rock Evaluation and Organic Geochemical
Characterization of the Duwi and Rudeis Formations, West
Esh El Mallaha Concession, Southwestern Gulf of Suez, Egypt**

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ABSTRACT

The Upper Cretaceous Duwi Formation and the Lower Miocene Rudeis Formation in the southern sector of the Gulf of Suez Basin are important source rocks for petroleum exploration in the West Esh El Mallaha Concession, southwestern Gulf of Suez, Egypt. A geochemical study of 96 sidewall core and cuttings samples was conducted to understand the geological and geochemical characteristics of these potential source rocks, including the distribution, sedimentary environment, organic matter type, hydrocarbon generation potential and thermal maturity were investigated. Results indicate a wide variation in source richness and quality. The Rudeis Formation has fair to good hydrocarbon generation potential. It contains thermally immature Type-III (gas-prone) and Type-II/III (mixed oil-and gas-prone) kerogen, deposited under mixed environments. On the other hand, the Duwi source rock samples have superior hydrocarbon generating potential. They are thermally immature to marginally mature and organically rich in Type-I/II oil-prone organic matter and deposited under anoxic-Euxinic depositional paleoenvironment.

Keywords: Rock-Eval pyrolysis, Duwi and Rudeis formations, west Esh El Mallaha, southern Gulf of Suez, Egypt

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Oral No. (3)

Investigation of Subsurface Caving Conditions on Sohag-Red Sea Road Using the Seismic Refraction Method

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ABSTRACT

The Sohag-Red Sea road is a vital transportation line as linking between the Nile Valley to the west with the Red Sea cities to the east. The road is running through the Eastern Desert across the limestone plateau east of the Nile Valley. The limestone plateau composed of the Thebes Formation is suffering from subsurface caving that could affect the road in the future. Shallow seismic methods including both P-wave and S-wave refraction are used to investigate some selected areas along the road where the limestone surface rock might suffer from cavings. The data were processed and interpreted by advanced 2D inversion method based on the homogenous function of two coordinates. The results show that the upper surface layer is mostly higher-velocity limestone. The layer might contain caves in some locations as indicated in the depth-velocity sections. Faults are also detected in the subsurface with variable displacements.

Keywords: Shallow seismic refraction, Shear wave, Sohag-Red Sea road, Thebes Formation, tomography, Eastern Desert

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Oral No. (4)

Geological and Geomorphological Investigations at Wadi Matula Basin, Central Eastern Desert of Egypt Using Remote Sensing and Aeromagnetic Data

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ABSTRACT

Wadi Matula covers an area of about 7,500 km² in the Central Eastern Desert of Egypt. Shuttle Radar Topography Mission (SRTM), Landsat OLI, Sentinel-1 and aeromagnetic data were used and processed to extract different levels of geological information regarding the study area. Analysis and interpretation of SRTM data using GIS techniques provided information on geomorphological characteristics of catchments and potential areas of flash flood hazards. However, optical Landsat data allowed describing the lithological characteristics and delineating areas of potential hydrothermal alteration. While, the Sentinel-1 SAR data were used to identify the physical properties (surface roughness and dielectric constant) of the surficial rocks units, which have been interpreted in terms of weathering products of different rocks, grain size of wadi deposits and lithology. Therefore, the analysis and interpretation of SRTM, Sentinel-1 and aeromagnetic data presented significant information on surface and subsurface structural discontinuities. These data revealed that the NW-SE trend controls the surface and subsurface geometry of the studied basin. Integration of geologic, lineaments, stream-networks, slope and topographic data clearly highlighted potential areas of groundwater recharging. Superimposing the field data on the predicted map revealed that the high to very high potential areas are consistent with the highly production wells. It is concluded that integration of radar and optical remote sensing images are powerful tools for mapping surface/near-surface geological features and locating the potential areas for groundwater accumulation in arid regions.

Keywords: Remote sensing, GIS, Radar Data, Morphometric analysis, Flash flood hazard, Groundwater.

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Oral No. (5)

**Treatment of Some Metal Ions in Well Water Samples
(Qena Governorate)**

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ABSTRACT

Heavy metals: are natural components of the Earth's crust. They cannot be degraded or destroyed to a small extent they enter our bodies via food, drinking water and air. Due to the presence of the selected metal ions (iron and manganese) as apollutant in the drinking water samples, this work will try to decrease the effect of interferences and increase the sensitivity of determination comparing to other methods. Coagulation method using $Al_2(SO_4)_3$ was used for the treatment and removal of some metal ions (iron, manganese,...). And to optimize the most suitable conditions to remove and treatment of these metal ions in well water samples. Different condition will be applied to this concern.

Keywords: Heavy metals, Coagulation method, $Al_2(SO_4)_3$.



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Oral No. (6)

Microwave Assisted Reactions as a Green and Sustainable Road Map to Synthesize Antimicrobial Drugs

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ABSTRACT

Microwave-assisted reactions of organic compounds has introduced a highly interested methodology for preparing heterocyclic compounds of probable antibacterial and antifungal activity, and this intern declared its importance in drug discovery. The use of this green and sustainable synthetic method brings numerous gains over conventional one, such as significantly reduced reaction times, higher yields and higher selectivity, lower amounts of byproducts and, consequently, easier work-up and purification of the products. It is recommended as a benign technology, since, consuming efficient and less hazardous energy sources, it can be applied in solvent-free conditions, and increasing “atom economy” by improving product selectivity and chemical yield.

Keywords: Microwave, Green Chemistry, Sustainability, Synthesis, Antimicrobial.

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Oral No. (7)

Solar Energy as a Benign and Sustainable Technology to Prepare Economically Important Organic Compounds

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ABSTRACT

Solar thermal systems use solar radiation as a source of heat; this heat can be used in several ways. It can be used in concentrated mode via means of sun light reflector, to induce reactions to make economically important organic (cyanine dyes). Innovations and new developments in solar thermal generally involve a significant reduction in cost or the introduction of a previously unattainable approach. In our project, concentrated solar system process would be employed to initiate chemical reactions to synthesize some organic compounds of high economic value. This intern will open a new research window for using costless, benign, and sustainable sources of energy to enhance valuable chemical processes.

Keywords:

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Oral No. (8)

Synthesis and Characterization of New Benzoxazines Polymers and Their Applications

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ABSTRACT

Polybenzoxazine (PBZ), a novel class of high-performance phenolic resin, have attracted great attention as versatile materials for structural and engineering applications because they possess good flame retardance, and thermal properties of phenolic resins, including their high mechanical properties, with good sound and noise absorbance. This class of thermosetting polymer could be synthesized from phenol (or substituted phenols), aldehyde (such as formaldehyde, acid aldehyde, or pyromucic aldehyde), and amine groups. Even though these resin types were firstly produced in 1940s by Holly and Cope, the capability of polybenzoxazine has become well known recently in 1990s. The novel polymers can be synthesized via either solvent or solventless technology. Additionally, the curing of the resins involves ring-opening polymerization with no need of any catalyst or curing agent for producing, and there is no by-product during curing, which leads to no void in the products. In addition, polybenzoxazines render near-zero volumetric shrinkage or expansion upon cure, high process ability due to low melt viscosity before polymerization, low water uptake, high char yield, and low coefficient of thermal expansion. Moreover, the polymers render low dielectric constant and dissipation loss, high mechanical performance and great molecular design flexibility. Although polybenzoxazines (PBZ) possess high glass-transition temperature and modulus, it is reported that the crosslink density of PBZ is rather lower than that of other thermosetting polymers with the same properties. The reason is attributed to the fact that hydrogen bonding could be sufficient to hinder the chain mobility and induce the rigidity as observed in the glassy state. Ishida and Allen studied the copolymerization between PBZ and diglycidyl ether of bisphenol-A (DGEBA), the most commonly used epoxy resin in the copolymer, could lead to higher crosslink network. That also influences the higher glass-transition temperature (T_g) than the parent polymers as reported by Rimdusit et al.

