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Dear colleagues,

We are pleased to introduce vol. 8(2) issue of the international publications of Cairo University. It is a further step and distinct contribution, reflecting the scientific ability of staff members, which conforms to international quality standards.

The purpose of issuing these publications is mainly to introduce this work to the academic community, demonstrate the different research abilities of CairoUniversity researchers, and encourage them to increase the quality and quantity of their research.

We would like to assure you that the administration will spare no effort to support and reinforce these goals.

We congratulate all colleagues who were granted the awards for their international publications of the year 2013 and wish them all the best for their future endeavors.

We are also pleased to inform you that this policy will continue to be in effect for the years to come.

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Prof. Gamal Esmat

**Vice - President for post-graduate
studies and research
Cairo university**

Prof. Gaber Nassar

**President
Cairo university**

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Cairo University



(1) Basic Sciences Sector

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CAIRO UNIVERSITY

Publication
in
Journals

Faculty of Science

Dept. of Biophysics

1. Over-Expression and Characterization of NS3 and NS5A of Hepatitis C Virus Genotype 3a

Muhammad Ikram Anwar, Mazhar Iqbal, Mohammad S Yousef and Moazur Rahman

Microbial Cell Factories; 12: - (2013) IF: 3.306

Background: Hepatitis C virus (HCV) is a common and leading cause for liver cirrhosis and hepatocellular carcinoma. Current therapies to treat HCV infection are shown to be partially effective and poorly tolerated. Therefore; ample efforts are underway to rationally design therapies targeting the HCV non-structural proteins. Most of the work carried out in this direction has been focusing mainly on HCV genotype 1.

Two direct-acting antiviral agents (DAAs) Telaprevir and Boceprevir are being used against genotype 1a infection in combination therapy with interferon and ribavirin. Unfortunately these DAAs are not effective against genotype 3a. Considering the wide spread infection by HCV genotype 3a in developing countries especially South Asia; we have focused on the recombinant production of antiviral drug targets NS3 and NS5A from HCV genotype 3a. These protein targets are to be used for screening of inhibitors.

Results: High-level expression of NS3 and NS5A was achieved at 25°C; using ~1 and 0.5 mM Isopropyl β -D-1-thiogalactopyranoside (IPTG); respectively. Yields of the purified NS3 and NS5A were 4 and 1 mg per liter culture volume; respectively. Although similar amounts of purified NS3 were obtained at 25 and 14°C; specificity constant (K_{cat}/K_m) was somewhat higher at expression temperature of 25°C. Circular dichroism (CD) and Fourier-transform infrared (FT-IR) spectroscopy revealed that both NS3 and NS5A contain a mixture of alpha-helix and beta-sheet secondary structures. For NS3 protein; percentages of secondary structures were similar to the values predicted from homology modeling.

Conclusions: NS3 and NS5A were over-expressed and using Nickel-affinity method both proteins were purified to ~95% purity. Yield of the purified NS3 obtained is four fold higher than previous reports. CD spectroscopy revealed that difference in activity of NS3 expressed at various temperatures is not related to changes in global structural features of the protein. Moreover; CD and FT-IR analysis showed that NS3 and NS5A contain both alpha-helical and beta-sheet structures and for NS5A; the proportion is almost equal. The production of NS3 and NS5A in milligram quantities will allow their characterization by biophysical and biochemical means that will help in designing new strategies to fight against HCV infection.

Keywords: Hcv; Ns3; Ns5a; Genotype 3A; Protease; Helicase; Viral replication; Protein expression; Cd spectroscopy; Ft-Ir.

Dept. of Botany

2. In-Vitro Evaluation of Selected Egyptian Traditional Herbal Medicines for Treatment of Alzheimer Disease

Shereen K Ali, Ahmed R Hamed, Maha M Soltan, Usama M Hegazy, Esameldin E Elgorashi, Ibrahim A El-Garf and Ahmed A Hussein

Bmc Complementary and Alternative Medicine; 13:121: 1-10 (2013) IF: 2.082

Egyptians recognized the healing power of herbs and used them in their medicinal formulations. Nowadays; “Attarin” drug shops and the public use mainly the Unani medicinal system for treatment of their health problems including improvement of memory and old age related diseases. Numerous medicinal plants have been described in old literature of Arabic traditional medicine for treatment of Alzheimer’s disease (AD) (or to strengthen memory).

Methods : In this study; some of these plants were evaluated against three different preliminary bioassays related to AD to explore the possible way of their bio-interaction. Twenty three selected plants were extracted with methanol and screened in vitro against acetylcholinesterase (AChE) and cyclooxygenase-1 (COX-1) enzymes. In addition; anti-oxidant activity using DPPH was determined.

Results: Of the tested plant extracts; *Adhatoda vasica* and *Peganum harmala* showed inhibitory effect on AChE at IC₅₀ 294 μ g/ml and 68 μ g/ml respectively. Moreover; *A. vasica* interacted reversibly with the enzyme while *P. harmala* showed irreversible inhibition. *Ferula assafoetida* (IC₅₀ 3.2 μ g/ml); *Syzygium aromaticum* (34.9 μ g/ml) and *Zingiber officinalis* (33.6 μ g/ml) showed activity against COX-1 enzyme. Potent radical scavenging activity was demonstrated by three plant extracts *Terminalia chebula* (EC₅₀ 2.2 μ g/ml); *T. arjuna* (3.1 μ g/ml) and *Emblica officinalis* (6.3 μ g/ml).

Conclusion: Interestingly; differential results have been obtained which indicate the variability of the mode of actions for the selected plants. Additionally; the reversible interaction of *A. vasica* against AChE and the potent activity of *F. assafoetida* against COX-1 make them effective; new and promising agents for treatment of AD in the future; either as total extracts or their single bioactive constituents.

Keywords: Egyptian herbal medicine; Unani medicine; Alzheimer’S disease; Anti-acetylcholinesterase; Anti-inflammatory; Anti-oxidant; Adhatoda vasica; Ferula assafoetida.

3. Diversity of Crop Wild Relatives in the Egyptian Flora

Wafaa Mahrous Amer

Crop wild relative; 9: 42-43 (2013)

The interaction between a given crop and its wild relatives has become an issue of great global concern, especially the wild relatives of the economic food and fodder species. The Egyptian flora comprises a considerable number of crop wild relatives (CWR) which still exist in the wild. This work will throw light on the potential CWR species within the Egyptian borders.

To conclude, despite the contribution of wild species to food and nutritional security, the sustainability of this contribution is threatened by many issues, including:

- Lack of national programmes to enhance CWR conservation;
- Insufficient CWR characterization and evaluation data;
- Intangible governmental efforts directed to public awareness for sustainable utilization of these resources;
- Exclusion of CWR from official statistics and economic values of natural resources on both national and international scale.

National policy, legislation and programmes are needed to enhance the conservation and utilization of CWR for poverty alleviation and to reduce hunger in Egypt, as well as in many other developing countries.

4. Phytochemical Composition of *Solanum elaeagnifolium* Cav. and its Antibacterial Activity

Amer Wm, Abouwarda Am, El Garf I, Dawoud Gtm and Abdelmohsen G

International Journal of Biology; Pharmacy and Alliedsciences; 2: 1282-1306 (2013)

Solanum elaeagnifolium (family *Solanaceae*) is among the underutilized nine wild solanum species in Egypt. The present study was carried out to investigate the antibacterial activity of the petroleum ether, chloroform, methanol and water extracts of this plant against antibiotic resistant bacteria. 114 bacterial isolates from 94 hospitalized patients (male & female) were collected and subjected to this study. From the collected 114 isolates, 25 were antibiotic resistant bacteria namely: *Staphylococcus aureus*, *Escherichia coli*, *Pseudomonas aeruginosa*. Different extracts of *S. elaeagnifolium* were tested for its antibacterial activity.

The lipid fraction (ether extract) showed the highest antibacterial activity. Its fatty acids and hydrocarbons composition was identified using GC/Mass. 13 fatty acids were identified among them: palmitic (38%), 9,12-octadecadienoic acid (18%) and stearic acid (16%) were the major fatty acids detected. While 12 hydrocarbons and 2 sterols were identified from them: octacosane (36%), heptacosane (13%) and triacontane (12.7%) comprised the major hydrocarbons fraction of *S. elaeagnifolium*. This work through light on the potential value of underutilized *S. elaeagnifolium* as a future source of antibacterial agent for the antibiotic resistant bacteria.

Keywords: *Solanum elaeagnifolium*; Antibacterial activity; *Staphylococcus aureus*; *Escherichia coli*; *Pseudomonas aeruginosa*.

5. Taxonomic Revision of Genus *Hordeum* L. (Gramineae) in Egypt

Wafaa M. Amer, Ahmad. K. Hegazy and Safwat. A. Azer

International Journal of Biodiversity and Conservation; 5: 198-243 (2013) IF: 0

This study was conducted to revise the taxonomic identity and clarify inter- and intra-specific relationships among the studied wild and cultivated *Hordeum* taxa in Egypt. The studied taxa included *Hordeum marinum* subsp. *Gussoneanum*, *H.*

marinum subsp. *marinum*; *H. Hordeum leporinum*; *Hordeum glaucum*; *Hordeum spontaneum* and *Hordeum vulgare*. The results revealed that unweighted pair group method with arithmetic mean (UPGMA) dendrogram showed a considerable degree of dissimilarity among the studied *Hordeum* taxa at 1.50 dissimilarity distances. It divided the studied taxa into four groups at 1.33. Group 1 included *H. marinum* subsp. *gussoneanum* and *H. marinum* subsp. *marinum*. Group 2 included *H. leporinum*. Group 3 included *H. glaucum*. Group 4 included *H. spontaneum* and *H. vulgare* which is related to the other groups (1; 2; and 3). Moreover, by using UPGMA dendrogram; *H. leporinum* and *H. glaucum* are located in transitional position between *H. marinum* and both of *H. vulgare* and *H. spontaneum* forming a transitional step between the taxa of Group 1 and 4. This work provided a taxonomic key and separated the two subspecies of *H. Marinum* into different species namely *H. glaucum* and *H. leporinum*. Moreover, the morphological similarities among *Hordeum* taxa have been proved.

Keywords: Taxonomy; *Hordeum marinum*; *H. leporinum*; *H. glaucum*; *H. spontaneum*; *H. vulgare*; Upgma dendrogram; Egypt.

Dept. of Chemistry

6. Amine-bridged Binuclear Palladium (II) Complexes with Inosine. Equilibrium Studies and DFT Calculation

Mahmoud M.A. Mohamed, Immo Weber, Ralph Puchta, Mohamed M. Shoukry and Rudi van Eldik

Journal of Coordination Chemistry; 66 (19): 3469-3480 (2013) IF: 1.801

Complex-formation equilibria involving *trans*-diamine palladium (II) (Pd^{II}); 4,4'-bipyridine (bpy); and inosine were investigated at 25°C and 0.1M ($NaNO_3$) ionic strength. The stability constants of all possible mono-nuclear and binuclear complexes were determined. The concentration distribution diagram for the binuclear complexes of Pd^{II} -bpy-inosine reveals the complexes that predominate in the physiological pH range and the quite feasible interaction of the binuclear complex Pd^{II} -bpy- Pd^{II} with inosine as a DNA constituent. On the basis of DFT calculations (B3LYP/LANL2DZp); the structures of the investigated equilibrium species show typical bond lengths for Pd-O and Pd-N bonds. The C-C bond in $[Pd(4,4'-bpy)(NH_3)_2(OH_2)]^{2+}$ is clearly shortened to 1.47Å; leading to reduced aromaticity in bpy. Comparison with model compounds suggests that the uncoordinated aromatic ring can be understood as an electron donating group.

Keywords: Palladium; 4,4'-bipyridine; Kinetic; DFT; Aromaticity.

7. Synthesis; Characterization; Mixed-Ligand Complex Formation Reactions; and Equilibrium Studies of Co(II) With 2,2'-Dipyridylamine and Some Selected Biorelevant Ligands

Azza A. Shoukry and Khairia M. Al-Ahmary

Monatshefte Fur Chemie; 144(8): 1117-1127 (2013) IF: 1.629

Binary and ternary cobalt (II) complexes involving 2,2'-dipyridylamine and various biologically relevant ligands

containing different functional groups are investigated. The ligands used are dicarboxylic acids; amino acids; and DNA unit constituents. The ternary complexes are formed by simultaneous reactions. The results showed the formation of 1:1 complexes with amino acids and dicarboxylic acids. The effect of chelate ring size of the dicarboxylic acid complexes on their stability constants was examined. The stability of ternary complexes formed with dicarboxylic acids was quantitatively compared with their corresponding binary complexes in terms of the $\Delta\log K$ parameters. The concentration distribution of the complexes in solution was evaluated. The solid complexes of Co(II) dipyridylamine cyclobutane-1,1-dicarboxylate; or malonate; oxalate; and succinate have been synthesized and characterized by elemental analysis; infrared spectra; magnetic; and conductance measurements. Spectroscopic studies and M_{eff} values suggest a tetrahedral geometry for the cobalt(II) complexes. The effect of temperature on the formation constant of the complexes was studied; and the thermodynamic parameters were calculated. Formation of the metal complexes has been found to be spontaneous; exothermic; and entropically favorable.

Keywords: Potentiometry; Metal complexes; Amino acids; Dicarboxylic acids; DNA units; IR Spectroscopy.

8. Green Methodologies in Organic Synthesis: Recent Developments in our Laboratories

Ebtesam Abdul Aziz Hafez, Saleh Mohammed Al-Mousawi, Moustafa Sherief Moustafa, Kmal Usef Sadek and Mohamed Hilmy Elnagdi

Green Chemistry Letters and Reviews, 6(3): 189-210 (2013)
IF: 1.392

The results of the studies carried out in our laboratories during the last 15 years; aimed at developing green methodologies for the synthesis of polyfunctionalized heteroaromatic substances; are surveyed. The results of the investigations demonstrate that green methodologies are not only less hazardous than classical preparative methods but they also are more efficient and economical. For example; short reaction times and higher yields are observed for reactions in which conventional heating is replaced by microwave or ultrasound irradiation. The implementation of multicomponent reactions in green preparative routes also reduces the cost of carrying out the reactions because multiple separation and crystallization steps are avoided. In general; by employing the new green methodologies we have been able to produce a large number of polyfunctional aromatic substances in a highly efficient manner.

Keywords: Green methodologies; Synthesis.

9. Unexpected Reaction Course of 3-Amino-5-Aryl-1H-Pyrazoles with Dialkyl Dicyanofumarates

Korany A. Ali, Eman A. Ragab, Grzegorz Mloston, Malgorzata Celeda, Anthony Linden, Heinz Heimgartner and All Authors

Helvetica Chimica Acta; 96(4): 633-643 (2013) IF: 1.383

On treatment of 3-amino-5-aryl-1H-pyrazoles **1** with dialkyl dicyanofumarates ($=$ (E)-but-2-enedioates) **4** in boiling 1,2-dichloroethane; two competitive reactions occurred leading to 3-aryl-5-cyano-6,7-dihydro-6-oxo-1H-pyrazolo[3,4-b]pyridine-4-carboxylates **10** and 7-amino-2-arylpyrazolo[1,5-a]pyrimidine-

5,6-dicarboxylates **11**. In DMF at room temperature; as well as at 100°; only compounds **10** were isolated. The formation of the major products of type **10** was rationalized via Michael addition of **1** as a C(4)-nucleophile onto **4**; followed by HCN elimination and lactamization. On the other hand; the minor products **11** result from a Michael addition of **1** onto **4** via the NH₂ group; and subsequent HCN elimination and cyclization. The structures of the products have been established by X-ray crystallography

Keywords: Pyrazolo[3; 4-B]Pyridine-4-Carboxylates; Pyrazolo[1; 5-A]Pyrimidine-5; 6-Dicarboxylates; Michael addition; Lactamization; X-Ray crystallography.

10. Kinetics and Mechanism for the Substitution Reactions of Monoaquamonochloro-(Piperazine) Palladium (II) Complex with L-Methionine and Thiourea in Aqueous Solution

Azza A. Shoukry

Journal of Chemical Sciences; 125(3): 643-651 (2013) IF: 1.298

The interaction of the palladium(II) complex $[Pd(Pip)Cl(H_2O)]^+$, where Pip is Piperazine, with the sulfur donor nucleophiles; L-methionine (L-Met) ;and thiourea (tu) was studied under pseudo-first-order conditions as a function of nucleophile concentration and temperature; using UV-Visible spectrophotometric and stopped-flow techniques. Two consecutive reaction steps were observed for the substitution process with L- methionine. For the substitution with thiourea; a third reaction step; the displacement of the labilized amine; as a result of the strong *trans*-effect of thiourea ligand was observed. ¹HNMR spectroscopy was used to follow the substitution of the ligand by thiourea. The activation parameters for all reactions studied suggest an associative substitution mechanism.

Keywords: Palladium (II); Piperazine; Sulphur donor nucleophiles; Stopped-flow spectrophotometry; Activation parameters.

11. Synthesis and Antitumor Activity of New Polysubstituted Thiophenes and 1,3,4-Thiadiazoles Incorporating 2,6-Pyridine Moieties

Korany A. Ali, Heba S. Abdalghfar, Khaled Mahmoud, and Eman A. Ragab

Journal of Heterocyclic Chemistry; 50 (5): 1157-1164 (2013)
IF: 1.224

The versatile multifunctional unreported pyridine-2,6-bis(2-cyano-N-phenyl-3-oxopropanethioamide) (**3**) was prepared starting from pyridine-2,6-bis-(3-oxopropanenitrile) (**1**). Several new series of polysubstituted thiophenes and 1,3,4-thiadiazoles incorporating 2,6-pyridine moiety were efficiently synthesized. The newly synthesized compounds were evaluated for their *in vitro* anticancer activity against human cancer cell lines: hepatocellular liver carcinoma (HEPG2) and Caucasian breast adenocarcinoma (MCF-7). Some of the newly synthesized compounds exhibited better activity than doxorubicin as a reference drug.

Keywords: Pyridine-2; 6-bis; Polysubstituted thiophenes; Hepatocellular liver carcinoma (HEPG2).

12. Kinetics and Mechanism of Base Hydrolysis of A-Aminoacid Esters Catalysed by $[Pd(1,3\text{-Diamino-2-Hydroxypropane})(H_2O)_2]^{2+}$ Complex

Al-Qalaf . F. A, Al Bassam. A.A. and. Shoukry. M.M

J. Chil. Chem. Soc.; 58 (2): 1706-1708 (2013) IF: 0.376

Amino acid esters (L) react with $[Pd(DHP(H_2O)_2)]^{2+}$; (DHP = 1;3-diamino-2-hydroxypropane) giving mixed ligand $[Pd(DHP)L]^{2+}$. The kinetics of hydrolysis of $[Pd(DHP)L]^{2+}$ have been studied by pH-stat technique and rate constants were obtained. Rate acceleration observed for glycine methyl ester is high. The effect with methionine methyl ester and histidine methyl ester are much less marked; as the mixed-ligand complexes with these ligands do not involve alkoxycarbonyl donors. Possible mechanisms for these reactions are considered. Activation parameters have been determined for glycine methyl ester.

Keywords: 1;3-Diamino-2-Hydroxypropane; Amino acid ester Hydrolysis; Pd(II); pH-stat technique.

13. Complex Formation Equilibria of Imipenem with Some Transition Metal Ions. Ternary Complex Formation Reactions Involving Cu (II) With Imipenem and Various bio-relevant Ligands

Azza Abdelwahab Shoukry

European Journal of Chemistry; 4(4): 379-387 (2013)

Imipenem is one of the β -lactam antibiotics (β -lactamase inhibitors); which are reported to be the most important class of drugs that are capable of inhibiting the bacterial enzyme to protect the β -lactam antibiotic from destruction. In view of the biological importance of imipenem as drug; the ligation behavior of imipenem is studied in order to get an idea about its potentiality towards some transition metals in *in-vitro* systems.

The binary complex formation equilibria with the metal ions Cu(II); Ni(II); Co(II); Mn(II); and Zn(II) were investigated potentiometrically. The effects of dioxane as a solvent; on the protonation constant of imipenem and the formation constants of Cu(II)-imipenem complexes were discussed. The ternary copper(II) complexes involving imipenem and various biologically relevant ligands containing different functional groups; as amino acids; amides; dicarboxylic acids and DNA constituents were investigated. The stability constants of the complexes are determined. The mechanisms of complex formation are speculatively discussed based on the calculated stability constant values. The ternary complexes are formed by simultaneous reactions. The concentration distributions of various species formed in solution were also evaluated as a function of pH.

Keywords: Amides; Imipenem; Amino acids; Effect of solvent; DNA constituents; Stability constant.

14. Complex Formation Reactions and Equilibrium Studies of Mixed Ligand Complexes of Diaqua (1-Phenyl piperazine) (Palladium) (II) With Some Biologically Relevant Ligands

Azza Abdelwahab Shoukry

International Journal of Basic and Applied Sciences; 2(1): 38-46 (2013)

With the purpose of the search of new antitumor metal complexes; the complex-formation reactions of $[Pd(Phenpip)(H_2O)_2]^{2+}$ (Phenpip = 1-Phenylpiperazine) with some selected bio-relevant ligands; containing different functional groups (amino acids; peptides; DNA constituents and dicarboxylic acids) were investigated. Stoichiometry and stability constants for the complexes formed are reported. The results show the formation of 1 : 1 complexes with amino acids and dicarboxylic acids. The effect of chelate ring size of the dicarboxylic acid complexes on their stability constants was examined. Peptides form both 1 : 1 complexes and the corresponding deprotonated amide species. Structural effects of the peptide on the amide deprotonation were investigated. DNA pyrimidinic constituents; such as uracil; uridine; thymidine and thymine; form 1 : 1 and 1 : 2 complexes; whereas purinic constituents; such as inosine; inosine 5'-monophosphate (5-IMP) form only 1 : 1 complexes. The stability constant of the complexes formed in solution were determined and the binding centres of the ligands were assigned. The concentration distribution diagrams of the complexes were evaluated.

Keywords: Pd(II) complexes; 1-Phenyl piperazine; Bio-relevant Ligands; Stability constant.

15. Construction of Modified Screen-Printed and Carbon Paste Electrodes for Electrochemical Determination of Antihistaminic Diphenhydramine Hydrochloride in Pure and Pharmaceutical Preparations

M.A. Akl, Eman Y.Z. Frag, Gehad G. Mohamed and Mohammed S.A. Bashanaini

International Journal of Electrochemical Science; 8: 11546-11563 (2013)

The construction and performance characteristics of diphenhydramine hydrochloride (DPH) modified screen printed (SPE) and carbon paste (CPE) electrodes with DPH-tetraphenylborate ion pair (DPHTPB) (MSPE and MCPE) and with sodium tetraphenyl borate ion pairing agent (NaTPB) (in situ) (ISPE and ICPE) using tricryslphosphate (TCP) as plasticizer are described. These electrodes exhibit suitable response to DPH in the concentration range of 1×10^{-1} to 1×10^{-6} mol L⁻¹ with lower detection limit of 9.65×10^{-7} , 9.68×10^{-7} , 9.78×10^{-7} and 9.76×10^{-7} mol L⁻¹ and response time of about 5; 6; 10 and 11s with Nernstian slope values of 56.20 ± 0.65 ; 59.14 ± 0.90 ; 55.86 ± 1.12 and 60.03 ± 1.32 mV decade⁻¹ for MSPE; ISPE; MCPE and ICPE; respectively. The fabricated electrodes were used over a period of 2 months under pH range of 2.5-8.0; 3.0-9.0; 2.5-7.0 and 3.0-8.0 for MSPE; ISPE; MCPE and ICPE; respectively. The analytical performance of the SPEs and CPEs compared with respect to selectivity coefficients for DPH relative to a numbers of potential interfering substances were investigated. The method was applied

for determination of DPH in pharmaceutical preparations with a percentage recovery of 98.75-99.27; 98.95-99.66; 98.91-99.65 and 97.83-99.17% and R.S.D = 0.54; 0.29; 0.26 and 0.56 for MSPE; ISPE; MCPE and ICPE; respectively. The results are compared with the official method.

Keywords: Potentiometry; Diphenhydramine; ISPE; ICPE; Capsules.

16. Electrometric Assay for the Determination of Moexipril HCl Using Sensitive Sensors Based on Carbon Paste and PVC Membrane Electrodes

H.M. Elqudaby, Gehad G. Mohamed, Eman Y.Z. Farag and Noha M. Kamal El-Dien

International Journal of Electrochemical Science; 8: 11101-11117 (2013)

Carbon paste (CPE) and PVC membrane ion selective electrodes have been described for determination of moexipril HCl (MOEX.HCl) in pure form and primox tablet. The method based on the ion-pair formation between MOEX.HCl with sodium tetraphenylborate. The two types of electrodes were prepared using five types of plasticizers with each type of electrode. The electrodes showed a linear response with a good Nernstian slope of 58.82 ± 0.53 and 58.57 ± 0.98 mV decade⁻¹ over the concentration range from 10^{-7} to 10^{-2} mol L⁻¹ for CPE and PVC membrane electrodes; respectively. The standard electrode potentials; E° ; were determined at 10; 20; 30; 40 and 50 °C and the isothermal temperature coefficient (dE°/dT) of the electrodes was calculated. The electrodes proved high selectivity with selectivity coefficients ranging from 2.23×10^{-6} to 39.9×10^{-3} and 5.9×10^{-4} to 8.3×10^{-3} mol L⁻¹ for CPE and PVC membrane potentiometric sensors; respectively. The detection limits (signal/noise [S/N] = 3) were found to be 6.73×10^{-8} and 5.38×10^{-8} mol L⁻¹ for CPE and PVC membrane potentiometric sensors; respectively. The practical applications of these electrodes were demonstrated by determining the concentrations of MOEX.HCl in pure solutions and pharmaceutical primox tablet with satisfactory results (percentage recovery was 98.94-99.59 and 98.44-99.25 % for CPE and PVC membrane electrodes; respectively). The reliability and stability of the electrodes gave a good possibility for applying the technique in routine analysis.

Keywords: Moexipril HCl; Pharmaceutical analysis; Potentiometry; Tetraphenylborate; CPE; PVC.

17. Modified Carbon Paste Ion Selective Electrodes for the Determination of Iron (III) in Water, Soil and Fish Tissue Samples

Tamer Awad Ali, Gehad G. Mohamed, Maher M.I. El-Dessouky, Salwa M. Abou El Ella and Rabab T. F. Mohamed

International Journal of Electrochemical Science; 8: 1469-1486 (2013)

The construction; performance characteristics; and application of iron(III) sensors based on (5;5'-(propane-1;3-diylbis (sulfanediyl)) bis (3-benzyl-4H-1;2;4-triazol-4-amine) (ionophore A); 5;5'-(butane- 1;4- diylbis (sulfanediyl)) bis(3-benzyl-4H-1;2;4-triazol-4-amine) (ionophore B); 7;8; 16 ; 1 7 -Tetrahy drodibenzo [e;m] [1;4;8;11]dioxadiazacyclotetr a- decine (ionophore C) and [3{(1E)-2-[3-2-[3-(1E)-2-aza-2-(3-

carboxyphenyl)vinyl]phenoxy}-ethoxy)phenyl]-1-azavinyl) benzoic acid (ionophore D) are reported in this paper. The sensors are prepared by incorporating of A; B; C and D ionophores into a plasticized carbon paste electrodes to form electrodes I; II; III and IV; respectively.

Under the optimized conditions; the electrodes reveal Nernstian slopes of 20 ± 0.32 ; 20.3 ± 0.46 ; 19.2 ± 0.62 and 21 ± 0.25 mV decade⁻¹ over a wide concentration range from 1×10^{-6} to 1×10^{-2} mol L⁻¹ with a detection limit of 6.4×10^{-7} ; 6.4×10^{-7} ; 1×10^{-6} and 4.8×10^{-7} mol L⁻¹ at pH range from 1.8- 3; 1.8- 3; 2- 3.5 and 1.8- 3.5 for electrodes I; II; III and IV; respectively. The sensors are stable for 86; 74; 66 and 95 days for electrodes I; II; III and IV; respectively. without any measurable divergence in the potential characteristics and exhibit good selectivity with respect to alkali; alkaline earth and transition metal ions (e.g. Na(I); K(I); Ba(II); Ca(II); Zn(II); Cd(III); Co(II); Mn(II); Ni(II); Cu(II); Pb(II) and Al(III)).

This method is successfully applied for potentiometric determination of Fe(III) in water; soil and fish tissue samples; and the results obtained agreed with those obtained with atomic absorption spectrometer (AAS).

Keywords: Modified carbon paste electrode; Ferric chloride; Potentiometric determination; Ionophores; Water samples.

18. Modified Screen Printed and Conventional Carbon Paste Electrodes for Determination of Sildenafil Citrate in Tablets

Mohamed, G. G., Nour El-Dien, F. A. F., Frag, E. Y. Z., and Diab, M. M. A.

World Journal of Pharmacy and Pharmaceutical Sciences; 2(6): 4329-4348 (2013)

This work compares the electroactivity of a conventional carbon-paste electrodes and screen-printed carbon electrodes. Potentiometric sensors responsive to sildenafil citrate (SILC) drug (the active component of Viagra) are described; characterized; compared and used for drug assessment. The proposed carbon paste electrode is fully characterized in terms of plasticizer type; response time; life span; soaking time; titrant; pH and temperature.

The electrodes exhibited linear response with a Nernstian slope of 58.20 ± 1 and 58.82 ± 0.5 mV decade⁻¹ for SILC in the concentration range from 1.0×10^{-7} to 1.0×10^{-2} and 5.30×10^{-7} to 1.0×10^{-2} mol L⁻¹ with good reproducibility for CPE and SPE; respectively. Both CPE and SPE could be used in the pH range 3.0-5.0 and the isothermal coefficient is found to be 0.98 and 0.85 mV/°C; respectively.

The limit of detection was found to be 9.0×10^{-8} and 3.5×10^{-7} mol L⁻¹ for CPE and SPE; respectively. They were applied to potentiometric determination of SILC in pure state and pharmaceutical preparation under batch conditions. The CPE and SPE sensors display good selectivity for SILC drug over large number of inorganic cations; sugars and amino acids commonly used in drug formulations.

Keywords: Modified screen-printed electrode; Sildenafil citrate; Potentiometry; Pharmaceutical preparations.

19. Synthesis and Antimicrobial Activity of Bis-2-Arylhydrazono-4-Thiazolidinones

Nadia Hanafy Metwally and Ebrahim Adel El-Desoky

Trends in Heterocyclic Chemistry; 16: 55-62 (2013)

Corynebacterium diphtheriae; *Corynebacterium ulcerans* and *Corynebacterium pseudotuberculosis* constitute a group of potentially toxigenic microorganisms that are related to different infectious processes in animal and human hosts. Currently; there is a lack of information on the prevalence of disease caused by these pathogens; which is partially due to a reduction in the frequency of routine laboratory testing. In this study; a multiplex polymerase chain reaction (mPCR) assay that can simultaneously identify and determine the toxigenicity of these corynebacterial species with zoonotic potential was developed. This assay uses five primer pairs targeting the following genes: *rpoB* (*Corynebacterium* spp); 16S rRNA (*C. ulcerans* and *C. pseudotuberculosis*); *pld* (*C. pseudotuberculosis*); *dtxR* (*C. diphtheriae*) and *tox* [diphtheria toxin (DT)]. In addition to describing this assay; we review the literature regarding the diseases caused by these pathogens. Of the 213 coryneform strains tested; the mPCR results for all toxigenic and non-toxigenic strains of *C. diphtheriae*; *C. ulcerans* and *C. pseudotuberculosis* were in 100% agreement with the results of standard biochemical tests and PCR-DT. As an alternative to conventional methods; due to its advantages of specificity and speed; the mPCR assay used in this study may successfully be applied for the diagnosis of human and/or animal diseases caused by potentially toxigenic corynebacterial species.

Keywords: 1;4-Phenylene-Bis-4-Oxothiazolidin-5-Ylidenes

20. Synthesis, Characterization, Biological Activity and equilibrium Studies of Cadmium (II) With 2,6-Diaminopyridine and Various bio-Relevant Ligands

Azza Abdelwahab Shoukry and Saedah Rweide Al- Mhayawi

European Journal of Chemistry; 4(3): 260-267 (2013)

The complexing properties of 2;6-diaminopyridine (DAP) with cadmium(II) were investigated via measuring pH (i.e.; pH-metrically). Binary and ternary complexes of Cd(II) involving DAP and various biologically relevant ligands are investigated. The ligands used (L) were amino acids; dicarboxylic acids; amides and DNA unit constituents. The ternary complexes are formed by simultaneous reactions. The results showed the formation of Cd(DAP)(L) complexes with amino acids and dicarboxylic acids. Amides form both Cd(DAP)(L) complex and the corresponding deprotonated amide species Cd(DAP)(LH-1). The concentration distributions of the various complex species formed in solution were also evaluated as a function of pH. The effect of dioxane as a solvent on the protonation constant of DAP and the formation constants of Cd(II)-DAP complexes were discussed. The solid complexes [Cd(DAP)(L)] where L = methionine and glycine; were isolated and characterized. The isolated solid complexes have also been screened for their antimicrobial activities against some selected bacteria and fungi. The activity data show that the complexes are found to have antibacterial and antifungal activity.

Keywords: Speciation; Effect of solvent; Bioactive ligands; Stability constant; 2,6-diaminopyridine; Antimicrobial activity.

Dept. of Entomology

21. Morphological and Molecular Identification of Some Uromastix Species (Reptilia; Agamidae) in Makkah; Saudi Arabia by Forensically Informative Nucleotide Sequencing (FINS) of 16S rRNA Gene and Electrophoretic Protein Patterns

Mohamed Elmogy, Osama M. Sarhan, Azza M. Elgendy and Wael M. Alamodi

Life Science Journal; 10(4): 933-938 (2013) IF: 0.165

The morphological examination, of the collected Spiny-tailed lizards, revealed three *Uromastix* subspecies (*U. a. aegyptia*; *U. a. microlepis*; and *U. ornate ornate* or *U. ornate philbyi*) to be inhabited in the holy land of Makkah of Saudi Arabia . FINS (Forensically Informative Nucleotide Sequencing) approach of 16SrRNA gene could confirm the morphologically identified first two subspecies to be *U. a. aegyptia* and *U. a. microlepis*, and identified the third subspecies to be *U. ornate philbyi*. This is the first successful typing of mitochondrial 16S rRNA gene with FINS approach carried out to identify the Spiny-tailed lizard, *Uromastix* sp. in Saudi Arabia. The electrophoretic protein pattern analysis on SDS-PAGE showed the protein band of the molecular weight 275 kDa to be a characteristic protein marker for *U. aegyptia microlepis*; the protein band of 150 kDa to be a characteristic protein marker for *U. aegyptia aegyptia*; and the three protein bands of 200, 15, and 5 kDa to be characteristic protein markers for *U. ornate philbyi*. The obtained results suggested that protein electrophoresis is not only powerful tool in targeting the genetic variability within species but also in identifying them.

Keywords: FINS technique; Protein markers; *Uromastix* sp.; Molecular identification

Dept. of Geology

22. Geochemistry of Gabbros and Granitoids (M- and I-Types) from the Nubian Shield of Egypt: Roots of Neoproterozoic Intra-oceanic Island Arc

Ayman E. Mauricea, Bottros R. Bakhit, Fawzy F. Basta and Ali A. Khiamy

Precambrian Research; 224: 397-411 (2013) IF: 4.441

The Neoproterozoic intrusive rocks of the Wadi Ranga area; Nubian Shield of Egypt; comprise gabbros and granitoids emplaced during oceanic island arc and post-collision stages. The plutonic rocks of the island arc stage include hornblende gabbros (Dabbah pluton); trondhjemite (Abu Ghalaga pluton) and tonalites with subordinate quartz gabbro and quartz diorite (Reidi and Abu Ghusun plutons); whereas the post-collision intrusives include granodiorite and monzogranite (Helifi-Hamata pluton). The gabbros and granitoids of the island arc stage are largely calcic; low-K rocks which have either tholeiitic (gabbro and trondhjemite) or transitional tholeiitic to calcalkaline nature (tonalites). On the other hand; the granitoids of the post-collision stage are medium to high-K calcalkaline rocks. All the investigated granitoids are metaluminous. The spider diagrams; with enrichment in LILE and strong Nb depletion; and the almost flat to slightly LREE-depleted REE patterns of the gabbro and trondhjemite are similar to those of the Wadi Ranga low-K

tholeiitic basalts and silicic volcanics; respectively; suggesting that the gabbro and trondhjemite are the plutonic equivalents of the Wadi Ranga immature island arc extrusives; and they were derived from mantle source at the early immature island arc stage. Similar to the trondhjemite; the tonalites show LILE enrichment and strong Nb depletions on the MORB-normalized spider diagrams. However; the tonalites have REE patterns which are enriched in LREE (La/Yb=1.71-5.54). The derivation of the tonalites through fractionation of the same magma produced the trondhjemite seems unlikely. Therefore; high degree partial melting of juvenile basaltic arc crust is favoured for the origin of tonalites during a late immature island arc stage. The post-collision granitoids show considerable enrichment in LILE and to a lesser extent in HFSE; slight negative Nb anomaly and strong negative P and Ti anomalies relative to N-MORB. Their REE patterns are LREE-enriched (La/Yb=5-19); with negative Eu anomaly. These characteristics are consistent with origin through lower degrees of partial melting of old basaltic arc crust and subsequent fractional crystallization. The geochemical characteristics of the trondhjemite and tonalites; and the granodiorite-monzogranite classify them as M-type and I-type granitoids; respectively. The partly tholeiitic intrusives of the Wadi Ranga area (South Eastern Desert) have lower K₂O; Rb and LREE compared to the M-type calcalkaline intrusives of the North Eastern Desert; implying northwardly dipping subduction zone. The geochemical similarities between the intrusives of Neoproterozoic and Phanerozoic oceanic island arcs imply that they share similar style of subduction; which differs from that of the Archaean. The generation of high SiO₂ (up to 74.5 wt%); low K₂O (0.56-1.78 wt%) and slightly LREE-depleted trondhjemite in early immature oceanic island arc setting supports the arc origin of the primitive continental crust. Silicic magma production through partial melting of the early arc volcanic rocks during the evolution of the arc and the post-collision stage; drives the middle and upper oceanic arc crust towards a composition closer to that of the continental crust. The present study indicates that the intra-oceanic island arcs continued to play a role in the generation of the continental crust after the Archaean

Keywords: Oceanic island arcs; M- and I-Type Granites; Continental crust; Arabian-nubian shield; Eastern desert.

23. Biomarker and Isotope Evidence for Microbially-Mediated Carbonate Formation from Gypsum and Petroleum Hydrocarbons

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Chemical Geology; 347: 199-207 (2013) IF: 3.154

Along the western coast of the Gulf of Suez large amounts of evaporitic gypsum of Miocene age have been microbially transformed into carbonates and elemental sulfur in the presence of petroleum. Similar diagenetic transformations have been described from numerous sites worldwide but the role of petroleum; specifically as a carbon source for the sulfate-reducing microbial community; remains elusive. We carried out a geochemical investigation of microbial carbonates from the Gulf of Suez that suggests the presence of a community of sulfate-reducing bacteria thriving on carbon substrates contained in petroleum. Specifically; a set of non-isoprenoidal macrocyclic glycerol diethers (McGDs); that we tentatively ascribe to sulfate-reducing bacteria; have a stable carbon isotope composition close

to that of petroleum *n*-alkanes associated with the carbonates. The presence of archaeol that is ¹³C-enriched relative to bacterial lipids suggests that Archaea are present but either indirectly involved or not involved in the transformation of petroleum-derived carbon. The lipid biomarker pattern we observe is distinct from those observed in settings where sulfate reduction is coupled to the anaerobic oxidation of methane. Our results suggest that petroleum migration has triggered the microbial transformation of gypsum into carbonates in the Gulf of Suez. By extension; the involvement of petroleum in the microbial transformation of gypsum into carbonates in other settings; which was suggested by more indirect; geological and inorganic geochemical evidence; seems very likely.

Keywords: Petroleum; Gypsum; Sulfate-reducing bacteria; Biomarkers; Authigenic carbonates; Gulf of Suez.

24. Isotope Geochemistry of the Miocene and Quaternary Carbonate Rocks in Rabigh Area; Red Sea Coast; Saudi Arabia

Yehia H. Dawood, Mahmoud A. Aref, Mohammed H. Mandurah, Ahmed Hakami and Mohammed Gameil

Journal of Asian Earth Sciences; 77: 151-162 (2013) IF: 2.379

The Rabigh area; a coastal region north of Jeddah city; Saudi Arabia contains raised Quaternary coral reefal terraces and reworked coral fragments mixed with sand and gravel. This area has a thin exposure Lower Miocene shallow marine carbonate rocks that laterally pass into evaporites. The Miocene carbonate and evaporite rocks conformably overly the Lower Miocene siliciclastic sequence; are in turn capped by the Harrat basaltic boulders.

The Miocene carbonates are made up of dolomitic packstone; wackestone and mudstone; whereas the overlying Quaternary reefal terraces are composed of coral boundstone and grainstones. The Quaternary reefal terraces of Rabigh area have been dated using the uranium-series dating method to obtain precise dates for these corals. The calculated ages (128; 212 and 235 ka) indicate that deposition took place during high sea level stands associated with interglacial times during Oxygen Isotope Stages (OIS) 5 and 7. The youngest age (128 ka) clearly corresponds to stage 5e of the last interglacial period. The obtained ages correlate well with those of the emerged reefs on the Sudanese and Egyptian coasts at the western side of the Red Sea. The broad distribution of wet climate; pluvial deposits on the continents and high sea level stands indicate a wide geographical range of the interglacial events of the Oxygen Isotope Stages (OIS) 5 and 7. The oxygen and carbon isotopic composition of the Miocene and Quaternary carbonate rocks in Rabigh area show a broad range of $\delta^{13}\text{C}$ and $\delta^{18}\text{O}$. The Quaternary carbonate rocks have significantly higher $\delta^{13}\text{C}$ than the Miocene ones; but low $\delta^{13}\text{C}$ values of the Miocene samples likely indicate a high contribution of carbon from organic sources at the time of deposition. Linear trends are evident in both groups of samples supporting the likelihood of secondary alteration.

Keywords: Rabigh; U-series dating; Oxygen isotope stages; Quaternary coral; Miocene carbonate; Red sea; Saudi Arabia.

25. Assessing Heavy Metal Pollution in the Recent Bottom Sediments of Mabahiss Bay, North Hurghada, Red Sea, Egypt

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Journal of Environmental and Monitoring Assessment; 185/12: 9925-9934 (2013) IF: 1.592

Thirty-nine samples of recent bottom sediments were collected from Mabahiss Bay; north of Hurghada City; Red Sea; Egypt. The collected samples were subjected to a total digestion technique and analyzed by absorption spectrometer for metals including Pb; Zn; Cd; Ni; Co; Cu; and Mn. Concentration data were processed using correlation analysis; principal component analysis; and hierarchical cluster analysis. Multivariate statistical analysis classified heavy metals in the study area into different groups.

The pollution level attributed to these metals was evaluated using geoaccumulation index and contamination factor in order to determine anthropogenically derived sediment contamination. The results of both geoaccumulation index and contamination factor results reveal that the study area is not contaminated with respect to Zn; Ni; Cu; and Mn; uncontaminated to moderately contaminate with Pb; and moderately to strongly contaminate with Cd.

The high contents of Pb; Cd; and Co in the study area result from various anthropogenic activities including dredging; land filling; localized oil pollution; using of antifouling and anticorrosive paints from fishing and tourist boats; and sewage discharges from various sources within the study area.

Keywords: Pollution; Sediments; Heavy metals; Multivariate; Assessment; Mabahiss bay.

26. Ancient Mining and Smelting Activities in the Wadi Abu Gerida Area, Central Eastern Desert, Egypt: Preliminary Results*

Y. Abd El-Rahman, A. A. Surour, A. H. W. El Manawi, M. Rifai, A. Abdel Motelib, W. K. Ali and A. M. El Dougdoug

Archaeometry; 55: 1067-1087 (2013) IF: 1.278

Old mining and smelting features in the Abu Gerida area have been studied using field observations; microscopy and SEM-EDS to detect the ores that were exploited in antiquity. There are two groups of shafts in the area.

The first group encloses secondary copper minerals and is associated with glassy slags containing copper prills. The other group is associated with hematite that was extracted and transferred to a smelting station to the west of the mining site; where iron slags and charcoal fragments are found. These slags are composed mainly of wüstite; fayalite-kirschsteinite and traces of metallic iron.

Pottery fragments from this area were dated to the Ptolemaic Period; which may be the age of iron exploitation. Copper might have been exploited earlier

Keywords: Iron; Copper; Mining; Smelting; Eastern Desert; Egypt.