Keywords: Polybenzoxazine, Epoxy, Aldehyde, Glass-transition temperature

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Oral No. (9)

The Effect of the Used Organic Sulfur Salts on the Synthesis and Properties of Cadmium Sulfide Nanocrystals

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ABSTRACT

Three CdS nanocrystals were grown using different organic sulfur salts such as Thiocarbonylhydrazide, thiocarbonyl potassium salt and/or thiocarbonyl-Bis-thioglycolic acid by simple chemical method in the same conditions. The synthesized nanocrystals were characterized by transmission electron microscopy, FT-IR, ¹H NMR, Mass Spectra, X-ray diffraction and UV-vis spectrophotometry. The yield, elemental analysis, lattice parameters, crystallite size, microstrains, transmittance, absorbance and the energy band gap were determined for the prepared CdS nanocrystals. The obtained results were analyzed and compared to study the effect of the used sulfur salts on the properties of CdS nanocrystals.

Keywords: CdS nanocrystals, Organic Sulfur Salts, Optical properties, Lattice parameters

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Oral No. (10)

Preparation and Evaluation of some Cationic Surfactants Compounds as Corrosion Inhibitors and Biocid

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ABSTRACT

A new series of some cationic surfactants were synthesized namely: 2-(2-(2-(dodecanoyloxy)ethoxy)ethoxy)-N,N,N-tris(hydroxymethyl)-2-oxoethanaminium (DDAC); N,N,N-tris(hydroxymethyl)-2-oxo-2-(2-(2-(tetradecanoyloxy) ethoxy) ethoxy) ethanaminium (TDAC) and N,N,N-tris(hydroxymethyl)-2-oxo-2-(2-(2-(hexadecanoyloxy)ethoxy)ethoxy)ethanaminium (HDAC). The chemical structures of the synthesized cationic surfactants were confirmed using FT-IR and ¹H-NMR spectroscopies. The surface tension of the synthesized cationic surfactants was measured at 25, 40 and 55 C. The surface parameters were determined from the surface tension measurements. The emulsification power and foaming power measurements showed the applicability of these surfactants in the oil field. The biological activity of the synthesized surfactants was measured against pathogenic bacteria (*Staphylococcus aureus* and *Escherichia coli*) and fungi (*Candida albicans* and *Aspergillus niger*) using inhibition zone diameters. The obtained data revealed that the dodecanoate derivative (DDAC) has more antimicrobial activity against the investigated microorganisms than tetradecanoate and hexadecanoate derivatives (TDAC and HDAC).

Keywords: Cationic surfactants, Surface Biological activity, Sulfate reducing bacteria (SRB), corrosion inhibitors.

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Oral No. (11)

Computer-aided Drug Discovery of Novel PI4KIII β and pfPI4KIII β Inhibitors as Potent Anti-malarial Agents

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ABSTRACT

Malaria is the 5th cause of death from infectious diseases worldwide and 2nd cause of death from infectious diseases in Africa. Targeting PI4KIII β receptor can inhibit the intracellular development of multiple plasmodium species at each stage of malaria infection. Moreover, inhibition of pfPI4KIII β prevents the membrane ingestion that occurs during completion of the asexual erythrocytic stage of the plasmodial life cycle. Targeting of PI4KIII β and pfPI4KIII β provides a promising route for malarial treatment. Discovering of potent and selective inhibitors of PI4KIII β and pfPI4KIII β remains a major challenge. In the current study, a comparative model of pfPI4KIII β was first constructed based on X-ray crystal structure of PI4KIII β (PDB code: 4D0L) as a template. Performance of Autodock4.2 and Vina4 software in predicting the inhibitor-PI4KIII β binding energy was assessed based on Test Set I (five ligands with resolved crystal structures with PI4KIII β receptor) and Test Set II (twelve compounds with known IC₅₀ value towards PI4KIII β receptor). The outperformance of Autodock as compared to Vina was reported. The predicted Autodock4.2 binding scores were in a good agreement with the calculated MM/GBSA//SS binding energies and corresponding IC₅₀ value giving a correlation coefficient (R^2) value of 0.87 and 0.90 for Test Set I and Test Set II, respectively. Pharmacophore-based virtual screening was then conducted on five potent inhibitors using ROCS software. The query inhibitors are generated based on three potent PI4KIII β inhibitors (namely: 5S8, PIK93 and BF738735) and two potent pfPI4KIII β inhibitors (namely: cpa and cpb). For each query inhibitor, the best 1000 hits in terms of TanimotoCombo score were selected and subjected to molecular docking towards both of PI4KIII β and pfPI4KIII β receptors. Based on the calculated docking score, the top 100 potent inhibitors were selected for further extensive docking and molecular dynamics calculations. According to the results, compounds were identified as potent PI4KIII β and pfPI4KIII β inhibitors with binding energies better than all pre-published inhibitors ($\Delta G \geq 10.10$ kcal/mol and 9.32 kcal/mol for PI4KIII β and pfPI4KIII β , respectively). The potency of the selected compounds was further evaluated using MM/GBSA based on MM-minimized structures. The presented results will serve as a foundation to discover novel rational anti-malaria inhibitor.

Keywords: PI4KIII β , pfPI4KIII β , Autodock4.2, Vina4, ROCS, Malaria

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Oral No. (12)

A Computational Investigation of Pi-system Interaction with Cations, Lone Pair and Anions Based on Point-of-Charge Approach

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ABSTRACT

The theme of noncovalent interactions has attracted a considerable attention due to their vital role in many fields related to biochemistry, crystal engineering and drug design. One of the most important types of these interactions is pi-interaction which plays a key role in molecular stabilization and protein folding [1]. It has been observed that pi-system can interact with cations, lone pair of Lewis base and anions. Nature and characteristics of the pi-system interaction with anion and lone pair has not been fully settled until now [2, 3]. In the current study, pi-interactions were reinvestigated using Point-of-Charge (PoC) approach. This study was performed on two pi systems (namely: C₆H₆ and C₆F₆ as electron-rich and electron-deficient pi system, respectively). The studied molecules were firstly optimized using MP2/6-311++G** level of theory. The molecular electrostatic potential maps (MEP) of the studied molecules were generated using B3PW91 method with 6-311G** level of theory and mapped on an electron density contour of 0.002 a.u. PoC approach was used to generate 2D potential energy surfaces of the studied molecules and stabilization energy was estimated in the presence of a PoC with a value of ± 0.10 , ± 0.25 , ± 0.5 , ± 10 a.u. at MP2/aug-cc-PVDZ level. Moreover, pi-system...PoC distance effect on pi-interaction strength was investigated. Towards a deeply definition and characterization of pi-interaction, the solvent contribution to pi-interaction strength and multi pi-interaction characteristics was studied. Furthermore, natural bonding orbital (NBO) calculation was employed to evaluate the correlation between the pi-interaction strength and different atomic descriptors such as natural atomic charge and p-orbital electronic configuration. According to the results, it was concluded that (i) polarization plays the key role in cation... and anion...pi-interaction, (ii) it was demonstrated the absence of Lone pair...electron-rich pi-system interaction, and (iii) the most favorable interaction was observed at the top of carbon for benzene and top of bond center for hexafluorobenzene. Moreover, the results highlighted the significant effect of solvent on pi-interaction strength. As well, the ability of pi-system to form multi pi-interaction was demonstrated. Finally, Pi-system...F⁻, Li⁺ and N₂ complexes study evaluated the reliability of PoC approach to study different types of p-interaction.

Keywords: Noncovalent interaction, cation-pi interaction, LP-pi interaction, anion-pi interaction, Point-of-Charge (PoC) approach

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Oral No. (13)

Quantum mechanical investigation of tetrel bonding characteristics based on Point-of-Charge (PoC) approach

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ABSTRACT

σ -hole based interaction is considered as one of the most intriguing classes of noncovalent interactions. The importance of σ -hole based interactions is attributed to their pivotal role in crystal engineering and drug design. One of these σ -hole based interactions is called tetrel bond where tetrel refers to Group IV atoms. Up to date, tetrel bond characteristics are still under debate. In the current study, a new nomenclature was asserted as $W-T-XYZ\cdots B$ where T is a tetrel atom, W is the atom exist along the σ -hole extension and B is a Lewis base. Four molecules were studied to elucidate the tetrel bond characteristics – namely, FCF_3 , $FSiF_3$, $FGeF_3$ and $FSnF_3$. Molecular optimization and all single point energy calculations were performed at the second-order Møller-Plesset (MP2) level using the aug-cc-pVTZ basis set for all atom except Ge, Sn, Br, and I which were treated with the aug-cc-pVTZ-PP basis set. Molecular electrostatic potential (MEP) and maximum positive electrostatic potential ($V_{s,max}$) were generated for all studied molecules. Moreover, Point-of-Charge (PoC) approach was incorporated to investigate the tetrel bond characteristics from the electrostatic perspective. In the PoC approach, the Lewis base is replaced with a negative point of charge (PoC). With the help of the PoC approach, 2D potential energy surface was generated for all the studied molecules with the integration of -0.50 au. value of PoC. The effect of $T\cdots PoC$ distance and $W-T\cdots PoC$ angle (θ) on the tetrel bond strength was investigated using PoC with a value of -0.1, -0.25, -0.5, -0.75 and -1.00 au. Furthermore, the substitution effect of the W atom as well as X, Y and Z atoms on the tetrel bond strength was elucidated. The contribution of solvent to the tetrel bond strength was also demonstrated. In addition, the ability of tetrel-containing molecules to form simultaneously more than one tetrel bond was studied. According to MEP and PoC-based results, all the studied molecules have the ability to form a tetrel bond and the σ -hole size decreases in the order of $Sn > Ge > Si > C$. The favorable $W-T\cdots PoC$ angle (θ) was observed at 180° . The results of substitution effect revealed that the stabilization energy increased by: (I) increasing of the electronegativity of W atom and (II) decreasing of the electronegativity of XYZ atoms. In order to validate the PoC-based results, tetrel \cdots Lewis base complexes were studied and compared to the corresponding PoC-based results. Finally, tetrel \cdots Lewis base complexes results demonstrated that the PoC approach is a reliable technique to evaluate the tetrel bond characteristics and all other σ -hole interactions.

Keywords: Non covalent interaction, σ -hole, Tetrel bond, PoC approach

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Oral No. (14)

**Diffused Phase Transition of Lead Free Piezoelectric
Ceramics Doped non Ferroelectric Material
Near MPB**

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ABSTRACT

Lead-free piezoelectric composite ceramics $(1-x)(\text{Ba}_{0.95}\text{Ca}_{0.05})\text{TiO}_3-x(\text{BaWO}_4)$ ($x = 0, 0.01, 0.015$ and 0.02) have been prepared by Sol gel method. The calcination and sintering temperatures were carried out at 1000°C and 1200°C respectively for 2h. Effect of BW content on the phase formed and microstructure of the BCT powder and ceramics were investigated by X-ray diffraction (XRD), and scanning electron microscope (SEM). XRD shows that, the compositions ($x > 0$) were indexed as two phases of BCT (tetragonal structure $P4/\text{mm}$ space group) and BW (tetragonal $I41/a$ space group) confirmed from the composite material, in addition to there is no other phases can be observed within the detection limit of instrument. SEM shows two different shapes of grain boundary confirm present composite compounds. The electrical properties of the prepared ceramics have been studied by LCR meter at different frequencies and temperature. The results are confirmed that, increased the diffused phase transition of BCT and decreased the permittivity values by increasing BW addition, which could be promising materials for the microwave frequencies applications.

Keywords: Lead-free piezoelectric, by Sol gel method, diffused phase transition, MPB

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Oral No. (15)

Synthesis, Characterization and Antimicrobial Activity of PVP/Gelatin/MgO Polymer Nanocomposite

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ABSTRACT

Magnesium Oxide (MgO) nanoparticles are prepared by chemical co-precipitation method using Magnesium nitrate as core precursor. Polymers nanocomposite PVP/Gelatin/MgO are prepared by inserting the nanometric inorganic compounds (MgO nanoparticles) to polymer blends (PVP/Gelatin). Polyvinylpyrrolidone (PVP) is soluble in water and other polar solvents, highly transparent, good biodegradability, good mechanical properties and high molecular weight. Gelatin is a mixture of peptides and proteins, is a water-soluble polymer, natural biopolymer, good biocompatibility and high molecular weight. MgO (Nanoparticles) is odorless and non-toxic, high hardness, high purity and a high melting point. Polymer blends are prepared by mixing two or more polymers together to produce new blends or alloys, to achieve physical and chemical properties. Polymer blends were prepared by casting solution technique containing different ratios from the two polymers (PVP and Gelatin) (25/75), (50/50) and (75/25). The synthesized MgO nanoparticles have been characterized by X-ray Diffraction (XRD), Optical Properties, Thermal Analysis, TEM, Fourier transform infrared spectrometry (FT-IR) and XRF. Polymers nanocomposite PVP/Gelatin/MgO films have been characterized by the same physical and chemical properties as well as Antimicrobial Activity, Swelling Studies and Determination of gel fraction. All results will discuss in details.

Keywords: MgO nanoparticles, Co-precipitation method, Optical Properties, Thermal Analysis, TEM. Antimicrobial Activity

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Oral No. (16)

**Influence of Calcination Temperature on Properties of ZnO
and MgO Nanoparticles Synthesized by Modified
Sol-Gel Method**

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ABSTRACT

ZnO and MgO nanoparticles (NPs) were synthesized by sol-gel method. The effect of calcination at different temperatures on the optical and structure properties was studied. The structure and morphology of ZnO NPs and MgO NPs were characterized by X-Ray Diffraction (XRD), transmission electron microscope (TEM), energy dispersive X-ray Spectroscopy (EDX) and fourier transform infrared spectroscopy (FT-IR). The optical properties of the prepared NPs were investigated by UV-visible spectroscopy. The thermal properties and the weight stability were studied for the samples using TG-Analysis to determine the best temperature range of calcination. The XRD result confirmed the hexagonal structure of ZnO NPs and the cubic structure of MgO NPs, according the Scherer's formula, the average particle size of ZnO NPs and MgO NPs is 16.8 and 13.6 nm, respectively. The EDX data indicated the purity of prepared samples. The TEM images showed the spherical shape of ZnO NPs and spherical granules shape of MgO NPs. The calculated band gap energies at 400 °C were 3.2 eV and 7.8 eV for ZnO and MgO NPs, respectively and were found to be changed with the calcination temperature. The significant modifications of crystallite size and absorption spectra due to calcination temperature were studied.

Keywords: ZnO and MgO nanoparticles, TEM, Thermal analysis, Optical Properties, FT-IR.

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Oral No. (17)

**Effect of Calcination Temperature on Physical Properties
of ZrO₂ Nanoparticles Synthesized by
Modified sol-gel Method**

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ABSTRACT

The effect of calcination temperature at 600, 650 and 700 °C on crystallinity, particle size and morphology of ZrO₂ nanoparticles synthesized by modified sol-gel method has been investigated. The thermal properties were studied for the samples using TG-Analysis to determine the best temperature range of calcination. X-ray diffraction (XRD) has been used to study the crystal structure and the average crystallite size was estimated by Scherrer formula. Effect of calcinations temperature on materials morphology was studied by transmission electron microscopy (TEM). Infrared Spectroscopy technique (FT-IR) and energy dispersive X-ray spectrometry (EDS) were used to determine functional groups and materials components, respectively. UV-visible and fluorescence spectroscopy were used to calculate the band gap and study optical behavior.

Keywords: ZrO₂ nanoparticles, Sol-gel method, Optical Properties, Thermal Analysis, TEM.