27. Mineralogy of Egyptian Bentonitic Clays II: Geologic Origin

Mohamed A. Agha, Ray E. Ferrell, George F. Hart, Mohamed S. Abu El Ghar and A. Abdel-Motelib

Clays and Clay Minerals; 61 (6): 551-565 (2013) IF: 1.114

Reconstructing the origin of bentonitic clays is often a challenging and rather complicated undertaking; but the analysis of certain predictor clay minerals is proving to be an excellent method to simplify this process. The goal of the present investigation was to use abundance changes of five X-ray diffraction (XRD) predictor minerals to determine the relative contributions of weathering and parent-rock changes to the origin of clay minerals in Egyptian bentonitic clays as the test case. The XRD predictor minerals; selected in an earlier discriminant function analysis of quantitative abundances of 14 minerals; provided a simpler approach to the interpretation of clay-mineral origins because they are the minerals that were most responsible for statistically significant differences among the samples. Changes in mineral composition were basically a function of parent-rock lithology; drainage; and climate interactions. A Paleo-Climate Index (CI; the ratio of coarsely crystalline kaolinite to Ferrih smectite); and a Parent-Rock Index (PI; the ratio of the illitic phases and quartz abundances to pure smectite) were established to track the paleo-climate and parent-rock changes; respectively. Low CI values indicated that a long; seasonally dry climate prevailed during the Middle Eocene; uppermost Eocene; Lower Miocene; and Upper Pliocene bentonitic clay deposition. Lowermost Upper Eocene and the Middle Miocene bentonitic clays were produced when a wet climate prevailed throughout the year. Moderate to high PI values suggested derivation of the clays from the acidic basement crystalline rocks at Uweinat-Bir Safsaf uplift and Lower Paleogene shales during the Middle Eocene and lowermost Upper Eocene. The youngest Upper Eocene and Lower Miocene materials contained abundant Fe-smectite and low PIs indicating derivation from tholeiitic basalts. Diagenetic and sedimentary segregation modifications were not apparent. Direct evidence for *in situ* derivation from volcanic precursor materials was lacking in general; but volcanic eruptions were common in the region. The minerals in the Egyptian bentonitic clays formed as weathering products on land and have been transported by north-flowing streams and rivers to the sites of accumulation.

Keywords: Bentonitic clays; Climate; Egypt; Origin; Parent rock.

28. Recent Analog of Gypsified Microbial Laminites and Stromatolites in Solar Salt Works and the Miocene Gypsum Deposits of Saudi Arabia and Egypt

Mahmoud A. M. Aref and Rushdi J. A. Taj

Arabian Journal of Geosciences, 6 (11): 4257-4269 (2013) IF: 0.74

Accumulation of microbial mats and stromatolites dominate in the crystallization ponds of solar salt works west of Alexandria; Egypt. These microbial mats are laminar in the permanent submerged part of the ponds. The microbial mats commonly form sites for growth of gypsum crystals during periods having higher salinity. In the dominant submerged part of the pond; domal

stromatolites are common around groundwater seepage holes. In the shallow; intermittent margin of the ponds; the laminated microbial structure forms laterally close-linked hemispheroidal stromatolite type; with unidirectional and multidirectional ripple mark-like morphology on their surface. The microbial laminite and stromatolite types in the modern solar salt works are similar to the organic-rich Miocene gypsum beds of El-Barqan (west Alexandria; Egypt) and Rabigh (north Jeddah; Saudi Arabia). The Miocene organic-rich beds consist of interlayered dark-colored microbial laminae and light-colored gypsum laminae. These beds may have three different variations: regular even lamination; laterally closed-linked hemispheroidal stromatolites; and/or discrete hemispheroidal stromatolites. Petrographic examination of the microbial laminites and stromatolites in the solar salt works and the Miocene gypsum beds indicate that the dark-colored; organic-rich laminae are composed of micritized microbial laminae and/or brown organic filaments. In El-Barqan area; the light-colored gypsum-rich laminae are composed of either gypsum crystal fragments; or lenticular and prismatic gypsum. These gypsum crystals are either entrapped within the microbial filaments or are nucleated at the surface of the microbial laminae to form a radial pattern; whereas in Rabigh area; the light-colored gypsum-rich laminae are composed of secondary porphyrotopic; poikilotic; or granular gypsum crystals. By comparison of the microbial structure in the Miocene gypsum beds with the recent occurrence of the microbial laminites and stromatolites in the solar salt works; it is demonstrated that the organic-rich Miocene gypsum beds were formed in a very shallow salina with slightly fluctuating brine levels.

Keywords: Microbial laminites; Stromatolites; Gypsum; Salt works; Miocene; Saudi Arabia; Egypt.

Dept. of Geophysics

29. Imaging Soil Moisture Using GPR Tomography and Reflection Field Experiments

Mohamed G. El-Behiry and Sherif M. Hanafy

Arabian Journal of Geosciences; 6(9): 3493-3503 (2013) IF: 0.74

We performed GPR tomography and GPR reflection field experiments using a 500-MHz antenna to image relative soil moisture distribution around a poplar tree at the botanic garden of Kiel University; Kiel; Germany. The GPR tomography field experiment is carried out in two consecutive phases in order to obtain ray paths traveling from all directions and intensively covering the target. The radar tomographic data are inverted using the authors' developed software code *SeismoRad* based on the finite difference technique. The attained Root-Mean-Square (RMS) errors after 200 iterations between the measured and calculated times range between 1.066 and 5.7 % in the two tomography experiments. The estimated GPR velocities range between 5.3 and 15.1 cm/ns. Two low-GPR velocity zones could be delineated coinciding with the locations of the tree root zone and a previously excavated sector. The high water saturation zone around the tree root system is found to be the main reason for such a decrease in GPR velocity. Interpretation of the two phases proved that the coverage of ray paths from all directions is important to delineate the effect of the poplar tree root system and hence to obtain accurate tomographic results. Furthermore; four GPR reflection lines are performed along the sides of the four trenches such that the antenna is moved longitudinally in the trenches and the radargrams are recorded along the horizontal xy-

plane parallel to the ground surface. On the processed GPR reflection radargrams; relatively high-amplitude GPR anomalies could be outlined and are attributed to the boundary between the saturated and wet zones where different water contents affect the GPR velocity. Comparable results are obtained between the tomogram and the radar reflection results with respect to zones of increase in water content

Keywords: GPR; Tomography; Moisture content; Poplar tree.

Dept. of Mathematics

30. New Wavelets Collocation Method for Solving Second-Order Multipoint Boundary Value Problems Using Chebyshev Polynomials of Third and Fourth Kinds

W. M. Abd-Elhameed, E. H. Doha and Y. H. Youssri

Abstract and Applied Analysis; 2013: 1-9 (2013) IF: 1.102

This paper is concerned with introducing two wavelets collocation algorithms for solving linear and nonlinear multipoint boundary value problems. The principal idea for obtaining spectral numerical solutions for such equations is employing third- and fourth-kind Chebyshev wavelets along with the spectral collocation method to transform the differential equation with its boundary conditions to a system of linear or nonlinear algebraic equations in the unknown expansion coefficients which can be efficiently solved. Convergence analysis and some specific numerical examples are discussed to demonstrate the validity and applicability of the proposed algorithms. The obtained numerical results are comparing favorably with the analytical known solutions.

Keywords: Multipoint boundary value problems; Third- and fourth-kind chebyshev wavelets; Collocation method.

Dept. of Physics

31. Synthesis, Characterization and Optical Properties of Gelatin Doped With Silver Nanoparticles

K.H. Mahmoud and M. Abbo

Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy; 116: 610-615 (2013) IF: 2.129

In this study; silver nanoparticles were synthesized by chemical reduction of silver salt (AgNO_3) solution. Formation of nanoparticles was confirmed by UV-visible spectrometry. The surface plasmon resonance peak is located at 430 nm. Doping of silver nanoparticles (Ag NPs) with gelatin biopolymer was studied. The silver content in the polymer matrix was in the range of 0.4–1 wt%. The formation of nanoparticles disappeared for silver content higher than 1 wt%. The morphology and interaction of gelatin doped with Ag NPs was examined by transmission electron microscopy and FTIR spectroscopy. The content of Ag NPs has a pronounced effect on optical and structural properties of gelatin. Optical parameters such as refractive index; complex dielectric constant were calculated. The dispersion of the refractive index was discussed in terms of the single – oscillator

Wemple–DiDomenico model. Color properties of the prepared samples were discussed in the framework of CIE $L^*u^*v^*$ color space.

Keywords: Silver nanoparticles; Gelatin; Optical properties; Color parameters.

32. Photoluminescence Analysis of Er Nanoparticles in Cadmium-Phosphate Glasses

Khaled H. Mahmoud, Zeinhom M. El-Bahy and Ahmed I. Hanafy

Journal of Non-Crystalline Solids; 363: 116-120 (2013) IF: 1.597

In this work; Judd–Ofelt analysis is applied to Er nanoparticles doped cadmium-phosphate glasses in order to evaluate their potential in glass laser systems. The phenomenological Judd–Ofelt parameters $\Omega_{(2)}$; $\Omega_{(4)}$ and $\Omega_{(6)}$ are determined for one glass system and the quality factor is compared with equivalent parameters for several other glass hosts. The spontaneous emission probabilities; lifetimes; branching ratios of Er^{3+} transitions from the excited – state J manifolds to the lower – lying J' manifolds are determined. The glass fluorescence emission (611; 628; 638; 662.5; 716.4 nm) lines are observed. The above lines are assigned to ${}^4G_{11/2} \rightarrow {}^4I_{11/2}$; ${}^4F_{3/2} \rightarrow {}^4I_{13/2}$; ${}^4F_{5/2} \rightarrow {}^4I_{13/2}$; ${}^4F_{9/2} \rightarrow {}^4I_{15/2}$; and ${}^4F_{7/2} \rightarrow {}^4I_{13/2}$ transitions respectively. Their emission cross sections are calculated. The transition ${}^4F_{9/2} \rightarrow {}^4I_{15/2}$ in the red spectral region has large radiative time; branching ratio; and stimulated emission cross section which indicates the suitability of glass system to be used in laser and electroluminescence applications.

Keywords: Er nanoparticles; Judd–ofelt analysis; Fluorescence; Emission cross section.

33. Optical Characterization and Differential Scanning Calorimetry Studies of Carboxymethyl Cellulose–Nickel Chloride Composite System

Farid M. Abdel-Rahim, K. H. Mahmoud and K. A. Aly

Journal of Applied Polymer Science; 127: 4334-4339 (2013) IF: 1.395

Carboxymethyl cellulose (CMC) films doped with nickel chloride hexahydrate have been prepared by casting technique. The phase transitions and thermal stability of the prepared samples were investigated by differential scanning calorimetry and thermogravimetry. The optical absorption was recorded at room temperature in the wavelength range of 190–2500 nm. From the absorption edge studies; the values of the Urbach energy (E_u) were found to be 0.58 eV in case of the pure polymer; however; the Urbach energy values were found to be in the range of 0.64–1.0 eV under additional different percentages of nickel chloride. These energy values indicate that the model based on random fluctuations of the internal fields associated with structure disorder is preferable and transitions are made between band tails. Refractive index; complex dielectric constants have also been determined. Color properties of the prepared samples are discussed in the frame work of CIE $L^*u^*v^*$ color space.

Keywords: Polymers; Differential scanning calorimetry (DSC); Thermal properties; Optical properties; Dielectric properties and color centers.

34. Preparation of $La_{0.7}Ca_{0.3}Mn_{0.95}Fe_{0.05}O_3$ Perovskites by Different Methods: Catalytic Activity towards the Hydroxylation of Benzene

Ahmed Imam Hanafy, Ibraheem Othman Ali, Zeinhom Mohamed El-Bahy and Khaled Hussein Mahmoud

European Journal of Chemistry; 4 (3): 272-276 (2013)

Nanoparticles of the $La_{0.7}Ca_{0.3}Mn_{0.95}Fe_{0.05}O_3$ perovskites were synthesized by various wet chemical routes; namely; co-precipitation; oxalate-gel and citrate-gel methods. Phase formation and crystal structure of the synthesized powders were examined by the X-ray diffraction (XRD). The morphology was evaluated by the scan electron microscopy (SEM). Infrared transmission spectroscopy revealed that stretching and bending modes were influenced by the preparation methods. The citrate gel method yielded better powder properties. The prepared perovskite samples were used in the oxidation of benzene. The highest activity for the catalytic oxidation of benzene to phenol in presence of hydrogen peroxide (H_2O_2) was obtained with the citrate-gel prepared sample.

Keywords: XRD; SEM; Benzene; Perovskites; Hydroxylation; Catalytic activity.

Dept. of Zoology

35. Malarial Infection of Female Bwf1 Lupus Mice Alters the Redox State in Kidney and Liver Tissues and Confers Protection against Lupus Nephritis

Saleh Al-Quraishy, Mostafa A. Abdel-Maksoud, Azza El-Amir, Fathy A. Abdel-Ghaffar and Gamal Badr

Oxidative Medicine and Cellular Longevity, 1-10(2013) IF: 3.393

Systemic lupus erythematosus (SLE) is a prototypic autoimmune disease characterized by an imbalanced redox state and increased apoptosis. Tropical infections; particularly malaria; may confer protection against SLE. Oxidative stress is a hallmark of SLE. We have measured changes in the levels of nitric oxide (NO); hydrogen peroxide (H_2O_2); malondialdehyde (MDA); and reduced glutathione (GSH) in both kidney and liver tissues of female BWF1 lupus mice; an experimental model of SLE; after infection with either live or gamma-irradiated malaria. We observed a decrease in NO; H_2O_2 ; and MDA levels in kidney tissues after infection of lupus mice with live malaria. Similarly; the levels of NO and H_2O_2 were significantly decreased in the liver tissues of lupus mice after infection with live malaria. Conversely; GSH levels were obviously increased in both kidney and liver tissues after infection of lupus mice with either live or gamma-irradiated malaria. Liver and kidney functions were significantly altered after infection of lupus mice with live malaria. We further investigated the ultrastructural changes and detected the number of apoptotic cells in kidney and liver tissues in situ by electron microscopy and TUNEL assays. Our data reveal that infection of lupus mice with malaria confers protection against lupus nephritis.

Keywords: Lupus nephritis; Malaria; Ultrastructural changes.

Faculty of Agriculture

Dept. of Agricultural Biochemistry Section

36. Biological Effects, Antioxidant and Anticancer Activities of Marigold and Basil Essential Oils

Ghada Ibrahim Mahmoud

Journal of Medicinal Plants Research; 7 (10): 561-572 (2013)
IF: 0.74

The essential oils isolated from *Tagetes minuta* L. flowers and *Ocimum basilicum* L. herb were analyzed by GC/MS and assessed for antioxidant and in vitro and in vivo anticancer activities. Also biological effects of these essential oils on normal mice were studied. The major components of marigold essential oil were cis- β -ocimene (54.82%); cis-tagetone (11.50%) and trans-tagetenone (10.78%); cistagetenone (7.10%); dihydrotagetone (6.50%) and limonene (3.82%). The major components of basil essential oil were estragole (75.45%); 1,8-cineole (7.56%); linalool (5.01%); trans-anethole (3.72%) and methyleugenol (3.48%). The DPPHscavenging activities of both essential oils were determined. 50% effective concentration (EC₅₀) of marigold essential oil (86.35 μ g/ml) was higher than basil essential oil (80.84 μ g/ml). The anticancer activity of the two essential oils on two human promyelocytic leukemia cell lines (HL-60 and NB4) and experimental animals model cancer cell line (EACC) were investigated in vitro. The results indicated that the anticancer activity of marigold essential oil was higher than basil essential oil against NB4 and EACC cell lines; while basil essential oil was higher than marigold essential oil against HL-60 cell line. In in vivo study; pre-initiation treatments with the both essential oils were more effective than initiation and post-initiation treatments; respectively on the tumor (EACC) transplanted female mice. Biological effects of both essential oils on normal mice indicated that all the obtained values in all experimental animals were within the normal range.

Keywords: *Tagetes minuta*; *Ocimum basilicum*; Essential oils; Antioxidant; Anticancer.

37. Hypo-Cholesterolemic and Hypoglycemic Effects of Orange Albedo Powder (*Citrus Aurantium* L.) on Albino Rats

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International Journal of Nutrition and Food Sciences; 2: 70-76 (2013)

The present study was conducted to evaluate the hypocholesterolemic and hypoglycemic effects of dietary Orange Albedo Powder (*Citrus Aurantium* L.) in the hypercholesterolemic albino rats; also to examine various oxidative stress-associated with some biochemical parameters. Thirty two male albino rats weighing 110 \pm 10 g were divided into four groups; the first group received the basal diet only and served as (negative control); the second group received the hypercholesterolemic diet and served as (positive control); the other two groups received hypercholesterolemic diet supplemented with 10%; 20% orange albedo powder respectively (OrAP) for six weeks spontaneously. The obtained results

revealed that the groups of rats which received diets supplemented with 10% and 20% OrAP were significantly decrease total lipid; total cholesterol; triglycerides; low density lipoprotein cholesterol; liver enzymes (alanine aminotransferase; aspartate aminotransferase and alkaline phosphatase); when compared with positive control; also kidney functions were significantly improved. Body weight gain and food intake were significantly decreased when compared with positive control. The results indicate that the orange albedo is a good source of natural fiber. It could use in obese people for body loss; also serves to improve blood picture and to reduce the blood glucose level in hypercholesterolemic rats.

Keywords: Orange albedo powder; Hypo-cholesterolemic; Hypoglycemic effects.

Dept. of Agricultural Botany

38. Halotropism is a Response of Plant Roots to Avoid a Saline Environment

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Current Biology; 23: 1-7 (2013) IF: 9.494

Tropisms represent fascinating examples of how plants respond to environmental signals by adapting their growth and development. Here; a novel tropism is reported; halotropism; allowing plant seedlings to reduce their exposure to salinity by circumventing a saline environment. In response to a salt gradient; *Arabidopsis*; tomato; and sorghum roots were found to actively prioritize growth away from salinity above following the gravity axis. Directionality of this response is established by an active redistribution of the plant hormone auxin in the root tip; which is mediated by the PIN-FORMED 2 (PIN2) auxin efflux carrier. We show that salt-induced phospholipase D activity stimulates clathrin-mediated endocytosis of PIN2 at the side of the root facing the higher salt concentration. The intracellular relocation of PIN2 allows for auxin redistribution and for the directional bending of the root away from the higher salt concentration. Our results thus identify a cellular pathway essential for the integration of environmental cues with auxin-regulated root growth that likely plays a key role in plant adaptive responses to salt stress

Keywords: Salinity; Halotropism; Gravity; Pin2.

39. Calcium Supply Effects on Wheat Cultivars Differing In Salt Resistance with Special Reference to Leaf Cytosol Ion Homeostasis

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Physiologia Plantarum; 149 (3): 321-328 (2013) IF: 3.656

Salinity causes changes in cytosolic Ca²⁺; [Ca²⁺]_{cyt}; Na⁺; [Na⁺]_{cyt} and pH; pH_{cyt}; which induce specific reactions and signals. Reactions causing a rebalancing of the physiological homeostasis of the cytosol could result in plant resistance and growth.

Two wheat cultivars; *Triticum aestivum*; Seds1 and Vinjett; were grown in nutrient solution for 7 days under moderate salinity (0

and 50 mM NaCl) with and without extra addition of 5 mM CaSO₄ to investigate the seedling-ion homeostasis under salinity. In the leaf protoplasts [Ca²⁺]cyt; [Na⁺]cyt and pH cyt were detected using acetoxymethyl esters of the ion-specific dyes; Fura 2; SBFI and BCECF; respectively; and fluorescence microscopy. In addition; both cultivars were grown for 3 weeks at 0; 50 and 125 mM NaCl with, or without, extra addition of 5mM CaSO₄ to detect overall Na⁺ and Ca²⁺ concentrations in leaves and salinity effects on dry weights.

In both cultivars, salinity decreased [Ca²⁺]cyt, while at extra Ca²⁺ supplied, [Ca²⁺]cyt increased. The [Ca²⁺]cyt increase was accompanied by increase in the overall Ca²⁺ concentrations in leaves and decrease in the overall Na⁺ concentration. Moreover, irrespective of Ca²⁺ treatment under salinity, the cultivars reacted in different ways; [Na⁺]cyt significantly increased only in cv. Vinjett, while pHcyt increased only in cv. Seds1. Even at rather high total Na⁺ concentrations, the cytosolic concentrations were kept low in both cultivars. It is discussed whether the increase of [Ca²⁺]cyt and pHcyt can contribute to salt tolerance and if the cytosolic changes are due to changes in overall Ca²⁺ and Na⁺ concentrations.

Keywords: Calcium supply; Cytosolic-ion homeostasis; Epi-Fluorescence microscopy; Salinity; Wheat.

40. Effect of Nitrogen Sources, Bio-Fertilizers and Their Interaction on the Growth, Seed Yield and Chemical Composition of Guar Plants

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Life Science Journal; 10(3): 389-402 (2013) IF: 0.165

A field experiment was carried out during two successive seasons; 2011 and 2012 aiming to study the effect of utilizing different sources of nitrogen (ammonium nitrate NH₄NO₃ or ammonium sulphate (NH₄)₂SO₄ with or without adding bio-fertilizers (biogein at 2 kg/fed.; nitrobein at 2 kg /fed.; or biogen at 1 kg /fed.; + nitrobein at 1 kg /fed.) as well as their interaction on the plant growth; seed yield; total protein and total guaran content in seeds as well as some chemical contents in leaves. Results revealed that different sources of nitrogen or bio-fertilizers increased the growth parameters; i.e.; plant height; number of branches per plant and dry weight of aerial part and leaves per plant; as well as number of pods/plant; weight of seeds (gm/ plant or kg/ fad.); and chemical constituents such as guaran content; total chlorophyll (a+b); total carbohydrate; total protein and N; P; K compared to untreated plants.

Fertilizing plants with ammonium sulphate was the most effective in raising the productivity of seeds and the content and yield of guaran and chemical composition than ammonium nitrate. Treating plants by bio-fertilizer (mixture of biogein+nitrobein) was the most effective in this concern followed by nitrobein and then biogein.

The interaction treatment of ammonium sulphate at 60 kg N/fad + bio-fertilizer (biogein at 1 kg/fed + nitrobein at 1 kg/fed.) gave the best result in this concern with significant differences if compared to the control and the other treatments under study in both seasons.

Keywords: Nitrogen sources; Bio-fertilizers; Growth; Yield; Guar and chemical composition; Guar.

41. Botanical Studies on *Ocimum Basilicum* L. (Lamiaceae)

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Research Journal of Agriculture and Biological Sciences, 9(5): 150-163 (2013)

Acute difficulties are experienced by taxonomists in arriving at satisfactory taxonomy and nomenclature of various species of the genus *Ocimum* due to lack in information about morphological; anatomical and biochemical characteristics concerning different *Ocimum* species. Thus; *Ocimum basilicum* L. (Basil) was chosen to undertake a careful study dealing with germination of seeds and external morphology of vegetative and reproductive growth of this plant throughout the consecutive stages of its entire life span because of its economic importance as an ornamental; spice; culinary and medicinal herb. Such knowledge may fulfill information acquisition in this concern.

The morphology of vegetative growth includes detailed description of various vegetative organs beside the following characters which were taken fortnightly throughout the growing season: plant height; length of the main stem; number of internodes of the main stem; length of successive internodes of the main stem; number of primary branches developed on the main stem; length of successive primary branches; fresh weight of leafless shoot / plant ; number of leaves / plant; total leaf area / plant; fresh weight of leaves / plant and yield of herb / plant. The morphology of reproductive growth includes detailed description of various reproductive organs beside the following characters of seed yield at harvest time : number of matured inflorescences / plant; average number of fruits / inflorescence ; average number of nutlets (seeds)/ inflorescence; average number of nutlets / plant; specific weight of seeds (average weight of 1000 nutlets in grams) and yield of nutlets (seeds) / plant.

Keywords: *Ocimum basilicum* L.; Basil; Lamiaceae; Germination; External morphology; Vegetative growth; Reproductive growth.

42. Comparative Morphological and Anatomical Studies on *Cucurbita Maxima* Duchesne and *Lagenaria Siceraria* (Molina) Standl

H.S. Abd – El Maksoud and Rania M.A. Nassar

Research Journal of Agriculture and Biological Sciences; 9 (6): 296-307 (2013)

Comparative studies on the morphology and anatomy of *Cucurbita maxima* Duchesne and *Lagenaria siceraria* (Molina) Standl. grown in Egypt were carried out. The morphological features of significance included variations in the leaf (color; size; shape; stomatal type and both upper and lower epidermis patterns); pollen grain shape and seed (shape; size; color; hilum and seed coat patterns).

Keywords: Anatomy; *Cucurbita maxima* duchesne; *Lagenaria siceraria* (Molina) standl; Morphology; Scanning electron microscope (SEM).

43. Effect of Putrescine and Humic Acid on Growth; Yield and Chemical Composition of Cotton Plants Grown Under Saline Soil Conditions

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American-Eurasian Journal of Agricultural and Environmental Sciences; 13 (4): 479-497 (2013)

This study was carried out to determine the effects of putrescine(Put) and humic acid (HA) foliar applications on growth, yield and chemical composition of Egyptian cotton (*Gossypium barbadense* L. cv. Giza 90)plants grown under saline soil condition. A soil mixture of, clay: sand (1:1), was used as a plant growing media. Three different doses of putrescine (0, 1 and 2 ppm) and humic acid (0, 1 and 2%) were sprayed eight times started at 45 days after planting. Before sowing cotton, different concentrations (0, 3000, 6000 and 9000ppm) of salt mixture (2 NaCl: 2 CaCl₂: 1 MgSO₄) were added into soil for each pot. Application of Put and HA positively affected cotton plants grown under salt stress. The results indicated that there is an increase in morphological characters e.g. plant height, number of leaves per plant, leaf area per plant, fruiting branches per plant, shoot fresh and dry weight. Also, Put and HA increased chemical constituents related to salt tolerance either inorganic, N, P and K, while Na, Cl, Ca and Mg were decreased, or organic constituents e.g. proline, total free amino acids, total sugars, total soluble phenols, chlorophyll a, b, total chlorophyll and total carotenoids. As a result of promoting growth induced by previous foliar applications, yield components e.g.; number of total, open and closed bolls, seed cotton yield/plant, lint percentage and seed index were increased. Application of 2 ppm Put and 1% HA recorded the highest values of growth and yield characters.

Keywords: Cotton; Salinity; Putrescine; Humic acid; Growth characters; Lint.

44. Impact of Different Grafting Methods on Yield and Quality of Watermelon

Abd El-Wanis, Mona, El-Eslamboly A.A.S.A. and Salama, M. Azza

Research Journal of Agriculture and Biological Sciences; 9(6): 330-340 (2013)

Watermelon (*Citrullus lanatus*) is an important vegetable crop grown in Egypt. Grafting watermelon has become much involved in the production area of watermelon. Many hand grafting methods were used for producing the seedlings of grafted watermelon. The grafting method is the most influential factor in the success of the grafting process and produce good seedlings. Both scion and rootstock material are determining factors for selecting the grafting methods. Best method also depends on the availability of the possibilities in the process of healing during a fusion between the scion and rootstocks and acclimatization stage. This study aims to define the best grafting method for producing of grafted watermelon seedlings in survival ratio under low potential in both healing and acclimatization chamber and to arrive to the commercial grafting technique. The studies were conducted in two experiments in randomized complete blocks design with three replicates during the two seasons of 2012and 2013 at Kaha Research Farm and private farm in Berkash Giza. Each experiment included different three grafting treatments

(grafting techniques) in addition to the control watermelon hybrids which were sown without grafting. Watermelon cv. (Aswan F1 hybrid) was used as a scion and grafting it in bottle gourd rootstock (*Lagenaria siceraria*) local variety. The obtained results showed that, the grafted plants especially when using splice graft (one cotyledon grafting) showed significant increment in most studied characteristics such as vegetative growth (plant height, stem diameter, leaf area, number of leaves, number of branches, plant fresh and dry weight and dry matter percentage), early and total yield in addition to fruit characters, as compared with non-grafted watermelon (control). Tongue approach grafting was not requires careful control of humidity, light, and temperature after grafting. Normal greenhouse environment is sufficient. Splice graft was the best grafting technique in survival rate followed by hole insertion grafting. Splice grafting and tongue approach grafting were not requires to remove the shoots grown from the rootstocks, whereas it doesn't give any shoots from the rootstocks. Splice grafting gave highly significant increment in all characteristics under study compared with the other methods and control in both seasons. The histological studies on union zone in the grafted watermelon confirm that the results mentioned before that the splice graft was the best grafting method in most characters under studies followed by hole then tongue.

Keywords: Watermelon; Grafting methods; Growth; Yield; Fruit quality.

45. Influence of Foliar Spray with Stigmasterol on Growth; Productivity and its Quality and Stem Anatomy of Flax (*Linum Usitatissimum* L.)

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Australian Journal of Basic and Applied Sciences; 7 (2): 763-769 (2013)

The present study was carried out during the two winter growing seasons of 2010/2011 and 2011/2012 to investigate the effect of foliar application with different concentrations (0; 30; 60; 90; 120 and 150 ppm) of stigmasterol on morphological characters and yield of flax cv. Sakha-1 from straw; fiber and seeds as well as on their related characters. Moreover; the effect on stem anatomy;seed oil percentage and composition of fatty acids were under consideration.

The obtained results indicated that stigmasterol at the relatively low used concentration of 30 ppm showed no significant effect on all studied morphological and yield characters of flax cv. Sakha-1. On the other hand; foliar application with any of the other assigned concentrations of stigmasterol (60; 90; 120 and 150 ppm) induced significant promotive effect on all studied characters except those of number of seeds/capsule;seed oil percentage and composition of fatty acids of flax cv. Sakha-1. The maximum promotion was detected at 90 ppm stigmasterol which induced significant increases of 25.7; 23.8; 34.8; 19.5; 24.6; 9.2; 38.0; 29.4; 35.6; 14.1; 15.9; 31.6; 28.3 and 22.6% over those of the control for plant height; technical length of the main stem; length of fruiting zone; diameter of the main stem; number of capsules/plant; weight of 1000 seeds; seed yield/plant; seed yield/feddan; seed oil yield/feddan; straw yield/plant; straw yield/feddan; fiber yield/plant; fiber yield/feddan and fiber length; respectively.

Microscopical examination revealed that the increase which was observed in stem diameter of flax cv. Sakha-1 due to foliar application with 90 ppm stigmasterol could be attributed mainly to the prominent increase in all included tissues. The thickness of epidermis; cortex; fibrous region; secondary phloem and xylem tissue as well as diameter of the pith were increased by 5.6; 47.1; 20.2; 14.1; 30.0 and 8.1% more than those of the control; respectively. Moreover; number of fibrous bundles/cross section increased in treated plants by 9.4% more than those of untreated ones.

Keywords: Flax; Linum usitatissimum L.; Stigmasterol; Growth; Productivity; Quality; Stem.

46. Pre-sowing Seed Treatment with Proline Improves some Physiological, Biochemical and Anatomical Attributes of Faba Bean Plants under SeaWater Stress

Hanan A.A. Taie, Magdi T. Abdelhamid, Mona G. Dawood and Rania M.A. Nassar

Journal of Applied Sciences Research; 9(4): 2853-2867 (2013)

Irrigation with diluted seawater can act as an alternate water resource and thus plays an important role in saving fresh water resources as well as promoting agriculture. Salinity stress is considered as one of the major abiotic stresses which strongly reduced crop productivity. A pot experiment was conducted at wire house of the National Research Centre; Dokki; Cairo; Egypt to elucidate the effect of pre-sowing seed treatment with proline (0; 5; and 10 mM as P0; P1 and P2; respectively) on some physiological; biochemical and anatomical attributes of faba bean (*Vicia faba* L.) plants under seawater stress (0.23; 3.13; 6.25 dS/m as tap water TW; SW1 and SW2; respectively). The irrigation with sea water was applied 16 days after sowing and lasted for 50 days. Plant samples were collected after 65 days from sowing. Results showed that increasing sea water concentration induced reduction in all growth parameters (plant height; number of leaves and shoot dry weights/plant); photosynthetic pigments (chlorophyll a; chlorophyll b and carotenoids); total carbohydrate; contents of P; Ca⁺⁺; K⁺ and K:Na ratio of faba bean leaves compared with those of the untreated unstressed plants(TWP0). Increasing sea water stress led to increases in total phenolics; free amino acids; proline and soluble carbohydrate as well as values of N; Na⁺; and Cl⁻. Special attention was paid to the effect of proline treatments on the salt stressed faba bean that stimulates plant salt tolerance via improving growth parameters; photosynthetic pigments; soluble carbohydrate and total carbohydrate meanwhile phenolic content, proline, Na⁺, Cl⁻ were decreased relative to their corresponding salinity controls. Sea water stress and proline treatments induced over expression for new protein bands with high density. The effect of salinity stress and/or proline on anatomical structure of vegetative organs was under consideration. From these results; pre-sowing faba bean seed treatment with proline seem to enhance faba bean salt tolerance by amelioration of photosynthetic pigments; ion accumulations; and anatomical structure of vegetative organs; hence improved plant growth and the preservation of a suitable plant water status under salinity conditions.

Keywords: Anatomical structure; Ion accumulation; Proline pre-sowing; Protein pattern; Salt stress; *Vicia faba*.

47. Response of Mungbean Plant (*Vigna Radiata* (L.) Wilczek) to Foliar Spray with Ascorbic

Rania Mohamed A. Nassar

Journal of Applied Sciences Research; 9 (4): 2731-2742 (2013)

Field experiments were carried out at the Agricultural Experiments and Researches Station; Faculty of Agriculture; Cairo University; Giza; Egypt during the two growing seasons of 2010 and 2011 in order to study the influence of foliar spray with various concentrations of ascorbic acid (0; 150; 300; 450 and 600 ppm) on morphological and anatomical characters of vegetative growth; photosynthetic pigments; yield characters and seed quality of mungbean cv. Kawmy 1. The obtained results revealed that foliar application with the relatively low tested concentration of 150 ppm ascorbic acid showed no significant effect on all studied characters of vegetative growth and yield components as well as on photosynthetic pigments and seed quality of mungbean cv. Kawmy 1. By contrast; foliar application with any of the other used three concentrations of ascorbic acid especially higher used ones (450 or 600 ppm) induced significant promotive effects on morphological and yield characters as well as on photosynthetic pigments and on seed protein and total carbohydrates. The maximum significant promotion was obtained when plants of mungbean cv. Kawmy 1 were sprayed twice with 450 ppm ascorbic acid. Such treatment elicited beneficial changes in both vegetative and reproductive characters as well as on photosynthetic pigments and some chemical constituents of the seed; which resulted in higher yield of seeds per plant with high quality. These plants were characterized by longer main stem; which developed more lateral branches and a higher number of pods having more number of seeds of high specific weight and high protein and carbohydrate contents. Also; such plants showed favourable changes in anatomical structure of their stems and leaves. Foliar application with 450 ppm ascorbic acid induced prominent increase in stem diameter due mainly to the increase in thickness of stem wall. The increase in stem wall thickness could be attributed mainly to the prominent increase in thickness of xylem tissue and of parenchymatous area of the pith. Moreover; phloem tissue was increased and xylem vessels had wider cavities; which amounted to more total active conducting area to cope with vigorous growth resulting from treatment with 450 ppm ascorbic acid. Likewise; such treatment increased thickness of both midvein and lamina of leaflet blades of mungbean cv. Kawmy 1. It was found that the thicker lamina induced by ascorbic acid was mainly due to increase induced in thickness of both palisade and spongy tissues. Also; the main vascular bundle of the midvein was increased in size as a result of spraying ascorbic acid.

Keywords: Mungbean; Ascorbic acid; Vegetative growth; Morphology; Anatomy; Photosynthetic pigments; Yield; Seed quality.

Dept. of CROP Sciences

48. Effect of Foliar Application of Some Micronutrients and Growth Regulators on Some Egyptian cotton Cultivars

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Journal of Applied Sciences Research; 9(6): 3497-3507 (2013)

Two field experiments were carried out in Giza Experiment and Agriculture Research Station; Faculty of Agriculture; Cairo University in 2011 and 2012 seasons to study the response of Giza 90 and Giza 92 Cotton cultivars to foliar application of Gibberellic acid (GA₃) at level of 100 ppm and/or Ascorbic acid at level of 500 ppm and spray a combined of each of iron; manganese and zinc each at concentration of 2g / liter with or without application (control). Spraying took place twice; at the beginning of the flowering stage and 15 days later. The results showed that. Cultivars varied significantly in each of plant height; No. of sympodial branches; No. of open bolls per plant; seed index; earliness and seed oil and protein percentage but did not vary significantly in boll weight; seed cotton yield/ feddan and lint percentage in both seasons. Fiber technology differ significantly in fiber length; strength in both seasons and micronaire value in second seasons. Giza 92 was superior in all traits under study. Application of micronutrients and/or growth regulators particularly (micronutrients + GA₃) significantly affected all traits under study such as; plant height. No. of open bolls per plant; seed index; seed cotton yield / feddan; lint percentage; earliness percentage; seed oil and protein percentage and fiber properties in both seasons. The interaction between cultivars and spraying treatments under study affected all characters under study whereas Giza 92 surpassed Giza 90 when received foliar application with micronutrients + GA₃ 100 ppm in all traits under study particularly no. of bolls/ plants; seed cotton yield/feddan; earliness; seed oil and protein percentage and as well the highest fiber length; strength and best reading in Micronaire reading averages in both seasons. Application of micronutrients and/or growth regulators especially (micronutrients + GA₃) increased plant contents from macro and micronutrients (N; P; K; Ca; Fe; Zn and Mn); chlorophylls; carotenoides and also total sugars; total free amino acids and total soluble phenol (in leaf) in both seasons compared with the control treatment. Giza 92 was superior in all traits under study than Giza 90; in these respects

Keywords: Cotton; Micronutrients; Growth regulators; Chemical composition.

Dept. of Food Science and Technology

49. Effect of Ordinary Cooking Procedures on Tetracycline Residues in Chicken Meat

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Journal of Food and Drug Analysis; 21(1): 80-86 (2013)
IF: 0.333

The abundant misuse of tetracyclines (TCs) in poultry production results in the presence of their residues in edible tissues; intended for human consumption; causing a health threat. Hence; the stability of TC residues in chicken tissues under cooking conditions is an important research area; which provides valuable information related to health safety aspects. This study aimed to present the changes by different cooking processes on TCs in chicken meat; and determine the cooking time required to make the cooked sample safer for consumption. Chicken breast and thigh incurred with TC were cooked by boiling; roasting and microwaving for different durations of time and analyzed by high-performance liquid chromatography with diode array detection. The losses of TC residues in chicken meat were depended upon the cooking procedure; cooking time and TC

agents. Microwaving was more effective than boiling and roasting. The losses of TC residues increased with prolonged cooking time. Doxycycline was the most heat stable of TCs; while oxytetracycline was the most heat labile. The time required to destroy 90% of the initial TC level was 23.9; 53.2 and 101.6 min for microwaving; boiling and roasting; respectively. Generally; sufficient cooking temperature and time can have a significant effect on the losses of TC residues and provides an additional margin of safety for consumers.

Keywords: Tetracycline residue; Chicken meat; Cooking; D-value; Health safety.

50. The Potential Effect of Special Formulas on Cirrhotic Rats

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Food and Nutrition Sciences; 4: 594-603 (2013)

Liver protective effect of special formulas (1 and 2) was assessed against carbon tetra chloride (CCl₄) which induced liver damage in Wister albino rats. The two prepared formulas reduced the changes in body weight and liver weight caused by CCl₄ in rats. The toxicity of CCl₄ is related to loss in body weight and increase in liver weight in rats. The weight ratios of liver to body weight (LW/BW) significantly increased in rats treated with CCl₄ followed by other groups. Formulas 1 and 2 could play an important role in improvement of hematological indices in liver cirrhosis rats. Feeding treated rats on special formulas showed improvement in liver function compared to rats fed on basal diet; reflected by significant reduction of the activity of transaminases (ALT and AST); alkaline phosphatase (ALP) and total bilirubin. There was a significant increase in total protein; albumin and globulin in serum. Significant increase in liver weight in rats treated with CCl₄. There are no histopathological changes in all groups under study except for group 4 (CCl₄ treated rats fed on basal diet) which orally administrated with CCl₄ and had congestion of central vein and hepatic sinusoids.

Keywords: Liver cirrhosis; CCl₄; Formulas; Liver function; Histopathological; Hepatoprotective.

Faculty of Veterinary Medicine

Dept. of Clinical Pathology

51. Study the Protective Role of Zinc; Vitamin E and Selenium as Antioxidants in Pregnant Rats Exposed to Cadmium with Special Reference to Biochemical and Pathological Aspects

Fawzia Y. Shata, Sayed G. Hassan, Amira H. Mohamed, Hassan M. Desouky, Walid S. El -Nattat and Alaa R. Ahmed

Life Science Journal; 10(4): 3062-3069 (2013) IF: 0.165

The aim of this study was to investigate the possible protective role of the zinc; vitamin E (Vit.E) and selenium as antioxidants against cadmium (Cd) -induced renal and hepatic damage in pregnant rats using biochemical and histopathological approaches. Ninety pregnant rats were used; randomly allocated into nine equal groups. The first four groups were treated with low dose of cadmium (0.3mg cdcl₂/kg.b.wt). The second four groups were treated with high cadmium dose (1.5mg cdcl₂/kg.b.wt). Three of the low and 3 of the high cadmium exposed groups were treated; in addition; with one of the following antioxidants zinc sulphate (ZnSO₄); vitamin E or sodium selenite (NaSeO₃) respectively. The remaining group was kept as control. Blood samples were collected and the plasma was separated for estimation the activity of alanine amino transferase (ALT); aspartate amino transferase (AST) and γ -glutamyl transferase (γ GT); and determination of creatinine concentration. Tissue specimens from liver and kidney were taken for histopathological examination. Results indicated the level of ALT was decreased significantly in plasma of zinc treated group. There were significant decreases of γ GT in low and high dose Cd treated group with vit. E and low dose Cd treated with selenium. Meanwhile; non significant changes in creatinine concentration in high dose Cd exposed rats treated with different antioxidants were recorded. Histopathological findings of liver showed edema with dilatation in the portal vein and mononuclear leucocytes infiltration in the portal areas and in between the hepatocytes in low dose cadmium exposed pregnant rats with vit. E. and selenium. On the other hand; the histopathological picture of kidney was focal interstitial hemorrhage at the corticomedullary junction and hyperemia of the tuft of the glomeruli in low dose cadmium exposed pregnant rats with zinc and selenium. It could be concluded cadmium administration induced elevation of ALT; AST; γ -GT activities and creatinine concentration and histopathological changes in liver and kidney. Moreover; administration of antioxidants zinc; vit. E and selenium showed partial protective effect on liver and kidney through reducing the Cd- induced pathological changes especially at the low dose Cd and improving the biochemical parameters when compared with Cd alone treated group.

Keywords: Cadmium toxicity; Biochemistry; Histopathology; Antioxidants; Selenium; Zinc; Vit. E.

52. Protective Effect of Egyptian Propolis Against Rabbit Pasteurellosis

Somia A. Nassar, Amira H.Mohamed, Hamdy Soufy and Soad M. Nasr

Biomed Research International; 163724: 1-9 (2013)

The present study was conducted to study the protective effect of ethanolic extract of propolis given subcutaneously (S/C) either alone or in combination with inactivated formalized *Pasteurella multocida* (P. multocida) vaccine in rabbits challenged with virulent P. multocida strain. Twenty-eight New-Zealand rabbits; 6–8 weeks old and not vaccinated against pasteurellosis; were randomly divided into four equal groups. Group (1) was kept as nonvaccinated control. Group (2) was injected S/C with propolis. Group (3) was vaccinated (S/C) with P. multocida vaccine only. Group (4) was injected with vaccine mixed with propolis as adjuvant. Groups (2; 3; and 4) received the same doses of propolis and vaccine after 4 weeks as a booster dose. The experiment continued for six weeks during which clinical signs; body weight; and mortality rate were recorded. Blood samples were collected every 2 weeks of treatment for evaluating the erythrogram and biochemical parameters. At the end of six weeks; all groups were subjected to challenge with a virulent strain of P. multocida. Two weeks later; tissue specimens were collected from different organs for histopathological investigation. Results showed that before challenge all rabbits of different groups were apparently healthy and had good appetite. After challenge; control group (1) showed acute form of the disease; 100% mortality rate; and severe histopathological changes. Rabbits of groups (2 and 3) showed less severe clinical signs; mortality rate; and histopathological changes than control. Rabbits of group (4) were apparently healthy with normal histological picture. In conclusion; an ethanolic extract of propolis injected alone or combined with formalized inactivated P. multocida vaccine improved general health conditions; liver and kidney functions in addition to reduction of the severity of adverse clinical signs; mortality rates; and histopathological changes associated with challenge of rabbits with P. multocida strain.

Keywords: Propolis; *Pasteurella multocida*; Rabbits.