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Oral No. (18)

Effect of Ca²⁺ Addition on the Structural and Dielectric Properties of BaTiO₃ Lead Free Piezoelectric Ceramics

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ABSTRACT

In order to investigate effect of Ca ions on the structural and dielectric properties of BaTiO₃, a series of (Ba_{1-x}Ca_x)TiO₃ (x = 0.0, 0.05, 0.1, 0.2 and 0.4 mol%) were prepared by Sol gel method. The calcination and sintering temperatures were carried out at 1000°C and 1200°C respectively for 2h. To evaluate the functional groups of the BCT calcined powders, FT-IR has been used. The structure and phase identification were identified by X ray diffraction (XRD), and all the peaks were indexed by BT (tetragonal structure *P4/mm* space group) perovskite structure and no second phases can be observed. In addition to, all the peaks were shifted to the higher degree by increasing Ca amount indicate decreasing the lattice parameters Morphology and the microstructures of the ceramic compositions were observed by scanning electron microscope (SEM). Dielectric properties and impedance analysis as a function of temperature and frequency for the BCT ceramics were investigated.

Keywords: Lead-free ceramics, Sol gel method, dielectric properties.

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Oral No. (19)

**A Survey of the Radioactive Radon Gas Exhalation Rate
in Upper Egypt**

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ABSTRACT

A wide area in Upper Egypt has been studied. Measurement procedures using Ionization Chamber "Alpha GUARD PQ2000PRO" were used to measure the Rn-226 exhalation rate. Also, the coordinates were previously recorded by Global position system. With the stability of the samples measuring areas and masses, the obtained values of Rn-226 exhalation rate in the study zone were fluctuated according to the acceptable values.

Keywords: Upper Egypt, Radon, Rn-226, Alpha GUARD

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Oral No. (20)

Radiation Exposure from Ingestion of Local Agriculture Products

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ABSTRACT

Radium-226, thorium-232 and potassium-40 contents were measured in different local agriculture products widely consumed in Qena governorate by using HPGe detector setup. Effective doses due to annual Ra-226, Th-232 and K-40 intake from the ingestion of the studied agriculture products were evaluated for adults and children members of the public. The values of annual effective doses of Ra-226, Th-232 and K-40 were ranged from 0.02 to 58, from 0.0006 to 2.07 and from 0.2 to 40 $\mu\text{Sv/y}$, respectively, for adults. While the annual effective doses of Ra-226, Th-232 and K-40 were ranged from 0.05 to 53, from 0.0002 to 3.8 and from 0.8 to 271 $\mu\text{Sv/y}$, respectively, for children. The obtained data were discussed and compared with those obtained in other countries.

Keywords: Effective doses, natural radionuclides, radionuclides intake

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Oral No. (21)

Fluid Simulation for Computer Animation Based on the ISPH Method

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ABSTRACT

Interactive simulations of fluids flow play an important role in several graphics applications such as computer graphics, computer games, movies industry and virtual realities. In this Oral, the incompressible smoothed particle hydrodynamics (ISPH) method is utilized to simulate the incompressible fluid flows due to its implicit mass conservation as well as solving large deformation and discontinuity of the free surface flow. The governing equations for the incompressible fluid flow are the continuity and Navier–Stokes equations. In the current ISPH, the pressure is evaluated by solving pressure Poisson equation using a semi-implicit algorithm based on the projection method. The source term in the pressure Poisson equation contains the velocity divergence-free condition and density invariance condition including relaxation coefficient. We achieved the visual realism by coupling a set of the resolved particles with the base simulation. Then, the visual details can be added which are not resolved by the base simulation. In the post-processing, the marching cubes algorithm that construct a triangle mesh representing the isosurface was used to create triangle models of the constant density surfaces from 3D data and calculate triangle vertices using the linear interpolation. Then, the constructed 3D data were imported into Autodesk Maya software and rendered using the Mental Ray feature renderer capabilities supplied with Maya. The present ISPH algorithm was tested by comparison with the benchmark results for the lid-driven cavity and it showed a good agreement. Our method enables efficient and stable viscous fluid simulations with larger time steps and higher viscosities and resolutions.

Keywords: Computer Graphics, Fluid Simulation, Object Modeling, Incompressible Smoothed Particle Hydrodynamics (ISPH).

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Oral No. (22)

**Fluid Simulation for Compute Animation Based
on the SPH Method**

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ABSTRACT

Interactive simulations of fluids flow plays an important role in several graphics applications such as computer graphics/games, movies industry and virtual realities. In this Oral, the incompressible smoothed particle hydrodynamics (ISPH) method is utilized to simulate incompressible fluid flows due to its implicit mass conservation as well as solving large deformation and discontinuity of free surface flow. In the current ISPH, the pressure is evaluated by solving pressure Poisson equation using a semi-implicit algorithm based on the projection method. The source pressure Poisson equation contains the velocity divergence-free and density invariance conditions. We achieved the visual realism by coupling a set of the resolved particles with the base simulation. Then, the visual details can be added which are not resolved by the base simulation. The present ISPH algorithm was tested by comparison with the benchmark results for the lid-driven cavity and it showed a good agreement. Our method enables efficient and stable viscous fluid simulations with larger time steps and higher viscosities and resolutions than published methods.

Keywords: Computer Graphics, Fluid Simulation, Object Modeling, Smoothed Particle Hydrodynamics (SPH).

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Oral No. (23)

**Approximation of Some Fractional Differential Equation by
Ultraspherical Least Squares Method**

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ABSTRACT

In this Oral, some useful ultraspherical formulae and properties are investigated. The fractional derivative of ultraspherical function is derived. Collocation method with ultraspherical function is combined with least squares approximation to solve the proposed problem. Fractional ordinary differential equations are treated by collocation ultraspherical least squares method to obtain an algebraic system which converted to an unconstrained optimization problems. Numerical experiments are included to confirm the accuracy and the efficiency of the proposed method.

Keywords: Ultraspherical function, Collocation method, Least squares approximation, Unconstrained optimization problems.

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Oral No. (24)

New Solutions for Some Higher-Order Differential Equations

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ABSTRACT

In this article, we apply two methods to find the exact solutions for some nonlinear evolution equations in mathematical physics, the homogenous balance method and the modified kudryashov method with the aid of computer algebraic system Mathematica. We apply the modified kudryashov method to construct the exact traveling wave solutions of the nonlinear fifth-order Sawada-Kotera equation and the nonlinear fifth-lax equation.

We apply the homogeneous balance method to construct the exact traveling wave solutions of the nonlinear seventh-order Sawada-Kotera equation and the nonlinear seventh-lax equation. These equations have wide applications in quantum mechanics and non linear optics.

Keywords: the homogenous balance method, the modified kudryashov method, nonlinear evolution equations, exact solutions.

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Oral No. (25)

**Exact Traveling Wave Solutions Via Tanh-Coth Method
for Some Nonlinear Evolution Equations**

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ABSTRACT

In this work, the exact traveling wave solutions for the (3+1)-dimensional mKdV–ZK equation , (2+1)-dimensional Modified KdV-KP Equation, coupled (1+1)-dimensional Broer-Kaup (BK) equation and Vakhnenko-Parkes equation are studied using the tanh-coth method and simulation by some figures. The traveling wave solutions are expressed in terms of the tanh and coth functions, hyperbolic functions, trigonometric functions and the rational functions. This method is one of the powerful methods that appear in recent time in establishing some new exact traveling wave solutions to the nonlinear partial differential equations. It is shown that the tanh-coth method is simple and valuable mathematical instrument for solving nonlinear evolution equations in mathematical physics and engineering.

Keywords: Tanh-Coth method, The (3+1)-dimensional mKdV–ZK equation, The (2+1)-dimensional Modified KdV-KP Equation, The coupled (1+1)-dimensional Broer-Kaup (BK) equation, Vakhnenko-Parkes equation, Solitary wave solutions.

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Oral No. (26)

Seed Germination and Molecular Markers as a Screening Tools for Osmotic Stress Tolerance in Vicia faba

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ABSTRACT

Seed germination and seedling growth were used to determine the responsiveness of ten Vicia faba cultivars to salinity. Under the relatively high concentrations of NaCl, seed germination and seedling growth varied depending on cultivar type and it was used to classify the cultivars to sensitive, moderate and tolerant to salt stress. This classification was confirmed using Random Amplified Polymorphic DNA (RAPD) and Simple Sequence Repeat (ISSR) markers as well as SDS PAGE, esterase (EST) and superoxide dismutase (SOD) expressions. In this work, ten RAPD primers were used to amplify the genomic DNA of ten faba bean cultivars. The number of amplified fragments ranged from five using OPC-04 primer to ten using OPA-03, OPC-02, OPaf-20 and OPP-13 primers. Six primers showed more than 80% polymorphism, they were OPA-01, OPC-02, OPC-04, OPK-02, OPaf-20 and OPP-13. When five ISSR primers were used for amplification of genomic DNA of faba bean cultivars, the number of amplified fragments ranged from ten using ISSR3 primer to 24 bands using ISSR5 primer. Four primers showed more than 80% polymorphism, they were ISSR2, ISSR3, ISSR4, and ISSR5. Dendrogram obtained from DNA (RAPD and ISSR)- or protein (SDS PAGE, EST and SOD)- based techniques separated salinity tolerant strains from others. This study indicated that seed germination and seedling growth parameters could be successfully applied to detect which faba bean cultivars can be cultivated in saline soil.

Keywords: Faba bean cultivars, Random Amplified Polymorphic DNA, Simple Sequence Repeat, salinity.

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Oral No. (27)

Detection of *E. Coli* and *Salmonella* in Street Vendors Food With Regard to Their Virulence and Antibiotic Resistant Genes of Multidrug-Resistant

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ABSTRACT

A total of 5 *E. coli* and 8 *salmonella* serovars were recovered in many ready- to-eat meat samples from different street vendors in Luxor city. Characterization of the isolates was performed by biochemical and serological tests, antimicrobial susceptibility assays, detection of virulence and antibiotic resistance genes by PCR. *stx1*, *stx2* and *eaeA* genes were detected in O111:H4 serovar , while presence of *Stx2* , *eaA* genes in O55 :H7 serovar. Also O26: H11 serovar was positive for both *Stx1* and *eaeA*, and O125:H21 serovare contain only *Stx1* gene. *invA*, *hil A* and *stn* genes were detected in *S. enteritidis*, *S. typhimurium* and *S. virchow*. While the presence of *invA* and *hilA* genes in *S. malade*, also *invA* and *stn* were positive in other isolates of *S. enteritidis* and *S. infantis* .*E. coli* isolates were multi-resistant against most tetracycline antibiotics .while, *Salmonella* isolates were multi-resistant against most of *B*-lactams antibiotics.

Keywords: *E. coli*, *Salmonella*, street vendors, virulence genes, meat, multi drug resistance.

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Oral No. (28)

**The Morphological of Citrus-Associated *Alternaria*
in Upper Egypt**

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ABSTRACT

Citrus is the most important crop in Upper Egypt. The causal agents of *Alternaria* brown spot of tangerines and tangerine hybrids, *Alternaria*. Leaf spot of rough lemon and *Alternaria* black rot of citrus historically have been referred to as *Alternaria citri* or *A. alternat*. *Alternaria* fruit rot in Upper Egypt is the most common disease infected citrus fruit. *Alternaria alternata* is challenging species in its morphological identification. The objective of present study was to explore biodiversity of *Alternaria* among upper Egypt that isolated from (navel orange, tangerines and rough lemon). Two hundred and fifty Isolates of the *Alternaria* genus were isolated from One hundred and fifty samples of infected citrus on Dichloran-rose bengal chloramphenicol agar (DRBC) medium at 27°C for 7 days. The morphological characters depend on colony colour on selective media PDA and conidia size. In this study the most common species that isolated from navel orange were *Alternaria alternata* and *Alternaria brassicicola* but in case of tangerine the common species was *Alternaria gypsophilae* and *Alternaria radicina* and lemon the common species that isolated was *Alternaria sect. Ulocladium*. pathogenicity of the collected isolates were tested. All showed high and moderate pathogenicity against citrus fruits.

Keywords: Citrus, *Alternaria*, PDA

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Oral No. (29)

**The Morphological Characterization of Black Aspergilli
Isolate From Maize, Wheat and Sorghum Grains
in Upper Egypt**

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ABSTRACT

Grains are important sources of many nutrients, including fiber, B vitamins (thiamin, riboflavin, niacin and folate) and minerals (iron, magnesium and selenium). Fungal growth on cereal grains decreases their nutritional value and constitutes health hazards, probably, because of the production of toxic metabolites (mycotoxins). Our study was conducted to determine Black Aspergilli associated with Maize (*Zea mays*), Wheat and Sorghum. Black Aspergilli are ubiquitous and commonly found in our environment. The objective of present study was to explore biodiversity of black aspergilla among upper Egypt that isolated from maize ,wheat and sorghum grains .The taxonomy of black aspergilli reveals that there are accepted taxa .The morphological characters depend on colony colour on selective media such as MEA, conidia size, conidial head size ,uniseriate or biseriate of sterigmata , the present or absent sclerotia and temperature range of all species.The present taxonomy of the black aspergilli reveals that there are 25 accepted taxa. In this study the common species that isolated from maize was *A. brasiliensis* and *A. neoniger* but in case of wheat the common species was *A. costaricaensis* and *A. neoniger* and Sorghum the common species that isolated was *A. niger*.

Keywords: Grain, Black aspergilli, taxonomy, MEA

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Oral No. (30)

**Identification of Novel Leads Against Ebola Virus
by Virtual Screening**

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ABSTRACT

Viruses are the first enemy against human on the earth. One of these viruses is Ebola virus which found in west Africa in 1989 for the first time. Ebola virus is one of Filoviridae family which causes hemorrhagic fever. There are no drugs available in market for Ebola, but the work is going on specially in west Africa region. Ebola virus has seven essential proteins (NP, VP24, VP35, VP40, GP, VP30, and L). Each protein has its own function inside the host cell starting from inhibiting of immune response when the virus enters the host cell till the final virion budding. These proteins are responsible for the replication and transcription processes. The proteins structures are very important to know the mechanism and amino acids sites for drug designing. Insilico studies help for knowing the protein structures and how can blocking the active site residues by docking studies. The aim of this study is to identify new molecular entities against the virus.

Keywords: Filoviridae, hemorrhagic fever, Insilico, docking studies.

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Oral No. (31)

**The Morphological Characterization of *Fusarium* spp.
Associated With Potato Tubers in Upper Egypt**

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ABSTRACT

Potato (*Solanum tuberosum* L.) is an important crop which holds promise for food to millions of people especially in developing countries. Potato production systems have long been plagued by recurrent and persistent soil-borne diseases, including *Fusarium* dry rot (*Fusarium* spp.). *Fusarium* dry rot is one of the most important diseases of potato (*Solanum tuberosum* L.), affecting the tubers in storage and the seed pieces after planting. To establish strategies for the control of this disease it should be made primarily a correct diagnosis and identification of the pathogen. Full potential of the crop can be realized only if diseases are kept under control. In this study we isolated *Fusarium* species causing dry rot in potatoes. The most frequent and devastating of these species are *F. sambucinum*, *F. solani* and *F. oxysporum*, depending on the geographic location and the season. The aim of this work identifies the morphological characters of *Fusarium* spp. isolated from potato tuber. The characters are: Rate of growth, color of colony, macroconidia shape and size, microconidia present or absent, type of conidiophore and chlamydo spores. All *Fusarium* strains collected during this study were used to detect their pathogenicity against potato tubers. Artificial inoculation of the *Fusarium* resulted in development of disease symptoms and the re-isolated pathogen showed characteristics of *Fusarium* spp.