Dept. of Fish Diseases and Management

53. Field Assessment of the Mid Winter Mass Kills of Trophic Fishes at Mariouteya Stream; Egypt: Chemical and Biological Pollution Synergistic Model

A.E. Eissa, N.A. Tharwat and M.M. Zaki

Chemosphere; 90: 1061-1068 (2013) IF: 3.137

Pathogenic *Candida albicans* was isolated from water and fish samples collected during an emergent event of mass mortalities among the juvenile Nile tilapia (*Oreochromis niloticus*); Sharp toothed catfish (*Clarias gariepinus*) along the stream of Mariouteya drainage. Investigations indicated that fish mortalities were confined to the area of Shubramant and Aboul Noumros (North to Sakara 7 drainage). *C. albicans* was isolated from the lesions associated with multiple skin ulcers in both Nile tilapia juveniles and Sharp toothed catfish. Assessment of the field and laboratory data has indicated that Mariouteya environmental disaster was a multifactorial problem. The fish mass kills were initially flared up through the dumping of the improperly treated nasty organic and inorganic chemicals from Elhawamdia sugar factory and municipal sewage. The physical stagnation of the stream; high levels of ammonia; phenol and polycyclic aromatic hydrocarbons (PAHs) and low levels of dissolved oxygen (DO) were all incriminated as the initial stimulus behind biological invasion of pathogenic bacteria (*Pseudomonas fluorescens*) and yeast (*C. albicans*). Pathologically; fishes were dying from both

respiratory and osmoregulatory failure induced by the severe damage of both gills and skin. It has been implied that such environmental pollutants have direct damaging effects on gills; skin and fins with consequent suppression of the skin's natural innate components. The adversely confronted immunological barriers were further exacerbated by the possible synergistic interactions of *P. fluorescence* dermatropic toxins followed by the secondary invasion of the pathogenic *C. albicans*.

Keywords: Mass mortalities; Environmental pollution; *Candida albicans*; *Pseudomonas fluorescence*; *Mariottella* stream; Egypt.

54. Detection of *Saprolegnia Parasitica* in Eggs of Angelfish *Pterophyllum Scalare* (Cuvier–Valenciennes) with a History of Decreased Hatchability

Alaa Eldin Eissa, Mohamed Abdelsalam, Nagwa Tharwat and Manal Zaki

International Journal of Veterinary Science And Medicine; 1: 7-14 (2013) IF: 2

Mass mortalities of angelfish eggs accompanied with very low hatchability were reported in a private ornamental fish farm in Egypt. Examined eggs were badly damaged by water mould that was decisively confirmed as *Saprolegnia* species. Presumptive identification of the ten retrieved isolates was initially suggestive of *Saprolegnia* species. Mycological investigations have revealed that only 7 out of 10 isolates were capable of producing sexual stages. Therefore; using molecular tools such as PCR coupled with partial sequencing of inter-transcribed spacer (ITS) gene was one of the most important approaches to distinguish *Saprolegnia parasitica* from other water moulds. The sequences of ITS gene data derived from eight isolates showed 100% similarity with *S. parasitica* ATCC90312 sequence and the remaining two isolates were different in one nucleotide (99.9%). The phylogenetic analysis of ITS genes grouped the ten isolates with other *S. parasitica* in one clad. Further; to control such fungal infection; the efficacy of povidone iodine as surface disinfectant for angelfish and their fertilized eggs were tested. By trial; it was obvious that the obtained post-rinsing results were highly suggestive for the efficacy of povidone iodine as an efficient antifungal disinfectant for both fish and eggs.

Keywords: *Saprolegnia parasitica*; Angelfish; Eggs; Povidone iodine.

55. Identifying Some Pathogenic *Vibrio*/ *Photobacterium* Species during Mass Mortalities of Cultured Gilthead Seabream (*Sparus Aurata*) and European Seabass (*Dicentrarchus Labrax*) from Some Egyptian Coastal Provinces

Mohammed Abdel-Aziz, Alaa Eldin Eissa, Magdy Hanna and Mahmoud Abou Okada

International Journal Veterinary Science and Medicine; 1: 87-95 (2013) IF: 2

Vibrio alginolyticus; *Vibrio parahaemolyticus* and *Photobacterium damsela* subsp *damsela* were isolated during recurrent episodes of mass mortalities among different stages of Gilthead sea bream (*Sparus aurata*) and European seabass (*Dicentrarchus labrax*).

The pathogens were recovered from the external/internal lesions of a total of 320 seeds; juvenile and adult fishes from the period of February 2013 through August 2013. Two hundred and sixty four bacterial isolates were retrieved and presumptively identified using morpho-chemical characterization and API®20NE. However; definitive molecular confirmation of *V. alginolyticus* was obtained through implementing collagenase gene based regular PCR technique.

The total prevalence of *V. alginolyticus*; *V. parahaemolyticus* and *Photobacterium damsela* subsp *damsela* among naturally infected Gilthead seabream and European seabass was 82.19%; 87.28% 10.27%; 6.79% and 7.54%; 5.93% respectively. Antibigram has revealed that isolates were sensitive to ciprofloxacin; chloramphenicol; enrofloxacin; nalidixic acid and oxolinic acid while resistant to ampicillin; amoxicillin; and lincomycin.

Keywords: *Sparus aurata*; *Dicentrarchus labrax*; *Vibrio alginolyticus*; *Vibrio parahaemolyticus*; *Photobacterium damsela*; Mass mortalities; Egypt.

56. In Vitro Evaluation of the Efficacy of Hemodialysate (Solcoseryl®) as a Wound Healing Agent in Nile Tilapia (*Oreochromis Niloticus*)

A.E. Eissa, M.M. Zaki, S. Saeid, M. Abdelsalam, H.M. Ali, A.A. Moustafa, T.B. Ibrahim and A.A. Abumhara

International Journal of Veterinary Science And Medicine; 1: 57-64 (2013) IF: 2

Skin wounds are the most prevalent daily affections intruding fishes in an aquaculture facility. Such skin affections are considered to be the most common portals of entry for disease agents affecting fishes.

This persistent phenomenon necessitates a comprehensive search for an efficient healing therapy to combat the ongoing dermal damage and its pathological consequences. In the current study; the core hypothesis has been vigorously tested through the experimental application of hemodialysate (Solcoseryl®) solution in several exposure methods including bath; intraperitoneal (I.P.); intramuscular (I.M.); and local infiltration routes. All tested routes were capable of inducing different degrees of healing in Nile tilapia (*Oreochromis niloticus*). The core hypothesis of the current research has been experimentally accomplished through assessing the resultant healing degrees based on both gross as well as tissue alteration dynamics among total of 5 experimental groups. Each group consisted of 10 fishes/aquarium. The swift tissue healing of the induced wounds in Nile tilapia were completely achieved 4 days post I.M. injection of the Solcoseryl® solution (10 µl/50 g fish as a single dose) with an excellent healing grade (++++). However; bath treatment (1 ml/L water as a single dose) and local infiltration (10 µl/50 g fish as a single dose) have proved to be second on the race (complete healing was achieved 6 days post treatment with very good grade (+++)). This study demonstrates the clinical value of fish models in establishment of new approach for combating prevalent invasive skin affections in aquaculture.

Keywords: Solcoseryl®; Hemodialysate; Wound healing; Nile Tilapia; *Oreochromis niloticus*.

57. *Streptococcus Dysgalactiae*: An Emerging Pathogen of Fishes and Mammals

Mohamed Abdelsalam, Abdellatif Asheg and Alaa Eldin Eissa

Int. J. of Veterinary Science and Medicine; 1: 1-6 (2013) IF: 2

Streptococcus dysgalactiae subsp. *dysgalactiae* (GCSD) has gained special interest of aquatic health experts throughout the past few years due to its interesting veterinary and public health importance. Increasing records of GCSD infections in farmed fishes have been documented through diverse worldwide aquatic habitats in Japan; China; Malaysia; Indonesia; Taiwan and Brazil. Despite the intraspecies/interspecies dynamic spread of fish GCSD; yet, the genetic basis of its virulence remains unknown. This gap in knowledge is the main reason behind inability to develop a competent vaccine to control the disease in aquatic animals. However; the authors have concluded that the virulence of GCSD is mainly based on its cell surface properties such as high hemagglutination and hydrophobic properties which determine the main adhesive/invasive pathogenic mechanism of the pathogen where GCSD isolates were able to adhere to and invade fish epithelial cell line *in vitro*. Most recently; the molecular pathogenesis investigations have revealed that; serum opacity factor [SOF]; superantigen and streptolysin S genes might be the most important virulence factors that have contributed to the swift propagation of streptococcal infection among aquatic and mammalian species. In conclusion; the current research based review has emphasized the current knowledge gap in epidemiology and control of fish GCSD. To bridge this current gap; a swift future development of high tech/accurate molecular research is highly needed to better understand the pathogenic mechanisms of GCSD.

Keywords: *Streptococcus dysgalactiae*; GCSD; Fish; Mammals; Virulence genes.

58. Use of Different *Saccharomyces Cerevisiae* Biotic Forms as Immune-Modulator and Growth Promoter for *Oreochromis Niloticus* Challenged With Some Fish Pathogens

Nermeen Abu-Elala, Mohamed Marzouk and Mohamed Moustafa

International Journal of Veterinary Science and Medicine; 1: 21-29 (2013) IF: 2

The manipulation of intestinal bacterial flora through dietary supplementation of beneficial microbes is a new approach not only from the nutrition point of view but also to overcome the adverse effects of chemotherapeutants and lack of effective vaccines. The current study was performed to assess the role of *Saccharomyces cerevisiae* as a whole yeast cell (Probiotic); its extract (mannan-oligosaccharide - Prebiotic) and Pre-Probiotic mixture (Synbiotic) as growth promoters and immunostimulants in cultured *Oreochromis niloticus* (*O. niloticus*). One hundred fifty-six *O. niloticus* were divided into four groups fed on Probiotic; Prebiotic; synbiotic and basal diet for two months. Treated fish groups showed significant improvement in growth performance and activation of non-specific cellular/humoral immunological measures together with a relative enhancement of resistance against challenged bacteria. Synbiotic feed additive has proved significant enhancement of fish innate resistance against

selected fish pathogens as well as positively increased the growth performance of challenged fish.

Keywords: *Saccharomyces cerevisiae*; Probiotic; Prebiotic; Synbiotic; Innate immunity.

Dept. of Microbiology

59. Multiplex Polymerase Chain Reaction to Identify and Determine the Toxigenicity of *Corynebacterium* Spp with Zoonotic Potential and an Overview of Human and Animal Infections

Luciene de Fátima Costa Torres, Dayana Ribeiro, Raphael Hirata Jr, Luis Gustavo Carvalho Pacheco, Monica Cristina Souza, Louisy Sanches dos Santos, Cíntia Silva dos Santos, Mohammad Salah, Mateus Matiuzy da Costa, Marcio Garcia Ribeiro, Salah A Selim, Vasco Ariston de Carvalho Azevedo and Ana Luiza Mattos-Guaraldi

Memórias Do Instituto Oswaldo Cruz; 108(3): 272-279 (2013) IF: 1.363

Corynebacterium diphtheriae; *Corynebacterium ulcerans* and *Corynebacterium pseudotuberculosis* constitute a group of potentially toxigenic microorganisms that are related to different infectious processes in animal and human hosts. Currently; there is a lack of information on the prevalence of disease caused by these pathogens; which is partially due to a reduction in the frequency of routine laboratory testing. In this study; a multiplex polymerase chain reaction (mPCR) assay that can simultaneously identify and determine the toxigenicity of these corynebacterial species with zoonotic potential was developed. This assay uses five primer pairs targeting the following genes: *rpoB* (*Corynebacterium* spp); 16S rRNA (*C. ulcerans* and *C. pseudotuberculosis*); *pld* (*C. pseudotuberculosis*); *dtxR* (*C. diphtheriae*) and *tox* [diphtheria toxin (DT)]. In addition to describing this assay; we review the literature regarding the diseases caused by these pathogens. Of the 213 coryneform strains tested; the mPCR results for all toxigenic and non-toxigenic strains of *C. diphtheriae*; *C. ulcerans* and *C. pseudotuberculosis* were in 100% agreement with the results of standard biochemical tests and PCR-DT. As an alternative to conventional methods; due to its advantages of specificity and speed; the mPCR assay used in this study may successfully be applied for the diagnosis of human and/or animal diseases caused by potentially toxigenic corynebacterial species.

Keywords: mPCR; *C. diphtheriae*; *C. ulcerans*; *C. pseudotuberculosis*; Diphtheria toxin.

60. Characterization of Virulence Genes Present in *Corynebacterium Pseudotuberculosis* Strains Isolated from Buffaloes

Sohier M. Syame, A.S. Hakim, Riham H. Hedia, Hanan S.H. Marie and S.A. Selim

Global Veterinaria; 10 (5): 585-591 (2013)

Forty aspirates collected from swellings of buffaloes showing clinical symptoms of the Oedematous Skin Disease were examined bacteriologically; biochemically and by uniplex and multiplex PCR for virulence genes screening. Ten isolates were identified as *Corynebacterium pseudotuberculosis* in a percentage

of (25%) and all isolates exhibited a synergistic hemolytic activity with *Rhodococcus equi* culture filtrate and inhibited staphylococcal hemolytic activity. The presence of universal 16s gene of *C. pseudotuberculosis* was confirmed by uniplex PCR in all 10 isolates. Application of multiplex PCR was done and all isolates of *C. pseudotuberculosis* were positive for presence of *pld* gene of *Corynebacterium pseudotuberculosis* while only 5 isolates were positive for presence of *pld* gene of *Corynebacterium ulcerans* and 7 isolates were positive for presence of diphtheria toxin *dt* gene of *Corynebacterium ulcerans*
Keywords: *Corynebacterium pseudotuberculosis*; Phospholipase D (PLD); Virulence genes; Oedematous skin disease (OSD).

Dept. of Parasitology

61. Role of Oligosaccharides as Biological Additives in Cultured Oreochromis Niloticus

Mohamed SM, Magdy IH, Olfat AM, Ebtsam AT and Nesreen SY

Journal of Aquaculture Research and Development; 5: 1-8 (2013)

The present study was carried out on 350 *Oreochromis niloticus* randomly collected alive from private freshwater fish farms at Eltal Elkbir-Sharkia governorate. The fish were subjected to clinical; postmortem and parasitological examination. The isolated external parasites were found belonging to the protozoa of genera *Trichodina*; *Epistylis* and *Chilodonella*; as well as monogenea of genera *Cichlidogyrus* and *Ancyrocephalus*. The efficacy of mannanoligosaccharides (Bio-Mos®) was evaluated on growth performance; haematological parameters; total proteins content and the Serum Lysozyme activity. Bio-Mos® appears to be of importance as growth promoter at level of 4 g/ Kg of fish diet; with consequent improving the general fish health and increasing the total fish gain. The efficacy of Bio-Mos® as a biocontrol agent for present external parasites in examined fish are needed more study to determine the role of mannan-oligosaccharides concerning the specific treatment and control of external parasitic infections in fishes.

Keywords: *Oreochromis niloticus*; Serum lysozymes; Haematological parameters; Growth performance; Mannan-oligosaccharides.

Dept. of Pathology

62. L -Carnitine Ameliorates L -Asparaginase-Induced Acute Liver Toxicity in Steatotic Rat Livers

Anne Roesmann, Mamdouh Afify, Jens Panse, Albrecht Eisert, Julia Steitz and Rene H. Tolba

Chemotherapy (International Journal of Experimental and Clinical Chemotherapy); 59: 167-175 (2013) IF: 1.554

Background: Chemotherapy with L-asparaginase is associated with hepatotoxicity resulting in organ dysfunction in patients with preexisting liver disorders. This study investigated the protective effect of L-carnitine during chemotherapy in a steatotic rat liver model.

Methods: Livers from nonsteatotic and steatotic rats were tested in an isolated liver reperfusion model adding L-asparaginase and L-carnitine to the reperfusate. Portal venous pressure (PVP), hepatic oxygen consumption, aspartate aminotransferase, lactate

dehydrogenase, glutamate dehydrogenase and α -glutathione S-transferase levels were assessed. Further histopathological analysis was performed and cytotoxicity was verified in vitro. **Results:** L-Asparaginase induced toxicity in fatty livers whereas low toxicity was observed in normal livers. L-Carnitine induced a decline in PVP and oxygen consumption, and reduced parenchymal and mitochondrial damage in fatty livers. Cytotoxicity of L-asparaginase was not impaired by the presence of L-carnitine.

Conclusions: Our study emphasizes the potential of L-carnitine to reduce L-asparaginase-induced hepatotoxicity in patients with preexisting liver disorders.

Keywords: L-Asparaginase; L-Carnitine; Chemotherapy; Leukemia; Liver toxicity; Lymphoma; Rat model of liver reperfusion; Steatotic liver.

Dept. of Pharmacology

63. Convenient Synthesis; Anti-Inflammatory; Analgesic and Ulcerogenic Activities of Some New Bis-Hydrazones and Pyrazole Derivatives

Hamdy NA, Abdel-Aziz HA, Kamel GM and Fakhr IM.

Acta Poloniae Pharmaceutica -Drug Research; 70 (3): 469 -480 (2013) IF: 0.665

The reaction of acid hydrazides (1a-c) with 2-chloro-1-(4-chlorophenyl) ethanone (2a) or 2-bromo-1-(4-bromophenyl)ethanone (2b) afforded bis-hydrazones 6a-d; while the reaction of 1a-c with 2-oxo-N-arylpropanehydrazonoyl chlorides (3a;b) furnished N-(aryl)propanehydrazonoyl chlorides 8a-c. The reaction of the latter chlorides with sodium benzenesulfinate furnished sulfones 11a-c. On the other hand; treatment of benzothiazole-2-carbohydrazide (1c) with the appropriate ketones yielded the corresponding hydrazones 13a;b; while the reaction of 1c with 2-(ethoxymethylene)malononitrile (14) or with 2-[bis(methylthio)methylene]malononitrile (16) afforded pyrazole derivatives 15 and 17; respectively. In acute toxicity study; no mortalities were observed for the tested compounds. All the tested compounds showed significant anti-inflammatory activity; while some of them exhibited potent analgesic activity. In addition; all compounds exhibited lower ulcerogenic effects than the standard ketoprofen.

Keywords: Bis-hydrazones; Benzothiazole; Sulfones; Pyrazoles; Anti-inflammatory; Analgesic activity.

Dept. of Poultry Diseases

64. Surveillance on Avian Influenza H5n1 and H9n2 Subtypes in Egypt 2012-2013

Shakal MA, Youssef YI, El Zeedy SA, Ibrahim SM and Al Baroudi BM

Poult Fish Wildl Sci; 2(1): 1-6 (2013)

Surveillance on Avian Influenza Virus in Egypt during 2012 -2013 was undertaken to update the epidemiology of avian influenza virus infections among poultry flocks in Egypt. A total of 148 commercial chicken farms were tested by single-plex RT-PCR for direct detection of avian influenza viruses using type A specific nucleoprotein (NP) gene primer sets. The results revealed

5 positive chicken flocks infected with type-A AIV. These viruses were successfully isolated and propagated in SPF eggs. H5N1/HI test was positive only for three chicken flocks. Subtype specific (RT-PCR) revealed 3 positive H5 chicken flocks (2%) and 2 positive H9 chicken flocks (1.35%). All examined chicken flocks were negative for H7 subtype. Multiplex RT-PCR using H5; H7 and H9 subtypes specific primers confirmed these results. This shows the continuous co-circulation of the AIV H5 and H9 in commercial chicken flocks in Egypt complicating the respiratory problems in affected flocks

Keywords: Avian influenza virus; H5n1; H9n2; Single-plex Rt-Pcr; Egypt.

Dept. of Surgery Anesthesiology and Radiology

65. Extra-Articular Stabilization of Cranial Cruciate Ligament-Deficient Stifle in Dogs: A New Tibial Suture Anchor Point

Ayman A. Mostafa, Eman Bakr and Marwa A. Ali

International Journal of Applied Research in Veterinary Medicine; 11(3): 212-222 (2013) IF: 0.443

We described a new surgical procedure of extra-articular stabilization of cranial cruciate ligament (CCL) deficient stifle using nylon cable tie (NCT) anchored in a new tibial anchor point. Lateral fabellotibial tension band (LFTB) stabilization procedure was described in 10 mixed breed dogs. The degree of lameness was scored and complete physical examination of each dog was performed.

Radiographic assessment of stifle osteoarthritis and postoperative complications were recorded. Mechanical properties of the NCT were determined. Clinical lameness was improved by 6 weeks postoperatively in all dogs. No joint laxity or abnormal range of motion was detected during the first 4 weeks after surgery. Minimal cranial drawer motion was apparent in three operated limbs 6 weeks postoperatively with no apparent lameness. No clinical lameness was observed 12 weeks postoperatively. Minimal progression of stifle osteoarthritis was observed in one dog. Implant loosening was the only major postoperative complication.

Lateral fabellotibial tension band procedure is a simple and effective method of stabilization of CCL-deficient stifle with good to excellent clinical outcome and minimal stifle osteoarthritis. Longer-term evaluation of stifle osteoarthritis is however needed. Nylon cable tie (NCT) may be an appropriate inexpensive alternative to the traditional lateral fabellotibial suture material.

Keywords: Surgery; Cranial cruciate ligament (CCL); Dogs; Tibia.

66. Apocrine-Secretory Adenoma in a Male Great Dane Dog

Mohamed Shokry and Elsayed Berbish

Asian J Ani Res; 1(3): 38-39 (2013)

Apocrine spiradenoma was first recorded locally in a 2-5 year-old; male Great Dane dog. The condition was diagnosed by histopathology; and the treatment was by surgical excisions of the presented cutaneous swellings. Macroscopy revealed a soft and rubbery consistency mass; and grey pink tissue pieces on cut

section. Histopathology showed lobulated growth pattern; made up of heavy small round cells intermixed with lymphocytes.

Keywords: Metastasis; Monocytosis; Spiradenoma; Sweat glands.

67. Repair of Humeral Fracture in a Peregrine Falcon by Nailing of an Injection Needle

Mohamed Mostafa Shokry

Journal of Animal Research; 3(2) 269-271 (2013)

A young peregrine falcon was presented with a right midshaft open fracture of the humerus. This report describes an innovation technique for intramedullary pinning using an injection needle as a pin device of internal fixation.

Keywords: Falcon; Humerus; Nailing; Needle.

Dept. of Veterinary Hygiene and Managment

68. Neurobehavioral Alterations in Male Rats Exposed to Sodium Benzoate

Mervat M.Kamel and Abeer H. Abd El Razek

Life Science Journal, 10(2): 722-726 (2013) IF: 0.165

The recent research studied the effect of different doses of exposure to sodium benzoate on levels of anxiety and fear; depression and anti-social behavior in male rats. Oral administration of 0%; 0.5 % (low dose) and; 2% (high dose) sodium benzoate to 45 male Wistar rats randomly; allotted into three groups of 15; were performed daily for 12 weeks treatment period. The animals were observed for neurobehavioral disturbance. Anxiogenic effect of sodium benzoate was evidently observed during EPM (elevated plus maze) and dark light transition tests. Moreover; noticeable effect of sodium benzoate on depression is expressed by prolonged immobilization during forced swim test. Impairment of social interaction test was also detected in treated rats. Our results strongly provides sufficient scientific evidence that a causal link truly exists between sodium benzoate and inflection of anxiety; depression-like behaviors and anti-social behavior in rats and points to the hazardous impact of sodium benzoate on public health.

Keywords: Food additives; Sodium benzoate; Anxiety and fear; Depression; Social interaction; Wistar rats.

69. Aquatic toxicology and pollution

Pawan Kumar Bharti, H A H Kaoud, Avnish Chauhan and Jaswant Ray

Publisher: Delhi: Ancient Pub. House, PP. 1-186(2013)

Aquatic systems reflect perturbations in the environment. So, fish and invertebrates can often be used to indicate the health of an aquatic system because chemicals can accumulate in invertebrates from the water and sediment and in fish from water, sediment and the food chain. The monitoring of these effects is extremely important to regulate and remediate pollution.

The present book mainly deals with aquatic environmental toxicology, aquaculture and environmental pollution as well as its effect on aquatic biodiversity and conservation.

The book will be of beneficial for both present and future colleagues, who teach, study and working in the field of environmental toxicology, ecology, aquatic ecosystem, environmental threats, fisheries and aquaculture.

This book provides comprehensive coverage of the fundamentals principles and current practices and trends in the field of aquatic environmental toxicology and pollution.

This book updates the subject manner, illustrations and problems to incorporate new concepts and issues related to aquatic ecosystem, environmental toxicology and pollution.

Keywords: Aquatic systems; Biodiversity and conservation; Environmental toxicology.

National Institute of Laser Sciences

Dept. of Laser Applications in Metrology, Photochemistry and Agriculture (LAMPa)

70. Rapid Synthesis of Magnetic/Luminescent ($\text{Fe}_3\text{O}_4/\text{CdSe}$) Nanocomposites By Microwave Irradiation

Abdallah F. Zedan, Victor Abdelsayed, Mona B. Mohamed and M. Samy El-Shall

Journal of Nanoparticle Research, 15: 1-8 (2013) IF: 2.175

A rapid microwave-assisted synthesis and detailed characterization of a bifunctional nanocomposite composed of a magnetic core, Fe_3O_4 , and a semiconductor shell, CdSe, are reported. Magnetite Fe_3O_4 nanoparticles are synthesized and used as seeds for the heterogeneous nucleation and growth of the CdSe nanoshells. The optical properties of the nanocomposites are assessed by UV-Vis and photoluminescence measurements. In addition, the crystalline phase and size distribution of the nanocrystals are determined by XRD and TEM, respectively. The results indicate that the as-prepared nanocomposites are nearly monodisperse with an average size of 10 nm and a quantum yield of 13 %. The synthesized nanocomposites clearly provide both magnetic and luminescent properties which could be useful for simultaneous detection and separation possibly in biomedical applications.

Keywords: Core-shell nanoparticles; Magnetite; Cdse; Microwave synthesis; Bifunctional.

71. Malathion-Induced Surface Coupling With Gold Nanoparticles

D. M. Fouad and M. B. Mohamed

Plasmonics, 8: 937-941 (2013) IF: 2.425

Malathion is one of the most commonly used organophosphorous pesticides worldwide. Gold nanoparticles can be used for the degradation and removal of 10 ppm malathion. The morphology of the prepared gold nanoparticle is characterized by transmission electron microscopy. Photodegradation of malathion on irradiation to different light sources was monitored using different tools such as UV-visible spectra and high-performance liquid chromatography. Photodegradation rate of malathion was enhanced in the presence of gold nanoparticles as a result of surface plasmon phenomena.

Keywords: Surface plasmon; Gold nanoparticles; Malathion.

72. Phytosynthesis of Au, Ag, And Au–Ag Bimetallic Nanoparticles Using Aqueous Extract Of Sago Pondweed (*Potamogeton Pectinatus* L.)

Ayman A. Abdel Hamid, Medhat A. Al-Ghobashy, Manal Fawzy, Mona B. Mohamed and Mohamed M.S.A. Abdel-Mottaleb

ACS Sustainable Chemistry & Engineering, 1 (12): 1520-1529 (2013)

A green and facile method for the synthesis of Au, Ag, and Au–Ag bimetallic nanoparticles was developed using the aqueous extract of sago pondweed (*Potamogeton pectinatus* L.). Size, morphology, crystallinity, composition, capping layer, and stability of the synthesized nanoparticles were all investigated. The effect of the synthesis variables on the nanoparticles was also studied. Results showed that the synthesized nanoparticles were mostly spherical in shape, although other shapes as nanotriangles and hexagons were occasionally observed. Alloy-type Au–Ag nanoparticles could be synthesized at pH 12. The synthesis of the nanoparticles was optimized. The synthesized nanoparticles were stable over three weeks. Results indicate that the flavones and proteins present in the plant extract are responsible for the synthesis and stabilization of the nanoparticles.

Keywords: Green synthesis; Biosynthesis; Gold nanoparticles; Silver nanoparticles; Alloy; Surface plasmon resonance; Fennel pondweed; Flavones.

Dept. of Laser Sciences and Interactions (LSI)

73. Spectroscopic Studies of UV Lead Plasmas Produced By Single and Double-Pulse Laser Excitation

Ahmed A. I. Khalil

Laser Physics, 23/1: 015701-015710 (2013) IF: 2.545

A spectroscopic study to compare single- and double-pulse laser-induced breakdown spectroscopy (LIBS) using two Q-switched Nd:YAG lasers emitting at 532 nm is reported. The two laser beams were combined in the same direction (collinear beam geometry) to focus on the Pb targets in the open air. Various parameters, such as incident laser irradiance, placement of the laser beam focus position relative to the illuminated surface and gate delay times (delay between the incident laser pulse and the ICCD camera), were used as variables to enhance the sensitivity of LIBS signals.

Several atomic and ionic emission lines of Pb were registered in the 200-290 nm UV spectral domains. In order to study the temporal evolution of plasma parameters for single- and double-pulse laser (SP and DP) configurations, the observed profiles of neutral lead lines were used to extract the plasma temperature (Te) using Boltzmann plots, whereas electron number density (ne) was determined from the profile of the Stark-broadened line. In the case of the DP configuration, the intensity of the atomic Pb I signal at 280.2 nm was enhanced eightfold. The intensity enhancement could help the analytical performance of the LIBS technique in terms of improvement of sensitivity and reduction of the self-absorption effect. This study contributes to a better understanding of the LIBS plasma dynamics by observing the temporal evolution of various emission lines of Pb. The results demonstrate a faster decay of the continuum relative to the spectral lines and a slightly longer plasma life-time for the DP

configuration as compared with the SP configuration. In order to avoid inhomogeneous effects in the plasma, sufficiently high laser intensity and short delay time are required. Special attention was paid to possible self-absorption of different transitions. The micro-craters generated by SP and DP laser ablation were also compared using an optical microscope.

Keywords: Spectroscopic, Ultra violet; Lead plasmas; Laser.

74. A Comparative Spectroscopic Study of Single and Dual Pulse Laser Produced UV Tin Plasmas

Ahmed A.I. Khalil

Optics And Laser Technology, 45: 443-452 (2013) IF: 1.365

A comparative study of single-pulse (SP) and dual-pulse laser-induced breakdown spectroscopy (DP-LIBS) using two Q-switched Nd:YAG lasers emitting at 532 nm is presented. Both lasers were combined in the same direction (collinear beam scheme) to focus on planar Sn targets at ambient pressure. The effect of the delay times between the incident laser pulse and the ICCD gate, placement of the laser beam focal position with respect to the illuminated surface, incident laser irradiance, and ambient argon pressure on the signal intensity enhancement for the dual pulse scheme have been studied. Atomic and ionic emission lines of Sn were recorded in the 272–296 nm UV spectral region. By using the DP-LIBS excitation technique, the intensity of Sn lines was enhanced by nearly seven times as compared to the single pulse signal that could help the analytical performance of the LIBS technique in terms of increasing sensitivity and reducing self-absorption effects for Sn targets. In the case of the DP-LIBS scheme, the intensities of the atomic Sn I at 283.9 nm were recorded at different optimal angles of 45° and 90° and were compared. This comparison was done at different positions of the laser beam focus with respect to the illuminated surface (at 2.45 mm in front of the surface, on the surface, at 1.7 mm and 4.7 mm behind the surface). Furthermore, in the DP-LIBS scheme, an intensity enhancement of the atomic Sn I line at 283.9 nm occurs when the signal was recorded at an angle of 90° to the plasma expansion along the direction of the incident laser beam and the detector set at short delay times. The investigation proved that an optimized value of short delay times between the incident laser pulse and the ICCD gate is required. Variations in the electron temperature (T_e) and electron number density (N_e) as a function of gate delay time and laser irradiance have been studied by using the emission lines of neutral tin. Special attention was paid to possible self-absorption of the different transitions. The micro-craters created by SP and DP laser ablation were compared using a reflection optical microscopy (ROM).

Keywords: Libs; Dual pulse; Tin target.



Cairo University



(2) **Engineering Sciences Sector**

2-1 1 Faculty of Engineering

2-2 2 Faculty of Computers and Information

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Faculty of Engineering

Dept. of Chemical Engineering

75. Performance Analysis of Upgrading of Secondary Treated Wastewater by Nanofiltration

Mahmoud El Tokhy, Hayam F. Shaalan, Abbas M. Sharaky, Nabil M. Abd El-Monem and Ghada A. Al Bazed

World Applied Sciences Journal, 25(3): 384-390 (2013)

Water reuse is a vital component in the water shortage mitigation strategy. Secondary treated wastewater (STWW) could be upgraded using Nanofiltration (NF) system for agricultural, industrial and specific recreational applications. Thus, NF technology achieves significant removal of multivalent ions by more than 90% and further organic pollutants could be almost eliminated. Design and feasibility of large scale NF systems is very costly process and almost based on long term experimental trials. Extensive field survey has been undertaken for a large scale Egyptian wastewater treatment plants to evaluate the performance of removal efficiencies of biological oxygen demand (BOD), chemical oxygen demand (COD), total suspended solid (TSS) and total dissolved solid (TDS). The results indicated a total potential for wastewater reuse approaching 5.2 million m³/d. Moreover, treatment efficiencies ranged from (86.9% – 92.8%) and (87.3% - 96.5%) and (89.5% - 96.9%) and (5% - 48.5%), for BOD, COD, TSS and TDS, respectively. In this paper, a short cut prediction model enables estimation of the NF membrane rejection (removal values) for each specific membrane cut-offs (200 – 1000 Dalton). The results of these empirical models have been validated using reported data from pilot and large NF wastewater upgrading systems which qualifies the empirical functions for planning and feasibility studies and also as an integral part of decision making process. The performance functions have been applied to predict NF treatment performed for some secondary treated stations from the target plants in Egypt to predict the characteristics of NF permeate quality and also to compare the outcome to applicable Egyptian legalization. The results confirm the promising potential of NF a candidate technology for expanding wastewater reuse potential in Egypt.

Keywords: Performance; Prediction; Nanofiltration; Rejection; Secondary treated municipal wastewater; Upgrading.

76. Investigation of the Anodic Dissolution of Zinc in Sodium Chloride Electrolyte – A Green Process

Ibrahim M. Ismail, Omar E. Abdel-Salam, Tamer S. Ahmed, Ahmed Soliman, Ibrahim A. Khattab and Meshal F. Al-Ebrahim

Portugaliae Electrochimica ACTA, 31(4): 207-219 (2013)

The anodic dissolution of zinc electrodes in sodium chloride aqueous solution has been investigated experimentally. The effects of application of polarity reversal (PR), ultrasonic (US) enhancement, stirring, current density (CD), concentration and pH of the supporting electrolyte, and temperature of the bath were studied.

The results revealed that application of PR increased the dissolution of Zn but the current was low accompanied with higher current efficiency (CE). The combination of US enhancement and stirring led to more dissolution of zinc. Increasing the current density and concentration of NaCl

increased the dissolution of zinc and the current efficiency was almost constant. On the other hand, pH of the bath did not play a significant effect on the amount of the dissolved zinc or current efficiency.

It was also observed that increasing the temperature from 10 oC to 40 oC led to a significant increase in the mass of the dissolved zinc and CE; but the increase of temperature from 40 oC to 50 or 60 oC, however, did not have a significant effect.

However, the application of US enhancement led to higher zinc dissolution.

Keywords: Zinc; Electrolyte; Anodic dissolution; Green process.

Dept. of Computer Engineering

77. Human-Inspired Features for Natural Scene Classification

Mayada M. Ali, Magda B. Fayek and Elsayed E. Hemayed

Pattern Recognition Letters, 34: 1525-1530 (2013) IF: 1.266

Scene classification has been the target of much research. Most psychological studies have agreed that humans perceive a scene first globally recognizing its category and then they localize and recognize objects. In previous work the same feature set were used in classifying both natural scenes and manmade scenes simultaneously. We suggest the use of *different* features for each. In this paper the proposed features for natural scenes classification are presented. The new proposed features are inspired from the way humans perceive and recognize scenes at a glance. Outdoor scenes *global features* such as openness, roughness, and dominant directions have been investigated and translated into a new feature set, focusing on characteristics that efficiently differentiate between natural scene sub-classes. The effectiveness of the proposed features is tested using two datasets consists of 4 natural scenes (*coast, mountain, forest, and open country*) and 6 natural scenes (*the previous 4 scenes plus desert and waterfall scenes*), the first dataset is a benchmark data set used for testing scene classification techniques. Results showed that a classification accuracy of up to 95% could be achieved using the proposed feature set.

Keywords: Scene classification; Dominant color; Roughness; Openness.

Dept. of Electric Power and Machines

78. Robust Guaranteed-Cost Control with Regional Pole Placement of Active Suspensions

Hisham M. Soliman and Naser S. Bajabaa

Journal of Vibration and Control, 19 (8): 1170-1186 (2013) IF: 1.966

To alleviate mechanical parts fatigue and provide a comfortable ride for passengers, car mechanics require desired dynamic behavior of car suspensions. This paper suggests state feedback controllers that, with system uncertainties, guarantee the closed loop system satisfying the desired pole region, thus achieving satisfactory oscillation damping and settling time, and having the guaranteed cost performance simultaneously. A state feedback controller is applied to the design of an active suspension model for a quarter-car vehicle. The controller's parameters are obtained using the linear matrix inequalities optimization, also allowing

considering the model uncertainty represented by a norm-bounded structure. Simulations are carried out taking into account the presence of uncertain parameters. The results are shown to be better than the classical linear quadratic regulator

Keywords: Active suspension design; LMI; Robust control; State feedback.

79. Modeling and Control of Combined Cycle Gas Turbines Using Rowen'S and Vournas'S Models

Mohamed M. Ismail and M. A. Moustafa Hassan

International Review on Modelling and Simulations (Iremos), 6(3): 994-1004 (2013)

The gas turbine is known to feature low capital cost, high flexibility, high reliability without complexity, short delivery time, early commissioning and commercial operation, and fast starting as well as loading.

The gas turbine is further recognized for its better environmental performance apparent in reducing air pollution as well as the greenhouse effect. The gas turbine can be configured as a simple (stand-alone) cycle plant or a part of one of the new technologies adopted in last decades for improvement which known as "Combined Cycle Power Plant". A Combined-Cycle Power Plant (CCPP) can be seen as coupling of a Gas Turbine (GT) and a Steam Turbine (ST) through a Heat Recovery Steam Generator (HRSG). Overall system efficiency can be greatly improved by linking together these two different thermal cycles. Recently, several gas turbine models have been suggested with different degree of complexity and success.

The purpose of this paper is improving the behavior of the gas turbine-based plants to investigate the associated power system control problems. Two gas turbine models will be used in this article which are Rowen's and Vournas's models. These models are studied when PID controller is used in its construction for speed and temperature control. Improving the gas turbine behavior can be achieved by applying different artificial intelligent adaptation techniques on the PID controller of the dynamic models of Combined Cycle Power Plants (CCPPs). Tuning the parameters of a PID controller is very important. The well-known method to tune the coefficients of a PID controller is the Ziegler-Nichols method.

This tuning method is very simple, but cannot guarantee to be always effective. For this reason, this paper investigates the tuning for a PID using Fuzzy, Genetic Algorithm and Particle Swarm Optimization methods. The results of tuning methods will be compared, analyzed and conclusion will be drawn out of the simulation results.

Keywords: Combined cycle power plants; Fuzzy logic control; Genetic algorithm; Rowen'S and vournas'S models; Particle swarm optimization; PID controller.

80. Application Of Particle Swarm Optimization In Design Of pid Controller For Avr System

Mohamed Ahmed Moustafa Hassan

International Journal Of System Dynamics Applications, 2(3): 1-17 (2013)

This paper presents a method to get the optimal tuning of Proportional Integral Derivative (PID) controller parameters for

an AVR system of a synchronous generator using Particle Swarm Optimization (PSO) algorithm. The AVR is not initially robust to variations of the power system parameters. Therefore, it was necessary to use PID controller to increase the stability margin and to improve performance of the system. Fast tuning of optimum (PID) controller parameter yield high quality solution. New criteria for time domain performance evaluation was defined. Simulation for comparison between the proposed method and Ziegler-Nichols method is done. The proposed method was indeed more efficient also. The terminal voltage step response for AVR model will be discussed in different cases and the effect of adding rate feed back stabilizer to the model on the terminal voltage response. Then the rate feedback will be compared with the proposed PID controller based on use of (PSO) method to find its coefficients. Different simulation results are presented and discussed.

Keywords: Automatic Voltage Regulator (Avr), Particle Swarm Optimization (Pso), Proportional Integral Derivative (Pid) Controller, Simulation, Terminal Voltage Response.

81. Power System Quality Improvement Using Flexible AC Transmission Systems Based on Adaptive Neuro-Fuzzy Inference System

M. Ramadan Sayed, M. A. Moustafa Hassan and A. A. Hassan

Wseas Transactions on Power Systems, 8(2): 65-73 (2013)

This paper introduces comprehensive fast control characteristics and continuous compensation means using Adaptive Neuro-Fuzzy Inference System. Flexible AC Transmission System (FACTS) devices have been investigated and adopted in power engineering area. There are so many advantages in using FACTS devices. It can increase dynamic stability, loading capability of transmission lines, improve power quality as well as system security. It can also increase utilization of lowest cost generation. This paper presents a detailed Adaptive Neuro-Fuzzy Inference System based algorithm for improving power system quality using Advanced Flexible AC Transmission Systems (AFACTS) controllers. Namely, Advanced Thyristor Controlled Series Capacitors (ATCSCs), and Advanced Static Var Compensator (ASVC) were utilized in this research. This paper focuses on the operation of the FACTS device under generator fault that may cause any other transmission lines to be overflowed. Adaptive Neuro-Fuzzy Inference System (ANFIS) is used to determine the value of capacitor connected to the AFACTS. The proposed algorithm in this paper is tested on the IEEE 30 bus system as well as IEEE 14 bus system

Keywords: Adaptive neuro-fuzzy inference system; Flexible AC transmission system; Power quality; Voltage sag; Total harmonic distortion.

82. Resilient Static Output Feedback Power System Stabiliser Using PSO-LMI Optimisation

Hisham M. Soliman and Magdi Sadek Mahmoud

Int. J. Systems, Control and Communications, 5 (1): 74-91 (2013)

In this paper, two new power system stabiliser (PSS) designs are proposed. The first one is based on a combined particle swarm optimisation (PSO) with linear matrix inequality (LMI) optimisation thereby improving previous existing results. The

property of PSO of not sticking into a local minimum is used to eliminate the conservativeness of the design result utilising the static output feedback (SOF) stabiliser within an iterative solution of LMIs.

The proposed design provides robustness against uncertainties wherein power systems operations are changing continuously due to load changes. In addition to load variations, the second controller is based on a derived sufficient condition using PSO-LMIs optimisation in order to obtain a resilient PSS that takes into consideration controller's parameters uncertainty as well. The effectiveness of the algorithm is shown for a single machine infinite bus power system

Keywords: Power system stabiliser; PSS; Robust control; Resilient control; Linear matrix inequality; LMI; Particle swarm optimisation; PSO.

Dept. of Electronics and Communication Engineering

83. All-pMOS 50-V Charge Pumps Using Low-Voltage Capacitors

Ahmed Emira, Mohamed AbdelGhany, Mohannad Elsayed, Amro M. Elshurafa, Sherif Sedky and Khaled N. Salama

Ieee Transactions on Industrial Electronics, 60 (10): 4683-4693 (2013) IF: 5.165

In this paper, two high-voltage charge pumps (CPs) are introduced. In order to minimize the area of the pumping capacitors, which dominates the overall area of the CP, high-density capacitors have been utilized. Nonetheless, these high-density capacitors suffer from low breakdown voltage, which is not compatible with the targeted high-voltage application. To circumvent the breakdown limitation, a special clocking scheme is used to limit the maximum voltage across any pumping capacitor. The two CP circuits were fabricated in a 0.6- μm CMOS technology with poly0-poly1 capacitors. The output voltage of the two CPs reached 42.8 and 51 V, whereas the voltage across any capacitor did not exceed the value of the input voltage. Compared with other designs reported in the literature, the proposed CP provides the highest output voltage, which makes it more suitable for tuning MEMS devices.

Keywords: Charge Pump (CP); Dc-Dc converters; High voltage; MEMS interface; Polarization voltage.

84. Cloud Adaptive Mutation Pso for Optimum Design of PID Controller to Wastewater Treatment Process

Sawsan Morkos and Hanan A. Kamal

The Mediterranean Journal of Measurement and Control, 9 (2): 40-50 (2013)

In this paper, a new Cloud model-based Adaptive Mutation Particle Swarm Optimization (CAMPPO) is proposed. As PSO has a premature convergence and is easy to be trapped into local minima, CAMPPO algorithm is employed to enhance the performance of PSO and overcome the above stated problems. Unlike the previous works, CAMPPO presents the use of cloud model to adaptively tune the probability of mutation depending on the fitness values of solutions. Based on the characteristic of CAMPPO, the particles are first divided into two

groups according to the mutation probability which is generated by cloud theory. The first group is the particles with large mutation probability which are randomly regenerated. For the second group, an adaptive strategy for varying particles is introduced.

Both the best fitness solutions and the solutions with sub average fitness of the second group are mutated by Gaussian mutation while the solutions with bad fitness are regenerated. Because normal cloud model has the properties of randomness and stable tendency, CAMPPO is expected to realize the twin goals of maintaining diversity in the population and sustaining the convergence capacity. The proposed algorithm is applied for the optimum design of Proportional Integral-Derivative (PID) controller in a wastewater treatment process, which is a multivariable nonlinear problem. The controller is designed based on mathematical model that developed from the basis of multi organism growth kinetics and mass balancing techniques. Comparative evaluation of CAMPPO with respect to the standard PSO and the adaptive mutation PSO based on beta distribution (AMPPO) is introduced to validate the controller design. Using different objective functions based on the error criterion, it has been shown that the time response of the wastewater treatment controlled by CAMPPO has superior performance in terms of transient and steady state responses.

The performance of biological system has improved significantly compared to either classical PID or PID tuned by both the standard PSO and AMPPO based on beta distribution.