Keywords: *Fusarium* spp., Potato (*Solanum tuberosum*), dry rot, morphological characters, pathogenicity

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Oral No. (32)

Genotoxicity of Aluminum Chloride on some *Vicia faba* Cultivars

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ABSTRACT

Genotoxic effects of $AlCl_3$ on roots of *Vicia faba* cultivars were estimated by studying some toxicological criteria such as mitotic index (MI), chromosomal aberrations and micronucleus induction. Cells of root tip were treated with three concentrations of $AlCl_3$ (5mM, 15mM and 25mM) for 6, 12 and 24 hours. Our results showed that the mitotic index (MI) decreased but chromosomal aberrations frequency increased by increasing of the concentration of $AlCl_3$ and duration of treatment. The detected chromosomal abnormalities included C-metaphase, phases with lagging chromosomes, and chromosomal bridges and breaks, they were regarded as indication of a mutagenic potential of $AlCl_3$. In addition, the results of this study demonstrate that $AlCl_3$ was genotoxic to *V. faba* plant cells under the applied conditions. Since plant assays were integrated as a genotoxicity component in risk assessment for detection of environmental mutagens, the obtained data should be given full consideration when evaluating the overall toxicological impact of the $AlCl_3$ in the environment.

Keywords: $AlCl_3$, genotoxic effect, chromosomal aberrations, *Vicia faba*

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Oral No. (33)

**Modulatory Effects of *Sargassum cinereum* and Selenium
Against Hepatotoxicity Induced by Cyclophosphamide
in Male Albino Rats**

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ABSTRACT

Cyclophosphamide (CP) is a selective immune suppressor used clinically as a potent anticancer agent. However, its clinical use is restricted because of its marked organ toxicity associated with increased oxidative stress and inflammation. The present study was designed to demonstrate the ameliorating effects of *Sargassum cinereum* in male Albino rats against the toxic effects induced by CP. This study was carried out by four groups (10 rats of each). The first group served as normal. Group 2: injected i.p. with CP in dose of (200 mg/ kg b. w.) and served as control group. Group 3: it was administrated 180 mg *S. cinereum* / kg b. w. for 20 days after CP injection. Group 4: it was treated with selenium after i.p. injected with CP and continued for 20 days. The whole blood, serum and biopsy from liver were collected for hematological, biochemical and histopathological examination, respectively. In control group (group 2) hematotoxicity was determined by an observed decrease in red blood cells (RBCs), white blood cells (WBCs), blood platelets (PLTs), haemoglobin (Hb) and PCV value. On contrast, the biochemical results showed a remarkable increase in serum ALT, AST and ALP levels, while albumin and Total protein levels recorded a highly significant decrease. Moreover, CP induced oxidative stress in liver as evident from the increased lipid peroxidation in (MDA) level, declined glutathione (GSH) content, catalase (CAT) and superoxide dismutase (SOD) activities. There were marked hepatic injuries observed in the form of necrosis and inflammation. While the brown seaweed *S. cinereum* and selenium groups were significantly ameliorated all that mentioned above; hematological, biochemical, oxidative damage and histopathological changes induced by CP injection.

Keywords: *Sargassum cinereum*, Selenium, Cyclophosphamide, Hepatotoxicity.

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Oral No. (34)

**The Ameliorative Role of Black Seed Against Liver
And Kidney Functions Disturbances Caused by
Prednisone in Albino Rats**

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ABSTRACT

Glucocorticoids are common drugs used as a therapeutic option for a wide range of autoimmune and inflammatory diseases. Prednisone is a one of this group. The present study was aimed to study the curative role of black seed in the liver and kidney injury that caused by prednisone. Our experiment included 6 groups in each group 10 adults albino rats male or female. First (normal females) and fourth (normal males) groups were given saline for two months. Second (control females) and fifth (control males) groups were given prednisone orally (25mg/ kg body weight) day after day for two months. Third (treated females) and sixth (treated males) received prednisone (25 mg/kg body weight) day after day orally for 2 months and then black seed (500mg /kg body weight) powder daily for 2 months. After treatment blood samples were collected for estimating liver and kidney functions. In liver functions, Prednisone was found to increase GPT, GOT, ALP and decrease albumin and total protein. For kidney functions, we recorded an elevation of urea and creatinine levels after prednisone treatment. The treatment with black seed ameliorated these abnormalities in liver and kidney functions to the normal values.

Keywords: Glucocorticoids, prednisone, liver functions, kidney functions, black seed.

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Oral No. (35)

Microbial Infections in Immunodeficient Children in Qena University Hospital with Special Reference to DNA Damage in Peripheral Blood Leucocytes

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ABSTRACT

Immunodeficiency disorders involve malfunction of the immune system, resulting in infections that develop and recur more frequently, are more severe, and last longer than usual, impair the immune system's ability to defend the body against foreign or abnormal cells that invade or attack it (such as bacteria, viruses, fungi, and cancer cells). As a result, unusual bacterial, viral, or fungal infections or lymphomas or other cancers may develop.

Keywords: immunodeficient children, infection, DNA damage

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Oral No. (36)

**Evaluation the Accumulated Doses Dependent Effect of
Tramadol Drug on Some Organs of Albino Rats**

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ABSTRACT

Introduction: Tramadol is a synthetic centrally acting opioid analgesic which is mainly used for the treatment of moderate to severe pain, Tramadol can cause psychological and physical addiction similar to that seen with other opiates and opioids. Our study was carried out to determine the biochemical toxicity of tramadol during high dose and low dose of tramadol on heart, Liver and kidney function, and CBC (including WBCs, Hemoglobin, RBCs, and platelets), parameters were studied in male rats.

Methods: Rats were divided into 3 groups. Group (1) control group, received (saline), Group (2) and Group (3) received oral doses of tramadol (high dose) 90 mg and (low dose) 45 mg / kg body weight / day respectively for two months. hematological and Biochemical measurements were carried out.

Results: after administration of tramadol RBCs, HB, WBCs, ALT, AST, Urea, creatinine, CK, and LDH showed significant increase, except platelets Which showed significant decrease.

Conclusion: The present study proved that Tramadol have a toxic effects on liver, kidney, heart, and most of hematological parameters.

Keywords: Tramadol, CBC, kidney function, liver function, heart function.

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Oral No. (37)

Ameliortive Effects of *Moringa Olifera* Leaves Extract and Vitamin (C) Against Hepatotoxicity and Oxidative Stress Induced by Lead Acetate of Male Albino Rats

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ABSTRACT

Lead is highly toxic naturally occurring element that affects numerous organ systems in humans, present study was designed to investigate the role of *Moringa olifera* leaves extract and vitamin C against lead acetate induced toxicity in male albino rats. Fourty (40) male albino rats were used for the experiment. Group I was administered distilled water, Group II was administered lead acetate only (20mg/kg b.wt), Group III was administered lead acetate (20mg/kg b.wt) and *Moringa olifera* leaves extract (400mg/kg b.wt) and Group IV was administered lead acetate (20mg/kg b.wt) and Vitamin C (50 mg/kg b.wt). Animals were exposed to treatment once daily for 8 weeks orally. After the last day of treatment animals were sacrificed and blood samples collected and serum separated for serum liver enzymes analysis. Results obtained in this present study revealed a significant increased at ($p>0.05$) in Aspartate Aminotransferase (AST), Alanine Transferase (ALT), Alkaline Phosphatase (ALP), Bilirubin and Malondialdehyde (MAD), while showed a significant decreased at ($p>0.05$) in Total protein, Albumin, Glutathione (GSH), Superoxide dismutase (SOD) and Catalase (CAT) in group treated with lead acetate only when compared with normal group. However, Effects of *Moringa oleifera* (MO) and Vitamin C on hepatic injury due to lead induced oxidative stress revealed a significant decreased at ($p>0.05$) in Aspartate Aminotransferase (AST), Alanine Transferase (ALT), Alkaline Phosphatase (ALP), Bilirubin and Malondialdehyde (MAD), while showed a significant increased at ($p>0.05$) in Total protein, Albumin, Glutathione (GSH), Superoxide dismutase (SOD) and Catalase (CAT) when compared with control group. It is concluded that *Moringa olifera* leaves extract and vitamin C have antioxidant properties.