Keywords: Wastewater treatment process; Proportional integral-derivative (PID) controller; Cloud model and PSO.

85. Adaptive Mutation Particle Swarm Optimization for Dynamic Channel Assignment Problems

Mohamed S. Darweesh, Hanan A. Kamal and Mona M. El-Ghoneimy

Ciit International Journal of Artificial Systems and Machine Learning, 5(1): 30-37 (2013)

Dynamic Channel Assignment (DCA) assigns the channels to the cells dynamically according to traffic demand, and hence, can provide higher capacity (or lower call blocking probability) than the fixed assignment schemes. Hybrid Channel Assignment (HCA) is a mixture of the FCA and DCA techniques. In HCA, the total number of channels available for service is divided into fixed and dynamic sets. Channel assignment problems are formulated as combinatorial optimization problems and are NP-hard problem. Genetic Algorithm, and Particle Swarm Optimization, proves effective in the solution of Fixed Channel Assignment (FCA) problems but they still require high computational time and therefore may be inefficient for DCA. This paper presents a new optimization technique based on Particle Swarm Optimization (PSO) named Adaptive Mutation Particle Swarm Optimization (AMPPO). An adaptive mutation technique is introduced to increase the diversity in the search space. The proposed AMPPO is applied to solve the Channel Assignment Problem (CAP) for different benchmark problems and different fixed to dynamic ratio. Cloud Model Based Adaptive Mutation Particle Swarm Optimization (CMPPO) technique is used to challenge the proposed technique. Results obtained show that AMPPO creates significant improvement in the blocking probability compared to the other technique. Moreover, AMPPO succeeded to reach a global solution faster than CMPPO.

Keywords: Channel assignment problem (CAP); Dynamic channel assignment (DCA); Electromagnetic compatibility (EMC); Blocking probability; Adaptive mutation particle swarm optimization (AMPSO); Cloud mutation particle swarm optimization (CMPSO).

86. Modified PSO for Optimal Tuning of Fuzzy PID Controller

Sawsan Gharghory and Hanan Kamal

International Journal of Computer Science, 10 (2): 462-471 (2013)

Fuzzy PID controllers provide a promising approach for industrial applications with many desirable features. However, the large number of parameters and rule bases make self-tuning fuzzy PID controller optimization a complex task. In this paper, a novel tuning method based on the development of the standard particle swarm optimization (PSO) is proposed for optimum design of fuzzy PID controller for multivariable system. The parameters of membership functions and PID gains are optimized using modified PSO which is an efficient and simple tool for multidimensional problem. Based on the structure of the modified PSO, each particle in swarm population is divided into number of parts according to the number of inputs-outputs system, which means that each part of particle represents one input-output system controller. The new development in PSO for multi inputs-outputs system is based on tuning all the parts of each particle in swarm population in parallel. The system performance is enhanced by minimizing the error function between all inputs-outputs controller represented by the different parts of particle simultaneously instead of minimizing sum of error of whole inputs-outputs system controllers. The parameters of fuzzy controller and the PID gains are tuned simultaneously. Besides, a design methodology is introduced to combine the classical PID and fuzzy logic controller. The hybrid PID, FLC, and PSO is applied to an aerobic unit in wastewater treatment process for further improvements in steady state error and high system performance. The obtained results show that, the response of the biological system in both transient and steady state has improved significantly compared to both fuzzy PID and fuzzy PID tuned by the standard PSO.

Keywords: Proportional integral-derivative (PID) Control; Fuzzy logic control (FLC); Fuzzy PID controller and PSO.

Dept. of Mechanical Design and Production

87. Friction and Wear Behavior of Al-CNT Composites

Mina M.H. Bastwros, Amal M.K. Esawi and Abdalla Wifi

Wear, 307(1-2): 164-173 (2013) IF: 1.262

Aluminum (Al)-carbon nanotube (CNT) composites are promising candidates for friction and wear applications. The wear behavior of Al-CNT composites, with up to 5 wt% homogeneously dispersed CNTs, is investigated in the present study and compared to that of pure aluminum processed using the same technique of cold compaction and hot extrusion. The effects of CNT content, sliding speed and applied load, on the wear behavior of the composites were studied. The morphologies of the

wear surfaces were investigated using scanning electron microscopy (SEM).

Hardness and wear resistance were found to increase significantly with CNT content. The wear rate of the 5 wt% CNT composite decreased by 78.8% compared to pure aluminum. This was accompanied by a decrease in the coefficient of friction. For samples with 5 wt% CNT, the wear rate and coefficient of friction were found to decrease with increasing sliding speed. The SEM investigation of the worn surfaces confirmed the dominant role played by the CNTs in enhancing the wear characteristics. CNTs were observed to be either partially or fully crushed forming a carbon film that covered the surface and acted as a solid lubricant enhancing the wear behavior significantly.

Keywords: Metal matrix composites; Carbon; Wear testing.

Dept. of Mining, Petroleum and Metallurgy

88. Effect of Si-Addition as a Grain Refiner on Microstructure and Properties of Ti-6Al-4V Alloy

Abdel-Hamid A. Hussein, Khaled M. Ibrahim and Mohamed Abdelkawy

Transactions of Nonferrous Metals Society of China, 23 (7): 1863-1874 (2013) IF: 0.917

Two different Ti alloys were cast in a graphite mould using vacuum induction skull melting furnace. The first alloy was Ti-6Al-4V and the second was Ti-6Al-4V-0.5Si. Silicon as a grain refiner was added into Ti-6Al-4V alloy, and the effects of Si-addition on the microstructure and properties of the as-cast and swaged alloys were investigated. Hot swaging at 900 °C was performed on the cast samples and then two different thermal treatments were applied. The first treatment was done by heating the swaged samples at 1050 °C to produce fine lamella structure, while the second treatment was carried out at 1050 °C and then decreased the temperature to 800 °C for getting coarse lamella structure. An addition of 0.5% Si to Ti-6Al-4V alloy decreased the grain size of the as-cast sample from 627 to 337 µm. There was an increase in ultimate tensile strength of about 25 MPa for the as-cast Ti-6Al-4V-0.5Si alloy compared to Ti-6Al-4V due to the refinement effect caused by Si addition. A maximum ultimate tensile strength of 1380 MPa and a minimum corrosion rate (1.35×10^{-6} mm/a in Hank's solution and 5.78×10^{-4} mm/a in NaCl solution) were reported for the heat treated fine lamella structure of Ti-6Al-4V-0.5Si alloy. The wear rate was decreased to about 50% by adding 0.5% Si at low sliding speeds and to about 73% at high sliding speeds.

Keywords: Ti-6Al-4V alloy; Silicon; Casting; Grain refinement; Heat treatment; Wear.

Dept. of Systems and Biomedical Engineering

89. Decision Tree Classifiers for Automated Medical Diagnosis

Ahmad Taher Azar and Shereen M. El-Metwally

Neural Computing and Applications, 23: 2387-2403 (2013) IF: 1.168

Decision support systems help physicians and also play an important role in medical decision-making. They are based on different models, and the best of them are providing an

explanation together with an accurate, reliable and quick response. This paper presents a decision support tool for the detection of breast cancer based on three types of decision tree classifiers. They are single decision tree (SDT), boosted decision tree (BDT) and decision tree forest (DTF). Decision tree classification provides a rapid and effective method of categorizing data sets. Decision-making is performed in two stages: training the classifiers with features from Wisconsin breast cancer data set, and then testing. The performance of the proposed structure is evaluated in terms of accuracy, sensitivity, specificity, confusion matrix and receiver operating characteristic (ROC) curves. The results showed that the overall accuracies of SDT and BDT in the training phase achieved 97.07 % with 429 correct classifications and 98.83 % with 437 correct classifications, respectively. BDT performed better than SDT for all performance indices than SDT. Value of ROC and Matthews correlation coefficient (MCC) for BDT in the training phase achieved 0.99971 and 0.9746, respectively, which was superior to SDT classifier. During validation phase, DTF achieved 97.51 %, which was superior to SDT (95.75 %) and BDT (97.07 %) classifiers. Value of ROC and MCC for DTF achieved 0.99382 and 0.9462, respectively. BDT showed the best performance in terms of sensitivity, and SDT was the best only considering speed.

Keywords: Computer-aided diagnosis (CAD) Decision support systems (DSS) Decision tree classification; Single decision tree; Boosted decision tree; Decision tree forest; K -fold cross-validation.

90. Investigation of Two Different Techniques for Accurate Measurements of Sinusoidal Signals

Shereen M. El-Metwally and Mamdouh Halawa

International Journal of Engineering and Technology (IJET), 5 (1): 12-19 (2013)

In this paper, two different techniques for the determination of the rms value of sinusoidal AC voltage at the range of 2V are practically compared: non-thermoelectric technique (via the direct measurement using a precise high sensitive digital voltmeter, and the comparison method using a precise AC voltage calibrator) and thermoelectric technique (via the null thermoelectric technique, and the algorithmic thermoelectric technique using a calibrated multijunction thermal converter (MJTC)). A series of comparisons between the four methods have been discussed and evaluated at frequencies from 20 Hz to 100 kHz to investigate the level of performance and competitiveness. The comparison results showed that the four applied methods agreed within values of $80\mu\text{V} \pm 15\mu\text{V/V}$ and $68\mu\text{V} \pm 11\mu\text{V/V}$ at frequencies of 20 Hz and 100 kHz, respectively.

Keywords: AC voltage measurement; AC-DC thermal transfer; Uncertainty budget; Proficiency test.

Faculty of Computers and Information

Dept. of Operation Research and Decision Support

91. A Survey On Inter-Cell Interference Coordination Techniques In Ofdma-Based Cellular Networks

Abdelbaset S. Hamza, Shady S. Khalifa, Haitham S. Hamza and Khaled Elsayed

Ieee Communications Surveys And Tutorials, 15: 1642-1670 (2013) IF: 4.818

Orthogonal Frequency Division Multiplexing Access (OFDMA) has been increasingly deployed in various emerging and evolving cellular systems to reduce interference and improve overall system performance. However, in these systems Inter-Cell Interference (ICI) still poses a real challenge that limits the system performance, especially for users located at the cell edge. Inter-cell interference coordination (ICIC) has been investigated as an approach to alleviate the impact of interference and improve performance in OFDMA-based systems. A common ICIC technique is interference avoidance in which the allocation of the various system resources (e.g., time, frequency, and power) to users is controlled to ensure that the ICI remains within acceptable limits. This paper surveys the various ICIC avoidance schemes in the downlink of OFDMA-based cellular networks. In particular, the paper introduces new parameterized classifications and makes use of these classifications to categorize and review various static (frequency reuse-based) and dynamic (cell coordination-based) ICIC schemes.

Keywords: Frequency Reuse, Inter-Cell Interference Coordination (Icic), Long Term Evolution (Lte), Ofdma.

92. Social Media In Egyptian Government Websites: Presence, Usage, And Effectiveness

Hisham M. Abdelsalam, Christopher G. Reddick, Sara Gamal and Abdulrahman Al-shaar

Government Information Quarterly, 30: 406-416 (2013) IF: 1.91

This paper examines the presence, usage, and effectiveness of Egyptian government social media websites. The adoption of social media technology provides an illustration of the application of New Public Service (NPS) theory to public administration. The first phase of this study examined the presence of social media applications on these government websites.

The second phase analyzed the use of Facebook by governmental entities in Egypt. The use of Facebook, Twitter, and YouTube were the top social media applications in Egyptian government websites, which is consistent with other government surveys of social media found in developed countries. In terms of effectiveness of these social media websites, they were used mainly to post information, with very little twoway interaction between citizens and government. The analysis in this paper shows that social media in Egypt is not much in line with the NPS theory.

Keywords: Social Media Egypt Government Facebook Public Administration Revolution On January 25Th New Public Service.

93. Web 2.0 Applications' Use And Perception For Research Collaboration In Egyptian Public Universities

Hisham M. Abdelsalam, Sara Gamal, Christopher G. Reddick and Saqib Saeed

International Journal Of Services Technology And Management, 19: 99-119 (2013)

This paper examines the use and perception of Web 2.0 technologies for research collaborations in public universities in Egypt. Existing research has focused mainly on Web 2.0 applications in developed countries; this study provides a case study of a developing country. Existing research examines Web 2.0 applications in teaching, while this study focuses on faculty research collaborations. The methods used were descriptive statistics and a statistical analysis of survey sample of researchers in public higher education institutions in Egypt in 2012. The survey results revealed that the dominant channels for research collaborations among faculty were still Web 1.0 technologies, but Web 2.0 applications are becoming more prominent. The statistical analysis revealed that demographic and institutional factors made a difference in the use of Web 2.0 among faculty.

Keywords: Research Collaboration; Web 2.0; Higher Education; Egypt; Public Universities; Developing Countries; Demographics; Institutional Factors; Blogs; Social Networks; Wikis; Social Bookmarking.

94. Potential Knowledge Process Outsourcing Of Egyptian Oil And Gas Engineering Services Industry

Hisham M. Abdelsalam, Mohamed Sadek and Sara Gamal

International Journal Of Knowledge-Based Development, 4: 338-362 (2013)

We live today in a knowledge-based economy where information and its interpretation are the keys to coping with an ever-changing market conditions. However, for knowledge to be acquired efficiently, it needs using the least resources with the lowest costs incurred and in the least time possible.

This is when entities came into the realisation of outsourcing where companies outsource sophisticated functions and operations to a third party to be able to acquire knowledge in the fastest and least costly way possible. Today, knowledge process outsourcing (KPO) is a fast growing market and as the business process outsourcing (BPO) is being introduced to Egypt, the next step for Egypt is to make the transition to KPO. However, Egypt's potential of being a KPO hub where a whole industry can be formed, enhancing economic performance and creating jobs is under-researched. This research aims to determine the main factors that would affect Egypt's eligibility of being a KPO vendor in the oil and gas engineering services. A survey was administered on a sample of engineers working in major oil and gas companies in Egypt. Among five tested factors, results showed that the number one factor affecting Egypt's KPO potential in this sector is its business environment followed by the cost advantages.

Keywords: Knowledge Process Outsourcing; Kpo; Business Process Outsourcing; Bpo; Engineering Services; Cost Advantage; Pool Of Talented Personnel; Quality Of Infrastructure; Business Environment; Risks And Potential; Egypt.

Institute of Statistical Studies and Research

Dept. of Operational Research

95. SDV-VIKOR: A New Approach For Multi-Criteria Decision Making With No Preference

Mohamed F. El-Santawy and Ramadan A. Zein Eldin

Life Science Journal, 10(4): 3462-3464 (2013) IF: 0.165

The problem of allocating the weights of criteria when no preference exists has attracted the interest of many scholars. In this paper a new method for allocating weights is presented using the Standard Deviation (SDV) measure. The technique used named Vlse Kriterijumska Optimizacija I Kompromisno Resenje in Serbian (VIKOR) is combined to the new method to constitute a new approach called SDV-VIKOR. The new approach can be used when no preference among the criteria considered. Also it is validated and illustrated by ranking the alternatives of a given numerical example.

Keywords: Multi-Criteria Decision Making; Standard Deviation; Vikor.

96. A Modified Multi - Objective Particle Swarm Technique With Chaos For Structural Optimization

Mohamed F. El-Santawy and Ramadan A. Zein Eldin

Life Science Journal, 10(4): 3420-3422 (2013) IF: 0.165

The main goal of this paper is to assess the incorporation of Chaos search to Multi-Objective Particle swarm optimization. The proposed algorithm combined chaotic maps to produce random numbers needed by the algorithm during search. The new technique so-called Multi Objective Chaotic Particle Swarm Optimization (MOCPSO) uses an external archive for keeping the solutions found over iterations. Fitness Sharing method is employed to maintain diversity of solutions found in the external archive. For validity, the proposed technique is applied to a well-known structural optimization problem called two-bar truss problem, and the results show the efficiency of adding chaos.

Keywords: Chaos Search; External Archive; Fitness Sharing; Multi-Objective Optimization; Particle Swarm Optimization.

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Dept. of

97. Urbanization, Sustainable Cities and the Arab Gulf (Chapter 11)

Mohsen Mohamed A. F. Abouelnaga

Technology and the Future of Energy, Emirate Center for Research and Strategies Research, Ecssr, (2013)

In a growing world that reached seven billion by the third quarter of last year, and many strategic challenges such as energy supply, availability of water, food security and climate change impact, integrating sustainability and addressing sustainable development in every avenue of life has reached a point-of-no-return. Also, the global financial crisis currently affecting development worldwide, particularly in Europe and elsewhere, is adding an additional dimension to these challenges. The pillars of sustainable development should be effectively utilized in driving the economic growth and to feed in the development of adoptive energy policies address green growth in the MENA region. The role of sustainable cities is a crucial component in reducing demand on energy, curb GHG emissions, mainly carbons to offset climate change. Consequently focusing on clean energy policies is vital, practically green transport and sustainable buildings. Cities alongside transport, power generation and waste are considered the major contributors to climate change. The latter impacts our cities and is clearly manifested during the last decade and till date. Measuring the sustainability of cities is an essential tool to frequently revisit government policies. Capturing sustainable development indicators (SDIs) to measure the level of sustainability of a city is growing. This paper presents some of the strategic challenges facing government's worldwide. Gulf energy consumption, counter measures and adoptive policies to curb the high consumption in electricity, mainly residential and commercial were also reviewed. Global sustainable cities and various sustainability indicators with focus on SDIs, mainly transport and sustainable building for the assessment were highlighted and examined. The key issues that govern transport in Europe and mobility indicators were also outlined. Also, the case study of Putrajaya Green City 2015, Malaysia was highlighted and used as a guide to inform the Dubai Green City 2021 Model. The relationship between cities and transport, particularly accessibility and mobility for Dubai selected indicators (low-carbon transport and cutting-edge sustainable building) were reviewed and analyzed, and results were presented. The analysis of the two selected themes: low-carbon transport and cutting-edge sustainable buildings were illustrated and discussed to inform the Dubai Green City Case study 2021. Part one of the study, focuses on sustainable city indicators for Dubai green city case study and measures the level of its sustainability using a set of sustainable indicators for some years 2000-2011. It also presents the preliminary framework of the study for Dubai Green City 2021. The second part of the research work will relate the outcome of the results of part 1 and link them to the six themes of the SDIs. Part 2 will also present the application of some SDIs and suggests more applicable and specific data based on baseline assessment, to further develop the framework for Dubai Green City 2021. The findings may be used for assessing other cities sustainable programs.

Keywords: Sustainable Development, Sustainable Cities, Climate Change, Low-Carbon Transport, Sustainable Building, Sustainability Indicators.

Faculty of Computers and Information

Dept. of Operation Research and Decision Support

98. Use of Web 2.0 Collaboration Technologies in Egyptian Public Universities: An Exploratory Study

Nahed Amin Azab, Hisham M. Abdelsalam and Sara Gamal

E-Government Implementation And Practice In Developing Countries, Igi Global, (2013)

The second wave of the World Wide Web, referred to as Web 2.0, has affected every sector of the society including the public sector as well as the government, now often referred to as Government 2.0. Specifically, Government 2.0 can have a great impact on improving learning and research activities in public universities. Governments have recognized the role that Internet plays in education; they have made the use of ICT a substantial component in any government agenda. In addition, many governments have recognized the importance of incorporating Web 2.0 technologies in higher education.

Being characterized by fostering an interactive and user generated content, Web 2.0 can usefully assist both students and faculty. Web 2.0 could contribute in overcoming budget constraints that constitutes a common problem among public universities especially in developing countries. This research argues that adopting Web 2.0 in public universities should start first by assisting faculty in their research and communication tasks through an easy and convenient way. This could reduce their resistance to change (which is considered one of the main barriers in adopting technologies) by being used to it and perceiving its value. Therefore, this chapter aims to investigate the use of Web 2.0 among academic staff in public universities. Such objective was reached through distributing a survey targeting a sample that represents faculty in some of the leading Egyptian public universities. Findings revealed a high use of Web 2.0 by faculty members in collaboration and information sharing. In addition, the main barriers of use are due to a lack of awareness or perception of the value of such technologies. Moreover, it has been proved that the level of Web 2.0 adoption varies among academic disciplines, but does not depend on age or academic position.

Keywords: E-Government, E-Government Dimensions, Egypt.

99. Multi-objective Simulated Annealing Algorithm for Partner Selection in Virtual Enterprises

Hisham M. Abdelsalam and Amany M. Mohamed

Artificial Intelligence, Evolutionary Computing and Metaheuristics in the Footsteps of Alan Turing, Springer Berlin Heidelberg, (2013)

Virtual Enterprise (VE) is a temporary alliance of autonomous enterprises formed to act together to share skills or core competencies and resources in order to respond to a market opportunity. The success of VE strongly depends on its composition, so partner selection can be considered as the most

important problem in VE. This paper presents and solves a model for the partner selection problem in VEs that considers two main evaluation criteria; project completion time and total cost. To do so, the paper uses a multi-objective algorithm, namely Pareto Simulated Annealing (PSA). Results showed improved performance of PSA compared to the Tabu Search algorithm used in a recent study.

Keywords: Virtual enterprises; Partner selection; Pareto simulated annealing; Multi-objective optimization.

100. E-Government and Public Service Delivery: A Survey of Egypt Citizens

Hisham M. Abdelsalam, Christopher G. Reddick, Hatem A. ElKadi and Sara Gamal

Human-Centered System Design for Electronic Governance, Igi Global, (2013)

This chapter aims to better understand what citizens think regarding the currently available e-government public services in Egypt. This is done through an analysis of a public opinion survey of Egyptian citizens, examining citizens' use and associated issues with usage of e-government portals. This chapter is different from existing research in that most of the studies that examine e-government and citizens focus on developed countries. This study focuses on a developing country, Egypt, as an emerging democracy, which has very unique and important challenges in the delivery of public services to its citizens. The results revealed that only gender, daily use of the internet, and the desire to convert all of the services to electronic ones were important factors that affected the use of the Egyptian e-government portal. On the other hand, age, education, trust in information confidentiality on the internet, and believing in e-government did not play any role in using e-government.

Keywords: E-Government; Information and communications technology, Digital divide.

101. An Examination of the Decision Making Styles of Egyptian Managers

Hisham M. Abdelsalam, Reem H. Dawoud and Hatem A. ElKadi

Business Strategies And Approaches For Effective Engineering Management, Igi Global, (2013)

Many factors play roles in the success of managers. However, the manager's decision-making style is one factor that highly contributes to that success and, therefore, to the success of their organization. In this chapter, a survey that includes a sample of 138 Egyptian managers in different organizational levels (junior, middle, and senior) is conducted to explore their decision-making styles. The research, then, investigates the relation between the variety of managers' decision styles and seven variables: gender, age, ethnicity, educational level, educational major, administrative experience, and current position.

Based on the findings, this research is able to provide baseline information to improve on the implications of decision-making styles on the selection and design of decision-support systems in Egypt.

Keywords: Decision-making; Decision style; Decision support systems.



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102. Rotational Thromboelastometry and Standard Coagulation Tests for Live Liver Donors

Maged Mohammed, Nirmeen Fayed, Ashraf Hassanen, Fatma Ahmed, Wessam Mourad, Maha El Sheikh, Fawzia Abofetouh, Khaled Yassen, Magdy Khalil, Ibrahim Marwand and Koichio Tanaka

Clinical Transplantation, 27(2): E101-8 (2013) IF: 1.634

Purpose: To study coagulation of live liver donors with standard coagulation tests (SCT) and rotational thromboelastometry (ROTEM) and investigate their relationship.

Methods: A descriptive prospective study involving 50 right hepatotomy donors with epidural catheters. ROTEM (EXTEM, INTEM, and FIBTEM represent extrinsic and intrinsic pathways of coagulation and fibrinogen activity, respectively) was measured perioperatively and on days 1, 3, 5, 10, and 30. SCTs include prothrombin time (PT), international normalized ratio (INR) of PT, activated partial thromboplastin time (aPPT), fibrinogen, and platelets.

Results: PT and INR reflect hypocoagulability reaching maximum on day one (16.9 ± 2.5 s, 1.4 ± 0.2 , $p < 0.05$ compared with baseline). ROTEM was in normal ranges till day 30 with no hypercoagulability. Fibrinogen showed no correlation with maximum clot firmness (MCF) of FIBTEM ($r = 0.35$, $p > 0.05$). CFT of EXTEM was not in significant correlation with PT and INR ($r = 0.16$, 0.19 , $p > 0.05$), respectively. Significant correlation between platelets and both MCF (EXTEM; $r = 0.59$, $p = 0.004$) and MCF (INTEM; $r = 0.48$, $p = 0.027$).

Conclusion: ROTEM disagreed with SCTs and did not show the temporary hypocoagulability suggested by SCTs. Both ROTEM and SCTs showed no signs of hypercoagulability. Future studies involving ROTEM could help develop new guidelines for coagulation monitoring.

Keywords: Coagulation; Live donors; Liver resection; rotational thromboelastometry.

Dept. of Clinical & Chemical Pathology

103. Enhancing ex vivo expansion of cord Blood-derived unrestricted somatic stem cells for clinical applications

Demerdash Z, El Baz H, Mahmoud F, Mohamed S, Maher K, Gaafar T, Shawky S, Hassan M, Abdelhady D and Taha T.

Cell Prolif., 46 (6): 628-236 (2013) IF: 2.265

Objectives: To study effects of serum-containing medium (SCM) versus serum-free medium (SFM) and influence of seeding density, on rate of expansion of cord blood (CB) unrestricted somatic stem cells (USSCs), as a prerequisite for evaluating their therapeutic potential in ongoing clinical trials.

Material and methods: Isolation, propagation and characterization of USSCs from CB samples were performed and followed by their passage 3 culture in SCM and SFM, at cell densities of 5, 50, 500 and 5000 cells/cm(2).

Results: The cells were CD44(+), CD90(+), CD73(+), CD105(+), CD34(-), CD45(-), and HLA-DR, with *Oct4* & *Sox2* gene

expression; they were differentiated into osteoblasts and adipocytes. USSCs cultured in SCM had significantly higher population doubling levels ($P < 0.01$) than those cultured in SFM. Those cultured in SCM at 5 cells/cm(2) and those cultured in SFM at 50 cells/cm(2) had significantly higher population doubling ($P < 0.01$) levels than those cultured at higher cell densities.

Conclusions: For scaling up of USSCs from 106 (?) to 1012 (?) in 6 weeks, culturing of CB-derived cells of early passage ($\leq P3$) in SCM at low cell seeding density (5 cells/cm(2)) is suggested for increasing cell count with lower passaging frequency, followed by culture of expanded USSCs at 50 cells/cm(2) in SFM, to avoid undesirable effects of bovine serum in clinical applications.

Keywords: Expansion of cord blood; Somatic stem cells.

104. The Potential Role of First Trimester Maternal Serum Pp13 and Second-Trimester Uterine Artery Doppler Pulsatility Index As Markers of Pre-Eclampsia Among High Risk Egyptian Pregnant Females

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Acta Endocrinologica, 9 (3): 429-438 (2013) IF: 0.45

Preeclampsia: is a widespread vasospasm and vascular endothelial dysfunction that usually occurs after 20 weeks gestation. Uterine artery Doppler is a good sensitive predictor. PP13 (as a chemical predictor) was claimed to provide similar results.

Objective: To evaluate whether first trimester maternal serum placenta protein 13 (PP13) and the second trimester uterine artery Doppler pulsatility index can predict pre-eclampsia among high risk Egyptian pregnant females.

Design: The study took place in obstetric clinic of Kasr Elaini Hospital (Faculty of Medicine - Cairo University) in the period October 2011 - August 2012.

Subjects and Methods: The study included 59 pregnant women (11- 13 weeks), 34 normal controls and 25 women at increased risk of developing pre-eclampsia. PP13 was assayed using enzyme-linked immunosorbent assay.

Uterine artery Doppler flow velocimetry was done at 22-24 weeks to measure the mean pulsatility index (PI). PP13 multiples of median (MoM) were calculated. PP13 and Uterine artery Doppler PI were compared between women who developed pre-eclampsia and controls.

Results: Levels of PP13 were not found to differ between control and affected pregnancies. PP13 MoMs for controls and pre-eclampsia cases were 1.000 (0.516) and 1.7200 (0.851), respectively ($P=0.4$). PI was significantly higher in affected cases 1.62(0.2) compared to controls 1.24(0.2) ($P < 0.001$).

Conclusion: Screening test based only on maternal history or PP13 testing is inefficient in predicting preeclampsia in high risk females.

Abnormal uterine artery Doppler velocimetry between 22 and 24 weeks of gestation is still the best test for identification of patients destined to develop preeclampsia.

Keywords: Pre-eclampsia; Uterine artery Doppler; PP13.

105. Blood zinc levels in children hospitalized with pneumonia: A cross sectional study

Hanaa I. Rady, Walaa A. Rabie, Heba A. Rasslan and Ahmed A. El Ayadi

Egyptian Journal of Chest Diseases and Tuberculosis, 62: 697-700 (2013)

Background: Recent works have provided conflicting evidence on the role of zinc in acute lower respiratory infection (ALRI).

Objective: We aimed to study the relation between blood zinc levels and severity of pneumonia.

Patients and Methods: A retrospective study was conducted in the Cairo University Pediatric Hospital, to assess serum zinc levels in 40 Egyptian children, aged 3–144 months, admitted with the diagnosis of pneumonia. Half of them were admitted in the general ward and the other half were admitted in the pediatric ICU.

Results: Males (67.5%) were more affected by ALRI than females. The mean serum zinc in patients was normal ($80.33 \pm 25.3 \mu\text{g/dL}$) yet, the mean serum zinc level in PICU patients was lower than that of general ward patients ($p = 0.001$).

Conclusion: We concluded that the lower the serum zinc level, the higher the grade of respiratory distress among children with pneumonia.

Keywords: Children; Pneumonia; Respiratory distress; Zinc.

Dept. of Clinical Oncology and Nuclear Medicine

106. Addition of Bevacizumab or Cetuximab to First Line Chemotherapy in the Treatment of K-Ras Wild type metastatic Colorectal Carcinoma

Waleed Hammam, Raafat Abdel-Malek and Mohamed Abdelrahman

Pan Arab Journal of Oncology, 6 issue 4: 6-10 (2013)

Purpose: Mutations in K-ras gene are found in 30–40% of colorectal carcinoma (CRC) and are associated with poor response to Cetuximab or Panitumumab. Thus, K-ras testing is mandatory for patients with metastatic CRC (mCRC) but genotyping mistakes can be a result of many factors. The combination of Capecitabine with Irinotecan (XELIRI) was proven effective and addition of Bevacizumab as well as Cetuximab was studied with good tolerance and promising results. The aim of this study was to compare the efficacy and safety of XELIRI-Bevacizumab with that of XELIRI-Cetuximab in the first-line treatment of K-ras wild type mCRC.

Patients and methods: This is pilot study including 20 patients with mCRC K-ras wild type treated at Saudi German hospital, KSA & private center in Cairo, Egypt. The primary objective was to confirm non-inferiority of XELIRI-Bevacizumab compared with XELIRI-Cetuximab for progression-free survival (PFS).

Results: At median follow up of 12 months, the overall response rate (ORR) was 45% with 1-year PFS 75%. Comparing the 2 arms, ORR was 50% in Arm 1 compared to 40% in Arm 2 ($p=0.952$) while clinical benefit was 60% in both arms. PFS at 1-year was 80% in Arm 1 versus 70% in Arm 2 ($p=0.612$) with HR 0.63 (95%CI 0.10 - 3.79).

Conclusion: Adding Bevacizumab to XELIRI is not inferior to adding Cetuximab to the same regimen in 1st line therapy of K-ras wild mCRC with acceptable and manageable toxicity profiles

and maybe preferable in absence of accurate and reliable K-ras testing.

Keywords: Metastatic colorectal cancer (mCRC); K-Ras wild type; Bevacizumab; Cetuximab; Egypt.

107. Bisphosphonates in the adjuvant treatment of young women with breast cancer: the estrogen rich is a poor candidate!

Hamdy A. Azim, Nermine S. Kamal and Rafaat A. Malak

Journal of Thoracic Disease, 5 (suppl 1): 27-35 (2013)

During the last 2 decades the role of bisphosphonates (BPs) to reduce skeletal-related events from bone metastases in breast cancer has been well defined. Several preclinical studies have strongly suggested that BPs may also provide an anti-cancer effect in early breast cancer. Indeed, the use of adjuvant BPs represents a unique approach that attempts at eradicating occult tumor micro-metastases residing in the bone marrow via targeting the bone microenvironment to render it less favorable for cancer cell growth. Although, this concept has been tested clinically for more than 15 years, no final consensus has been reached as for the routine use of BPs in the adjuvant phase of breast cancer, owing to conflicting results of randomized studies. Nevertheless, accumulating evidence from recent trials has indicated a therapeutic benefit of adjuvant BPs—particularly zoledronic acid—in women with established menopause, with no or perhaps detrimental effects in premenopausal women. Indeed, this hypothesis has opened a new chapter on the role of estrogen-poor microenvironment as a potential pre-requisite for the anti-tumor effects of BPs in the adjuvant phase of breast cancer. In this review, we will emphasize the biological rationale of using BPs to target bone microenvironment in patients with early breast cancer and we will explore mechanistic differences; related to bisphosphonates effects in premenopausal versus postmenopausal women and how the endocrine environment would influence the anticancer potential of these compounds.

Keywords: Adjuvant; Bisphosphonates (BPs); Anti-tumor activity; Premenopausal; Breast Cancer.

Dept. of Clinical Pathology

108. Basic Fibroblast Growth Factor and Tumour Necrosis Factor Alpha in Vitiligo and other Hypopigmented Disorders: Suggestive Possible Therapeutic Targets

H. Seif El Nasr, O.G. Shaker, M.M.T. Fawzi and G. El-Hanafi

Journal of the European Academy of Dermatology and Venereology, 27: 103-108 (2013) IF: 2.694

Background: In healthy skin, there is a molecular microenvironment that favours the survival of melanocytes and regulates their function. Keratinocytes synthesize and secrete several cytokines that have stimulatory and inhibitory effects on melanocytes.

Aim: of the work This work was conducted to evaluate the expression of basic fibroblast growth factor (bFGF) and tumour necrosis factor alpha (TNF- α) mRNA levels in lesional skin of vitiligo, hypopigmented mycosis fungoides and hypopigmented tinea versicolor.

Patients and Methods: Forty eight patients (25 vitiligo, 14 hypopigmented mycosis fungoides, 9 hypopigmented tinea versicolor) and 10 healthy controls were included. A 4 mm punch skin biopsy was taken from lesional skin of patients, and the normal skin of controls for quantitative PCR examination of TNF- α and bFGF mRNA.

Results: The level of TNF- α mRNA in lesional skin of the three studied disorders was significantly higher than in the control group, while the level of bFGF mRNA was significantly lower in lesional skin of the three diseases than the control skin. A significant inverse correlation was demonstrated between the mRNA levels of the two studied cytokines in vitiligo and hypopigmented MF lesions.

Conclusion: The study's findings demonstrate that the studied hypopigmented (vitiligo, hypopigmented MF, hypopigmented TV) disorders show similar changes in their cutaneous microenvironment with increased TNF- α and decreased bFGF mRNA expression. This cytokine microenvironment change may be implicated in the pigment loss and hence these cytokines may have future therapeutic implications.

Keywords: T-Cell-Lymphomas; Mycosis-fungoides; Human keratinocytes; Human melanocytes; Melanogenesis; Expression; Cytokines; Interleukin-1-Alpha; Proliferation; Epidermis.

Dept. of Diagnostic Radiology

109. Nonselective Transarterial Chemoperfusion: A Palliative Treatment for Malignant Pleural Mesothelioma

Thomas J. Vogl, Sebastian Lindemayr, Nagy N. N. Naguib, Jessen Gurung, Nour-Eldin A. Nour-Eldin, Stephan Zangos and Emmanuel C. Mbalisike

Radiology, 266 (2): 649-656 (2013) IF: 6.339

Purpose: To evaluate tumor response by means of volumetric assessment, survival, and changes in patient symptoms after the treatment of unresectable and/or recurrent pleural mesothelioma by using regional nonselective transarterial chemoperfusion as a palliative treatment option.

Materials and Methods: This retrospective study was approved by the hospital ethical committee, and all patients signed an informed consent prior to treatment. Thirty-nine patients (mean age, 64.0 years; 10 women and 29 men) with unresectable pleural mesothelioma were treated with repetitive transarterial chemoperfusion between March 2007 and March 2010, with a mean of 2.9 sessions per patient at 4-week intervals. Transarterial chemoperfusion was performed by using mitomycin C, cisplatin, and gemcitabine.

Computed tomography findings and patient symptoms were evaluated. Tumor response was evaluated by using Response Evaluation Criteria in Solid Tumors guidelines, and survival was assessed with the Kaplan-Meier method. The change in volume for the partial-response group was tested by using the Wilcoxon signed-rank test.

Results: In 36% of treated tumors (14 of 39), partial response was achieved, and tumor volume decreased from a mean value \pm standard deviation of $839.6 \text{ mL} \pm 590.3$ (range, 3.9–1972.2 mL) to $137 \text{ mL} \pm 399.8$ (range, 0.88–1131.4; $P = .00012$). In 49% of tumors (19 of 39), stable disease was noted. In 15% of tumors (six of 39), progressive disease was seen. Mean specific growth rate of the tumor was 0.00158% per day. The mean survival time was

14.2 months (range, 2.1–33.1 months) from the start of treatment. For patients with tumors that responded to treatment, mean survival time was 15 months (range, 4.5–33.1 months). Mean time to disease progression was 2.6 months for all tumors, 1.5 months for stable disease, and 1.3 months for progressive disease.

Conclusion: Transarterial chemoperfusion may have the potential to yield positive results and response in the treatment of recurrent and/or unresectable pleural mesothelioma.

Keywords: Transarterial; Chemoperfusion; Malignant; Pleura; Mesothelioma.

110. Response to: Microwave Ablation Therapy of Pulmonary Metastases

Thomas J. Vogl, Nagy N. N. Naguib, Nour-Eldin A. and Nour-Eldin

Radiology, 266(3): 996-996 (2013) IF: 6.339

It was with great concern that we received the query from Dr Dent about our article (1), and we welcome this opportunity to address the thoughtful comments. In fact, we believe that such discussions and queries help and enrich the content of the published work—especially if it is published in *Radiology*, the most widely read journal for radiologists and physicians in general.

To clarify the issue, we classified the follow-up into two types: (a) imaging follow-up, which included the computed tomographic examination required for the assessment of tumor response, and which was performed at our institution; and (b) survival follow-up, in which direct contact with the patient or his or her relatives was made by using telephone, e-mail, post, or fax as many patients were referred to our institution from other cities or countries.

In this connection, it is worth mentioning that many patients prefer to have their early follow-up imaging studies performed in our institution even if they plan on having their later imaging studies performed in their cities or countries. The method used for calculating the survival was based on the Kaplan-Meier method of calculation of survival and the Kaplan-Meier product limit estimator (2).

In general, the Kaplan-Meier method of survival calculation considers the patients who were lost to follow-up and those who did not complete their follow-up (censored). In the study, we did not have censored data regarding the survival follow-up and 20 patients were known to be dead after 2 years. We keep a full clinical record of all patients in our institution and we keep contact with our patients even if they do not return for regular follow-up imaging at our institution.

The 9 months of follow-up provided in the article refers to the mean imaging follow-up duration performed in our institution after treatment in the assessment of tumor response after ablation (imaging follow-up).

An erratum appears in this issue. The figure referred to by Dr Dent denotes the number of patients who had completed their 24-month follow-up imaging examinations at our institution since the beginning of the evaluations.

Keywords: Microwave; Ablation; Therapy pulmonary metastases.

111. Magnetic Resonance-Guided Laser-Induced Interstitial Thermotherapy of Breast Cancer Liver Metastases and other Noncolorectal Cancer Liver Metastases: an Analysis of Prognostic Factors for Long-Term Survival and Progression-free Survival

Thomas Josef Vogl, Verena Freier, Nour-Eldin Abdelrehim Nour-Eldin, Katrin Eichler, Stephan Zangos and Nagy Naguib Naeem Naguib

Investigative Radiology, 48 (6): 406-412 (2013) IF: 5.46

Purpose: The purpose of this study was the evaluation of prognostic factors for long-term survival and progression-free survival (PFS) after treatment of noncolorectal cancer liver metastases through MR-guided laser-induced thermotherapy (LITT).

Patients and Methods: We included 401 patients (mean age, 57.3 years) with liver metastases from different primary tumors who were treated with LITT. Long-term survival and progression-free-survival rates were evaluated using the Kaplan-Meier method. A Cox regression model tested different parameters that could be of prognostic value. The tested prognostic factors were as follows: the location of primary tumor, TNM classification, extrahepatic metastases, hepatic resection or neoadjuvant transarterial chemoembolization or systemic chemotherapy before LITT, the number of initial metastases, the volume of metastases, and the quotient of total volumes of metastases and necroses per patient.

Results: The median survival was 37.6 months starting from the date of LITT. The 1-, 2-, 3-, 4-, and 5-year survival rates were 86.5%, 67.2%, 51.9%, 39.9%, and 33.4%, respectively. The median PFS was 12.2 months. The 1-, 2-, 3-, 4-, and 5-year PFS rates were 50.6%, 33.8%, 26%, 20.4%, and 17%, respectively. The initial number of metastases, the volumes of metastases, and the quotient of the volumes of metastases and necroses influenced the long-term survival and the PFS.

Conclusions: Laser-induced thermotherapy is a minimally invasive method in the treatment of hepatic metastases of noncolorectal cancer, and it shows good results in long-term survival and PFS. The initial number of metastases and their volume are the most important prognostic factors. The status of the lymph nodes, the existence of other extrahepatic metastases, the location of the primary tumor, and different neoadjuvant therapies are of nonprognostic value.

Keywords: Mri; Litt; Breast cancer; Liver metastases; Noncolorectal cancer; Prognostic factors; Long-term survival; Progression-free survival.

112. Factors Influencing Local Tumor Control in Patients with Neoplastic Pulmonary Nodules Treated with Microwave Ablation: A Risk-Factor Analysis

Thomas J. Vogl, Thomas S. Worst, Nagy N. N. Naguib, Hanns Ackermann, Tatjana Gruber-Rouh and Nour-Eldin A. Nour-Eldin

American Journal of Roentgenology, 200 (3): 665-672 (2013) IF: 2.897

Objective: This study was performed to evaluate risk factors predictive of local tumor control after microwave ablation of primary and secondary lung malignancies up to 3 cm in maximal diameter.

Materials and Methods: The single-antenna microwave ablation treatment of 91 index tumors in 57 patients was studied retrospectively. Time to local tumor progression was monitored on CT scans over the follow-up period. Estimation of overall time to local tumor progression was performed with the Cox regression model. Factors hypothesized to correlate with ablation response included tumor diameter, tumor shape (round or oval versus irregular), clear versus ill-defined tumor margin, adjacency to the pleura, adjacency to bronchi, presence of vessels at least 3 mm in diameter a maximum of 5 mm from the index tumor, energy applied to the index tumor, and the occurrence of cavernous formations after ablation. A logistic regression model was used to correlate the data.

Results: Thirty of 91 (33.0%) index tumors, found in 21 of 57 (36.8%) patients, underwent local progression. The mean time to local tumor progression was 8.3 ± 5.5 months (range 2.1–25.2 months), and the estimated median time to local tumor progression was 22.6 ± 12.4 months. The risk factors that correlated significantly with local tumor progression were a maximal diameter greater than 15.5 mm ($p < 0.01$), irregular shape of the index tumor ($p < 0.01$), pleural contact ($p = 0.02$), and less than 26.7 J/mm^3 applied to the index tumor ($p < 0.001$). After regression analysis, shape of the index tumor ($p = 0.03$) and energy deployed per unit volume of the index tumor ($p = 0.001$) were found to be independent risk factors. Conversely, tumor margin definition ($p = 0.06$) and proximity of cavernous formations ($p = 0.19$), juxtatumoral vessels ($p = 0.08$), and bronchi ($p = 0.89$) did not affect tumor progression after ablation.

Conclusion: The independent predictive factors for local tumor progression in primary and secondary lung neoplasms up to 3 cm in diameter observed in this study were irregular shape of the index tumor and energy application of less than 26.7 J/mm^3 to the index tumor.

Keywords: Lung tumors; Microwave ablation; Risk analysis.

113. Dual-Source 128-Slice MDCT Neck: Radiation Dose and Image quality estimation of three Different Protocols

Jijo Paul, Emmanuel C. Mbalisike, Nour-Eldin A. Nour-Eldin and Thomas J. Vogl

European Journal of Radiology, 82 (5): 787-796 (2013) IF: 2.512

Purpose: To estimate the radiation dose and image quality of single-source (SSCT), high-pitch (HPCT), and dual-energy (DECT) protocols of a dual-source CT (DSCT) system for the examination of neck.

Materials and methods: 180 patients were randomized to one of the three protocols: 60 patients (age: 55.4 ± 12 years; range: 44–84 years) were examined with a SSCT, other 60 (59.5 ± 16.4 years; R: 40–85) with HPCT, and the last 60 (61.1 ± 14.9 years; R: 47–84) were examined with a DECT protocol. All examinations were performed using a DSCT system. The used protocols: Group-1 (SSCT: 120 kV; effective mAs: 185.4 ± 17.7), Group-2 (HPCT: 120 kV; eff. mAs: 97.7 ± 11.8), and Group-3 (DECT: 80 kV/140 kV with tin-filter; eff. mAs: 248.5 ± 25.7 ; 187 ± 21.2). A 100 ml iomeprol non-ionic contrast material was injected in to the patients during examination.

Results: Insignificant results were yielded regarding SNR and CNR between the groups (group-1 vs. 2: 0.3125, group-1 vs. 0.6W: 0.6875, group-2 vs. 0.6W: 0.3125), except DECT-80 (group-1 vs. 80 kV: 0.04289, group-2 vs. 80 kV: 0.025, group-

0.6W vs.80 kV: 0.04567) and 140 kV data, moreover, qualitative analysis yielded the same results. Mean effective-dose was significantly lower ($p < 0.05$) in group-2 (1.06 ± 0.16 mSv) compared to group-1 (2.05 ± 0.22 mSv) or group-3 (1.76 ± 0.2 mSv). Single- and dual-energy comparison showed a significant difference (group-1 vs. 3: $p = 0.00001$ and group-2 vs. 3: $p = 0.00001$) for CTDIvol (percent difference: 16%, 64%) or DLP (PD: 15.5%, 50.5%).

Conclusion: Quantitative and qualitative analysis showed similar results for SSCT, HPCT, and DECT-0.6W datasets regarding quality. HPCT yielded lower dose compared to other groups, however, the DECT achieved a lower and significant dose difference from the SSCT protocol. HPCT and DECT can be used with similar image quality and lower radiation dose compared to SSCT for the scans and can be utilized to various clinical advantages.

Keywords: Dual-source Ct; Nneck; Clinical protocol; Contrast-to-noise ratio; Qualitative analysis; High-pitch CT.

114. Repetitive Transarterial Chemoembolization (TACE) of Liver Metastases from Gastric Cancer: Local Control and Survival Results

Thomas J. Vogl, Tatjana Gruber-Rouh, Katrin Eichler, Nour-Eldin A. Nour-Eldin, Jörg Trojan, Stephan Zangos and Nagy N.N. Naguib

European Journal of Radiology, 82 (2): 258-263 (2013) IF: 2.512

Objective: To evaluate the local tumor control and survival data after transarterial chemoembolization with different drug combinations in the palliative treatment of patients with liver metastases of gastric cancer.

Materials and methods: The study was retrospectively performed. 56 patients (mean age, 52.4) with unresectable liver metastases of gastric cancer who did not respond to systemic chemotherapy were repeatedly treated with TACE in 4-week intervals. In total, 310 chemoembolization procedures were performed (mean, 5.5 sessions per patient).

The local chemotherapy protocol consisted of mitomycin alone (30.4%), mitomycin and gemcitabine (33.9%), or mitomycin, gemcitabine and cisplatin (35.7%). Embolization was performed with lipiodol and starch microspheres. Local tumor response was evaluated by MRI according to RECIST. Survival data from first chemoembolization were calculated according to the Kaplan–Meier method.

Results: The local tumor control was: complete response in 1.8% ($n = 1$), partial response in 1.8% ($n = 1$), stable disease in 51.8% ($n = 29$) and progressive disease in 44.6% ($n = 25$) of patients. The 1-, 2-, and 3-year survival rate from the start of chemoembolization were 58%, 38%, and 23% respectively. The median and mean survival times were 13 and 27.1 months. A Statistically significant difference between patients treated with different chemotherapy protocols was noted ($p = 0.045$) with the best survival time in the mitomycin, gemcitabine and cisplatin group.

Conclusion: Transarterial chemoembolization is a minimally invasive therapy option for palliative treatment of liver metastases in patients with gastric cancer.

Keywords: Gastric cancer; Liver metastases; Chemoembolization.

115. The Urogynecological Side of Pelvic floor MRI: the clinician's needs and the Radiologist's role

Rania Farouk El Sayed

Abdom Imaging, 38: 912-929 (2013) IF: 1.905

In pelvic floor dysfunction (PFD), magnetic resonance imaging of the pelvic floor supporting system from a functional point of view allows radiologists to recognize and classify the types of defects in each supporting structure (namely, the urethral supporting system, the vaginal supporting system, and the anal sphincter complex). Combined analysis of both the static and dynamic images of patients reporting stress urinary incontinence and pelvic organ prolapse has revealed a close relationship between certain anatomical defects in the pelvic organ support system and specific PFD. Because of the consistency and reproducibility of this relationship, radiologists can accurately identify and report the underlying structural defects, allowing clinicians to individually tailor surgical techniques for each patient. This is important because even those patients presenting with the same clinical symptoms may have different underlying structural derangement or abnormalities that may warrant a different treatment plan or approach. In view of the reported high rate of dysfunction recurrence after surgical treatment and clinicians' desire for a test that can pinpoint each patient's structural and anatomical defects, this approach provides the necessary scientific evidence on which best clinical practice can be based, and the data-reporting system used for analysis provides a tool for accurately planning reconstructive surgery, reducing the risk of surgical failure, dysfunction recurrence, and reoperation. With the improved radiological evidence made possible by combined image analysis, clinicians can now have the documentation that they need to plan more effective procedures and thus produce better outcomes. This review focuses on the MRI anatomy of the pelvic floor from a functional point of view and from the urogynecological side of floor dysfunction (UI and POP), adopting a problem-oriented approach. The first section of this article provides the basic essential anatomical information about the pelvic floor and briefly reviews the pathophysiology and clinical features of SUI and POP. The second portion details the vital role of the radiologist in obtaining accurate images for the clinician to use in planning reconstructive surgery. In addition, it includes case examples, illustrating how to report MRI findings systematically and comprehensively on both the static and dynamic images, using a recently developed integrated MRI analytical approach from a purely functional point of view that may enhance radiologists' interaction with clinicians and bridges the gap between radiology and surgery.

Keywords: Pelvic floor MRI; Pelvic floor dysfunction; Pelvic organ prolapse; Individualized treatment; Image correlation.

Dept. of Endemic

116. Quantifying Current Hepatitis C Virus Incidence in Egypt - Response to Letter by Miller and Abu-Raddad

Breban R, Doss W, Esmat G, Elsayed M, Hellard M, Ayscue P, Albert M, Fontanet A and Mohamed MK

Journal of Viral Hepatitis, 20(9): 668-668 (2013) IF: 3.082

Accurate incidence estimates are essential for quantifying hepatitis C virus (HCV) epidemic dynamics and monitoring the effectiveness of public health programmes, as well as for predicting future burden of disease and planning patient care. In Egypt, the country with the largest HCV epidemic worldwide, two modelling studies have estimated age-specific incidence rates that, applied to the age pyramid, would correspond to more than 500 000 Egyptians getting infected annually. This is in contrast to figures of the Egyptian Ministry of Health and Population that estimates new infections to be approximately 100 000 per year. We performed new analyses of nationwide data to examine the modelling assumptions that led to these estimates. Thus, we found that the key assumption of these models of a stationary epidemic is invalid. We propose an alternate approach to estimating incidence based on analysing cohort data; we find that the number of annual new infections is <150 000.

Keywords: Hepatitis C; Nationwide incidence; Age-stratified prevalence.

117. Non-invasive assessment of choledocholithiasis in patients with gallstones and abnormal liver function

Bilal O Al-Jiffry, Abdeen Elfateh, Tariq Chundrigar, Bassem Othman, Owaid AlMalki, Fares Rayza, Hashem Niyaz, Hesham Elmakhzangy and Mohammed Hatem

World Journal of Gastroenterology, 19(35): 5877-5882 (2013) IF: 2.547

Aim: To find a non-invasive strategy for detecting choledocholithiasis before cholecystectomy, with an acceptable negative rate of endoscopic retrograde cholangiopancreatography.

Methods: All patients with symptomatic gallstones were included in the study. Patients with abnormal liver functions and common bile duct abnormalities on ultrasound were referred for endoscopic retrograde cholangiopancreatography. Patients with normal ultrasound were referred to magnetic resonance cholangiopancreatography. All those who had a negative magnetic resonance or endoscopic retrograde cholangiopancreatography underwent laparoscopic cholecystectomy with intraoperative cholangiography.

Results: Seventy-eight point five percent of patients had laparoscopic cholecystectomy directly with no further investigations. Twenty-one point five percent had abnormal liver function tests, of which 52.8% had normal ultrasound results. This strategy avoided unnecessary magnetic resonance cholangiopancreatography in 47.2% of patients with abnormal liver function tests with a negative endoscopic retrograde cholangiopancreatography rate of 10%. It also avoided unnecessary endoscopic retrograde cholangiopancreatography in 35.2% of patients with abnormal liver function.

Conclusion: This strategy reduces the cost of the routine use of magnetic resonance cholangiopancreatography, in the diagnosis and treatment of common bile duct stones before laparoscopic cholecystectomy.

Keywords: Choledocholithiasis; Endoscopic retrograde cholangiopancreatography; Laparoscopic cholecystectomy; Liver function tests; Magnetic resonance cholangiopancreatography; Obstructive jaundice.

118. Repression of miR-17-5P with elevated expression of E2F-1 and c-MYC in non-metastatic hepatocellular Carcinoma and Enhancement of Cell Growth upon Reversing This Expression Pattern

El Tayebi HM, Omar K, Hegy S, El Maghrabi M, El Brolosy M, Hosny KA, Esmat G and Abdelaziz AI.

Biochemical and Biophysical Research Communications, 434 (10): 421-427 (2013) IF: 2.406

E2F-1, c-MYC, and miR-17-5p is a triad of two regulatory loops: a negative and a positive loop, where c-MYC induces the expression of E2F-1 that induces the expression of miR-17-5p which in turn reverses the expression of E2F-1 to close the loop. In this study, we investigated this triad for the first time in hepatocellular carcinoma (HCC), where miR-17-5p showed a significant down-regulation in 23 non-metastatic HCC biopsies compared to 10 healthy tissues; however, E2F-1 and c-MYC transcripts were markedly elevated. Forced over-expression of miR-17-5p in HuH-7 cells resulted in enhanced cell proliferation, growth, migration and clonogenicity with concomitant inhibition of E2F-1 and c-MYC transcripts expressions, while antagomirs of miR-17-5p reversed these events. In conclusion, this study revealed a unique pattern of expression for miR-17-5p in non-metastatic HCC patients in contrast to metastatic HCC patients. In addition we show that miR-17-5p is the key player among the triad that tumor growth and spread.

Keywords: miR-17-5p; E2F-1; C-MYC; Non-metastatic hepatocellular carcinoma.

119. Progesterone Suppresses Interferon Signaling by Repressing Tlr-7 and Mxa Expression in Peripheral Blood Mononuclear Cells of Patients Infected with Hepatitis C Virus

Sara S. Tayel, Amal A. Helmy, Rasha Ahmed, Gamal Esmat, Nabila Hamdi and Ahmed Ihab Abdelaziz

Archives of Virology, 158(8): 1755-1764 (2013) IF: 2.03

This study aimed at investigating the effect of progesterone on interferon signaling pathways in peripheral blood mononuclear cells (PBMCs) of patients infected with hepatitis C virus (HCV). PBMCs were isolated from peripheral blood of 38 treatment-naïve HCV-infected patients, pooled, and stimulated with progesterone in the presence and absence of its receptor antagonist, mifepristone, along with interferon alpha (IFN- α) or imiquimod. Toll-like receptor (TLR) 7 and myxovirus resistance protein A (MxA) were quantified in PBMCs using RT-qPCR. Imiquimod alone or combined with progesterone did not change MxA expression in HCV-infected PBMCs. Progesterone decreased the inducing effect of IFN- α on TLR-7 expression in both males and females. Moreover, progesterone stimulation prior to IFN- α treatment attenuated the Jak/STAT pathway, which was reflected by decreased expression of MxA in females. Progesterone showed a negative impact on the IFN signaling pathway in HCV-infected PBMCs as it decreased the expression of TLR-7 in both genders, while MxA expression was decreased only in females.

Keywords: HCV- Progesteron; Interferon.

120. The Impact of Interleukin 28b Gene Polymorphism on the Virological Response to Combined Pegylated Interferon and Ribavirin Therapy in Chronic HCV Genotype 4 Infected Egyptian Patients Using Data Mining Analysis

Marwa Khairy, Rabab Fouad, Mahassen Mabrouk, Wafaa El-Akel, Abu Bakr Awad, Rabab Salama, Mayada Elnegouly and Olfat Shaker

Hepat Mon, 13(7): 1-8 (2013) IF: 1.245

Background: Chronic HCV represents one of the common causes of chronic liver disease worldwide with Egypt having the highest prevalence, namely genotype 4. Interleukin IL-28B gene polymorphism has been shown to relate to HCV treatment response, mainly in genotype1.

Objectives: We aim to evaluate the predictive power of the rs12979860 IL28B SNP and its protein for treatment response in genotype 4 Egyptian patients by regression analysis and decision tree analysis.

Patients and Methods: The study included 263 chronic HCV Egyptian patients receiving peg-interferon and ribavirin therapy. Patients were classified into 3 groups; non responders (83patients), relapsers (76patients) and sustained virological responders (104 patients). Serum IL 28 B was performed, DNA was extracted and analyzed by direct sequencing of the SNP rs 12979860 of IL28B gene.

Results: CT, CC and TT represented 56 %, 25 % and 19% of the patients, respectively. Absence of C allele (TT genotype) was significantly correlated with the early failure of response while CC was associated with sustained virological response. The decision tree showed that baseline alpha fetoprotein (AFP \leq 2.68 ng/ml) was the variable of initial split (the strongest predictor of response) confirmed by regression analysis. Patients with TT genotype had the highest probability of failure of response.

Conclusions: Absence of the C allele was significantly associated with failure of response. The presence of C allele was associated with a favorable outcome. AFP is a strong baseline predictor of HCV treatment response. A decision tree model is useful for predicting the probability of response to therapy.

Keywords: Hepatitis C Virus; IL28B Protein; Human; Decision trees; Data mining; Peginterferon Alfa-2a.

121. Hepatitis C in the Eastern Mediterranean Region

Gamal Esmat

Eastern Mediterranean Health Journal, 19 (7): 587-588 (2013)

Hepatitis C virus (HCV) infection is still one of the major causes of mortality and morbidity worldwide and is the main cause of liver cirrhosis, hepatocellular carcinoma and liver transplantation in developing countries [1]. The World Health Organization (WHO) has estimated a 3% worldwide prevalence of the virus affecting more than 170 million people worldwide [2].

Keywords: Virus-infection; Egypt; Genotypes.

Dept. of Forensic & Toxicology

122. Suicidal hanging in Kuwait: Retrospective analysis of Cases from 2010 to 2012

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Journal of Forensic and Legal Medicine, 20 (8): 1118-1121 (2013) IF: 0.856

Suicide is an important health hazard worldwide. We retrospectively analyzed the autopsy records of the Institute of Forensic Medicine between 2010 and 2012 to document the characteristics of fatalities resulting from hanging in Kuwait. Upon analysis of death scene investigation and autopsy reports together with the information gathered from the police, the cases of hanging fatalities of suicidal origin were selected. A retrospective study was carried out on 118 suicidal hanging cases autopsied at Forensic Medicine Center in Kuwait (from 2010 to 2012).

Of these cases, 86 (73%) were males and 32 females (27%). There was an increasing trend of hanging among ages between 21 and 50 years (87.3%) and the third decade had the highest number of victims (about 43%) between all age groups.

Local Kuwaiti nationals comprised a small proportion of cases (7 persons, 5.9%), while the others were foreigners working in Kuwait with an Indian precedence (54 persons, 54.8%), followed by other 12 different nationalities representing 39.3% of the cases.

Keywords: Suicide by hanging; Retrospective; Kuwait.

123. PCR Applications in Identification of Saliva Samples Exposed to Different Conditions (Streptococci Detection Based)

Ali MM, Shokry DA, Zaghloul HS, Rashed LA and Nada MG

Pakistan Journal of Biological Sciences, 16: 575-579 (2013)

Oral streptococci represent about 20% of the total oral bacteria, so if it is possible to detect the presence of oral specific bacteria from a forensic specimen by Polymerase chain reaction, this could be used to verify the presence of saliva. Aim of this study is detection of *Streptococcus salivarius* which is one of the most common streptococci in oral bacteria and *Streptococcus mutans* which is common in cases of dental caries in various body fluids and skin swabs and assessment of which one of both organisms is more reliable in saliva identification, cross sectional study on Egypt population. Negative control samples (15 samples) were taken from various body fluids (urine, semen) and skin swabs. Mock forensic samples (85 samples) included fresh saliva, saliva, cotton fabrics contaminated with saliva, cigarette butts, bitten apple and semen mixed with saliva samples). DNA extraction was done using DNeasy blood and tissue kit (Qiagen, Tokyo, Japan). Polymerase chain reaction was done for DNA amplification using Polymerase chain reaction master mix then gel electrophoresis was done for samples qualification. Control bacteria were *S. salivarius* and *Streptococcus mutans*. *Streptococcus salivarius* was detected in 83.5% of all saliva contained samples and *S. mutans* was detected in 67% of saliva contained samples. Both bacteria were not detected in other body fluids and skin swabs, so *S. salivarius* is more reliable in saliva identification as well as

differentiating it from other body fluids. Polymerase chain reaction is valuable in detection of saliva by detecting *S. salivarius*.

Keywords: Saliva; Identification; PCR; *S. Salivarius*; *S. Mutans*; Egypt.

Dept. of Histology

124. The Effect of in Vivo Mobilization of Bone Marrow Stem Cells on the Pancreas of Diabetic Albino Rats (A Histological & Immunohistochemical Study)

Zeinab Mohamed Kamel Ismail, Ashraf Mahmoud Fawzy Kamel, Mira Farouk Youssef Yacoub and Alshaymaa Gamal Aboulkhair

International Journal of Stem Cells, 6 (1): 1-11 (2013)

Background and Objectives: The rapidly increasing number of diabetic patients across the world drew the attention to develop more effective therapeutic approaches. Recent investigations on newly differentiated insulin producing cells (IPCs) revealed that they could be derived from embryonic, adult mesenchymal and hematopoietic stem cells.

This work was planned to evaluate the role of StemEnhance (Aphanizomenon flos-aquae [AFA] plant extract) in mobilizing naturally occurring bone marrow stem cells as well as in improving streptozotocin-induced diabetic rats.

Methods and Results: Twenty adult male albino rats were divided into four groups namely the control, the diabetic, the positive control-StemEnhance and the diabetic-StemEnhance groups. After diabetes induction by streptozotocin (STZ), rats received StemEnhance for four weeks.

The mean number of blood CD34 immunopositive cells was measured by flowcytometry and random blood sugar was measured weekly. The pancreas was removed from the sacrificed rats and processed for staining with H&E and immunohistochemical staining for CD34+ve and insulin +ve cells. CD34+ve cells increased in the blood after introduction of StemEnhance. CD34+ve cells were observed in the pancreas and the insulin producing cells in the islets of Langerhans were increased from the second to the fourth week of treatment. Blood glucose level improved but it was still higher than the control level after four weeks of StemEnhance treatment.

Conclusions: This work points to the significant role of StemEnhance in stem cell mobilization and the improvement of diabetes mellitus.

Keywords: Diabetes; Hematopoietic stem cells; CD34; Aphanizomenon flos aquae.

125. The Possible Role of Mesenchymal Stem Cells Therapy in the Repair of Experimentally Induced Colitis in Male Albino Rats

Sohair Ahmed Fawzy, Rahma Kamal El-din Abo-Elnou, Dalia Fathy Abd-El-Maksoud El-Deeb and Marwa Mohamed Yousry Abd-Elkader

International Journal of Stem Cells, 6(2): 92-103 (2013)

Background and Objectives: Colitis is inflammation of the colon which can be transmural or confined to the mucosa. Colitis

may be acute or chronic. In case of serious intestinal discontinuity of epithelium, the regeneration capacity of local stem cells is not enough to complete tissue repair. Bone marrow mesenchymal stem cells (BM-MSCs) migrate into the gastrointestinal wall, where they may contribute to the repair progress. The present study aimed at evaluating the possible therapeutic effect of MSCs on induced colitis in albino rat.

Methods and Results: Twenty male albino rats were divided into 3 groups (control, colitis, MSCs), control group (4 rats), colitis group (8 rats) received once intra-rectal injection of 2 ml of 3% acetic acid. MSCs therapy group (8 rats) injected with MSCs 24 hours after colitis induction. In each group, rats were subdivided into subgroups (a & b). Subgroup (a) corresponds to rats sacrificed 3 days and subgroup (b) corresponds to rats sacrificed 10 days after colitis induction. Isolation and culture of MSCs from rat bone marrow were performed. Colon sections were examined using light and fluorescent microscopy. Colon specimens were subjected to histological, morphometric and statistical studies.

In colitis group, ulceration, loss of surface columnar epithelium, disturbed crypts architecture with few goblet cells and huge lymphatic nodule piercing the muscularis mucosa were reported. In stem cell therapy group, MSCs stimulate colonic repair through differentiation into several cells and dampen the inflammation.

Conclusions: MSCs represent future therapeutic hopes for intestinal injury and chronic intestinal inflammatory states.

Keywords: Colitis; Acetic acid; MSCs; PKH26; Rat colon.

Dept. of Internal Medicine

126. Parasitic Kidney Disease: Milestones in the Evolution of our Knowledge

Rashad S. Barsoum

American Journal of Kidney Diseases, 61: 501-513 (2013)

IF: 5.294

Of the 342 parasites that infect humans, 20 are associated with kidney disease, yet of these, only schistosomes, plasmodia, filariae, and leishmanias are held responsible for significant clinical or epidemiologic impact. Reviewing the evolution of human knowledge for these parasites discloses a lot of similarities regarding their discovery, patterns of kidney injury, and pathogenic mechanisms. From a historical perspective, our relevant information may be classified into 4 phases: (1) disease documentation in ancient and medieval scripts as far back as 2000-3000 bce; (2) discovery of the parasites, their life cycles, and clinical correlates by European clinicians working in African and Asian colonies during the second half of the 19th century; (3) discovery and characterization of the renal manifestations of monoparasitic infections during the second half of the 20th century; and (4) recognition of the confounding effects of coinfection with bacteria, viruses, or other parasites. The spectrum of respective kidney diseases extends all the way from acute kidney injury to glomerulonephritis, amyloidosis, urologic disorders, and malignancy. Discovery of the common immunopathogenetic host response to parasitic infections has provided a knowledge core that explains the similarities, diversities, and interactions with regard to kidney injury.

Keywords: Parasite discovery; Parasitic nephropathies; Parasitic co-infections; Schistosomiasis; Malaria; Leishmaniasis; Filariasis.

127. Contrast-Induced Acute Kidney Injury and Renal Support for Acute Kidney Injury: A Kdigo Summary (Part 2)

Rashad Sami Barsoum

Critical Care, 17: 205-217 (2013) IF: 4.718

Acute kidney injury (AKI) is a common and serious problem affecting millions and causing death and disability for many. In 2012, Kidney Disease: Improving Global Outcomes completed the first ever international multidisciplinary clinical practice guideline for AKI. The guideline is based on evidence review and appraisal, and covers AKI definition, risk assessment, evaluation, prevention, and treatment. Two topics, contrast-induced AKI and management of renal replacement therapy, deserve special attention because of the frequency in which they are encountered and the availability of evidence. Recommendations are based on systematic reviews of relevant trials. Appraisal of the quality of the evidence and the strength of recommendations followed the Grading of Recommendations Assessment, Development and Evaluation approach. Limitations of the evidence are discussed and a detailed rationale for each recommendation is provided. This review is an abridged version of the guideline and provides additional rationale and commentary for those recommendation statements that most directly impact the practice of critical care.

Keywords: Guidelines; Contrast nephropathy; Aki risk; Aki grading.

128. Diagnosis, Evaluation, and Management of Acute Kidney Injury: A Kdigo Summary (Part 1)

John A Kellum, Norbert Lameire and for the Kdigo Aki Guideline Work Group

Critical Care, 17: 204-218 (2013) IF: 4.718

Acute kidney injury (AKI) is a common and serious problem affecting millions and causing death and disability for many. In 2012, Kidney Disease: Improving Global Outcomes completed the first ever, international, multidisciplinary, clinical practice guideline for AKI. The guideline is based on evidence review and appraisal, and covers AKI definition, risk assessment, evaluation, prevention, and treatment. In this review we summarize key aspects of the guideline including definition and staging of AKI, as well as evaluation and nondialytic management. Contrast-induced AKI and management of renal replacement therapy will be addressed in a separate review. Treatment recommendations are based on systematic reviews of relevant trials. Appraisal of the quality of the evidence and the strength of recommendations followed the Grading of Recommendations Assessment, Development and Evaluation approach. Limitations of the evidence are discussed and a detailed rationale for each recommendation is provided.

Keywords: Guidelines; Definition AKI; AKI evidence base; Dialysis.

129. Urinary Schistosomiasis: Review

Rashad Sami Barsoum

Journal of Advanced Research, 4: 453-459 (2013) IF: 3

In this review, the clinical manifestations of urinary schistosomiasis are displayed from a pathogenetic perspective. According to the prevailing host's immune response profile, urinary schistosomiasis may be broadly categorized into cell-mediated and immune-complex-mediated disorders. The former, usually due to *Schistosoma haematobium* infection, are attributed to the formation of granulomata along the entire urinary tract. As they heal with excessive fibrosis, they may lead to strictures, calcifications and urodynamic abnormalities. The main impact is lower urinary, the site of heaviest ovi-position. Secondary bacterial or viral infection is common, any may be incriminated in secondary stone formation or the development of bladder malignancy. Immune-complex mediated lesions are usually associated with hepatosplenic schistosomiasis due to *Schistosoma mansoni* infection. Circulating complexes composed of schistosomal gut antigens and different classes of immunoglobulins deposit in the kidneys leading to several patterns of glomerular pathology. The latter have been categorized under six classes based on the histological and immunofluorescence profile. These classes have been linked to respective clinical manifestations and depend on the stage of evolution of the host's immune response, extent of associated hepatic fibrosis and co-infection with salmonella or hepatitis C. Secondary amyloidosis develops in 15% of such patients, representing a critical impairment of macrophage function. **Conclusion:** The wide clinicopathological spectrum of urinary schistosomiasis mirrors the evolution of the host's immune response according to chronicity of infection, bacterial or viral co-infection and, in the case of glomerulonephritis, to the extent of hepatic co-morbidity.

Keywords: Glomerulonephritis; Hepatosplenic schistosomiasis; Amyloidosis; Bladder cancer; Salmonellosis; Hepatitis C.

130. The Prevalence and Risk Categorization of Diabetic foot Complications in Cohort Group in, Beni Suif, Egypt, 2010-2012

Nagwa Saad, Khaled Elhadeedy, Nagwa Ramadan, Osama Mohmady and Mahmoud Farid

Life Science Journal, 10 (3): 933-942 (2013) IF: 0.165

Background: Foot problems are common complications in diabetics; fortunately they can be prevented. Aim of the study: to detect prevalence and categorization of diabetic foot in diabetics in Beni Suif, Egypt from 2010 to 2012.

Subjects and Methods: A cross-sectional study of 1000 diabetics who underwent thorough history and examination.

Results: Peripheral neuropathy (PN), was found in 73.7% of patients. High levels of HbA1c, creatinine, cholesterol, triglycerides, FBS, 2hPPS, BMI, SBP, albumin and insulin therapy were predictors of PN. Peripheral arterial disease (PAD) was found in 49.3% of patients. Duration of DM, HbA1c, creatinine, cholesterol, FBS, 2hPPS, BMI, BP, albumin and insulin therapy were predictors of PAD. Foot ulcers were found in 4.1%, while only one case had amputation. 19% of cases were categorized as high, 20% as moderate, and 11% as low risk while 50% had no risk. High risk cases had more advanced age, higher BMI, higher BP. Neuropathy, age > 55, insulin therapy and high HbA1c, creatinine, cholesterol and TGs were considered the most significant predictor of risk to diabetic foot ulcer.

Conclusion: About fifth of cases had high risk for development of diabetic foot ulcers in Beni Suif hospital from 2010-2012. PN is the major cause, while PAD was found in minority.

Keywords: Diabetic foot; Type II diabetes.

131. Burden of Chronic Kidney Disease: North Africa

Rashad Sami Barsoum

Kidney International Supplements, 3: 164-166 (2013)

North Africa (NAF) is composed of six countries located in the African Sahara, namely the Western Sahara, Morocco, Algeria, Tunisia, Libya, and Egypt. Common features between these countries include similar climate, ecology, population genetics, and the socioeconomic environment. This commonality reflects on the chronic kidney disease (CKD) profile in these countries.

While there are some estimates on the epidemiology of end-stage kidney disease, that of earlier stages is unknown. Several national screening programs are currently addressing this issue, such as the EGIPT-CKD project in Egypt and the MAREMAR study in Morocco.

Preliminary results from the former suggest a prevalence of proteinuria in 10.6% of the relatives of patients on regular dialysis treatment. Despite the lack of reliable registries, it was possible to gather information on the etiology of CKD by direct contact with leading nephrologists in those countries.

It turns out that glomerulonephritis (GN) accounts for 9–20%, diabetes 11–18%, hypertensive nephrosclerosis 10–35%, chronic interstitial nephritis 7–17%, and polycystic disease 2–3%. Compared to two decades earlier, diabetes has become more common at the expense of GN, proliferative GN, and amyloidosis regressed in favor of IgA and membranous nephropathies in Tunisian adults.

Conventional schistosomal nephropathies are regressing in favor of hepatitis C viral (HCV) nephropathy in Egyptians. Focal segmental glomerulosclerosis is increasing at the expense of proliferative GNs in the region at large. Access to regular dialysis has been optimized during the past decade, with favorable outcomes despite the high incidence of HCV infection, tuberculosis, and protein-calorie malnutrition. Kidney transplantation is available in all NAF countries except the Western Sahara.

About 650 transplants are performed annually from live donors, the majority in Egypt, where data from the largest center in Mansoura display a 10-year graft survival of 62%. Many transplants are performed from living unrelated donors, particularly in Egypt, which creates an ethical debate. Legislation for deceased-donor transplantation has been passed successively over the past two decades in Tunisia, Morocco, Algeria, and Egypt, which is expected to reflect quantitatively and qualitatively on the transplantation activity in the near future.

Keywords: CKC burden; CKD screening; Developing world; Glomerulonephritis; Tropical nephrology.

132. Infective endocarditis in Chronic Hemodialysis Patient with Arteriovenous Access

Salwa Ibrahim Mohamed

Prudence Journal of Medicine and Medical Sciences, 1(1): 1-3 (2013)

We reported a case of infective endocarditis in a hemodialysis (HD) patient with a permanent arteriovenous access that was created six years earlier to presentation.

Keywords: Infective endocarditis, chronic hemodialysis; Vascular access.

133. Significance of Nutrition Assessment and Nutrition Screening in Determining Nutrition Status and Predicting Complications among Patients with Liver Cirrhosis

Enas Mogawer, Sherif Mogawer, Mona Mansour, Heba Sherif and Shaimaa Elkholy

Modern Medicine, 30: 34-38 (2013)

In patients with Protein energy malnutrition (PEM), a common complication among patients with liver cirrhosis¹, most randomized studies have shown a significant increase in morbidity and mortality in relation to the severity of PEM². PEM is prevalent among almost 60-90% and 20% of decompensated and compensated liver cirrhosis respectively³.

In liver transplantation, PEM has been reported in almost 100% of patients prior to transplantation. Malnourishment was found to be an independent risk factor for morbidity and mortality in recipients following liver transplantation⁴.

Dept. of Neurology

134. Status Update and Interim Results from the Asymptomatic Carotid Surgery Trial-2 (ACST-2)

Foad Abd-Allah

European Society For Vascular Surgery, 46(5): 510-516 (2013)
IF: 2.82

Objectives: ACST-2 is currently the largest trial ever conducted to compare carotid artery stenting (CAS) with carotid endarterectomy (CEA) in patients with severe asymptomatic carotid stenosis requiring revascularization.

Methods: Patients are entered into ACST-2 when revascularization is felt to be clearly indicated, when CEA and CAS are both possible, but where there is substantial uncertainty as to which is most appropriate. Trial surgeons and interventionalists are expected to use their usual techniques and CE-approved devices. We report baseline characteristics and blinded combined interim results for 30-day mortality and major morbidity for 986 patients in the ongoing trial up to September 2012.

Results: A total of 986 patients (687 men, 299 women), mean age 68.7 years (SD \pm 8.1) were randomized equally to CEA or CAS. Most (96%) had ipsilateral stenosis of 70e99% (median 80%) with contralateral stenoses of 50e 99% in 30% and contralateral occlusion in 8%. Patients were on appropriate medical treatment. For 691 patients undergoing intervention with at least 1-month follow-up and Rankin scoring at 6 months for any stroke, the overall serious cardiovascular event rate of periprocedural (within 30 days) disabling stroke, fatal myocardial infarction, and death at 30 days was 1.0%.

Conclusions: Early ACST-2 results suggest contemporary carotid intervention for asymptomatic stenosis has a low risk of serious morbidity and mortality, on par with other recent trials. The trial

continues to recruit, to monitor periprocedural events and all types of stroke, aiming to randomize up to 5,000 patients to determine any differential outcomes between interventions.

Keywords: Carotid artery stenosis; Stroke; Carotid artery stenting; Carotid endarterectomy; Randomized controlled trial.

Dept. of Ophthalmology

135. Eye Trauma During The 2011 Egyptian Revolution

Mohamed A. Eldaly, Mohamad A. AbdelHakim, Rania S. Zaki and Ayman F. El-Shiaty

Graefes Arch Clin Exp Ophthalmol, 251: 661-665 (2013)

IF: 1.932

Background: Cairo university hospitals are at the heart of Cairo with close proximity to Tahrir (Liberation) square and had received the vast majority of casualties during the Egyptian revolution. The aim of this study was to analyze the eye injuries during the uprising.

Design: Retrospective cohort study.

Methods: Data were obtained from patients' paper records, interview with treating ophthalmologists, and whenever possible patients were interviewed and examined. An electronic medical template had been specially developed for recording these data. Main outcome measures were the flow of patients and their demographics, diagnoses, visual acuities pre and post interventions, investigations and management. Whenever required results were compared at 95 % confidence interval.

Results: There were 184 patients (mean age 27.3±9.6 years) with 195 injured eyes of whom 96.7 % were males and 11 patients had both eyes injured. Seventy seven percent of patients had been admitted within 24 h of injury. Open globe injuries comprised 87 % of the eyes of which 147 eyes received 259 imaging investigations. The presenting visual acuities were worse than 3/60 in 72.5 % of eyes which were even worse post interventions and that was significantly dependent on the presenting vision. Wound repair was the primary intervention in 85 % of eyes while 50 % of the secondary interventions were vitrectomies.

Conclusions: Presenting visual acuity is a valid prognostic factor in the setting of mass eye casualty. Management of open globe injuries continues to pose difficult challenges especially bilateral ones.

Keywords: Egyptian revolution; Trauma; Open globe Injuries; Primary repair; Corneal lacerations.

Dept. of Pediatrics

136. Apolipoprotein E Gene Polymorphism and the Risk of Left Ventricular Dysfunction Among Egyptian β -Thalassemia Major

Mona H. El-Tagui, Mona M. Hamdy, Iman A. Shaheen, Hala Agha and Hoda A. Abd-Elfatah

Gene, 524: 292-295 (2013) IF: 2.196

In Egypt, β -thalassemia is the most common hereditary hemolytic anemia. Cardiac dysfunction, secondary to iron overload with formation of oxygen free radicals, is the most common cause of death in β -thalassemia patients. This study was designed to

determine whether the allelic genotype of apolipoprotein E (Apo E), which exhibits antioxidant properties, could represent a genetic risk factor for the development of left ventricular (LV) dysfunction in β -thalassemia major.

Fifty Egyptian β -thalassemia major patients were subjected to echocardiography to assess LV function. Apo E genotyping by polymerase chain reaction restriction fragment length polymorphism (PCR-RFLP) was done for all patients in addition to 50 age and sex matched healthy control subjects.

Patients were classified into three groups. Group I and II were clinically asymptomatic. Group II subjects had evidence of LV dilatation, while Group III patients had clinical and echocardiographic findings of LV failure. Apo E4 allele was significantly higher among Group II and III than in controls.

In conclusion, Apo E4 allele can be considered as a genetic risk factor for LV dysfunctions in β -thalassemic patients. It could be used as predictive indicator for additional risk of LV failure, particularly in asymptomatic patients with LV dilatation, requiring a closer follow-up, to prevent further disease progression.

Keywords: β -Thalassemia Apolipoprotein E Pcr-Rflp Left Ventricular Failure Left Ventricular Dilatation

137. Epidemiological Pattern of Newly Diagnosed Children with type 1 Diabetes Mellitus, Taif, Saudi Arabia

Naglaa Mohamed Kamal Alanani and Adnan Amin Alsulaimani

The Scientific World Journal, 421569: 1-9 (2013) IF: 1.73

Introduction and Aim. Type-1-diabetes mellitus (T1DM) is the most commonly diagnosed type of DM in children and adolescents. We aim to identify the epidemiological profile, risk factors, clinical features, and factors related to delayed diagnosis or mismanagement in children with newly diagnosed T1DM in Taif, Saudi Arabia.

Patients and Methods. Ninety-nine newly diagnosed patients were included in the study along with 110 healthy controls. Patients were classified into 3 groups (I: >2 years, II: 2-6 years, and III: 6-12 years). Both patients and controls were tested for C-peptide, TSH, and autoantibodies associated with DM and those attacking the thyroid gland.

Results. Diabetic ketoacidosis was present in 79.8%. Delayed and missed diagnoses were recorded in 45.5%, with significant correlation to age and district of origin. Severity at presentation showed significant correlation with age and cow's milk feeding. Group I, those with misdiagnosis or positive DM related autoantibodies, had more severe presentations. The correlation of C-peptide and TSH levels in patients and controls was significant for C-peptide and nonsignificant for TSH.

Conclusion. Misdiagnosis and mismanagement are common and account for more severe presentation, especially in young children >2 years. Early introduction of cow's milk appears to be a risk factor for the development of T1DM.

Keywords: Epidemiological pattern; Children; Type 1 diabetes mellitus; Taif; Saudi Arabia.

138. Regional Analysis of Longitudinal Systolic Function of the Right Ventricle after Corrective Surgery of Tetralogy of fallot Using Myocardial Isovolumetric Acceleration Index

Mohamed Y. Abd El Rahman, Wei Hui, Rita Schuck, Axel Rentzsch, Felix Berger, M. Gutberlet and Hashim Abdul-Khalik

Pediatric Cardiology, 34: 1848-1853 (2013) IF: 1.197

To assess regional longitudinal systolic function of the right ventricle in patients with repaired tetralogy of Fallot (TOF) by tissue Doppler imaging-derived isovolumetric acceleration (IVA) index and determine the effect of right-ventricular (RV) enlargement on regional systolic function. In 30 consecutive TOF patients and 30 age-matched controls, myocardial velocity of the RV ventricular free wall in the basal and middle regions were examined in the apical four-chamber view. Peak myocardial velocity during IVA was recorded on the free RV wall. IVA index was calculated as the difference between baseline and peak velocity divided by their time interval. In 23 of the studied TOF patients, magnetic resonance imaging was performed on the same day to determine global RV volume and ejection fraction. IVA index of the RV lateral free wall was significantly lower in the basal (8.31 ± 6.00 vs. 19.00 ± 10.85 m/s², $p = 0.0001$) and middle segments (6.56 ± 5.22 vs. 16.17 ± 7.44 m/s², $p = 0.0001$) in patients than in controls. Among TOF patients, a negative correlation was found between IVA index in the middle segment and RV end-diastolic volume/body surface area ($r = -0.549$, $p < 0.01$). Similar to other longitudinal RV wall parameters, the IVA index showed a decreased value in the RV free wall, which is related to the impaired regional and global longitudinal RV systolic dysfunction. RV enlargement adversely affects regional longitudinal systolic function.

Keywords: Tetralogy of fallot; Right-ventricular function; Tissue doppler imaging; Isovolumetric acceleration index; Magnetic resonance imaging.

139. Accuracy of Risk Assessment tool in predicting Pneumonia's Outcome among Egyptian Children: Hospital Based Study

Hanan Mosleh and John Rene Labib

British Journal of Medicine & Medical Research, 3: 2279-2287 (2013)

Aim: To determine possible factors associated with lethal outcome of pneumonia and to assess the accuracy of Pneumonia Severity Index (PSI) and Pediatric Risk of Mortality (PRISM) score in predicting mortality from pneumonia.

Study Design: A retrospective analytical study Place and Duration of the Study: Pediatric Emergency Department (PED) of the pediatric hospital (Abu El-Reesh) Egypt, during a period from April 2010 to April 2012. Methodology: Children ≤ 5 years admitted to the PED diagnosed having pneumonia were included in the study ($n=236$). Data were retrieved from the electronic records and consisted of; hospital data, personal data, provisional and definite diagnosis, presenting clinical symptoms and signs, outcome and measurements of blood counts and serum biochemical markers.

Results: Non-survivors constituted 26.7% of the studied group. Non-survivors significantly had a higher median PRISM score

(18; IQR 11 for non-survivors compared to 8; IQR 6 for survivors, $P = .000$), have a longer median length of stay (8 days; IQR; 1 day for non-survivors compared to 4 days; IQR 2 days for survivors, $P = .000$), higher PSI score (61; IQR 39 for non-survivors compared to 41; IQR 20 for survivors, $P = .000$). Only longer LOS, higher PRISM score were independently associated with mortality. ROC curve analysis revealed area under the curve (AUC) of 0.857 for PRISM score (95% CI 0.80–0.91) and 0.73.6 for PSI score (95% CI 0.66–0.81). A PRISM score ≥ 12.5 is 81.4% sensitive and 73.3% specific in predicting mortality.

Conclusion: Case fatality rate is quite high. PRISM scoring is accurate in predicting mortality among pneumonia pediatric patients and thus useful in decision making concerning management of these cases.

Keywords: Under-5 year children; Pneumonia severity; Risk of mortality.

140. Diastolic asynchrony and myocardial dysfunction in Patients with univentricular heart after Fontan operation

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Journal of Echocardiography, 11: 130-137 (2013)

Background: We aimed to assess the existence of myocardial dysfunction and intra-univentricular diastolic asynchrony in patients after Fontan operation.

Methods: Twenty patients after Fontan procedure and 30 age-matched controls were included in the study. The global function of the univentricular heart was analyzed by the Tei index. Regional myocardial velocities and strain of the univentricular heart including the rudimentary right ventricle (RV) were quantified by tissue Doppler imaging. Intra-univentricular or intra left ventricular (LV) diastolic delay was measured from the difference of diastolic intervals (time to peak early diastolic velocity), measured at LV lateral wall and the rudimentary RV wall in patients, or LV lateral wall and the ventricular septum in controls.

Results: Compared to the control group, patients after Fontan operation had significantly elevated Tei index (0.24 ± 0.02 vs. 0.41 ± 0.1 , $p < 0.001$). On the other hand, the regional myocardial velocities and strains of the univentricular heart including the rudimentary RV were significantly reduced ($p < 0.001$). Among patients, there was a significant correlation between the Tei index of the univentricular ventricle and rudimentary RV strain ($r = -0.66$, $p = 0.01$). The heart rate-corrected intra-univentricular diastolic delay was significantly prolonged among patients when compared to the intra-LV diastolic delay in controls (0.01 ± 0.9 vs. 1 ± 1.1 , $p = 0.005$).

Conclusions: Myocardial dysfunctions and intra-univentricular diastolic asynchrony of the univentricular heart in patients after Fontan procedure are evident. The rudimentary RV in patients after Fontan procedure plays an important role in the determination of the global function of the univentricular heart.

Keywords: Asynchrony; Diastolic function; Fontan circulation Tissue Doppler imaging.

141. Progressive Familial Intrahepatic Cholestasis Type 3: A Novel Mutation in a Saudi Child

Naglaa Mohamed Kamal-Alanani, Ayman Amin Bakar, Abdullah O Al-Harbi, Hamid El-Ghamdi, Mortada Hassan El-Shab-rawi and Laila M. Sherief

Journal of Gastroenterology and Hepatology Research, 2 (6): 655-657 (2013)

Progressive familial intrahepatic cholestasis type 3 (PFIC3) is caused by defects in ABCB4 gene. Liver histology although important, but is nonspecific, and molecular genetic testing is essential for diagnosis.

To report PFIC3 in a Saudi male child and determine the pathogenetic role of a novel of ABCB4 in one of them. Liver biopsy, immunohistochemical analysis for MDR3 protein expression and molecular genetic analysis were done for the patient. Liver biopsy showed extensive ductular reaction with portal and periportal fibrosis. Immunohistochemical analysis revealed absence of MDR3 protein expression at the canalicular pole. Molecular genetic analysis revealed a novel mutation in ABCB4: the c.1783 C > T (p.Arg595X) mutation in exon 15 in homozygous state. A novel loss-of-function mutation has been identified. Molecular genetic testing is essential and conclusive for diagnosis.

Keywords: Progressive familial intrahepatic cholestasis type 3; ABCB4 gene mutations; Children; Saudi Arabia.