Keywords: Lead acetate, *Moringa Olifera*, Vitamin C, hepatotoxicity, Albino rats.

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Section (2) Engeneering Sciences and Applications

Oral No. (1)

Cement Dust (bypass) as Asphalt Concrete Modifier

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ABSTRACT

Road maintenance is more expensive and should be done but it could be reduced as possible. And also the maintenance work is not only expensive but also lead to other damage which disables the road traffic through the closing and transfers the roads as well as the social effects of accidents as a result of these actions, especially in developing countries. But with the increasing of the road age through the improvement of the properties of asphalt concrete mixture, which is the most important point .This is done by adding some materials such as (Bypass) as asphalt modifier. The results indicated that, the addition of Bypass generally improved the mechanical properties of the mixture regardless of the percentage of Bypass that can be added. Bypass content of 10%. By the bitumen weight it can be noticed that the performance of Bypass-modified asphalt mixtures is better compared with unmodified asphalt concrete mixtures. Bypass modified asphalt concrete mixtures have the highest Marshall Stiffness, unconfined compressive strength. But from the point of indirect tensile strength test result the modified asphalt concrete mixtures with bypass is less than unmodified asphalt concrete mixtures so the tensile properties need to be improved using elastic materials with bypass.

Keywords: Asphalt concrete, Bypass, Marshall Stiffness, Compressive strength, Indirect Tensile Strength

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Oral No. (2)

Breast Cancer Detection Using Compact Defected Ground Structure (DGS) Square Resonator

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ABSTRACT

This Oral introduces a new, cost-effective and compact DGS square resonator for breast cancer detection, it was designed with size of 15x15 mm, on a Roger 4003 substrate, a model of a breast with 10x10x3 mm tumor was created using CST Microwave studio, the detection process depends on the essentials of electrical material properties that the existence of tumor lead to shifts in resonant frequency. From the simulation results shifting in resonant frequency used for constructing a 29x29 matrix with 841 pixels, this matrix converted to a 2D image for the breast with tumor tissue, this 2D image identifies clearly the existence of the tumor.

Keywords: breast cancer detection; DGS; Square resonator; resonant frequency; CST microwave studio; microwave imaging.

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Oral No. (3)

**Flexural Behavior of HSC Beams Reinforced
With FRP Rebars**

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ABSTRACT

In this study, the flexural strength and behavior of high strength concrete (HSC) beams reinforced with fiber reinforced polymer (FRP) were investigated by conducting flexural testes on simply supported HSC beams under two symmetrical point loads. An experimental program has been conducted. Three test series containing eleven beams reinforced with FRP bars in addition to one beam reinforced with only steel bars had been conducted in this investigation. The tested beams are of 2700 mm total length and 250*120 mm cross-section, The parameters included in the experimental program are concrete compressive strength (f_{cu}), reinforcement type and ductility enhancement (incorporation of fiber tuff in concrete mix - using of extra stirrups in the compression zone). Failure mode, cracking and ultimate loads, deflection, beam ductility, mid-span reinforcement and concrete strain were studied. Results show that using CFRP or CFRP with steel as main reinforcement for the concrete beams achieves reasonable flexural strength. Adding fibers tuff to concrete improved the ductility of FRP-reinforced concrete beams, but using extra stirrups in the compressive zone gives better results in improvement of ductility.

Keywords: CFRP bars, High Strength Concrete, Flexural, fiber tuff.

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مؤتمر شباب الباحثين الرابع
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Oral No. (4)

Wireless Power Transfer (WPT) System for Charging Electronics Devices by Inductive Coupling Method

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ABSTRACT

This Oral presents a wireless power transfer (WPT) system for recharging low power devices via inductive coupling. WPT can be defined as the transmission of electrical power from a power source to one or more electrical loads, such as a network of wireless sensors or an electronic consuming device, without the use of conductive wires or cables. After analyzing the whole system step by step for enhanced the power received by the load, a system was designed and implemented. Experimental results showed that significant improvements in terms of power-transfer efficiency have been achieved. Measured results are in good agreement with the theoretical models.

Keywords: Wireless Power Transfer, Inductive coupling, efficiency

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Oral No. (5)

A Review of Urban Feature Extraction from High Resolution Satellite Images

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ABSTRACT

Due to rapid development in photogrammetry and satellite imagery, and large volumes of remote sensing data, using high resolution satellite Images becomes very useful to extract urban feature such as buildings, roads, vegetation, and water bodies. Currently, panchromatic images with 0.50m pixel resolution and multispectral images with 2.0 m pixel resolution are available, and by using a pan-sharpen technique multispectral images with 0.50m spatial resolution can be produced. Pre-processing is made for the images to enhance objects classification and extraction. The main objective of feature extraction is to convert the data from the images into meaningful information. High spatial resolution satellite imagery has become an important source of information for geospatial applications. The image can be segmented into different regions that frequently correspond to different land-use or other objects. Automatic segmentation of high-resolution satellite imagery is a new, potentially very useful information extraction method that allows for ready acquisition of ground truth information such as land-use, forest, and water bodies information. The difficulties of feature extraction are the similarities of some different features in the same area such as the similarity between some roads and concrete buildings, and the high spectral variation within the same land-cover class. The key problem is how to describe region features and how to measure the similarities (or homogeneities) of the neighbor regions. This produces a challenge in selecting suitable classification and image processing methods. , high spatial resolution images have rich spatial information that can be used for classification. This research aims to enhance the results from previous studies and find the most suitable method of feature extraction in the Egyptian environment.

Keywords: feature extraction, high resolution satellite Images, pan-sharpen, segmentation, classification

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Oral No. (6)

**Evaluation of Physical, Mechanical and Chemical Properties
of Collapsible soil (Arid Saline Soil (Sabkha))**

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ABSTRACT

There are a number of residential projects constructed on the coast of the Red Sea as a part of the widespread urban planning and the use of open areas. Along the Red Sea coast there are large areas where the sabkha soils are founded. Sabkha soil is a problematic soil and one of the many types of collapsible soils. The main purpose of this study is to estimate geotechnical properties of sabkha soil samples and study the effect of cement kiln dust (CKD) on these properties. Many experimental works like grain size distribution; Atterberg limits, modified proctor test; collapse potential; organic content and direct shear tests were conducted. The results indicated that Addition of cement kiln dust (CKD) the soil samples led to increase the cohesion and decrease the angle of friction for the studied samples.

Keywords: Sabkha, Cement Kiln Dust, Collapse, Direct Shear, Atterberg limit.

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Section (3) Computers and Information and Applications

Oral No. (1)

A New Adaptive Steganography Method for Color Images

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ABSTRACT

Recently, steganography have become very important issue to enhance the security of network communication. The main goal is to protect confidential data without having knowledge of their existence which can be detected by the others. This can be obtained by embedding secret message in a digital cover media like images. A new adaptive steganography method for color images is proposed by using adaptive directional pixel-value differencing. The hiding capacity of the secret data is enhanced and the security of the stego-color images is improved likewise. By considering three directional edges: horizontal, vertical and diagonal directions, the embedding capacity of the original PVD method is determined. The cover image is partitioned into 2-pixel blocks in all three directions. The difference between two consecutive pixels is used to decide how many bits would be hidden into cover blocks. The proposed method adaptively selects the adequate embedding direction for color channels according to the largest embedding capacity. The security is promoted and improved while different pixel directions are utilized adaptively to embed different number of message bits in each color channel. Higher embedding capacity and better visual quality are obtained by the proposed adaptive data hiding as compared with other PVD-based algorithms.

Keywords: Data hiding, Steganography, Pixel-value differencing, Adaptive directional PVD

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Oral No. (2)

Classifying Requirements in Multitenant Applications

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ABSTRACT

Software as a Service (SaaS) providers can serve hundreds or thousands of customers using a shared application instance and a single database instance to offer service at a lower price. Even with a potentially large number of customers with varying requirements, a multi-tenant application should make co-tenancy transparent to the tenants, which means that every tenant must appear to be the sole owner of the application. To achieve this, a highly configurable multi-tenant solution is needed. In this Oral, we propose a classification for multi-tenant application requirements, and implement variability realization techniques depending on requirement levels. Furthermore, we prioritize the different tenants' requirements to satisfy as many customer requirements as possible, and provide key guidelines to software architects and developers to implement a configuration layer in a multi-tenancy architecture.