142. Study of Non-organ-specific Antibodies in Children with Genotype 4 Chronic Hepatitis C

Mohammed E. Hamed, Naglaa M. Kamal Alanani, Laila M. Sherief, Mohammed A. Fouad, Lamiaa A. Elwahab and Nermin Raafat

The Saudi Journal of Gastroenterology, 19: 262-270 (2013)

Background/Aim: Adult studies established a relationship between hepatitis C virus (HCV) infection and the presence of non-organ-specific antibodies (NOSAs). Most studies were carried out on genotypes 1 and 2. Only a few studies addressed that issue in pediatrics. No studies have been carried out on autoimmunity and genotype 4 in children. We aim to investigate NOSAs in 80 Egyptian children with chronic HCV infection along with studying the underlying genotype of HCV, and correlating autoimmunity with the epidemiological, clinical, biochemical, and virological features. **Materials and Methods:** HCV-RNA was assayed by the polymerase chain reaction and viral genotypes were determined. NOSAs were measured and liver biopsies were taken for histopathological examination. **Results:** Genotype 4 was the only detected genotype in the included 80 patients. Anti-smooth muscle antibodies (ASMA) were the only detected antibodies in 32 (40%) patients, always with V specificity (vessels only) at titers ranging from 1:20 and 1:160. Anti-nuclear antibodies (ANA) and liver-kidney microsomal antibodies-1 (LKMA-1) were not detected in any of our patients. Epidemiologic and clinical features did not significantly differ between autoantibody-positive and -negative patients. Among biochemical features, significantly high levels of total bilirubin, albumin, immunoglobulins, alkaline phosphatase, and gamma-glutamyl transpeptidase were found in the antibody-positive group. **Conclusion:** Genotype 4 HCV is the prevailing genotype in Egyptian children with chronic HCV infection. A

consistent proportion of these children with chronic HCV infection circulate non-organ-specific autoantibodies. The prevalence of ASMA and the absence of ANA and LKMA-1 might be related to the unique situation in Egypt with unique prevalence of genotype 4. More studies are warranted on larger pediatric population to validate these findings.

Keywords: Children; Egypt; Genotype 4; Hepatitis C; Non-organ-specific antibodies.

Dept. of Rheumatology

143. Bone mineral density in patients with systemic sclerosis and its association with hand involvement

Amira A. Shahin, Hania S. Zayed, Safaa Sayed and Waleed Gomaa

The Egyptian Rheumatologist, 35: 233-238 (2013) IF: 2

Aim of the work: The aim of the present study is to assess bone mineral density (BMD) in systemic sclerosis (SSc) patients and to determine associated factors.

Patients and methods: Sixty-five female SSc patients (mean age 39.5 ± 13.5 years, disease duration 7.3 ± 5.9 years), and forty age- and sex- matched controls were included. Forty-seven patients had limited SSc and 18 had diffuse type. Patients were subjected to clinical and functional assessment. BMD was quantified at the distal radius, femoral neck and lumbar spine (L2-4) by dual energy X-ray absorptiometry.

Results: SSc patients had a higher frequency of osteoporosis at the distal radius and osteopenia at the lumbar spine ($p = 0.001$ and 0.002 , respectively), but the BMD at the femoral neck was not significantly different from the control group. Patients with osteoporosis at the distal radius had a significantly higher frequency of hand deformities ($p < 0.05$) and higher functional scores reflecting more disability than patients without ($p = 0.01$), while patients with osteoporosis at the lumbar spine were significantly older ($p < 0.001$) and had a longer disease duration than those without ($p = 0.001$). No associations were found between menopausal status, SSc subtype, skin score, internal organ affection and osteoporosis at the three skeletal sites.

Conclusion: Patients with SSc have lower bone mineral density than controls at the distal radius and lumbar spine. Osteoporosis at the distal radius is associated with the presence of hand deformity and functional disability, while osteoporosis at the lumbar spine is associated with older age and longer disease duration.

Keywords: Systemic sclerosis; Bone mineral density; Hand involvement.

144. Prevalence and Impact of Chronic hepatitis C virus infection on the clinical manifestations and disease activity among patients suffering from systemic lupus erythematosus

Ayman El Garf, Noha Shaheen, Wafaa Gaber and Nesreen Sobhy

The Egyptian Rheumatologist, 35: 9-14 (2013) IF: 2

Aim of the work: To study the prevalence of anti-HCV antibodies among patients suffering from systemic lupus erythematosus (SLE) as well as to determine the impact of

chronic HCV infection on the clinical manifestations and disease activity.

Patients and Methods: Ninety-eight consecutive SLE patients presented to the rheumatology department, Cairo University Hospitals were included in the study. All patients were screened for anti-HCV antibodies using a 3rd generation enzyme-linked immune-sorbent assay (ELISA). Patients with positive anti-HCV were tested for the presence of HCV-RNA by polymerase chain reaction (PCR). Patients were classified into two groups; HCV/SLE and non-HCV/SLE according to the presence or absence of anti-HCV antibodies.

Results: Twenty/98 patients (20.4%) were positive for HCV antibody. Eight/98 patients (8.2%) had active viremia. SLE patients with positive anti-HCV antibodies tend to be older in age and having a longer SLE duration than non-HCV/SLE Patients. HCV/SLE patients had significantly lower mucocutaneous manifestations ($p < 0.05$) and higher cardiac manifestations and fundus abnormalities ($p < 0.04$, $p < 0.01$ respectively) than non-HCV/SLE patients. There was no statistical difference between the Systemic Lupus Erythematosus Disease Activity Index (SLEDAI) score between both groups. Patients with HCV/SLE were less frequently on oral steroids than patients with non-HCV/SLE.

Conclusion: HCV antibodies and active HCV viremia were found in 20.4% and 8.2% respectively among SLE patients. SLE with positive anti-HCV antibodies tend to be older in age and having longer SLE disease duration, lower mucocutaneous and higher cardiac manifestations and fundus abnormalities. Concomitant chronic HCV infection has no adverse impact on SLEDAI.

Keywords: HCV; SLE; Clinical manifestations; Disease activity.

145. Role of diagnostic ultrasonography in detecting gouty arthritis

Wafaa Gaber, Yasser Ezzat and Sherif F. Abd El Rahman

The Egyptian Rheumatologist, 35: 71-75 (2013) IF: 2

Introduction: Gout is a form of inflammatory arthritis that is characterized by attacks of active synovitis related to the presence of monosodium urate (MSU) crystals in the joints and peri-articular soft tissues.

Aim of the work: To establish the usefulness of ultrasonography (US) in diagnosing subclinical gouty arthritis and to determine whether there are sonographic features that are characteristic of gout.

Patients and Methods: We studied 20 patients known to be gouty (group 1), 20 patients with asymptomatic hyperuricemia (AH) (group 2) and 20 controls (group 3) in a cross sectional study. Demographic, clinical and serological data were evaluated. Knee and 1st MTP joints were assessed by musculoskeletal (US) to detect subclinical gouty arthritis.

Results: Clinical gouty arthritis was found in only (20%) in (group 1), but subclinical gouty arthritis had been found in (75%) in (group1) and (25%) in (group 2). There were statistically significant differences between the examined groups regarding the presence of double contour (DC) sign ($p < 0.001$), joint effusion ($p = 0.04$), serum uric acid (SUA) level ($p < 0.001$), diuretics use ($p < 0.001$), allopurinol use ($p < 0.001$), also it was found that only SUA was the risk factor for the occurrence of the double contour (DC) sign ($p = 0.03$) and cut-off value of SUA was 9.1 mg/dl above which DC sign was detected.

Conclusion: Ultrasonography (US) is a useful tool to detect subclinical gouty arthritis; also serves as a non-invasive, bedside and non-ionizing tool.

Keywords: Gouty arthritis; Hyperuricemia; Ultrasonography; Double contour sign.

146. Ultrasonographic evaluation of lower limb entheses in patients with early spondyloarthropathies

Yasser Ezzat, Wafaa Gaber, Sherif F. Abd EL-Rahman, Marwa Ezzat and Mohammad El Sayed

The Egyptian Rheumatologist, 35: 29-35 (2013) IF: 2

Introduction: The enthesopathy of seronegative spondyloarthropathies (SpA) is the hallmark of these diseases, the ultrasound examination of these entheses confirms the frequency of their involvement.

Aim of the work: To detect enthesal abnormalities with ultrasound (US) in the lower limb of patients with early spondyloarthropathy (SpA) and to evaluate US as a valuable tool in detecting early entheses.

Patients and Methods: A total of 45 patients with early disease duration of 11.7 ± 8.5 months, including 10 patients with psoriatic arthritis (PsA), 10 patients with ankylosing spondylitis (AS), 10 patients with reactive arthritis (ReA), eight patients with ulcerative colitis (UC) and seven patients with Crohn's disease and 20 healthy controls of matched age and sex underwent ultrasonographic evaluation of Achilles, quadriceps, patellar entheses and plantar aponeurosis. Ultrasonographic findings were scored according to the Glasgow Ultrasound Enthesitis Scoring System (GUESS).

Results: On US examination a total of 290/450 (64.4%) of the enthesal sites were abnormal. Mean GUESS score was significantly higher in patients with SpA as compared with controls ($p < 0.001$), with a higher mean value in patients with PsA, ReA and AS. The mean thickness of all tendons examined was significantly higher in SpA patients than in controls ($p < 0.0001$) as well as the mean number of enthesophytes and bursitis in all sites examined ($p = 0.002$, $p = 0.003$), with a higher prevalence amongst patients with PsA and ReA. The GUESS score was correlated to duration of the disease and the anti-tumour necrosis factor alpha medications.

Conclusion: Enthesis involvement occurs early in spondyloarthritis, the entheses US score appears to be reliable and useful for improving the diagnostic accuracy of early SpA, further studies are needed as US is an evolving technique.

Keywords: Spondyloarthropathy; Ultrasonography; Enthesitis.

147. Serum B-cell activating factor assessment in a population of Egyptian Patients with Systemic Sclerosis

Abdo MS, Mohammed RH, Raslan HM and Gaber SM.

International Journal of Rheumatic Diseases, 16: 148-156 (2013) IF: 1.65

Background: Systemic sclerosis (SSc) is a rare systemic connective tissue disease characterized by abnormal fibroblast proliferation and micro-vascular inflammatory changes.

Aim: To assess serum B-cell activating factor (BAFF) levels in patients with systemic sclerosis and to correlate this with disease features and disease severity.

Methods: This is a case-control study in which patients with the established diagnosis of SSc were recruited. The diagnosis of SSc was established according to the American Rheumatology Association 1980 criteria for the classification of scleroderma. Patients' assessment included evaluation of skin involvement using the Modified Rodnan score and disease severity using the Medsger score. Twenty-five healthy matching controls were included. The sandwich enzyme-linked immunosorbent assay technique was used for direct assessment of serum BAFF in patients and controls.

Results: The study included 60 patients (54 female and 6 male), with a mean age of 38.18 ± 12.06 years, with mean disease duration of 7.85 ± 4.075 years. Serum BAFF in patients ranged $98.2-5015$ pg/mL with mean BAFF 1100 ± 835.4 pg/mL. In controls serum BAFF levels ranged $188.5-2314$ pg/mL with mean BAFF 546.1 ± 471.1 pg/mL, showing a statistically significant elevation of serum BAFF levels in SSc patients ($P = 0.0001$) with insignificant correlation to skin disease or total Medsger Score of the study population ($P > 0.05$). Serum BAFF levels showed significant correlation with episodes of pseudo-obstruction and methotrexate (MTX) use in the patients studied ($P < 0.05$).

Conclusion: Serum BAFF levels were significantly elevated in patients with SSc irrespective of disease subtype, disease duration or age of patients. This elevation in serum BAFF significantly related to gastrointestinal track involvement and MTX therapy.

Keywords: Systemic Sclerosis, Serum Baff, Modified Rodnan Score, Methotrexate, Intestinal Pseudoobstruction

148. Diagnostic Value of Antibodies Against a Modified Citrullinated Vimentin in Egyptian Patients with Rheumatoid Arthritis

Reem Hamdy Abdellatif Mohammed, Sahar Abou el-Fetouh and Hanan S Abozaid

Journal of Clinical & Cellular Immunology, 4:4: 1-6 (2013)

Objective: To investigate the sensitivity and specificity of seropositivity to antibodies against modified citrullinated vimentin antibodies (anti-MCV) in comparison with anti-CCP2- in rheumatoid arthritis (RA) among Egyptians, considering the possible correlation to demographic and disease related features in the study group.

Patients and methods: This study included forty patients with Rheumatoid arthritis (RA) and thirty matching healthy controls. Patients' assessment measures involved the disease activity score (DAS-28), visual analogue scale (VAS) and health assessment questionnaire (HAQ). Thirty healthy subjects matched for age and sex served as a control group. Blood samples were obtained from patients and controls for erythrocyte sedimentation rate (ESR), C reactive protein (CRP), rheumatoid factor (RF). Anti-CCP2 and anti-MCV were determined using ELISA technique.

Results: Estimated serum levels of anti-CCP2 and anti-MCV were significantly higher in patients compared to controls ($p < 0.001$). Serum levels of anti-MCV didn't show any significant variations with age, disease duration, duration of morning stiffness, number of swollen and tender joints, HAQ or ESR in patients with RA, yet serum levels of anti-MCV correlated significantly with DAS28, VAS and CRP ($p < 0.05$). Anti-CCP2 correlated significantly with DAS28, VAS and CRP and ANA

($p < 0.05$). Serum levels of anti-MCV and anti-CCP2 showed a consistently significant correlation with each other ($r = 0.483$; $p < 0.001$). Statistical analysis showed that anti-MCV had diagnostic specificity, sensitivity of 93.3%, 75.5%, respectively, while anti-CCP2 specificity, sensitivity of 98.1%, 85%, respectively.

Conclusion: Serum anti-MCV as well as the anti-CCP-2 assay perform comparably well in the diagnosis of RA. In the high-specificity range, however, the anti-CCP2 assay appears to be superior to the anti-MCV test.

Keywords: Anti-cyclic citrullinated peptide (Anti-CCP2); Anticitrullinated vimentin antibody (anti-CMV); Rheumatoid arthritis (RA).

Faculty of Oral Dental Medicine

Dept. of Oral Medicine and Periodontology

149. Adult Mesenchymal Stem Cells Explored in the Dental Field

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Adv Biochem Eng Biotechnol, 130: 89-103 (2013)

During the last decade it was realized that stem cell-based therapies hold an enormous therapeutic potential, improving the life of patients with conditions ranging from neurodegenerative and traumatic diseases to regenerative medicine requiring replacement of complex structures such as bones and teeth. Based on their ability to regenerate and/or repair damaged tissue and eventually restore organ function, multiple types of stem/progenitor cells have been discovered. In the field of periodontal regeneration and tooth engineering, several types of adult multipotent mesenchymal stem cells from various sources are currently being investigated. These include the bone marrow stromal stem cells (BMSSCs), adipose-derived stromal cells (ADSCs), dental pulp stem cells (DPSCs), dental follicle stem cells (DFSCs), stem cells from human exfoliated deciduous teeth (SHEDs), stem cells from the apical papilla (SCAP), periodontal ligament stem cells (PDLSCs), alveolar bone proper-derived stem cells, and gingival stem cells.

Keywords: Adipose-derived stromal cell; Alveolar bone proper-derived stem cell; Bone marrow stromal stem cell; Dental follicle stem cell; Dental pulp stem cell; Gingival stem cell; Mesenchymal stem cell; Periodontal ligament stem cell; Periodontium; Stem cells From Human Exfoliated Deciduous tooth; Stem cells From the apical papilla.

150. Root damage induced by intraosseous anesthesia—An in vitro investigation

Christian Graetz, Karim-Mohamed Fawzy-El-Sayed, Nicole Graetz and Christof-Edmund Dörfer

Med Oral Patol Oral Cir Bucal, 18 (1): e130-e134 (2013)

Objectives: The principle of the intraosseous anesthesia (IOA) relies on the perforation of the cortical plate of the bone for direct application of the local anesthetic solution into the underlying cancellous structures. During this procedure, IOA needles might accidentally come in contact with the tooth roots. The aim of the

current in vitro study was to examine the consequences of this 'worst case scenario' comparing five commercially available IOA systems.

Material and Methods: Extracted human roots were randomly perforated using five different IOA systems with a drilling time ≤ 5 s. To simulate normal in vivo conditions, the roots were kept humid during the drilling procedure. Data was statistically evaluated using F-test (SPSS16, SPSS Inc., Chicago, USA) and the significance level was set at $p \leq 0.05$.

Results: All examined systems resulted in root perforation. Drill fractures occurred in either none 0% (Quicksleeper®, Anesto®, Intraflow®, Stabident®) or 100% (X-Tip®) of the applications. Excessive heat generation, as evident by combustion odor as well as metal and tooth discoloration, appeared in 30% (Quicksleeper®), 40% (Anesto®), 60% (Intraflow®), 90% (Stabident®) and 100% (X-Tip®) of all perforations.

Conclusion: Within the limits of in-vitro studies, the results show a potential for irreversible root damage that might be inflicted by an improper use of IOA systems.

Keywords: Intraosseous anesthesia; Complication; Root damage.

Dept. of Oral Pathology

151. Effect of Platelet Rich Plasma on Bone Regeneration in Maxillary Sinus Augmentation (Randomized Clinical Trial)

N. M. Khairy, E. E. Shendy, N. A. Askar and D. H. El-Rouby

International Journal of Oral and Maxillofacial Surgery, 42: 249-255 (2013) IF: 1.521

This study evaluates bone quality in sinus augmented with autogenous bone with or without platelet rich plasma (PRP) mix. 15 partially edentulous patients requiring maxillary sinus floor augmentation, followed by implant insertion were studied. In Group I, 5 patients underwent maxillary sinus lifting with autogenous bone augmentation and implant insertion at 6 months post grafting.

In Group II, 10 patients underwent maxillary sinus lifting with autogenous bone augmentation mixed with PRP prepared from the patient's own blood with implant insertion at 4 or 6 months post grafting ($n = 5$ for each implantation time). A core biopsy was taken at the time of implant placement for histological and histomorphometric evaluation. Immediately and 3 months after implantation, Group I showed the statistically significant highest mean bone density ($p = 0.046$ and 0.022 , respectively).

At 6 months post-implantation, Group II showed the statistically significant highest mean bone density ($p = 0.041$). Histomorphometric analysis showed that Group I had the statistically significant highest mean value (39.5 ± 7.4 ; $p = 0.003$). Enrichment with PRP did not significantly improve bone density or morphometric value at 3 months post grafting. PRP enriched bone grafts were associated with superior bone density at 6 months post grafting.

Keywords: Platelet rich plasma; Maxillary sinus floor augmentation; Bone regeneration.

Dept. of Orthodontics

152. Three-Dimensional Evaluation of Soft Tissue Changes In the Orofacial Region after Tooth-Borne And Bone-Borne Surgically Assisted Rapid Maxillary Expansion

Nada RM, Van Loon B, Maal TJ, Bergé SJ, Mostafa YA, Kuijpers-Jagtman AM and Schols JG.

Clinical Oral Investigations, 17: 2017-2024 (2013) IF: 2.2

Objectives: This study seeks to three-dimensionally assess soft tissue changes in the orofacial region following tooth-borne and bone-borne surgically assisted rapid maxillary expansion (SARME).

Materials and Methods: This prospective cohort study included 40 skeletally mature patients with transverse maxillary hypoplasia. A tooth-borne distractor (Hyrax) was used for expansion in 25 patients. In the remaining 15, a bone-borne distractor (transpalatal distractor, TPD) was used. Cone beam computed tomography (CBCT) scans were acquired before treatment (T0) and 22 months later (T1). 3D models were constructed from CBCT data and superimposed using voxel-based matching. Distance maps between the superimposed 3D models were computed to evaluate the degree of skeletal and soft tissue changes in the maxillary region.

Results: Distance maps showed negative distances (mean $-1.25 (\pm 1.5)$ mm) in the middle of the upper lip, indicating posterior repositioning of this area. The cheek region showed positive changes (mean $1.66 (\pm 1.1)$ mm), reflecting the underlying increase in maxillary width. There was no significant difference between the two groups in all measured distances ($p > 0.05$). Retro-positioning of the upper lip accompanied skeletal remodeling in the anterior alveolar region at a mean ratio of 88 %, while the cheek region followed 32 % of the alveolar expansion.

Conclusion: Soft tissue changes following SARME include posterior repositioning of the upper lip and increased projection of the cheek area. These changes were comparable between bone-borne and tooth-borne appliances.

Clinical Relevance: This study provides clinicians with more information over the expected orofacial soft tissue changes following SARME.

Keywords: Distraction osteogenesis; Palatal expansion technique; Cone beam computed tomography; Orthodontics; 3D imaging; Facial changes.

153. Volumetric Changes of the Nose and Nasal Airway 2 Years after Tooth-Borne and Bone-Borne Surgically Assisted Rapid Maxillary Expansion

Nada RM1, van Loon B, Schols JG, Maal TJ, de Koning MJ, Mostafa YA and Kuijpers-Jagtman AM.

European Journal of Oral Sciences, 121: 450-456 (2013) IF: 1.42

This study aimed to assess the effects of bone-borne and tooth-borne surgically assisted rapid maxillary expansion on the volumes of the nose and nasal airway 2 yr after maxillary expansion. This prospective cohort study included 32 patients with transverse maxillary hypoplasia. Expansion was performed with a tooth-borne distractor (Hyrax) in 19 patients and with a bone-borne distractor [transpalatal distractor (TPD)] in the remaining 13. Cone beam computed tomography scans and three-

dimensional (3D) photographs of the face were acquired before treatment and 22 ± 7 months later, and were used to evaluate the volumes of the nose and nasal airway. Nasal volume increased by $1.01 \pm 1.6\%$ in the Hyrax group and by $2.39 \pm 2.4\%$ in the TPD group. Nasal airway volume increased by $9.7 \pm 5.6\%$ in the Hyrax group and by $12.9 \pm 12.7\%$ in the TPD group. Changes in the nasal volume and in the nasal airway volume between the pre- and post-treatment measurements were statistically significant, whereas differences between the treatment groups were not; 22 months after surgically assisted rapid maxillary expansion, the increases in the nasal volume and in the nasal airway volume were comparable between tooth-borne and bone-borne devices.

Keywords: Cone beam computed tomography; Distraction osteogenesis; Nasal airway; Palatal expansion technique; Three-dimensional stereophotogrammetry.

Faculty of Pharmacy

Dept. of BioChemistry

154. Inhibitory Effect of a Standardized Pomegranate Fruit Extract on Wnt Signalling in 1, 2-Dimethylhydrazine Induced Rat Colon Carcinogenesis

Nermin Abdel Hamid Sadik and Olfat Gamil Shaker

Digestive Diseases and Sciences, 58(9): 2507-2517 (2013)
IF: 2.26

Background: De-regulation of Wnt signalling is increasingly being implicated in both experimental and human carcinogenesis including colon cancer.

Aims: Our goal was to identify possible dietary agents that block Wnt signalling as a step toward investigating new strategies for suppression of colon cancer. Pomegranate extract has emerged as an intriguing candidate due to its polyphenolic content.

Methods: We used a 1,2-dimethylhydrazine dihydrochloride (DMH)-induced rat colon carcinogenesis model to investigate the expression pattern of the main key players in Wnt signalling by reverse transcription polymerase chain reaction (RT-PCR) analysis.

Results: Our results showed that many Wnt-target genes, e.g., Wnt5a, frizzled receptor (FRZ)-8, b-catenin, T cellfactor/lymphoid enhancer binding protein (Tcf4/Lef1), c-myc and cyclin D1, were up-regulated whereas adenomatous polyposis coli (APC) and axin1 exhibited downregulation in colonic tissues of our DMH-colon cancer group compared with the normal group. Standardized pomegranate extract minimised all the aberrant alterations observed in the studied Wnt genes in colonic tissues of the DMH + pomegranate group as compared with the DMH-induced colon cancer group. This effect was also confirmed by the normalization of survival rate, inhibition of tumour incidence and a reduction of serum tumour marker carcinoembryonic antigen (CEA) level. Histopathological observations provided supportive evidence for the biochemical and molecular analyses.

Conclusions: Standardized pomegranate extract holds great promise in the field of colon cancer prevention by dietary agents.

155. Differential Micrnas Expression in Serum of Patients with Lung Cancer, Pulmonary Tuberculosis, and Pneumonia

Amal A. Abd-El-Fattah, Nermin Abdel Hamid Sadik, Olfat Gamil Shaker and Mariam Lotfy Aboulftouh

Cell Biochemistry and Biophysics, 67(3): 875-884 (2013)
IF: 1.912

MicroRNAs (miRNAs) play critical regulatory roles in the physiological and pathological processes.

The high stability of miRNAs in human serum represents attractive novel diagnostic biomarkers of clinical conditions. Several studies have shown that aberrant expression of miRNAs in human cancer including lung cancer, but little is known about their effects on some infectious lung diseases such as pulmonary tuberculosis (TB) and pneumonia. In this study, we investigated miRNA expression pattern in serum of Egyptian patients with lung cancer, TB, and pneumonia compared with matched healthy controls.

Using microarray-based expression profiling followed by real-time quantitative polymerase chain reaction validation, we compared the levels of a series of circulating miRNAs (miR-21, miR-155, miR-182, and miR-197) in serum from patients with lung cancer (n = 65), pulmonary tuberculosis (n = 29), pneumonia (n = 29), and transudate (n = 16) compared with matched healthy controls (n = 37). MiRNA SNORD68 was the housekeeping endogenous control.

We found that the serum levels of miR-21, miR-155, and miR-197 were significantly elevated in the patients with lung cancer and pneumonia whereas miR-182 and miR-197 levels were increased only in patients with lung cancer and TB, respectively, compared with controls.

Receiver operating characteristic analysis revealed that miR-182, miR-155, and miR-197 have superior diagnostic potential in discriminating patients with lung cancer, pneumonia, and TB, respectively, from controls. Our results conclude that the differential expression of the four studied miRNAs can be potential non-invasive biomarkers for patients with lung cancer, TB and pneumonia.

Keywords: MiRNA; Lung cancer; Pulmonary tuberculosis; Pneumonia.

Dept. of Clinical Pharmacy

156. Differences in Coagulation between Hemodialysis and Peritoneal Dialysis

Donald F. Brophy, Daniel E. Carl, Bassem M. Mohammed, Jingmei Song, Erika J. Martin, Jessica L. Bostic and Todd W.B. Gehr

Peritoneal Dialysis International, 34 (1): 33-40 (2013) IF: 2.214

Background: End-stage renal disease patients have significant cardiovascular morbidity and mortality, but little is known about differences in coagulation profiles between patients on hemodialysis (HD) and on peritoneal dialysis (PD). Given their long-term exposure to glucose-based dialysate, patients on PD can experience metabolic derangements. Theoretically, that exposure should create a more prothrombotic environment than occurs in HD patients. The objective of the present study was to

quantify potential differences in baseline coagulation between PD and HD patients.

Methods: Our single-center cross-sectional study at a large academic health science center enrolled 50 age-, race-, and sex-matched subjects (10 control subjects, 20 HD patients, and 20 PD patients). Measurements included platelet function, platelet receptor distribution, and coagulation dynamics by thromboelastography and Hemodyne hemostasis assay (Hemodyne, Richmond, VA, USA).

Results: Compared with healthy control subjects, patients on both forms of dialysis showed prothrombotic coagulation protein profiles. The tissue-factor pathway was markedly elevated in both groups, but PD was associated with significantly greater concentrations of tissue factor ($p = 0.0056$) and tissue-factor pathway inhibitor ($p = 0.0138$). Similarly, compared with patients receiving HD, patients on PD had greater concentrations of fibrinogen ($p = 0.0325$), which corresponded with platelet hyperfunction as measured by platelet contractile force and clot elastic modulus ($p = 0.003$ and 0.017 respectively, compared with values in HD patients). Platelet receptor distribution was similar between the groups.

Conclusions: Compared with patients on HD, patients on PD appear to have a more prothrombotic profile. The clinical relevance of these findings needs to be studied in a prospective manner.

Keywords: Hemodialysis; Coagulation.

157. Vitamin C: A Novel Regulator of Neutrophil Extracellular Trap Formation

Bassem M. Mohammed, Bernard J. Fisher, Donatas Kraskauskas, Daniela Farkas, Donald F. Brophy, Alpha A. Fowler III and Ramesh Natarajan

Nutrients, 5 (8): 3131-3150 (2013) IF: 2.072

Introduction: Neutrophil extracellular trap (NET) formation was recently identified as a novel mechanism to kill pathogens. However, excessive NET formation in sepsis can injure host tissues. We have recently shown that parenteral vitamin C (VitC) is protective in sepsis. Whether VitC alters NETosis is unknown.

Methods: We used *Gulo*^{-/-} mice as they lack the ability to synthesize VitC.

Sepsis was induced by intraperitoneal infusion of a fecal stem solution (abdominal peritonitis, FIP). Some VitC deficient *Gulo*^{-/-} mice received an infusion of ascorbic acid (AscA, 200 mg/kg) 30 min after induction of FIP. NETosis was assessed histologically and by quantification for circulating free DNA (cf-DNA) in serum. Autophagy, histone citrullination, endoplasmic reticulum (ER) stress, NFκB activation and apoptosis were investigated in peritoneal PMNs.

Results: Sepsis produced significant NETs in the lungs of VitC deficient *Gulo*^{-/-} mice and increased circulating cf-DNA. This was attenuated in the VitC sufficient *Gulo*^{-/-} mice and in VitC deficient *Gulo*^{-/-} mice infused with AscA. Polymorphonuclear neutrophils (PMNs) from VitC deficient *Gulo*^{-/-} mice demonstrated increased activation of ER stress, autophagy, histone citrullination, and NFκB activation, while apoptosis was inhibited. VitC also significantly attenuated PMA induced NETosis in PMNs from healthy human volunteers.

Conclusions: Our in vitro and in vivo findings identify VitC as a novel regulator of NET formation in sepsis. This study complements the notion that VitC is protective in sepsis settings.

Keywords: Vitamin C; Sepsis; Neutrophils; NETosis; Cell free DNA; Nuclear Factor κ B.

Dept. of Microbiology and Immunology

158. The link between antibodies to OxLDL and natural protection against pneumococci depends on D_H gene conservation

Andre M. Vale, Pratibha Kapoor, Greg A. Skibinski, Ada Elgavish, Tamer I. Mahmoud, Cosima Zemlin, Michael Zemlin, Peter D. Burrows, Alberto Nobrega, John F. Kearney, David E. Briles and Harry W. Schroeder Jr.

Journal of Experimental Medicine, 210 (5): 875-890 (2013)
IF: 13.214

Selection and physiological production of protective natural antibodies (NABs) have been associated with exposure to endogenous antigens. The extent to which this association depends on germline NAb sequence is uncertain. Here we show that alterations in germline D_H sequence can sever the association between the production of self-reactive NABs and NABs that afford protection against a pathogen. In unmanipulated hosts, the availability of the evolutionarily conserved *DFLI6.1* gene segment sequence profoundly affected the serum levels of NABs against bacterial phosphorylcholine but not oxidized low-density lipoprotein. Mice with partially altered *DFLI6.1* sequence could use N nucleotides to recreate the amino acid sequence associated with the classical protective T15 idiotype-positive NABs, whereas those without *DFLI6.1* could not. *DFLI6.1* gene-deficient mice proved more susceptible to challenge with live *Streptococcus pneumoniae*. Our findings indicate that although production of self-reactive NABs can be independent of germline D_H sequence, their capacity to provide protection against pathogens cannot. The potential relevance of these findings for the rational design of vaccines is discussed.

Keywords: Natural antibodies; Streptococcus pneumonia; T15; Oxid.

159. TH1 cytokine response to HCV peptides in Egyptian health care workers: a pilot study

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Virology Journal, 10: - (2013) IF: 2.092

Our objective was to elucidate the effects of different HCV peptides on TH1 cytokine synthesis (interleukin 2(IL2), gamma interferon (INFγ) and tumor necrosis factor α (TNF α)), in a proliferative response in a high risk population of HCV seronegative aviremic Egyptian healthcare workers (HCW). We studied the TH1 cytokine response to different HCV peptides among 47 HCW with and without evidence of HCV infection. Participants were classified according to the proliferation index (PI) in a CFSE proliferation assay as an indicator of previous exposure to HCV. Cytokines were analyzed using Luminex xMAP technology. Results showed that positive PI HCW produced a higher IL2 in response to all HCV peptides except NS4, a higher INFγ response to NS3 and NS4 and no difference in TNFα response when compared to the negative PI HCWs.

When compared to chronic HCV HCW, positive PI HCW showed no difference in the IL2 response, a higher IFN γ response to NS4 and NS5 HCV peptides and a higher TNF α response to all peptides. In conclusion the magnitude and type of cytokines produced in HCV infection is critical in determining the outcome of infection. NS4 & NS5 HCV peptides induce a protective TH1 response in positive PI HCW

Keywords: CFSE; Proliferation assay.

160. Analysis of the Staphylococcus aureus abscess proteome identifies antimicrobial host proteins and bacterial stress responses at the host-Pathogen Interface

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Pathogens and Disease, 69: 36-48 (2013)

Abscesses are a hallmark of invasive staphylococcal infections and the site of a dynamic struggle between pathogen and host. However, the precise host and bacterial factors that contribute to abscess formation and maintenance have not been completely described. In this work, we define the *Staphylococcus aureus* abscess proteome from both wild-type and neutropenic mice to elucidate the host response to staphylococcal infection and uncover novel *S. aureus* virulence factors. Among the proteins identified, the mouse protein histone H4 was enriched in the abscesses of wild-type compared with neutropenic animals. Histone H4 inhibits staphylococcal growth *in vitro* demonstrating a role for this protein in the innate immune response to staphylococcal infection. These analyses also identified staphylococcal proteins within the abscess, including known virulence factors and proteins with previously unrecognized roles in pathogenesis. Within the latter group was the universal stress protein Usp2, which was enriched in kidney lesions from neutropenic mice and required for the *S. aureus* response to stringent stress. Taken together, these data describe the *S. aureus* abscess proteome and lay the foundation for the identification of contributors to innate immunity and bacterial pathogenesis.

Keywords: Proteomics; Staphylococcus aureus; Pathogenesis; Innate immunity.

161. Green Nanotechnology: Anticancer Activity of Silver Nanoparticles Using Citrullus Colocynthis Aqueous Extracts

Alaa M. Shawkey, Mohamed A. Rabeh, Abeer K. Abdulall and Ashraf O. Abdellatif

Advances in Life Science and Technology, 13: - (2013)

Green synthesis of metal nanoparticles is a growing research area because of their potential applications in nanomedicines. The green synthesis of silver nanoparticles (SNPs) is a convenient, cheap and environmentally safe approach compared to chemical synthesis. In the present study, we synthesized SNPs from AgNO₃ using aqueous extracts (AEs) of fruits, leaves, roots and seeds of *Citrullus colocynthis* as reducing and capping agents. The SNPs were early detected in the aqueous extracts by color change to the reddish brown, and further were confirmed by Transmission Electron Microscope (TEM) analysis. The TEM analysis of SNPs

showed spherical nanoparticles with mean size between 7 to 19nm. The anticancer activity of SNPs has been assessed *in vitro*. MTT assay on human cancer cell lines of colon (HCT-116), breast (MCF-7), liver (Hep-G2) and intestine (Caco-2) showed good anticancer activity which was negligible for the aqueous plant extracts. Regarding to the tested cell lines the Hep-G2 cell line and HCT-116 were the most sensitive cell line towards the cytotoxic activities of the tested SNPs, while the Caco-2 was the most resistant cell line towards the cytotoxic activities.

Keywords: Green synthesis; Silver nanoparticles; Citrullus colocynthis; Anticancer.

Dept. of Pharmaceutical Chemistry

162. Simultaneous Determination of Amlodipine Besylate and Atorvastatin Calcium in Binary Mixture by Spectrofluorimetry and HPLC Coupled with Fluorescence Detection

Bahia A. Moussa, Asmaa A. El-Zaher, Marianne A. Mahrouse and Maha S. Ahmed

Analytical Chemistry Insights, 8: 107-115 (2013)

Caduet tablets are novel prescription drug that combines amlodipine besylate (AM) with atorvastatin calcium (AT). A spectrofluorimetric and an HPLC-fluorescence detection methods were developed for simultaneous determination of both drugs in tablets. In the spectrofluorimetric method, native fluorescence of AM and AT were measured in methanol at 442 and 369 nm upon excitation at 361 and 274 nm, respectively. The emission spectrum of each drug reveals zero value at the emission wavelength of the other drug, thus allowing their simultaneous determination without interference. In the HPLC method, separation of AM and AT was achieved within 8 minutes on a C18 column using acetonitrile: phosphate buffer (0.015 M, pH 3) (45:55, v/v) as the mobile phase. Fluorescence detection was carried out using excitation wavelengths 361 and 274 nm and emission wavelengths 442 and 378 nm for AM and AT, respectively. Excellent linearity was observed. Careful validation proved advantages of the new methods: high sensitivity, accuracy, selectivity and suitability for quality control laboratories.

Keywords: Amlodipine besylate; Atorvastatin calcium; Native fluorescence; Hplc-fluorescence detection.

163. Utility of Experimental Design in Pre-Column Derivatization for the Analysis of Tobramycin by HPLC—Fluorescence Detection: Application to Ophthalmic Solution and Human Plasma

Asmaa A. El-Zaher and Marianne A. Mahrouse

Analytical Chemistry Insights, 8: 9-20 (2013)

A novel, selective, and sensitive reversed phase high-performance liquid chromatography (HPLC) method coupled with fluorescence detection has been developed for the determination of tobramycin (TOB) in pure form, in ophthalmic solution and in spiked human plasma. Since TOB lacks UV absorbing chromophores and native fluorescence, pre-column derivatization of TOB was carried out using fluorescamine reagent (0.01%, 1.5

mL) and borate buffer (pH 8.5, 2 mL). Experimental design was applied for optimization of the derivatization step. The resulting highly fluorescent stable derivative was chromatographed on C₁₈ column and eluted using methanol:water (60:40, v/v) at a flow rate of 1 mL min⁻¹. A fluorescence detector (λ_{ex} 390 and λ_{em} 480 nm) was used. The method was linear over the concentration range 20–200 ng mL⁻¹. The structure of the fluorescent product was proposed, the method was then validated and applied for the determination of TOB in human plasma. The results were statistically compared with the reference method, revealing no significant difference.

Keywords: Tobramycin; Experimental design; HPLC; Derivatization; Fluorescamine; Plasma.

Dept. of Pharmacognosy

164. Phytochemical and Biological Investigation of Aloe Grandidentata Salm- Dyck

Taghreed A Ibrahim, Nabaweya M EL Fiki, Ibrahim A Shehata, Amany A Sleem and Mouchira M Shoukry

Medicinal Chemistry, 4: 298-302 (2013) IF: 1.373

The crude alcoholic extract of the leaves of Aloe grandidentata Salm.-Deck showed significant antimicrobial activity (200 mg/ml), potent anti-inflammatory and chronic antihyperglycemic (100 mg/kg b.wt.) compared to standard positive drugs. Phytochemical studies of the potent extract revealed the isolation and characterization of seven compounds; two new compounds; 1,1',8,8'-tetrahydroxy-3'-acetyl-3-methyl-5,5'-bianthracene-9,9',10,10'-tetraone (2) and 1,6,8-trihydroxy-7-methoxy-3-methyl anthraquinone (3), five known compounds, β -sitosterol (1), emodin (4), chrysophanol (5), physicon (6) and β -sitosterol-3-O- β -D-glucoside (7).

This is the first report of the isolation of emodin and β -sitosterol-3-O- β -D-glucoside from genus Aloe and physicon from family Liliaceae. All structures of the isolated compounds were determined using several spectroscopic techniques; UV, IR, MS, NMR (1 H NMR and 13 C NMR) and by comparison with literature data.

Keywords: Aloe grandidentata; Anthraquinones; Emodin; Physicon; Anti-inflammatory; Antihyperglycemic; Antimicrobial.

Dept. of Pharmacology and Toxicology

165. Potential Effects of Yohimbine and Sildenafil on Erectile Dysfunction in Rats

Muhammed A. Saad, Nihad I. Eid, Hekma A. Abd El-Latif and Helmy M. Sayed

European J. of Pharmacology, 700: 127-133 (2013) IF: 2.952

In this study the effects of yohimbine and sildenafil on cold stress-induced erectile dysfunction in rats were investigated. Yohimbine hydrochloride (0.2 mg/kg, i.p.) and sildenafil citrate (20 mg/kg, i.p) were administered to rats 1 h before the stress session daily for 14 consecutive days and their effect was assessed. Results of this section revealed that, immersion of rats in cold water significantly decreased sexual arousal and motivation as indicated by increased latencies and intervals. Furthermore decreased copulatory performance and potency as indicated by decreased ejaculation frequency was observed.

Decreased copulatory activity was confirmed by decreased testosterone, luteinizing hormone (LH) and follicle-stimulating-hormone (FSH) levels as well as decreased cholesterol content in rat testes. Treatment with yohimbine or sildenafil significantly increased the sexual arousal and potency and corrected the effects induced by stress on the mating behavior of male rats. On the contrary they did not significantly alter testosterone, FSH and LH levels which is reflected by failure of both drugs to alter cholesterol content in rat testes. Regarding the effect of yohimbine and sildenafil on isolated rat corpus cavernosum, their cumulative dose response curves (3×10^{-7} , 3×10^{-6} and 3×10^{-5} M) were determined in corpus cavernosum strips isolated from normal rats and pre-contracted with phenylephrine (3×10^{-6} M) were also assessed. Results of this part showed that both yohimbine and sildenafil have a relaxant effect on rat corpus cavernosum strips in a dose dependant manner, which is confirmed by the increase in nitric oxide content in rats' penis shown by sildenafil.

Keywords: Cold stress; Testosterone; FSH; LH; Yohimbine; Sildenafil.

166. Interaction of Climepiride with Prokinetic Drugs On Some of Gastrointestinal Functions in STZ-Induced Diabetic Mice

Mohamed A. Fouad, Hekma A. Abd El latif and Mostafa E. El Sayed

Bulletin of Faculty of Pharmacy, 51: 23-33 (2013) IF: 2

Aim: To investigate the effects of metoclopramide, domperidone and erythromycin on blood glucose and serum insulin levels, gastrointestinal motility and carbohydrate absorption in streptozotocin-induced diabetic mice treated with glimepiride.

Design and Methods: Effects of the individual as well as combined drugs were studied in diabetic mice via estimation of the blood glucose and serum insulin levels, small intestinal transit, gastric emptying, xylose and glucose absorption tests. Diabetic groups were treated with glimepiride (10 mg/kg p.o.), metoclopramide (20 mg/kg p.o.), domperidone (20 mg/kg p.o.) or erythromycin (6 mg/kg p.o.) individually or in combination.

Results: The test prokinetic drugs metoclopramide (20 mg/kg), domperidone (20 mg/kg) and erythromycin (6 mg/kg) were effective in decreasing small intestinal transit, enhancing gastric emptying and increasing xylose absorption from the GIT in STZ-induced diabetic mice as compared to diabetic control value. Metoclopramide or erythromycin potentiated the effect of glimepiride (10 mg/kg) on blood glucose level and serum insulin level after repeated dose administration in diabetic mice. Glimepiride (10 mg/kg) significantly decreased small intestinal transit and enhanced gastric emptying in diabetic mice as compared to the diabetic control group. Administration of metoclopramide, domperidone or erythromycin with glimepiride partially antagonized the action of glimepiride on small intestinal transit and gastric emptying in diabetic mice. Administration of metoclopramide, domperidone or erythromycin along with glimepiride significantly increased xylose and glucose absorption as compared to the glimepiride treated group.

Conclusion: Use of metoclopramide, domperidone or erythromycin with glimepiride may guard against the risk of gastrointestinal motility disturbance associated with glimepiride treated diabetic patients and may enhance the absorption of carbohydrates. The dose of glimepiride may be safely decreased when combined with erythromycin or metoclopramide.

Keywords: Gastrointestinal motility; Glimepiride; Prokinetic drugs; Intestinal absorption; Streptozotocin.

167. Interaction of Insulin with Prokinetic Drugs in STZ-Induced Diabetic Mice

Mohamed A Fouad, Hekma A Abd El latif and Mostafa E El Sayed

Journal of Gastroenterology and Hepatology Research, 2 (3): 449-457 (2013)

Aim: Prokinetic drugs have been used for gastroparesis in diabetic patients for a relatively long time already and some data about the interactions with insulin in the clinic should be available. To study the possible interactions of metoclopramide, domperidone or erythromycin in streptozotocin (STZ)-induced diabetic mice treated with insulin in different parameters.

Methods: Effects of the individual as well as combined drugs were studied in diabetic mice via estimation of the blood glucose and serum insulin levels, small intestinal transit, gastric emptying, xylose absorption and glucose tolerance tests. The groups included were normal control, diabetic control, insulin 2 IU/kg (s.c.), metoclopramide 20 mg/kg (p.o.), domperidone 20 mg/kg (p.o.) and erythromycin 6 mg/kg (p.o.) individually and in combination.

The first set of experiments was carried out to investigate the subchronic effect of one week of daily dose of the tested drugs individually as well as the combination of insulin with each prokinetic drug in diabetic mice on blood glucose and serum insulin levels. The other five sets of experiments were carried out to investigate the acute effect of a single dose of each drug individually and in combination on blood glucose and serum insulin levels, small intestinal transit, gastric emptying, oral xylose absorption and glucose tolerance tests.

Results: The study included test prokinetic drugs i.e., metoclopramide (20 mg/kg), domperidone (20 mg/kg) and erythromycin (6 mg/kg), as well as insulin (2 IU/kg), which was individually effective in decreasing SIT, enhancing GE and increasing xylose absorption significantly ($P < 0.05$) in diabetic mice. Erythromycin tended to decrease blood glucose level and increase serum insulin level after one week of daily dose administration in diabetic mice.

Erythromycin potentiated the effect of insulin given on blood glucose level and serum insulin level where other prokinetic agents failed to do so after repeated dose administration in diabetic mice. Metoclopramide or erythromycin in combination with insulin significantly ($P < 0.05$) decreased small intestinal transit in diabetic mice, which was less than that of insulin alone. Administration of test prokinetic drugs along with insulin antagonized the action of insulin on xylose absorption. These combinations also increased the rate of glucose absorbed from the gut.

Conclusions: The present study suggests that prokinetic drugs could potentially improve glycemic control in diabetic gastroparesis by allowing a more predictable absorption of nutrients, matched to the action of exogenous insulin. The use of prokinetics i.e. erythromycin may be interesting in the clinic in order to decrease the need for insulin in diabetic patients. The dose of insulin may be safely decreased with erythromycin in chronic treatments.

Keywords: Streptozotocin; Gastrointestinal motility; Insulin; Prokinetic drugs; Intestinal absorption.

The National Cancer Institute

Dept. of Clinical Pathology

168. Can Glypican3 be Diagnostic for Early Hepatocellular Carcinoma among Egyptian Patients?

Iman Attia Abdelgawad, Ghada Ibrahim Mossallam, Noha Hassan Radwan, Heba Mohammed Elzawahry and Niveen Mostafa Elhifnawy

Asian Pacific Journal of Cancer Prevention, 14: 7345-7349 (2013) IF: 1.271

Background: Because of the high prevalence of hepatocellular carcinoma (HCC) in Egypt, new markers with better diagnostic performance than alpha-feto protein (AFP) are needed to help in early diagnosis. The aim of this work was to compare the clinical utility of both serum and mRNA glypican3 (GPC3) as probable diagnostic markers for HCC among Egyptian patients.

Materials and Methods: A total of 60 subjects, including 40 with HCC, 10 with cirrhosis and 10 normal controls were analyzed for serum GPC3 (sGPC3) by ELISA. GPC-3 mRNA from circulating peripheral blood mononuclear cells was amplified by RT-PCR. Both markers were compared to some prognostic factors of HCC, and sensitivity of both techniques was compared.

Results: Serum glypican-3 and AFP were significantly higher in the HCC group compared to cirrhotic and normal controls ($p < 0.001$). Sensitivity and specificity were (95% each) for sGlypican-3, (82.5% and 85%) for AFP, and (100% and 90%) for Glypican3 mRNA, and (80% and 95%) for double combination between sGPC3 and AFP respectively.

Conclusion: Both serum GPC-3 and GPC-3mRNA are promising diagnostic markers for early detection of HCC in Egyptian patients. RT-PCR proved to be more sensitive (100%) than ELISA (95%) in detecting glypican3.

Keywords: Glypican3; ELISA; RT/PCR; HCC; Diagnosis; Egypt.

Dept. of Medical & Cancer Epidemics Statistics

169. Evaluation of Breastlight as a Tool for Early Detection of Breastlesions among Females Attending National Cancer Institute, Cairo University

Nargis Albert Labib, Maha Mohamed Ghobashi, Manar Mohamed Moneer, Maha Hesien Helal and Shaimaa Abdalaleem Abdalgaleel

Asian Pacific Journal of Cancer Prevention, 14: 4647-4650 (2013) IF: 1.271

Background: Breast illumination was suggested as a simple method for breast cancer screening. BreastLight is a simple apparatus for this purpose.

Objective: To evaluate the diagnostic performance of BreastLight as a screening tool of breast cancer in comparison to mammography and histopathology.

Materials and Methods: This hospital-based cross sectional study was conducted in the mammography unit of the radiodiagnosis department at National Cancer Institute, Cairo University. All participants were subjected to breast examination

with the BreastLight tool, mammography and ultrasonography. Suspicious cases were biopsied for histopathological examination which is considered as a gold standard.

Results: The mean age of the participants was 46.3 ± 12.4 years. Breast illumination method had sensitivity, specificity, positive predictive value, negative predictive value and total accuracy of 93.0%, 73.7%, 91.4%, 77.8% and 88.2%, respectively in detection of breast cancer.

Conclusions: Breast illumination method with BreastLight apparatus is a promising easy-to-use tool to screen for breast cancer suitable for primary health care physician or at-home use. It needs further evaluation especially in asymptomatic women.

Keywords: Breast cancer; Early detection; Mammogram; Breast illumination methods.

Dept. of Radiation Oncology

170. Phase II study on the use of intraoperative radiotherapy in early breast cancer

Ashraf H. Hassouna, Adnan A. Merdad, Yasir A. Bahadur, Ehab E. Fawzy, Maha M. Eltaher, Zuhoor K. Alghaithy, Fatma K. Al-Thoubaity and Camelia T. Constantinescu

Saudi Medical Journal, 34: 1133-1138 (2013) IF: 0.619

Objective: To report our early experience using the Intrabeam radiotherapy delivery system for intraoperative radiotherapy (IORT) in early breast cancer.

Methods: This is a prospective phase 2 study carried out at the Department of Surgery and Radiology, King Abdulaziz University Hospital, Jeddah, Kingdom of Saudi Arabia from December 2010 to November 2012. Females eligible for breast-conserving surgery with biopsy-proven invasive duct carcinoma, and with a mass of ≤ 3.5 cm were included in this study. After wide local excision, sentinel lymph node dissection, and surgically positioning of the appropriately sized applicator on the tumor bed, a 20 Gray (Gy) single dose was prescribed using the Intrabeam x-ray generator.

External beam radiotherapy (EBRT; 46 Gy/23 fractions/4.5 weeks) was given when the tumor was >3 cm, with lymphovascular invasion, multifocal lesion, extensive intraductal carcinoma, and positive nodes. Early and late toxicity were recorded using the Radiation Therapy Oncology Group (RTOG) criteria.

Results: Forty-five patients were included with a median age of 54 (range: 27-79 years). Thirty-six cases (80%) had tumor <3 cm in diameter, and 36 (67%) have pathologically negative axillary lymph node metastases.

None of the patients developed delayed wound healing, postoperative infection requiring intravenous antibiotic, or breast seroma requiring aspiration. Sixteen (36%) received EBRT after IORT. Twelve patients developed radiologically proved fat necrosis.

Conclusion: The IORT for early stage breast cancer patients using the Intrabeam delivery system was easily implemented in our center with an acceptable toxicity profile and cosmetic outcome.

Keywords: Intraoperative irradiation; Breast cancer; Radiotherapy.

171. Comparison of Two Methods for Assessing Leakage Radiation Dose around the Head of the Medical Linear Accelerators

Ehab M. Attalla

Chinese-German J Clin Oncol, 12: 435-438 (2013)

Objective: The aim of this study was to measure the leakage by two methods with ion chamber and ready packs film, and to investigate the feasibility and the advantages of using two dosimetry methods for assessing leakage radiation around the head of the linear accelerators.

Methods: Measurements were performed using a 30 cm³ ion chamber; the gantry at 0°, the X-ray head at 0°, the field size at between the central axis and a plane surface at a FSD of 100 as a reference, a series of concentric circles having radii of 50, 75, and 100 cm with their common centre at the reference point. The absorbed dose was measured at the reference point, and this would be used as the reference dose. With the diaphragm closed, the measurements were taken along the circumference of the three circles and at 45° intervals.

Results: Leakage radiations while the treatment head was in the vertical position varied between 0.016%–0.04%. With the head lying horizontally, leakage radiation was the same order magnitude and varied between 0.02%–0.07%. In the second method, the verification was accomplished by closing the collimator jaws and covering the head of the treatment unit with the ready pack films. The films were marked to permit the determination of their positions on the machine after exposed and processed. With the diaphragm closed, and the ready packs films around the linear accelerator the beam turned on for 2500 cGy (2500 MU). The optical density of these films was measured and compared with this of the reference dose. Leakage radiation varied according to the film positions and the magnitude of leakage was between 0.005%–0.075%.

Conclusion: The differences between the values of the leakage radiation levels observed at different measurement points do not only reflect differences in the effective shielding thickness of the head wall, but are also related to differences in the distances between the target and the measurement points. The experimental errors involved in dosimetric measurement also contribute to such differences.

Keywords: Leakage radiation; Acceptance testing; Linear accelerator; Ion chamber; Ready packs film.

172. Evaluation of the Systematic Set-up Errors Using Electronic Portal Image Device in the Radiotherapy Procedures

Ehab M. Attalla Rizk Abd El Moneam, Aida R. Tolba, Maha H. Mokhtar and Medhat W. Ismail

Chinese-German J. Clin Oncol, 12 (9): 439-442 (2013)

Objective: The aim of this work was to quantify the extent of set-up errors to conduct a quality assurance (QA) aspect of treatment delivery, verification of the treatment field's position on different days using electronic portal.

Methods: This study was carried out on 12 patients, treated for pelvis tumor; and total of 240 images obtained by electronic portal image device (EPID) were analyzed. The EPIDs acquire using EPID attached to the Siemens linear accelerator. The anatomy matching software (Theraview) was used and

displacement in two dimensions were noted for each treatment field to study patient setup errors.

Results: The percentages of mean deviations less than 5 mm in X direction were 65% & 92%, from 5–10 mm were 31% & 19% and more than 10 mm were 11% & 9% for A/P and lateral direction respectively. The percentages of mean deviations less than 5 mm in Y direction were 65% & 63%, from 5–10 mm were 33% & 28% and more than 10 mm were 22% & 29%. The mean deviations in 2D-vector errors were ≤ 5 mm in 47% and 46%, 5–10 mm in 36% and 37% and > 10 mm in 37% and 37% of images in the A/P and lateral direction respectively.

Conclusion: The results revealed that the ranges of set up errors are immobilization method to improve reproducibility. The observed variations were not within the limits.

Keywords: Electronic portal imaging device (EPID); Setup errors; Tumor control probability.

173. Simultaneous Integrated Boost IMRT in Pediatric: Evaluation for Two Commercial Treatment Planning Systems

Ehab M. Attalla, Ismail Eldesoky and Eman Eldebawy

Chinese-German J Clin Oncol, 12 (1): 6-14 (2013)

Objective: The aim of the work was to compare the dosimetric results that were obtained by using two treatment planning systems (TPS) Siemens KonRad version 2.2.23, Elekta XiO version 4.4 to perform a simultaneous integrated boost (SIB) for head and neck and central nervous system (CNS) cases in paediatric patients.

Methods: The CT scan data for five paediatric patients, with head and neck and CNS tumors, were transferred into both of the TPSs. Clinical step-and-shoot intensity modulated radiotherapy (IMRT) treatment plans were designed using 6 MV photon beam for delivery on a Siemens Oncor Accelerator with multileaf collimator MLC (82 leaf). Plans were optimized to achieve the same clinical objectives using the same beam energy, number and direction of beams. The analysis was based on isodose distributions, the dose volume histogram (DVH) for planning target volume (PTV) and the relevant organs at risk (OARs) as well as volume receiving 2 Gy and 5 Gy, also total number of segments, MU/segment, and the number of MU/cGy had been investigated. Treatment delivery time and conformation number were two other parameters in this study.

Results: The segmentation using KonRad was more efficient, resulting in fewer segments (reduction between 13.2% and 48.3%), fewer MUs (reduction between 10.7% and 33%) and that reflected on treatment delivery times to be shorter by up to 8 min or 46%. In most of the cases KonRad had the highest volume receiving in excess of 2 and 5 Gy, and XiO showed the lowest. Also KonRad achieved slightly better conformality (0.76 ± 0.054) than XiO (0.73 ± 0.05) while XiO presented a higher modulation factor value (3.3 MU/cGy) than KonRad (2.4 MU/cGy).

Conclusion: The KonRad treatment planning system was found to be superior to the XiO treatment planning system. This is true for the possible increase of radiation-induced secondary malignancies as well as for the local control.

Keywords: Intensity-modulated radiotherapy (IMRT); Kon Rad; simultaneous integrated boost (SIB); XiO.

174. The Impact of Intensity Modulated Radiotherapy on the Skin Dose for Deep Seated Tumors

H. S. Abou-Elenein, Ehab M. Attalla, Hany Ammar, Ismail Eldesoky, Mohamed Farouk and Shaimaa Shoer

Chinese-German J. Clin Oncol, 12 (4): 194-198 (2013)

Objective: The purpose of this study was to investigate the impact of intensity modulated radiotherapy (IMRT) on surface doses for brain, abdomen and pelvis deep located tumors treated with 6 MV photon and to evaluate the skin dose calculation accuracy of the XIO 4.04 treatment planning system.

Methods: More investigations for the influences of IMRT on skin doses would increase its applications for many treatment sites. Measuring skin doses in real treatment situations would reduce the uncertainty of skin dose prediction. In this work a pediatric human phantom was covered by a layer of 1 mm bolus at three treatment sites and thermoluminescent dosimeter (TLD) chips were inserted into the bolus at each treatment site before CT scan. Two different treatment plans [three-dimensional conformal radiation therapy (3DCRT) and IMRT] for each treatment sites were performed on XIO 4.04 treatment planning system using superposition algorithm.

Results: The results showed that the surface doses for 3DCRT were higher than the surface doses in IMRT by 1.6%, 2.5% and 3.2% for brain, abdomen and pelvis sites respectively. There was good agreement between measured and calculated surface doses, where the calculated surface dose was 15.5% for brain tumor calculated with 3DCRT whereas the measured surface dose was 12.1%.

For abdomen site the calculated surface dose for IMRT treatment plan was 16.5% whereas the measured surface dose was 12.6%.

Conclusion: The skin dose in IMRT for deep seated tumors is lower than that in 3DCRT which is another advantage for the IMRT. The TLD readings showed that the difference between the calculated and measured point dose is negligible. The superposition calculation algorithm of the XIO 4.04 treatment planning system modeled the superficial dose well.

Keywords: Skin dose; Intensity modulated radiotherapy (IMRT); Three-dimensional conformal radiation therapy (3DCRT); thermoluminescent dosimeter (TLD); Dose calculation.

Dept. of Tumor Biology

175. Identification of the General Transcription Factor Yin Yang 1 as a Novel and Specific Binding Partner for S6 Kinase 2

Heba M.S. Ismail, Olena Myronova, Yugo Tsuchiya, Andrew Niewiarowski, Irina Tsaneva and Ivan Gout

Cellular Signalling, 25(5): 1054-1063 (2013) IF: 4.304

S6 kinase is a member of the AGC family of serine/threonine kinases and plays a key role in diverse cellular processes including cell growth and metabolism. Although, the high degree of homology between S6K family members (S6K1 and S6K2) in kinase and kinase-extension domains, the two proteins are highly divergent in the N- and C-terminal regulatory regions, hinting at differential regulation, downstream signalling and cellular function. Deregulated signalling via S6Ks has been linked to various human pathologies, such as diabetes and cancer.

Therefore, S6K has emerged as a promising target for drug development. Much of what we know about S6K signalling in health and disease comes from studies of S6K1, as molecular cloning of this isoform was reported a decade earlier than S6K2. In this study, we report for the first time, the identification of the general transcription factor Yin Yang 1 (YY1) as a novel and specific binding partner of S6K2, but not S6K1. The interaction between YY1 and S6K2 was demonstrated by co-immunoprecipitation of transiently overexpressed and endogenous proteins in a number of cell lines, including HEK293, MCF7 and U937. Furthermore, direct association between S6K2 and YY1 was demonstrated by GST pull-down assay using recombinant proteins. A panel of deletion mutants was used to show that the C-terminal regulatory region of S6K2 mediates the interaction with YY1. Interestingly, the complex formation between S6K2 and YY1 can be detected in serum-starved cells, but the interaction is strongly induced in response to mitogenic stimulation. The induction of S6K2/YY1 complex formation in response to serum stimulation is abolished by pre-treatment of cells with the mTOR inhibitor, rapamycin. Furthermore, mTOR is also detected in complex with YY1 and S6K2 in serum-stimulated cells. We utilized size exclusion chromatography along with co-immunoprecipitation analysis to demonstrate the existence of the mTOR/S6K2/YY1 complex in high molecular weight fractions, which might also involve other cellular proteins. The physiological significance of the mTOR/S6K2/YY1 complex, which is induced in response to mitogenic stimulation, remains to be further investigated.

Keywords: Signal Transduction; Protein Kinases; Mtor/S6k Pathway; Yy1 Transcription Factor; Regulatory Cellular Complexes.

176. Tandem Multicomponent Reactions toward the Design and Synthesis of Novel Antibacterial and Cytotoxic Motifs

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Current Medicinal Chemistry, 20: 1445-1459 (2013) IF: 4.07

The synthesis of polysubstituted imidazopyridines and imidazopyrazines through the orthogonal union of Groebke-Blackburn and Ugi reactions is described. These motifs were produced efficiently in a tandem operation without intermediate isolation. The synthesized scaffolds were biologically evaluated and found to possess potent anticancer and anti bacterial activities. Importantly, some of these motifs (e.g. compound 5) were found to possess specific anti-breast cancer activity against MCF7 cell line and others (e.g. compound 15) possess specific effects against melanoma cancer cell line (M8). Interestingly, the introduction of imidazobenzothiazole framework produced compounds with potent anti cancer activities (e.g. compounds 29 and 33) in vitro. Interestingly, many of synthesized compounds displayed potent and broad spectrum antibacterial activity against hospital-resistant clinical isolates namely, *Escherichia coli*, *Klebsiella pneumoniae*, *Staph. epidermidis*, *Ps. aeruginosa* and *Proteus vulgaris*. Furthermore, many of the synthesized motifs were found to be effective against Gram positive methicillin-sensitive *Staphylococcus aureus* (MMSA; ATCC 25923), and methicillin-resistant *Staphylococcus aureus* (MRSA; ATCC 35591). These findings, however, form the foundation for further

investigation in our continuing efforts to develop selective anticancer and antibacterial agents.

Keywords: Imidazopyridines; Ugi Reaction; Multicomponent reaction; Groebke-blackburn reaction; Antibacterial; Hospital resistant strains; Anticancer.

177. Patients with Activated B-cell like Diffuse Large B-Cell Lymphoma in High and Low Infectious Disease Areas Have Different Inflammatory Gene Signatures

Högfeldt T, Bahnassy AA, Kwiecinska A, Osterborg A, Tamm KP, Porwit A, Zekri AR, Lundahl J, Khaled HM, Mellstedt H and Moshfegh A.

Leukemia and Lymphoma, 54(5): 996-1003 (2013) IF: 2.301

Diffuse large B-cell lymphoma (DLBCL) is a heterogeneous disease with an association with inflammation and viral infections. We hypothesize that environmental factors may be involved in the pathogenesis of DLBCL. In this study, we compared gene expression profiles of lymph node tissues from patients with DLBCL from two different geographical areas with diverse environmental exposures. Specimens from Egyptian and Swedish patients with DLBCL as well as controls were studied. Gene expression analysis using microarray and quantitative polymerase chain reaction demonstrated significantly higher expression of signal transducer and activator of transcription 3 (STAT3) in Swedish as compared to Egyptian patients and control materials from both countries. This was confirmed at protein level using confocal microscopy. The receptor tyrosine kinase ROR1, a "survival factor" for malignant cells, was overexpressed and significantly related to the STAT3 expression pattern. The difference in the expression of genes involved in inflammatory responses and in the tumorigenic process of DLBCL might relate to infectious agents and/or other environmental exposures.

Keywords: Diffuse Large B-Cell Lymphoma; Gene Expression; Inflammation; Stat; Viral Infections.

178. Caspase Recruitment Domains New Potential Markers for Diagnosis of Epatocellular Carcinoma Associated with HCV in Egyptian Patients

Zekri AR, El-Kassas M, Saad Y, Bahnassy A, El-Din HK, Darweesh SK, Abdel Hafez H and Esmat G.

Ann Hepatol., 12(5): 774-781 (2013) IF: 1.671

Background and Rationale for the Study: Chronic HCV is a major cause of HCC development. Caspase Recruitment Domains (CARD) is protein modules that regulate apoptosis and play an important role in various carcinogenesis processes, our aim is to assess the possible role of CARD9, CARD10 and Caspase only protein (COP) in progression of liver fibrosis and pathogenesis of HCC in Egyptian chronic HCV patients.

Material and Methods: 130 patients were recruited and classified into 4 groups; I: chronic HCV, II: chronic active hepatitis, III: liver cirrhosis, IV: HCV related HCC. Biochemical, virological studies, abdominal ultrasonography and liver biopsy were performed. Quantitative estimation of mRNA of CARD9, CARD10 and COP gene expression was performed by RT-PCR in liver biopsy from all patients.

Results: In HCC patients; age, AFP and liver profile were significantly higher, HB and platelets were significantly lower (p value <0.01). The expression levels of mRNA of CARD9, CARD10 and COP in liver biopsies of HCC were significantly higher than other groups with direct correlation with age and no correlation with AFP, viral load, liver fibrosis or necroinflammatory activity. On differentiation between HCC and non HCC patients each CARD was assessed separately and combined, on combining the 3 CARDS, the sensitivity was 100%, specificity was 48%, positive predictive value 47% and negative predictive value 100%.

Conclusions: CARD9, CARD10 and COP had no role in liver fibrosis but may be involved in hepatic carcinogenesis and they could be used as markers for HCC diagnosis and candid genes for molecular target therapy.

Keywords: HCV; CAH; HCC; CARD. COP.

179. Predictive markers for the response to 5-fluorouracil therapy in cancer cells: Constant-field gel electrophoresis as a tool for prediction of response to 5-fluorouracil-based chemotherapy

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Oncology Letters, 5: 321-327 (2013) IF: 0.237

The prediction of response or severe toxicity and therapy individualisation are extremely important in cancer chemotherapy. There are few tools to predict chemoresponse or toxicity in cancer patients.

We investigated the correlation between the induction and repair of DNA double-strand breaks (DSBs) using constant-field gel electrophoresis (CFGE) and evaluating cell cycle progression and the sensitivity of four cancer cell lines to 5-fluorouracil (5FU). Using a sulphorhodamine-B assay, colon carcinoma cells (HCT116) were found to be the most sensitive to 5FU, followed by liver carcinoma cells (HepG2) and breast carcinoma cells (MCF-7). Cervical carcinoma cells (HeLa) were the most resistant. As measured by CFGE, DSB induction, but not residual DSBs, exhibited a significant correlation with the sensitivity of the cell lines to 5FU.

Flow cytometric cell cycle analysis revealed that 14% of HCT116 or HepG2 cells and 2% of MCF-7 cells shifted to sub-G1 phase after a 96-h incubation with 5FU. Another 5FU-induced cell cycle change in HCT116, HepG2 and MCF-7 cells was the mild arrest of cells in G1 and/or G2/M phases of the cell cycle. In addition, 5FU treatment resulted in the accumulation of HeLa cells in the S and G2/M phases.

Determination of Fas ligand (Fas-L) and caspase 9 as representative markers for the extrinsic and intrinsic pathways of apoptosis, respectively, revealed that 5FU-induced apoptosis in HCT116 and HepG2 results from the expression of Fas-L (extrinsic pathway). Therefore, the induction of DNA DSBs by 5FU, detected using CFGE, and the induction of apoptosis are candidate predictive markers that may distinguish cancer cells which are likely to benefit from 5FU treatment and the measurement of DSBs using CFGE may aid the prediction of clinical outcome.

Keywords: 5-Fluorouracil; Drug resistance; Constant-field gel electrophoresis; Induction of double-strand breaks.

180. Evaluation of Noninvasive Versus Invasive Techniques for the Diagnosis of Helicobacter Pylori Infection

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Appl Immunohistochem Mol Morphol, 21(4): 326-333 (2013)

Background: *Helicobacter pylori* is one of the most common bacterial strains causing chronic infections, affecting over one half of the world's population.

There is increasing interest in noninvasive methods for diagnosing *H. pylori* infection. The aim of the study was to evaluate 3 different noninvasive methods of diagnosis: the stool antigen test (HpSA), the serum antibody test, and the stool-polymerase chain reaction (PCR) test as against invasive methods based on histopathologic diagnosis.

Materials and Methods: Gastric biopsies were obtained during endoscopy. Sections were stained with hematoxylin and eosin and Giemsa stain. Serum samples were tested for *H. pylori* antibody using an enzyme-linked immunosorbent assay kit for the semiquantitative determination of IgG antibodies; stool samples were tested for *H. pylori* antigen using polyclonal enzyme-linked immunosorbent assay kits. DNA samples from stool specimens were extracted, followed by PCR for the detection of *H. pylori* *UreA*.

Results: The results revealed that 18/19 (94.7%) patients were positive for *H. pylori* infection as detected by Giemsa stain, and 84.2% were positive on the basis of hematoxylin and eosin stain, with a sensitivity and specificity of 88.9% and 100%, respectively.

Diagnosis by noninvasive methods, including the serum antibody test, revealed a sensitivity and positive predictive value of 88.9% and 94.2%, respectively, whereas the stool antigen test recorded a sensitivity and positive predictive value of 72.2% and 92.9%, respectively. The stool-PCR test recorded a sensitivity of 72.2% and specificity of 100%.

Conclusions: Among the noninvasive methods for diagnosis of *H. pylori* infection, the 3 methods used in this study recorded promising results, including good sensitivity, which was the highest in the serum antibody test, whereas the stool-PCR test recorded excellent specificity.

Keywords: H. Pylori; Giemsa; Stool-PCR; Stool antigen; ELISA.

181. Downstream the mTOR: S6 Kinases between Divergence and Redundancy

Heba M. S. Ismail

Journal of Biochemical and Pharmacological Research, 1(2): 91-93 (2013)

The ribosomal protein S6 kinase (S6K) family is a key regulator of cell growth and cell size. It acts downstream of the PI3K/mTOR pathway, and has been identified to date to exert crucial functions in many other cellular processes such as metabolism and transcription regulation. S6 kinase 1 (S6K1) was purified in 1988 and a decade later S6 kinase 2 (S6K2) was cloned simultaneously by four different groups. The first impression was that this kinase is a homologue to its close relative S6K1 and may function redundantly in the cell. By the

time, more studies emerged and showed distinct as well as similar functions of the two kinases in human and animal tissues. The purpose here is to review the role of S6K enzymes and to describe the many recent developments in our understanding of signalling upstream and downstream of the S6 kinase family.

Keywords: Mtor; S6k1; S6k2; Cancer.

Faculty of Physical Therapy

Dept. of Physical Therapy for BioMechanics

182. Prevalence of Non-Specific Self-Reported Back Pain among Adolescents at Hail Territory-Ksa

Walaa Sayed Mohammad and Walaa Mohamed El-Sais

Journal of Asian Scientific Research, 3: 1036-1045 (2013)

Objective: Back pain (BP) is a common complaint adolescent in many countries. Its prevalence is not yet verified in Saudi Arabia. The objectives of this study were to investigate prevalence of non-specific BP among adolescents in Hail territory; and to detect the potential risk factors implicated in its development.

Method: A cross-sectional population of 1000 students aged 12 to 18 years were selected from junior and high schools in Hail territory. Data were collected through personal interviews using a structured questionnaire and analyzed using SPSS software.

Results: Older adolescent females who practice physical activities outside school and spend a significant amount of time watching TV, and sitting on uncomfortable school furniture were found to be significantly more likely to have BP. Methods of carrying school materials were not significantly associated with BP. Low-back pain did not significantly affect the number of absent days from school.

Conclusions: The study suggests that back pain in Hail territory schoolchildren and adolescents is associated with older age, female gender, increase in physical activity, uncomfortable school furniture, and time spent watching television. Greater attention should be directed toward ergonomic improvements of chair and desk design in the classroom to decrease incidence of LBP among adolescents.

Keywords: Back pain; Risk factors; Adolescents; Gender differences.

183. Efficacy of Low Frequency Pulsed Electromagnetic Field Therapy on Physical Fitness in Juvenile Rheumatoid Arthritis: A Randomized, Placebo-Controlled Study

Shamekh M. El-Shamy and A. A. Mohamed

Energy for Health, 11: 14-19 (2013)

Juvenile rheumatoid arthritis (JRA) is the most common rheumatic disease of childhood. This study was conducted to examine the effects of low frequency pulsed magnetic field therapy on physical fitness in children with polyarticular JRA. Thirty children, with polyarticular JRA, aged 8 to 12 years were included. Children were randomized for treatment in two groups. In the group A (study) received low frequency pulsed magnetic field therapy 3 times per week for successive 12 weeks. In the group B (control) received a placebo treatment. Evaluation of

knee joint pain using the Visual Analogue Scale (VAS) and physical fitness using 6 Minute Walk Test (6MWT) were performed before and after the treatment.

The result of this study revealed that there was a statistically significant improvement in physical fitness in children with JRA. Therefore, low frequency pulsed magnetic field is effective, innovative, non-invasive, non-expensive and can be used as a new trend physical therapy modality in the treatment of fatigue in JRA.

Keywords: Electromagnetic therapy; Physical fitness; Juvenile rheumatoid arthritis.

Dept. of Physical Therapy of Surgery

184. Cross-Cultural Adaptation, Reliability, and Validity of the Arabic Version of Neck Disability Index in Patients with Neck Pain

Afaf Ahmed Mohamed Shaheen, Mohamed Taher Ahmed Omar and Howard Vernon

Spine, 38: E609--E645 (2013) IF: 2.159

Study Design: Translation and psychometric testing.

Objective: To adapt the neck disability index (NDI) cross-culturally to Arabic language and to investigate the reliability and validity of the Arabic version of NDI in an Arabic-speaking sample with neck pain.

Summary of Background Data: Although largely used, no previous reports exist on the translation process or the testing of the psychometric properties of the Arabic version of the NDI.

Methods: Cross-cultural adaptation of an outcome questionnaire. The English version of the NDI was translated into Arabic (NDI-Ar) and back-translated according to established guidelines. Sixty-five patients with neck pain completed the NDI -Ar twice during a 1-week period, to assess its test-retest reliability. Further psychometric testing was done by assessing internal consistency, construct validity (factor structure), and responsiveness.

Results: The internal consistency value (Cronbach α) for the NDI-Ar was 0.89. The test-retest reliability (intraclass correlation coefficient) was excellent at 0.96 (95% confidence interval from 0.93 to 0.97). There was a significant correlation ($r = 0.92$, $P < 0.05$) between the scores obtained from the first administration of the NDI-Ar and the second administration.

Factor analysis demonstrated a 2-factor structure, explaining 67.58% of total variance. The analysis of responsiveness was calculated with an unpaired t test after 1 week of treatment and demonstrating a statically significant difference between stable and improved patients ($P < 0.05$).

The Spearman correlation coefficient ($r_s = 0.81$; $P = 0.000$) revealed strong relation between the change in score in the NDI-Ar and global rating of change. No ceiling or floor effects were detected in the NDI-Ar.

Conclusion: The Arabic version of the NDI has a 2-factor 10-item structure and is a reliable, valid, and responsive tool that can be used to assess neck pain in Arabic-speaking patients with neck pain. Therefore, it can be recommended for clinical and research purposes.

Keywords: Neck pain and disability; Neck disability index; Reliability validity; Responsiveness.

Faculty of Nursing

Dept. of Medical-Surgical Nursing

185. Adverse Drug Reactions among Critically Ill Patients at Cairo University Hospital: Frequency and Outcomes

Hanan Ahmed Al Sebaee and Yousria Abd El Salam Seloma

J. of Biology, Agriculture and Healthcare, 3(13): 5-14 (2013)

Background: Adverse drug reactions (ADRs) are common problem in intensive care units where the poly pharmacy is involved in treating patients. Control of such events is possible if it is identified and reported. However, reporting of adverse drug reactions still in its infancy. Aim: the aim is to assess the frequency and outcomes of adverse drug reactions among critically ill patients at Cairo university hospital.

Research questions: 1- What is the frequency of adverse drug reactions among a selected sample of critically ill patients at Cairo university hospital? 2- What is the outcome of adverse drug reactions among a selected sample of critically ill patients at Cairo university hospital? 3- What is the degree of severity of adverse drug reactions among a selected sample of critically ill patients at Cairo university hospital?

Design: Descriptive exploratory design was utilized. Setting: The study was carried out at the Critical Care Department affiliated to Cairo University Hospitals.

Subjects: A convenience sample of 150 male & female critically ill adult patients receiving different types of medications constituted the study sample.

Tools: Two tools were utilized in the study, 1.Sociodemographic and medical data sheet and, 2.Adverse drug reactions assessment sheet.

Results: The study results revealed that one of fifth (21%) of study sample were suffered from adverse drug reactions. ADRs were represented on the patients in the form of dry mouth, abdominal distension, headache, insomnia, constipation, tachycardia, peripheral edema, hypertension, hypotension, cough, drowsiness. Severity of adverse drug reactions was ranged from mild severity (41.9%) to moderate and severe reaction (9.7%).

Conclusion: The prevalence of adverse drug reactions among critically ill patients is prevalent in a ratio of nearly (21%); and, more than half of these reactions were life-threatening.

Recommendation: A written hospital policy describing basic standards in management of ADRs is recommended to be established and before initiation of new medication, assess for potential drug–disease and drug–drug interactions, check dosages, and check the most common causes of ADRs, then starting new drugs.

Keywords: Adverse drug reactions; Poly pharmacy; Critically Ill patients; Frequency; Outcomes.

186. Comparison of Informational Needs among Newly Diagnosed Breast Cancer Women Undergoing Different Surgical Treatment Modalities

Labiba Abd El-kader Mohamed and Hanan Ahmed El-Sebaee

J. of Biology, Agriculture and Healthcare, 3(13): 73-84 (2013)

Breast cancer is the most commonly diagnosed cancer for women worldwide. Almost all women with breast cancer will have some

type of surgery in the course of their treatment either breast conservation surgery or modified radical mastectomy. Informational needs for such types of patients are critical step in providing high quality care.

Aim: Comparing the informational needs among newly diagnosed breast cancer women with different surgical treatment modalities.

Sample: A purposeful sample of 100 adult women with breast cancer undergoing surgery divided into two equal groups according to type of surgery.

Design: Comparative descriptive design was utilized.

Setting: This study was conducted at National Cancer Institute affiliated to Cairo University.

Tools: Structured Interview Questionnaire and The Arabic translated version of Toronto Informational Needs Questionnaire of Breast Cancer, scored with likert scale as low, moderate and high important informational needs. The study findings revealed that newly diagnosed women with breast cancer undergoing surgery either breast conservation surgery or modified radical mastectomy were different in regard to age, marital status, residence, education, income and type of breast cancer. Although both groups had informational needs in different rates related to disease, investigative tests and treatment; they expressed that the highest informational needs was related to physical information, while the least important was related to psychosocial needs.

Conclusion: information related to physical, disease, investigative tests and treatment are important needs for newly diagnosed breast cancer women regardless their type of surgery.

Keywords: Newly diagnosed breast cancer women; Informational needs; Different surgical treatment modalities.

187. Hydrotherapy Versus Laxative for Treatment of Postoperative Constipation Among Orthopedic Patients

Labiba Abd El-kader Mohamed and Naglaa Fawzy Hanafy

Advances in Life Science and Technology, 14: 50-63 (2013)

Constipation is a common health problem that orthopedic patients may experience during the recovery phase. There are a wide-range of treatment methods to alleviate all symptoms of constipation and to regulate bowel habit back to baseline. Its treatment includes pharmacologic and non-pharmacologic therapy.

Aim of the study: to compare between two treatment approaches (pharmacological in the form of laxative and non-pharmacological in the form of hydrotherapy) to relieve postoperative constipation for orthopedic patients. Design; quasi-experimental design was used.

Setting: This study was conducted at departments of orthopedic surgery, at a general governmental Hospital in Cairo,

Sample: A purposive sample of 100 male and female adult patients second day post orthopedic surgery (fixation and traction), divided into two equal groups (50 each), was recruited in this study.

Tools: data were collected utilizing the following tools: 1) The Structured Interview Questionnaire, including socio-demographic and related medical data. 2) The Constipation Assessment Scale, developed by (McMillan and Williams, 1989).

Results: the study findings revealed that all patients under the study their age ranged between 20 to 40 years, the majority were males. Findings revealed a statistical significant difference between the two groups in intestinal movement and constipation

assessment symptoms. The laxative group expresses more intestinal movement and constipation symptoms complain more than hydrotherapy group after implementing the treatment measure.

Recommendations: Further research is warranted to conduct studies in nursing to relieve patient's constipation for different types of hospitalized patient and in different hospital settings to apply evidenced based nursing practice.

Keywords: Constipation; Intestinal sound; Bowel movement; Orthopedic patient; Postoperative; Hydrotherapy; Laxative; Pharmacological therapy approaches; Non-pharmacological therapy approaches.

188. Impact of Exercise Program on Functional Status among Post- Lumbar Laminectomy Patients

Labiba Abd kader Mohamed, Lamia Mohamed Nabil Ismail, Khairia Abo Bakr Elsayi and Salah Abd El-Monem Sawan

J. of Biology, Agriculture and Healthcare, 3(10): 62-72 (2013)

A laminectomy is a surgical incision performed to remove herniated intervertebral discs. Strengthening and stretching exercise program helps post-laminectomy patients to move and do routine activities without putting extra strain on their backs, relieve their pain leading to improvement of functional status.

Aim: to evaluate the impact of exercise program on functional status among post-lumbar laminectomy patients'.

Design: quasi-experimental design.

Setting: This study was conducted at the neurosurgery department of El- Manial University Hospital, Cairo.

Sample: A purposive sample of 30 male and female adult patients undergoing lumbar laminectomy was recruited in this study.

Tools: data were collected utilizing the following tools: 1) The Structured Interview Questionnaire, including socio-demographic and related medical data. 2) Physical Assessment Sheet, and 3) Oswestry Low Back Pain Disability Questionnaire.

Results: the study findings revealed that the majority of study subjects were males, married and have normal musculoskeletal posture. All participants had severe low back pain and high level of functional disabilities preoperatively. A significant difference in pain intensity and functional ability was evident between the preoperative period and six weeks postoperatively after implementing the exercise program.

Recommendations: A written hospital clinical guideline on the common causes and safe post-laminectomy exercises is recommended to be established. Replication of this study on a larger sample and in different hospital settings with increasing the duration of implementing the postoperative exercise program treatment.

Keywords: Exercise program; Functional status; Lumbar laminectomy.

189. Validity and Reliability of Checklists Used for Objective Structured Clinical Examination: Piloting Modified Tools

Safaa Hassanein, Zeinab El-Sayed and Hoda Abdel Raouf

J. of Biology, Agriculture and Healthcare, 13 (11): 55-62 (2013)

Background: Developing tools for evaluating students' performance is one of the important tasks required from faculties.

The validity and reliability of tools increase its significance and the objectivity of using these tools in the field of research, as well strengthen the results.

Aim: Was to test validity and reliability of the selected checklists of the objective structured clinical examination which assess the Medical-Surgical Nursing competencies.

Design: Test-retest, Six Sigma was utilized to answer the research questions.

Research questions: 1-Are the ten selected checklists valid? 2-Are the ten selected checklists reliable?

Sample: Ten checklists were selected out of the required competencies of Medical-Surgical Nursing course during the academic year of (2010-2011 & 2011-2012).

Results: The results of the tested checklists revealed that the selected checklists are valid while the reliable checklists were fluid balance, (intramuscular, intravenous) injections, surgical scrub, gloving, wound dressing and wound drain. However subcutaneous injection and withdrawal of drugs from a vial were not reliable. While the surgical gown checklist was questionable.

Conclusion: Seven out of the tested ten checklists were reliable while all the checklists were valid.

Recommendation: Revise and modify the unreliable checklists and retest its reliability. Go through studying validity and reliability of other competencies in the Medical-Surgical Nursing field. OSCE checklists are strongly suggested as reliable and valid assessment of the growing number of nursing students.

Keywords: OSCE, Validity, Reliability, Clinical Assessment.

Dept. of Pediatric Nursing

190. Selected dietary habits among female adolescents in Hail, Saudi Arabia

Azza Abd El Moghny Attia and Majeda Ali Farajat

American Journal of Research Communication, 1: 140-148 (2013)

Objectives To estimate, among Saudi teenagers, the prevalence of (1) insufficient fruit and vegetable consumption, (2) fast-food consumption, (3) cola-beverage consumption, and to classify respondents' body weight status using BMI.

Methods In November 2010, a school-based questionnaire was administered to 180 elementary female students in Hail, KSA (12-16 years). The questionnaire contained data about the intake of fruit, vegetable, fast-food and cola beverage. Anthropometric measurements of weight and height were also obtained. Data were analyzed using frequencies and descriptive statistics.

Results The daily average of combined servings of fruits & vegetables was 1.65 (SD+1.01) (servings. Most students (97.6%) did not eat the recommended amounts of fruits and vegetables. The total sample consumed 2.23 (SD+1.44) fast-food meals per week, and 9.99±8.25 cans of cola per week. The mean BMI was 23.5±5.28 kg/m². The prevalence of overweight and obesity was 15.2% and 11.6% respectively.

Conclusions Unhealthy eating habits are common among Saudi female adolescents who tend to consume: less fruits, less vegetables, more fast-food, and more cola beverage. Additionally, the study showed that overweight and obesity were also common. Further studies are recommended to determine the psychosocial correlates of adopting healthy food habits among this segment of Saudi population.

Keywords: Adolescence-dietary habits-BMI-Saudi Arabia.

CAIRO UNIVERSITY

Publication
in
Book & Chapters

Publication in Book/ Chapter

Faculty of Medicine

Dept. of Internal Medicine

191. Tropical Nephrology

Tarek Mohammed Salah EL DIIn Fayad

Schrier's Diseases of the Kidney., Philadelphia: Wolters Kluwer Health/Lippincott Williams & Wilkins, (2013)

Tropical Nephrology Three major factors modify the profile of kidney disease in the tropics namely the population genetics, environment and the prevailing socioeconomic conditions. In the tropics Acute Kidney Injury is often caused by viral (e.g.HIV), bacterial (e.g. Leptospirosis) or parasitic (e.g.Malaria) infections; snake bites or herbal medications. Chronic Kidney disease is caused by a parallel list of infections and chemical agents, in addition to to the increasing burden of diabetes and hypertension. The fast progression of CKD seems to be related to late medical attention, poor blood pressure control, obesity, smoking lower nephron number attributed to low birth weights associated with malnutrition and other factors. ESKD treatment is quite modestly available. Survival on dialysis and the success of transplantation are strikingly low in most tropical countries, expectedly related to national income. In this chapter an overview is given on the epidemiology of common renal diseases in the tropics that are also present in the west but with different prevalence, and nephropathy due to tropical infection and toxin poisoning which is uniquely tropical. This is followed by descriptions of specific diseases including diseases related to chemical toxins and the environment. Finally the issue of end stage kidney disease and its management in different tropical regions are reviewed.

Dept. of Rheumatology

192. Recent Advances in the Management of Refractory Vasculitis

Reem Hamdy A. Mohammed

Updates in the Diagnosis and Treatment of Vasculitis, Intech Open, (2013)

Systemic necrotizing vasculitides are a broad family of conditions characterized by injury or destruction of the blood vessel walls by inflammatory cells with subsequent vessel occlusion and ischemic tissue injury with high rates of morbidity and mortality. [1] The heterogeneous nature of the involved etio-pathogenetic mechanisms together with the diversities in clinical presentations poses a great challenge to successful induction and maintenance therapy in vasculitis. Untreated, these diseases can be devastating. Treatment strategy in vasculitis depends entirely upon the type of vasculitis, the pattern and severity of organ involvement. High dose corticosteroids and cytotoxic drugs remain the cornerstones in the management of vasculitis that dramatically improved the prognosis with increasing chances for remission. However, despite such aggressive therapy the relapse rate in systemic vasculitis ranges from 30-50%. With the increasing relapses in some cases, refractoriness to standard care measures in others together with the toxicities associated with the use of long term high dose corticosteroids and cytotoxic drugs there is an increasing demand for an alternative effective therapy.

Keywords: Vasculitis, Refractory Vasculitis, Biologic Therapy, Anti-Tnf, Anti-Cd20, Anti-II-6.

The National Cancer Institute

Dept. of Clinical Pathology

193. Flow Cytometric Detection of Minimal Residual Disease: MRD in Acute Leukemia

Eman Kandeel and Azza Kamel

Lap Lambert Academic Publishing, 144 pages (2013)

A crucial problem for oncologist in treatment of acute leukemia is the characterization of patients who require more intensification of therapy to avert relapse. Although clinical (e.g., age, gender) and biologic (e.g., white blood cell count, immunophenotype, structural chromosomal abnormalities, and gene rearrangements) factors can be used for treatment stratification, none of these prognostic parameters is optimal. A proportion of patients with "low risk" experiences relapse, while others may receive more aggressive treatment than is necessary. Studies of minimal residual disease (MRD) focus at improving the estimation of leukemic burden during treatment. This information provides an indicator of the aggressiveness and drug sensitivity of the disease and guide in the selection of appropriate therapeutic strategies.