Keywords: Variability, Multi-tenancy, Requirements Classification.

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Oral No. (3)

**The General Law for Psycho Analysis
-An introduction to psycho mechanics-**

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ABSTRACT

The psycho analysis school suppose that " Humanity soul is based on three sets make in three levels are: non exaltation, before exaltation and exaltation. These sets are: Id, Ego and Super ego. In this work we try to answer the following question: Can we study psycho phenomena such as: Love, Sex and Music using mathematical equations?. In fact, such phenomena can be viewed as psycho systems obeying to mathematical equations, i.e. (psycho mechanism or psycho matrix). In this work we modify the theory of psycho analysis in Psychology by establishing the following theorem: For any psycho phenomenon $\Psi = \Psi(T, E, Z)$, we have (i) $E \propto T$; (ii) $Z \propto T^2$ and $Z \propto E^2$, where T, E and Z denote to thought, emotion and tendency respectively. In our theory we will study up normal algebraic psycho systems, more precisely, up normal psycho structures. So our constrained optimization problem (COP) will be a minimization problem.

Keywords: Psyc analysis, Psycho mechanics.

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II-Poster Presentations

Poster No. (1)

Electrochemical Behavior and Corrosion Resistance of Electrodeposited Nano-Particles Zn-Co-Fe Alloy

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ABSTRACT

Purpose – The purpose of this study was to compare the electrodeposition behavior and corrosion resistance of ternary and binary alloys.

Design/methodology/approach – Potentiodynamic polarization resistance measurement and anodic linear sweep voltammetry techniques were used for the corrosion study. The surface morphology and chemical composition of the deposits were examined using scanning electron microscopy and atomic absorption spectroscopy, respectively. The phase structure was characterized by X-ray diffraction analysis. Electrodeposition behavior was carried out using cyclic voltammetry and galvanostatic techniques.

Findings – It was found that the obtained ternary alloy exhibited better corrosion resistance and a more-preferred surface appearance compared to the binary alloys that were electrodeposited under similar conditions.

Research limitations/implications – The ternary alloy showed better anticorrosion properties compared to binary deposits that were electroplated successfully from the plating baths. The Zn-Co-Fe alloy could be used advantageously in industry because the ternary alloy exhibits the collective properties of the binary alloys in one alloy via the electrodeposition of Zn-Ni-Co alloy.

Social implications – Increasing the corrosion resistance implies to social economic increases.

Originality/value – To date, the electrodeposition of Zn-Co-Fe alloy was studied in only a small number of articles. It was found that the presence of Co or Fe could provide a useful coating on the steel that would reduce its susceptibility to corrosion attack.

Keywords: Corrosion, Coatings and linings

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Poster No. (2)

**The Effect of Long-term Irrigation by Treated Sewage Water
on Some Soil Properties and Levels of Some Nutrients
and Levels of Some Heavy Metals in
Qena Governorate, Egypt**

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ABSTRACT

This study was carried out to investigate the sewage water irrigation effects on Some Soil Properties and levels of some heavy metals in Qena Governorate. The results showed that sewage water and groundwater are considered moderately saline with an EC_w of 0.91 and 1.02 dS/m, respectively, while the Nile water is slightly saline (EC_w 0.27 dS/m). Concerning their SAR, RSC and Cl levels, all investigated water sources are of a high quality and can be used in the irrigation without limitations, Moreover concentrations of Cu, Zn, Ni and Pb in the irrigation water sources used in both location are below the allowable standard limits. On the other hand, most of the soils that were irrigated with sewage water were of low levels of salinity (EC_e < 4dS/m) and sodicity (SAR_e < 13), indicating no threat to soil quality. Use of sewage water in irrigation also improved the chemical properties and fertility status of the soils. It increased OM, N, and P levels in the soils while it decreased their pH and CaCO₃ values. Also the results show that increases in the USEPA-extractable Cu, Zn, Ni and Pb levels of soils irrigated with sewage water occur compared to that of the non irrigated soil. In general it appears the contamination factors (CF) in the studied irrigated soils decreased in the order of Zn > Cu > Ni > Pb. The result also show that the mean almost total (USEPA) concentration of Cu, Zn, Ni and Pb in the surface layer of studied irrigated soils are below the maximum allowable levels recommended by the regulated of deferent country and international agencies.

Keywords: Long-term sewage water irrigation, Chemical soil properties, Heavy metals.

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Poster No. (3)

**Towards a Methodology for Designing Sustainable
International Parks in Upper Egypt
(*International Garden of Al-Habs Island in Aswan as a Case
Study*)**

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ABSTRACT

The international park is an area of natural, semi-natural or man-made urban spaces. It is designed for human enjoyment and recreation or for the protection of wildlife or for cultural purposes. It consists of green areas, water elements, cultural and entertainment buildings and other artifacts such as monuments, fountains or playground structures that reflect various cultures from different countries. As cities become crowded and polluted, developing such gardens becomes very important especially in new towns. The problem is that, this type of parks needs large area and consumes the available resources. The over expense of international parks obstacles the existence of such parks in Upper Egypt. There is an obvious shortage in the research which investigates the design of international parks in Upper Egypt and how this design can adapt with the climate, economic and social characteristics of this region. This research supposes that applying the principles of sustainable urban design on international parks can help to achieve environment friendly and economic areas. Therefore this research aims to develop a methodology for designing international parks in Upper Egypt based on the criteria of sustainability. The research uses the analytical and practical approaches to achieve this aim. Al-Habs Island in Aswan has been selected here to be developed by using the suggested methodology. Although, this island has unique natural features and it represents the only international park in Upper Egypt, Al-Habs Island is currently closed. The re-design and development of this island to be more sustainable and usable is one of the expected outcomes of this research.

Keywords: Aswan, International parks, sustainable urban design

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Poster No. (4)

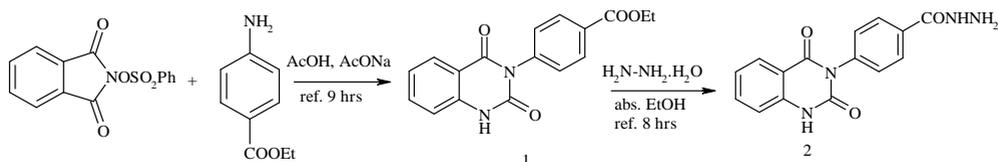
Synthesis of Some New Quinazolindione Derivatives

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ABSTRACT

Quinazolines consist of two fused six member simple aromatic rings. Quinazoline ring is an aromatic benzopyrimidine system. The quinazolinone skeleton is a building block for the preparation of natural purine base, alkaloids, many biologically active compounds and intermediates in organic synthesis [1]. The aim of our work is to synthesis and to study the pharmacological activity of the quinazoline and its derivatives.



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Keywords: quinazolindione, pyrimidine, 4- methylbenzaldehyde

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Poster No. (5)

**Synthesis of New Heterocyclic ring attached to
Quinazolinediones derivatives**

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ABSTRACT

Quinazolinediones is present in a large number of biologically important compounds such as alkaloids, drugs and agrochemicals. Numerous studies on the synthesis and structure-activity relationships of quinazolinediones derivatives have been reported. A series of quinazoline-2,4-dione derivatives were synthesized using appropriate synthetic route and characterized by IR,HNMR,Ms and elemental analysis. N-phenyl quinazoline-2,4- dione can react with ethyl chloro acetate then hydrazine. Resulted compound can react with different aromatic compounds for example; ethylacetoacetate, triethylorthoformate, benzaldehyde, carbondisulfide, acetylaceton, Benzenesulphonylchloride, ethylcyanoacetate, phenylisothiocyanate.

Keywords: Quinazolinediones, biological activity, NMR

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