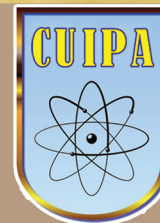
Keywords: MRD; Acute leukemia; Flowcytometry.



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Social Sciences Sector

4-1 Faculty of Economics and Political Science

4-2 Faculty of Commerce

CAIRO UNIVERSITY

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Faculty of Economics and Political Science

Dept. of Economics

194. Trade Effects of Non-Tariff Measures (Ntms): Some New Insights into Mena Countries

Ahmed Farouk Hamed Ghoneim

Journal of Economic Integration, 28: 375-392 (2013) IF: 1

Non-Tariff Measures (NTMs) have recently become a central issue for economists and policy makers. Based on a new database developed by the World Bank on five MENA countries at a very detailed product level, this article provides calculations of the average tariff equivalents (AVEs) of NTMs in these countries. A second contribution is the development of an original empirical model with detailed trade costs. This makes it possible to provide a first assessment of the impact of these NTMs as well as other trade costs on the trade of goods in these countries. This analysis is also extended to the trade of 15 service sectors, through the use of the updated GTAP database. Results show that NTMs are very significant in the selected MENA countries. The model also shows that NTMs are significantly trade reducing in almost all MENA countries, especially SPS measures. NTMs in services are also significantly trade reducing, especially in Maghreb countries.

Keywords: Non-Tariff Measures (Ntms), Mena Countries, Aves, Gravity Models

195. Does the Military Public Expenditure Matter For Economic Growth? Evidence from Egypt during the Period (1981/1982-2011/2012)

Israa Adel El Sayed Amed El Hussein

Advances In Management & Applied Economics, 3: 265-287 (2013)

The relationship between the military and civilian components of public expenditure and economic growth has always been controversial. While the "Guns and Butter Approach" stresses on the positive externalities associated to the military expenditure through the modernization and technological channels, the "Guns or Butter Approach" gives more attention to the opportunity costs and crowding out effects that result from the military expenditure. Using annual data set for the real GDP growth rate and the military and civilian expenditure components of public expenditure in Egypt during the time period (1981/1982-2011/2012), the study finds the following: 1) the share of the civilian expenditure to GDP is positively and significantly correlated to the economic growth in the long run, 2) the military expenditure to GDP ratio is insignificantly correlated to the long run economic growth rates, 3) and the share of the military expenditure to total public expenditure is negatively and significantly correlated to the economic growth rates in the long run. The error correction model estimations, however, show that both shares of military and civilian expenditures to GDP are negatively correlated to the economic growth in the short run.

Keywords: Military expenditure; Civilian expenditure; Public expenditure composition; Cointegration; Error correction; Economic growth; Egypt.

196. Governance/ Institutional Quality and Growth Nexus in Arab Countries

Hanan Hussien Ramadan Nazier

European Journal Of Economics, Finance And Administrative Sciences, 61: 57-83 (2013) IF: 1

In this study, we investigated the role of governance and institutions in supporting economic growth with a special reference to Arab countries. To reach this objective the study took a close look at two critical issues. First, we examined where the Arab countries stand in the widely used measures of governance/institutional quality published by the World Bank relative to the rest of the world. Second, we tested the power of governance indicators in explaining cross-country variations in growth performance in the region. The results showed that the status of governance in these countries is relatively poor by international measures. The majority of the examined countries seem to suffer from various degrees of governance deficits, compared to the international averages, relative to their incomes. Furthermore, it was found that economies with governance in surplus in voice and accountability, government effectiveness, regulatory quality, rule of law, and control of corruption in 2000 grew faster on average during 2000–2010, than economies with governance in deficit in these dimensions. These results support the theoretically assumed causal link from good governance and institutions to better growth performance. However, such a causal link was not detected for political stability and absence of violence dimension.

Keywords: Economic growth; Governance; Institutions; Arab countries.

197. On Designing Step-Stress Partially Accelerated Life Tests Under Failure-Censoring Scheme

Ali Ahmed Mohamed Ismail

Proceedings of The Institution of Mechanical Engineers Part O- Journal of Risk And Reliability, 227: 662-670 (2013) IF: 0.621

In this article the maximum likelihood estimates of the model parameters under step-stress partially accelerated life tests (SSPALT) are obtained assuming the Weibull distribution with Type-II censored data. Also, the confidence bounds of the parameters are obtained. In addition, optimum step stress test plans are developed. The optimum test plan determines the optimal stress change point that minimizes the generalized asymptotic variance of the maximum likelihood estimators for the model parameters. That is, improving the quality of the statistical inference.

Keywords: Optimal Design; Partially Accelerated Life Tests; Weibull Distribution; Maximum-Likelihood; Generalized Asymptotic Variance; Type-II Censoring.

198. Estimating the Generalized Exponential Distribution Parameters And The Acceleration Factor Under Constant-Stress Partially Accelerated Life Testing With Type-Ii Censoring

Ali Ahmed Mohamed Ismail

Strength Of Materials, 45: 693-702 (2013) IF: 0.234

Accelerated life testing (ALT) and partially accelerated life testing (PALT) are frequently used in modern reliability engineering. ALT and PALT are run to obtain information on the life of the products and materials in a shorter time and at lower cost. The experimental units are subject to stress conditions that are more severe than those encountered in normal use condition to induce early failures. ALT or PALT can be carried out using constant, step, progressive, cyclic and random stress loadings. This paper considers the problem of estimating the generalized exponential (GE) distribution parameters and the acceleration factor under constant-stress PALT model. The main objective is to derive the maximum likelihood estimators (MLEs) of the parameters of the GE distribution and the acceleration factor when the data are type-II censored from constant-stress PALT. Also, the performance of the MLEs is investigated numerically for different sample sizes and different parameter values using the mean square error. In addition, the approximate confidence intervals of the model parameters are constructed. Moreover, the likelihood ratio bounds (LRB) method is used to obtain confidence bounds of the model parameters when the sample size is small. For illustration, a simulation study is conducted. It is observed that the simulation results support the theoretical findings.

Keywords: Reliability Engineering, Partially Accelerated Life Tests, Constant Stress, Generalized Exponential Distribution, Maximum Likelihood Estimation, Likelihood Ratio Bounds, Type-II Censoring

199. Integrated Paradigm for Sustainable Development: A Panel Data Study

Hala Abou-Ali

Economic Modelling, 30: 334-342 (2013) IF: 3

The concept of sustainable development requires countries all over the world to use their natural resources rationally while pursuing their economic development, and at the same time to consider the quality of environment as a determinant of their societies' welfare. First, the method of principle component analysis and composite indicators are adopted to construct an overall sustainable development index and resource intensity measure using Millennium Development Goals (MDG) and World Development Indicator Data. Second, this paper applies an integrated paradigm to investigate the relationship between natural resource availability, economic growth, and the environment using a panel of 62 countries over the period 1990–2007. This interlocking relationship is analyzed through estimating the Resource Curse Hypothesis model and the Environmental Kuznets Curve model simultaneously while taking into consideration an important dimension- namely institutional quality. The results suggest that the way countries are dealing with sustainability in the context of MDG is negatively affecting the quality of the environment. Moreover, it proposes that countries with good institution quality are not taking the environmental problems seriously.

Keywords: Economic Growth; Resource Curse Hypothesis; Environmental Kuznets Curve; Sustainable Development; Principle Component Analysis; Simultaneous Equations With Error Components.

200. What Happened To Real Earnings In Egypt, 2008 To 2009?

Hala Abou-Ali

Iza Journal Of Labor And Development, 2: 1-38 (2013) IF: 1

Nominal earnings in Egypt did not respond to the increase in inflation between February 2008 and February 2009, resulting in a 12.3 (9) percent decline in average (median) real earnings among 25 to 60 years old workers. Changes in earnings differ significantly by groups: (i) those with higher initial earnings (reported and predicted) suffered the largest declines in earnings; (ii) men lost more than women but after controlling for initial earnings, women lost considerably more than men; (iii) those who were initially in agriculture also had greater declines despite rising food prices.

Keywords: Earnings Mobility; Egypt; Inflation; Gender; Wage Differentials; Segmented Labor Market.

201. Spatial Heterogeneity Of The Nile Water Quality In Egypt

Hala Abou-Ali

Journal Of Environmental Statistics, 4: 1-22 (2013) IF: 0

This paper aims to evaluate the water quality along the mainstream of the Nile in Egypt through modelling spatial distributions of water quality, using spatial statistical analysis. The study is based upon a sample frame of 78 sampling points collected in February 2008" and located on the main waterway of the Nile and its delta (Rosetta and Damietta branches). Two water quality indices are calculated as general indicators of the overall water quality of the Nile, with special emphasis on drinking water quality.

Exploratory spatial data analysis is carried out on the water quality indices, followed by plotting and modelling the experimental semi-variograms. Then, cross validation is executed in order to determine the best.

Faculty of Commerce

Dept. of Business Administration

202. An Investigation Of The Evaluation Of The Viral Marketing Research

Hatem Osman Aly Salem El-Gohary

International Journal Of Online Marketing, 3 (4): 1-27 (2013)

This paper aims to locate the key schools of thought in viral marketing (VM) literature, recognise the various sub-sets within viral marketing overall area of research and to identify the different gaps in viral marketing research literature offering a summation of the existing work done so far. The paper tries to build on the existing body of literature in the field of viral marketing, its related electronic word of mouth (eWOM) context and to present a taxonomic classification for future research. The review uses the paradigm funnel to examine the development of VM, key research contributions and categorises the published literature according to their objectives, analytical approaches and

their contributions to theory. The literature addresses many subjects of study (e.g. E-Marketing, E-Word of Mouth, Social Media, Peer-to-Peer Communications, Viral Marketing, Buzz Marketing, Stealth Marketing, Viral Advertising, Viral Videos and other aligned research areas). The findings illustrated that there are various gaps in the literature that require further investigation. Based on the findings, it is evident that the existing frameworks arising from the literature should be enhanced by the adoption of qualitative approaches that explore how general observations respond to contingent factors.

Keywords: Buzz Marketing, E-Marketing, E-Word Of Mouth (Ewom), Literature Review, Paradigm Funnel, Peer-To-Peer Communications, Social Media, Stealth Marketing, Viral Marketing.

Dept. of Accounting

203. E-Business in Accounting Education In The Uk And Ireland: Influences On Inclusion In The Curriculum

Amr Mohamed Kotb

The International Journal Of Management Education, 11: 150-162 (2013) IF: 1

With the increasing impact of e-business within economies worldwide there are implications for accountants, the accounting profession and the providers of accounting education. This study uses a postal questionnaire to seek perceptions of accounting academics on the factors influencing them to include or exclude e-business related topics in UK and Irish undergraduate accounting degree programmes and to explore the likely future direction of e-business coverage in such degrees. Findings indicate that respondents generally felt that e-business is important and should be included in accounting degrees; both to reflect changes in the business environment and to increase the employability of graduates. However, the majority of respondents did not themselves teach any e-business topics to accounting students. While this could be attributed to a combination of factors, the most significant impediment to further emphasis on e business was reported to be the lack of space in already crowded syllabi. Interestingly, lack of staff expertise or teaching materials were not considered to be major impediments. Although the focus of this study is the UK and Ireland, the empirical results have potential implications for the wider community of accounting educators by widening the international perspective on the issues addressed.

Keywords: E-Business; Information Technology; Accounting Curricula; E-Business Education.

204. Stock Option Fraud Prevention In Islamic Country: Does Corporate Governance Matter?

Tariq Mohamed Hassaneen Ismail

Journal Of Financial Reporting And Accounting, 11 No. 1: 4-28 (2013) IF: 1

This paper aims to investigate the extent to which companies in one of the Islamic culture countries, Egypt, are complying with the Islamic implementation of the Anglo-Saxon model of

corporate governance and testing the impact, if any, of such compliance on mitigating of stock option fraud incentives.

A logistic regression model is used to examine the effects of board of directors, audit committee, ownership structure and other firm characteristics on the likelihood of stock option fraud. The analysis is based on the data for stock option grants obtained during the period from 2006 to 2009. The results suggest that the rate of compliance with the Islamic implementation of the Anglo-Saxon model of corporate governance in Egyptian public-held companies is low. Weak corporate governance allows executives to exercise greater influence over the board of directors and audit committee decisions. Furthermore, a low level of disclosure, duality of CEO, high percentage of insiders in board of directors, auditor turnover, and management ownership are among the factors that increase the likelihood of stock option fraud in the Egyptian setting.

The results are constrained by the proxies used to define stock option fraud. Additionally, the limited number of companies with stock option grants in Egypt might affect the results. This paper provides insights into exposing stock option fraud by Egyptian public-held companies and sheds light on the effective role of corporate governance mechanisms to mitigate this phenomenon. This would help policy setters to enhance compliance with the Anglo-Saxon model of corporate governance and develop a comprehensive Shari'ah model of corporate governance that reduces stock option fraud.

Keywords: Audit Committee, Corporate Governance, Disclosure And Transparency, Egyptian Stock Exchange (Egx), Emerging Economics, Firm Characteristics, Insider Directors, Islam, Islamic Culture, Outside Directors, Public-Held Companies, Stock Option Fraud.

205. Governance and Risk Management: Empirical Evidence from Malaysia and Egypt

Tariq Mohamed Hassaneen Ismail

International Journal Of Finance & Banking Studies, Vol. 2, No. 3: 21-33 (2013)

The perceptions of Islamic banking professionals are surveyed through a questionnaire to explore whether the process of risk management mediates board involvement in risk management and risk management practices of Islamic banks in Malaysia and Egypt. The findings of this study identified that the Islamic banks in the selected countries are somewhat efficient in their risk management process. It was noticed that board involvement in risk management, process of risk management and risk management among Islamic banks in Malaysia are significantly higher than their counterparts in Egypt. Furthermore, high involvement of boards in risk management significantly increases the risk management process, and in turn, leads to significantly higher risk management practices in Islamic banks. Hence, boards should take formal responsibility for setting, managing and periodically assessing the risk management culture of the banks. It is expected that the outcomes of this study would help policy setters in the selected countries to develop a well-structured and harmonized risk management process that enhance risk management practices, with emphasis on the effective involvements of the board of directors and Shari'ah supervisory boards in risk management practices.

Keywords: Risk Management; Governance; Islamic Banks; Basel Ii; Malaysia; Egypt.

CAIRO UNIVERSITY

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Book & Chapters

Publication in Book/ Chapter

Faculty of Economics and Political Science

Dept. of Economics

206. The Arab Spring and Crises of Political Development

Mustapha Kamel A.Al-Sayyid

Interpreting the Arab Spring. Significance of the New Arab Awakening?, Kw Publishers Pvt Ltd, New Delhi, (2013)

This chapter, part of a book that strove to offer interpretation of the events that were described as an “Arab Spring,” engages in an evaluation of success of Arab Spring countries in dealing with what political scientists call “crises of political development”. The theoretical underpinnings of this concept were elaborated in a collective volume edited by Leonard Binder, a well-known American political scientist who was a prominent member of the so-called Political Development School. He wrote the introduction to a book, published in 1971 titled : Crises and Sequences of Political Development. He argued as well as other contributors in this book that all countries have to face six crises of political development, namely those 3 of state penetration of society, participation, distribution, forging of an identity, acquiring legitimacy and national integration. Al- Sayyid used this framework in order to assess the potential of success of the post-revolutionary regimes in Tunisia, Egypt, Yemen and Libya in tackling these challenges and leading their countries along the path of political development. He dropped the crisis of national integration as it could be considered one facet of the crisis of identity. He argued that economic development is so important in itself and also as a crucial condition for the success of purely political development. Therefore economic development was added as one of the crises of political development. His analysis has highlighted the primacy of state consolidation, or penetration, for the smooth management of other crises of economic development, distribution, participation and definitely of the legitimacy of the new political structures this conclusion was well-supported by subsequent events in these countries.



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5-1 Faculty of Arts

5-2 Faculty of Archaeology

5-3 Institute of African Research and Studies

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Faculty of Arts

Dept. of French Language and its Literature

207. L'autobiographie Sous L'angle Du Mythe: Etude Comparée Entre J'avoue Que J'ai Vécu De Pablo Neruda Et Du Plus Loin De L'oubli De Patrick Modiano

Mona Saraya

Papyri, 2: 229-244 (2013)

Nous analysons le thème de l'écriture de soi dans son aspect mythique en relation avec le Phénix, oiseau qui renaît de sa propre cendre, notamment à une époque accentuée par l'interrogation constante quant au temps. Notre interprétation va dans le sentier du symbolisme, plus particulièrement l'image du feu et du Phénix, considérés comme métaphores directrices de l'étude. Nous abordons le thème de la certitude vs le vague, les structures temporelles dans leur relation avec le sens, ainsi que le rapport des deux auteurs au mot. Nous terminons en assertant que le mythe n'est pas mort et qu'il sert pour une meilleure compréhension de l'époque actuelle en ce qui concerne un des thèmes les plus pressants, à savoir le temps.

Faculty of Archaeology

Dept. of Conservation

208. Atherosclerotic cardiovascular disease in Egyptian women: 1570 BCE-2011 CE

Abdelfattah A, Allam AH, Wann S, Thompson RC, Abdel-Maksoud G, Badr, Amer HA, el-Din Ael-H, Finch CE, Miyamoto M, Sutherland L, Suther and JD Thomas GS.

Int. J. Cardiol. 31(167) (2): 570-574 (2013)

Background: Atherosclerotic cardiovascular disease is often thought of as a disease of modernity, a disease affecting primarily men and a disease primarily affecting members of affluent Western societies.

Methods: We reviewed CT scans for evidence of vascular calcification as a manifestation of atherosclerosis in ancient Egyptian female mummies and compared the results to clinical features of contemporary Egyptian women, who are suffering from an epidemic of atherosclerotic cardiovascular disease.

Results : The common assumption that atherosclerosis is strictly a modern disease which spares women, mainly affecting men, is not true. We report the CT examination of an ancient Egyptian woman who lived more than 3000 years ago, finding calcified atherosclerotic plaque in her systemic arteries and other abnormalities probably due to prior myocardial infarction. We also confirmed recent reports of a virtual epidemic of atherosclerotic cardiovascular disease in contemporary Egyptian women.

Conclusions: Atherosclerosis both ancient and contemporary, is common in women as well as in men, and is related to both a genetic predisposition and to environmental factors including diet, exercise, obesity and exposure to smoke and other toxins.

209. The Insecticidal Activity of Tea Tree Oil (Melaleuca Alternifolia) Against the Common Pest in Mummies (Dermestes Maculatus)

Abdel-Maksoud Gomaa, El-Amin Abdel-Rahman and Afifi Fathy

International Journal of Conservation Science; 4 (3) p301(2013)

Egyptian mummies show different signs of deterioration caused by insects, such as missing parts, gaps and accumulated dust. *Dermestes maculatus* is one of the serious pests that cause damage to Egyptian mummies. To assess the insecticidal activity of tea tree oil against the larvae of the museum insect pest *Dermestes maculatus* (isolated from Egyptian mummies) we tested it under different concentration and treatment times by the bioassay methods. Our results showed that tea tree oil diluted in ethanol was highly toxic to *Dermestes maculatus* larvae. Insecticidal activity depended on both concentration and exposure time. By increasing the concentration level and the exposure time we obtained a higher mortality rate.

Dept. of Egyptian Archaeology

210. Climate, Resources, Adaptation and Cultural Development: A Study of the Lithics Assemblage from Site E-00-1, Nabta Playa, Egypt

Eman El Sayed Khalifa

Cahiers Caribéens d'Egyptologie, 17, 7-30 (2013)

Nabta Playa is an internally-drained basin located in the most arid part of the Sahara Desert. The oldest crude handaxes discovered in the region were assigned to the Middle Acheulean industry (1,400,000 to 200,000 ya). The northward shift of the summer monsoons (c. 12ka) enabled the region to be habitable for more than six thousand years. After the abandonment of sites, due to increasing aridity, the returning settlers of the Late (6200-5800 ya) and Final Neolithic (5400-4800 ya) enjoyed more social complexity and an unprecedented degree of organization. During the Late/Final Neolithic, Nabta Playa became a regional ceremonial center enclosing complex structures.

Institute of African Research and Studies

Dept. of Natural Resources

211. New Aspects for Callus Production, Regeneration and Molecular Characterization of Ginger (Zingiber officinale Rosc.)

Hussein S Taha, Mohamed S Abbas, Usama I Aly and El-Sayed I Gaber

Medicinal and Aromatic Plant, 2 (6): 1000141-8 (2013)

Ginger (*Zingiber officinale* Rosco) belongs to the family Zingiberaceae is one of the world's most important spices and produces a pungent, aromatic rhizome that is valuable all over the world not only as a spice but also as herbal medicine for its health promoting properties. Based on several reports [1-3] ginger is constrained severely can summarized as following: (I) ginger normally propagates by its rhizome, with a low proliferation rate,

and the reproducing part (the rhizome) is also the economically used part of the ginger plant, which restricts the availability of ginger seeds needed for cultivation, (II) easily infected by soil-born pathogens such as bacterial wilt (*Pseudomonas solanacearum*), soft rot (*Pythium aphanidermatum*), and nematodes (*Meloidogyne* spp.), which cause heavy losses in yield, (III) ginger rhizomes show variations and degeneration under longterm vegetative propagation and (IV) normal breeding of ginger is a real problem due to poor flowering and seed set. Callus induction and plantlets regeneration from different parts of ginger has been reported by several authors [4-6]. Moreover, Abdul Ghafoor [7] who summarized that, among biochemical techniques, SDS-PAGE is most widely used due to its validity and simplicity for describing genetic structure of crop germplasm. Furthermore, Rout et al. [8] demonstrated that RAPD analysis could apply to access the genetic fidelity of ginger plants derived in vitro on an industrial scale as part of crop improvement programs. Further, DNA profile by RAPD techniques has been reported by several workers [9,10]. The present investigation aimed to establishment of reproducible and promising protocols for callus production from primordial leaf explants and plantlets regeneration from ginger plant. Moreover, carrying out molecular characterization of protein and DNA profile (RAPD) of ginger regenerated compare to original materials.

Keywords: *Zingiber officinale*; Callus; Regeneration; 2,4-D; BAP; SDS-PAGE; RAPD-PCR.

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Faculty of Archaeology

Dept. of Conservation

212. Wall-Paintings in a Roman House at Ancient Kysis, Kharga Oasis

Mona Fouad Ali Abdelghany

Bulletin De L'institut Francais D'archeologie Orientale-Tome 113, Bifao113- (2013)

After a hiatus of almost two decades, excavation at Tell Douch was resumed in the 2008-2009 season with the investigation of a painted room within a Roman house. The building is situated on the western side of the dromos leading to the temple, the main thoroughfare for present-day visitors to the site. The wind erosion of the surface that constantly exposes traces of the ancient settlement had brought to light here the uppermost remains of painted surfaces. Because of the situation and conditions, it was decided to carry out a limited excavation to document the painted remains as fully as possible, including sampling for plaster and pigment analysis and radiocarbon dating, and also to apply the appropriate conservation measures before backfilling. Although only the lower part of the walls has survived, the remains of unique late Roman paintings showing figures in military and imperial purple dress have been revealed; a stone basin, corroded metalwork, fragments of pottery, and animal models in unbaked clay were also found within the painted room.

Keywords: Harga oasis; Douch; Roman paintings; Radiocarbon dating; Roman houses.

the dignity of a province. Septimius Severus is considered the real founder of the limes Tripolitanus; he reached with the constructions the heart of the African desert. We believe that the Romanization of Africa was a target and result at the same time of the Limes constructions.

214. Überblick Über Verwendung Der Sprichwörter in Deutschen Und Arabischen Anzeigenwerbung

Mona Noueshi

Paremiologie. Proverbes Et Formes Voisines, J. Benayoun, N. Kübler, J. Zouogbo (Eds.), Presses Universitaires De Sainte Gemme, , (2013)

Sprichwoerter sind in vielen gedruckten Anzeigen und Werbespots zu entdecken. Da Sprichwoerter als festes Wortgefüge in unserer Sprache verankert sind, können sie besonders gut in der Werbung eingesetzt werden, da bereits Bekanntes wieder aufgegriffen wird. Das Anliegen folgender Untersuchung besteht in der Aufführung von den Verwendungsweisen und den vielen Möglichkeiten, Sprichwoerter in der deutschen und arabischen Werbung zu gebrauchen.

Keywords: Paremiologie; Phraseologie; Werbung; Werbesprache; Anzeigen.

Faculty of Arts

Dept. of History

213. The limes Numidiae et Tripolitanus: The Process of extension the Roman control into The African Desert in the time of Septimius Severus AD 193-211

Ragab Salama Omran

LAP LAMBERT Academic Publishing, 392 pages (2013)

The extension of the Roman control into the African desert is known by the construction of the limes system in what are modern Libya, Tunisia and Algeria under the emperor Septimius Severus AD 193-211.

The limes system is marked by the construction of some forts deep into the desert, these forts were not defensive in the first place or- as some historians imaged it- as a separation limit that divided the two different societies, contra this view, the limes was contact point between two different societies from many aspects, It helped bridge the width between them, by giving the indigenous communities the culture and style of the Roman life. In time the limes was moved whenever there was a possibility for extending it.

The Severan constructions in Numidia included some forts as well as custom stations to control over the transhumance out and into the Limes Zone. Most important was the raising Numidia to



Cairo University



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Appendix

Appendix 1

Statistical Data

List of top 10 authors according to the number of publications
(Year 2013)

Rank	Name	Faculty	No. of Pub.
1	Ali Yehia Ellithi Kamel	Faculty of Science	32
2	Gamal Esmat	Faculty of Medicine	26
3	Olfat Gamil Shaker	Faculty of Medicine	25
4	Gehad Genidy Mohamed Genidy	Faculty of Science	18
5	Hussein AbdelHay ElSayed Kaoud	Faculty of Veterinary Medicine	17
6	Ahmed Gomaa Ahmed Radwan	Faculty of Engineering	14
6	mohammed abdelkawy mohammed ibrahim	Faculty of Pharmacy	14
6	Mohamed Ali Ahmed	Faculty of Science	14
9	Aboul Ella Otify Hassanien	Faculty of Computers and Information	13
9	Laila Ahmed Rashed Ismaiel	Faculty of Medicine	13
9	Hayam Mahmoud Lotfy Ibrahim	Faculty of Pharmacy	13
9	Sobhy Mohamed Gomaa	Faculty of Science	13
9	Abd El-Aty Mostafa Abd El-Aty	Faculty of Veterinary Medicine	13

List of top 10 authors according to the sum of their impact factor
(Year 2013)

Rank	Name	Faculty	Sum IF
1	Ali Yehia Ellithi Kamel	Faculty of Science	159.91
2	Hussein Mostafa Mosa Khaled	The National Cancer Institute	71.64
3	Hussein mohamed ghanem	Faculty of Medicine	53.11
4	Neveen A Soliman Elshakhs	Faculty of Medicine	52.65
5	Gamal Esmat	Faculty of Medicine	49.61
6	Gomaa Mohamed Mahmoud Abdel-Maksoud	Faculty of Archaeology	44.57
6	Mohamed Abdel-Halim Nurel-din	Faculty of Archaeology	44.57
8	Rany Mohamed Mahmoud Shamloul	Faculty of Medicine	44.51
9	Mohamed Ahmed Mohamed El Badry Soliman	Faculty of Pharmacy	38.6
10	Maher F. El-Kady	Faculty of Science	34.63
11	Olfat Gamil Shaker	Faculty of Medicine	34.36
12	Abd El-Aty Mostafa Abd El-Aty	Faculty of Veterinary Medicine	33.48
13	Mohamed Ahmed Alsayed Alaasar	Faculty of Science	32.93
14	Azza Mohamed El Amin Aly Oraby	Faculty of Medicine	31.98
15	Rehab Aly Abdel Salam Hegazy	Faculty of Medicine	27.03
16	Nour-Eldin Abdelrehim Nour-Eldin Mohammed	Faculty of Medicine	26.06
17	Wael Awad Mohamed	Faculty of Science	23.84
18	Mohamed Ali Ahmed	Faculty of Science	21.92
19	Maissa El Said El Raziky	Faculty of Medicine	21.16
20	Rashad Sami Barsoum	Faculty of Medicine	20.73

List of top 10 authors according to highest single impact factor
(Year 2013)

Rank	Name	Faculty	Max. IF
1	Gomaa Mohamed Mahmoud Abdel-Maksoud	Faculty of Archaeology	39.06
1	Mohamed Abdel-Halim Nurel-din	Faculty of Archaeology	39.06
1	Hussein mohamed ghanem	Faculty of Medicine	39.06
1	Rany Mohamed Mahmoud Shamloul	Faculty of Medicine	39.06
1	Hussein Mostafa Mosa Khaled	The National Cancer Institute	39.06
6	Mohamed Ahmed Mohamed El Badry Soliman	Faculty of Pharmacy	38.597
7	Neveen A Soliman Elshakhs	Faculty of Medicine	35.209
8	Azza Mohamed El Amin Aly Oraby	Faculty of Medicine	31.975
9	Mohamed Ahmed Alsayed Alaasar	Faculty of Science	14.829
10	Wael Awad Mohamed	Faculty of Science	14.103
11	Ahmed M Mahmoud	Faculty of Engineering	14.086
11	Karim Said	Faculty of Medicine	14.086
11	Mohamed Hassan	Faculty of Medicine	14.086

Statistical Data

List of faculties with highest score of impact factor
(Year 2013)

Faculty	Count	%	Tot. IF	%	Avg.	Max.	Min.
Faculty of Science	509	231.36	835.714	328.89	1.64	14.829	0.165
Faculty of Medicine	388	176.36	690.478	271.73	1.78	39.06	0.165
Faculty of Pharmacy	297	135	457.301	179.97	1.54	38.597	0.165
Faculty of Engineering	240	109.09	239.069	94.08	1.00	14.086	0.917
Faculty of Agriculture	128	58.18	105.123	41.37	0.82	9.737	0.165
Faculty of Veterinary Medicine	118	53.64	120.489	47.42	1.02	4.524	0.165
The National Cancer Institute	57	25.91	139.051	54.72	2.44	39.06	0.237
Institute of Statistical Studies and Research	43	19.55	3.206	1.26	0.07	1.516	0.165
Faculty of Economics and Political Science	42	19.09	23.212	9.13	0.55	3	0.234
National Institute of Laser Enhanced Sciences	32	14.55	46.697	18.38	1.46	3.794	0.165
Faculty of Archaeology	30	13.64	56.806	22.36	1.89	39.06	0.37
Faculty of Computers and Information	27	12.27	18.316	7.21	0.68	4.818	0.311
Faculty of Arts	24	10.91	0.293	0.12	0.01	0.293	0.293
Faculty of Oral Dental Medicine	20	9.09	28.322	11.15	1.42	2.929	0.686
Faculty of Nursing	20	9.09	0	0	0.00	0	0
Faculty of Commerce	15	6.82	12.947	5.1	0.86	3	0.147
Institute of African Research and Studies	11	5	0.6	0.24	0.05	0.435	0.165
Faculty of Physical Therapy	10	4.55	7.772	3.06	0.78	2.191	0.175
Faculty of Kindergarten	1	0.45	0	0	0.00	0	0
Total	2012	100	2785.396	100	18.01		

Statistical Data

List of number of publications
(2006-2013)

Faculty	2006	2007	2008	2009	2010	2011	2012	2013	Total
Science	142	162	241	242	290	425	447	509	2458
Medicine	49	64	124	154	226	350	338	388	1693
Engineering	56	79	109	140	131	198	228	240	1181
Pharmacy	27	40	77	104	126	224	261	297	1156
Agriculture	8	14	35	83	75	136	148	128	627
Veterinary Medicine	11	20	47	53	86	136	95	118	566
National Cancer Institute	9	16	16	27	37	52	46	57	260
National Institute of Laser Enhanced Sciences	13	11	9	21	27	33	26	32	172
Economics and Political Science	13	14	13	8	10	6	10	42	116
Arts	7	7	17	15	15	22	20	24	127
Statistical Studies and Research Institute	8	6	11	7	4	17	43	43	139
Archaeology	1	2	5	16	19	26	32	0	101
Computers and Information	2	3	4	11	6	32	35	0	93
Oral and Dental Medicine			1	15	19	23	21	20	99
Physical Therapy					1	3	30	10	44
Nursing			1	4	2	6	5	20	38
Commerce	4	2	1	4	6	17	24	15	73
Mass Communication			1		3	1		0	4
Educational Studies and Research					2	2	4	0	8
African Research and Studies Institute		1	2			3	8	11	22
Dar Al-Oloum	1						1	0	2
Law						1	1	0	2
Regional and Urban Planning							1	0	1
Faculty of Kindergarten								1	1
Total	351	441	814	926	1089	1712	1824	2012	8983

Appendix 2

Top 50 authors of Cairo University

(According to no. of publications)

Rank	Author Name	Affiliation	No. of Pub
1	Ahmed A. Shafik	Kasr El-Aini School of Medicine, Dept. of Surgery and Experimental Research	540
2	Ahmed M. Soliman	Dept. of Electronics and Communication Engineering	377
3	Mohamed Hilmy Elnagdi	Dept. of Chemistry	255
4	Essam E. Khalil	Faculty of Engineering	252
5	Yousry M. Issa	Dept. of Chemistry	209
6	Aboul Ella Hassanien	Faculty of Computers and Information	191
7	Mohamed A A Aboulghar	Faculty of Medicine	172
8	Hesham G. Al-Inany	Dept. of Obstetrics and Gynecology	152
9	Yasser M. Kadah	Faculty of Engineering, Dept. of Biomedical Engineerin	147
10	Said R. Grace	Faculty of Engineering, Dept. of Engineering Mathematics	146
11	A. M. Abd El-Aty	Dept. of Pharmacology	142
12	Gehad Genidy Mohamed	Dept. of Chemistry	141
13	Ahmad S. A. S. Shawali	Dept. of Chemistry	139
14	Ahmed Mohamed Galal	Dept. of Chemistry	139
15	Waheed A. Badawy	Dept. of Chemistry	128
16	Olfat Gamil Shaker	Dept. of Biochemistry	118
17	Gamal Esmat	Kasr El-Aini School of Medicine, Faculty of Medicine, Dept. of Endemic Hepatogastroenterology	117
18	Ahmed A. Soliman	Dept. of Chemistry	116
19	Amir F. Atiya	Faculty of Engineering, Dept. of Computer Engineering	109
20	H. Khalifa	Dept. of Chemistry	106
21	Hussien M. Khaled	National Cancer Institute	102
22	Mohamed A. Zayed	Dept. of Chemistry	102
23	Ismail A. Ismail A. Shafik	Kasr El-Aini School of Medicine, Dept. of Surgery and Experimental Research	100
24	Fathy A. Abdel-Ghaffar	Cairo University, Department of Zoology	99
25	Badr, Yahia A. kh.	Dept. of Physics	98

Rank	Author Name	Affiliation	No. of Pub
26	Amr Amin Adly	Faculty of Engineering, Electrical Power and Machines Department	95
27	Kamal Mohammed Dawood	Dept. of Chemistry	94
28	Taymour Mostafa	Kasr El-Aini School of Medicine, Faculty of Medicine	93
29	Abdou Osman Abdelhamid	Dept. of Chemistry	92
30	Mohamed T. Khayyal	Faculty of Pharmacy, Dept. of Pharmacology	91
31	Ahmad M. Farag	Dept. of Chemistry	87
32	Mohammed Talaat Abdel Aziz	Faculty of Pharmacy, Departments of Pharmacology and Toxicology	85
33	Mohamed El-Nadi	Dept. of Physics	85
34	Mohamed Abdel Harith	Natl. Inst. of Laser Enhanced Sci.	85
35	Abdel Rahman Zekri	National Cancer Institute	82
36	Rafat Milad Mohareb	Dept. of Chemistry	81
37	Magdy W. Sabaa	Dept. of Chemistry	79
38	Maher Zaki Elsabee	Dept. of Chemistry	79
39	Rashika R. El Ridi	Faculty of Science, Dept. of Zoology	74
40	Rany M. Shamloul	Dept. of Andrology	73
41	Elshafei, Abdel Latif	Electrical Power and Machines Dept.	72
42	Rashad S. Barsoum	Cairo Kidney Center	70
43	Mohamed S. Karawya	Faculty of Pharmacy	68
44	Samy A. Madbouly	Dept. of Chemistry	66
45	Mohamed Saada El-Deab	Faculty of Science, Dept. of Chemistry	62
46	Mohamed Shaarawy	Faculty of Oral and Dental Medicine	61
47	Amr M. Shaarawi	Faculty of Engineering, Dept. of Engineering Mathematics	60
48	Samir I. Shaheen	Faculty of Engineering, Dept. of Computer Engineering	59
49	El- Tawil, Magdy A.	Faculty of Engineering, Dept. of Engineering Mathematics	59
50	Youssef F. Rashed	Dept. of Structural Engineering	58
51	Sherif Mourad Sherif	National Research Council Canada, Institute for Microstructural Sciences	57
52	Nadia Ahmed Mohamed	Dept. of Chemistry	57
53	Mohamed Mahmoud Abdel-Kader	Dept. of Physics	56
54	Ahmed M. Kassem	Faculty of Pharmacy	56

Top 50 authors of Cairo University

(According to total no. of citations)

Rank	Author Name	Affiliation	Tot. Citation
1	Mohamed A A Aboulghar	Faculty of Medicine	4038
2	Ahmed M. Soliman	Faculty of Engineering, Dept. of Electronics and Communication Engineering	3712
3	Ahmed A. Shafik	Kasr El-Aini School of Medicine, Dept. of Surgery and Experimental Research	3436
4	Mohamed Hilmy Elnagdi	Dept. of Chemistry	2598
5	Ramy K. Aziz	Cairo University Faculty of Pharmacy	2247
6	Amir F. Atiya	Faculty of Engineering, Dept. of Computer Engineering	1887
7	Gehad Genidy Mohamed	Dept. of Chemistry	1846
8	Hesham G. Al-Inany	Dept. of Obstetrics and Gynecology	1816
9	Ahmed Mohamed Galal	Dept. of Chemistry	1813
10	Waheed A. Badawy	Dept. of Chemistry	1788
11	Mohamed Ali Farag	Cairo University Pharmacognosy Department	1644
12	Hussien M. Khaled	Department of Medical Oncology	1620
13	Yousry M. Issa	Faculty of Science, Department of Chemistry	1462
14	Gamal Esmat	Kasr El-Aini School of Medicine, Faculty of Medicine, Dept. of Endemic Hepatogastroenterology	1364
15	Ahmad S. A. S. Shawali	Dept. of Chemistry	1292
16	M. I. Ismail	Faculty of Science, Department of Physics	1278
17	Kamal Mohammed Dawood	Dept. of Chemistry	1244
18	A. M. Abd El-Aty	Dept. of Pharmacology	1226
19	Rabab M. Gaafar	National Cancer Institute	1204
20	Rashad S. Barsoum	Cairo Kidney Center	1197
21	Ahmad M. Farag	Dept. of Chemistry	1093
22	Mohamed Mohamed Shoukry	University of Erlangen-Nuremberg, Institute of Inorganic Chemistry	1027
23	Said R. Grace	Faculty of Engineering, Dept. of Engineering Mathematics	1013
24	Taymour Mostafa	Kasr El-Aini School of Medicine, Faculty of Medicine	928
25	Khaled M. Ismail	Dept. of Chemistry	880
26	Abdel Rahman Zekri	National Cancer Institute	822

27	Amal El-Beshlawy	Dept. of Biochemistry, Genetics and Molecular Biology	787
28	Rany M. Shamloul	Dept. of Andrology	785
29	Samy A. Madbouly	Dept. of Chemistry	785
30	Maher Zaki Elsabee	Dept. of Chemistry	783
31	Yasser M. Kadah	Faculty of Engineering, Dept. of Biomedical Engineering	779
32	Magdy W. Sabaa	Dept. of Chemistry	775
33	Tamer A. ElBatt	Cairo University Faculty of Engineering,	745
34	Eid H. Doha	Dept. of Mathematics	744
35	Nour Tawfik Abdel-Ghani	Faculty of Science, Dept. of Chemistry	742
36	Mohamed Shaarawy	Kasr El-Aini School of Medicine, Dept. of Obstetrics and Gynecology	723
37	Rashika R. El Ridi	Faculty of Science, Dept. of Zoology	687
38	Mohamed T. Khayyal	Faculty of Pharmacy, Dept. of Pharmacology	685
39	Yahia A. kh. Badr	Dept. of Physics	659
40	Mohamed Abdel Harith	Natl. Inst. of Laser Enhanced Sci.	650
41	Mohamed Saada El-Deab	Faculty of Science, Dept. of Chemistry	647
42	Mohamed A. Zayed	Dept. of Chemistry	645
43	Olfat Gamil Shaker	Dept. of Biochemistry	626
44	Nadia Ahmed Mohamed	Dept. of Chemistry	623
45	Amr Amin Adly	Faculty of Engineering, Electrical Power and Machines Department	611
46	Ayman Wahba Erian	Faculty of Science, Dept. of Chemistry	608
47	Nadia Mokhtar	National Cancer Institute	587
48	Radwan S. Farag	Dept. of Biochemistry	562
49	Fawzy A. Attaby	Dept. of Chemistry	557
50	Sherif Mourad Sherif	National Research Council Canada, Institute for Microstructural Sciences	547
51	Rafat Milad Mohareb	Dept. of Chemistry	544

Top 50 authors of Cairo University

(According to h-index)

Rank	Author Name	Affiliation	h-index
1	Ahmed M. Soliman	Faculty of Engineering, Dept. of Electronics and Communication Engineering	23
2	Kamal Mohammed Dawood	Dept. of Chemistry	19
3	Hesham G. Al-Inany	Dept. of Obstetrics and Gynecology	18
4	Gamal Esmat	Kasr El-Aini School of Medicine, Faculty of Medicine, Dept. of Endemic Hepatogastroenterology	18
5	Ramy K. Aziz	Cairo University Faculty of Pharmacy	18
6	Amir F. Atiya	Faculty of Engineering, Dept. of Computer Engineering	18
7	Ahmed A. Shafik	Kasr El-Aini School of Medicine, Dept. of Surgery and Experimental Research	18
8	Ahmad M. Farag	Dept. of Chemistry	18
9	Mohamed Saada El-Deab	Faculty of Science, Dept. of Chemistry	18
10	Mohamed Hilmy Elnagdi	Dept. of Chemistry	17
11	Gehad Genidy Mohamed	Dept. of Chemistry	17
12	A. M. Abd El-Aty	Dept. of Pharmacology	17
13	Hussien M. Khaled	National Cancer Institute	16
14	Nour Tawfik Abdel-Ghani	Faculty of Science, Dept. of Chemistry	16
15	Mohamed Mohamed Shoukry	University of Erlangen-Nuremberg, Institute of Inorganic Chemistry	16
16	Rany M. Shamloul	Dept. of Andrology	16
17	Ahmed Mohamed Galal	Dept. of Chemistry	15
18	Waheed A. Badawy	Dept. of Chemistry	15
19	Mohamed Shaarawy	Kasr El-Aini School of Medicine, Dept. of Obstetrics and Gynecology	15
20	Abdel Rahman Zekri	National Cancer Institute	15
21	Ahmad S. A. S. Shawali	Dept. of Chemistry	15
22	Samy A. Madbouly	Dept. of Chemistry	15
23	Magdy W. Sabaa	Dept. of Chemistry	15
24	Mohamed A. Zayed	Dept. of Chemistry	15
25	Eid H. Doha	Dept. of Mathematics	15
26	Yousry M. Issa	Dept. of Chemistry	15

Rank	Author Name	Affiliation	h-index
27	Rashad S. Barsoum	Cairo Kidney Center	15
28	Taymour Mostafa	Kasr El-Aini School of Medicine, Faculty of Medicine	15
29	Said S. E. H. Elnashaie	Dept. of Chemical Engineering	14
30	Mohamed Ali Farag	Cairo University Pharmacognosy Department	14
31	Mohamed Abdel Harith	Natl. Inst. of Laser Enhanced Sci.	14
32	Khaled M. Ismail	Dept. of Chemistry	14
33	Fawzy A. Attaby	Dept. of Chemistry	14
34	Yahia A. kh. Badr	Dept. of Physics	14
35	Mohamed Abdel Harith	Natl. Inst. of Laser Enhanced Sci.	13
36	Rashika R. El Ridi	Faculty of Science, Dept. of Zoology	13
37	Rabab M. Gaafar	National Cancer Institute	13
38	Olfat Gamil Shaker	Dept. of Biochemistry	13
39	Said R. Grace	Faculty of Engineering, Dept. of Engineering Mathematics	13
40	Hany Abdelaziz El Shemy	Department of Biochemistry	13
41	M. Y. Ismail	Faculty of Science, Department of Physics	12
42	Nadia Ahmed Mohamed	Dept. of Chemistry	12
43	Abber Ahmed Bahnassy	National Cancer Institute	12
44	A. H. M. Elwahy	Dept. of Chemistry	11
45	Yasser M. Kadah	Faculty of Engineering, Dept. of Biomedical Engineering	11
46	Barsoum B. Barsoum	Department of Chemistry	11
47	Mohamed T. Khayyal	Faculty of Pharmacy, Dept. of Pharmacology	10
48	Youssef F. Rashed	Dept. of Structural Engineering	10
49	Hala G. El-Shobaky	Faculty of Science, Dept. of Chemistry	10
50	Ahmed A. Soliman	Dept. of Chemistry	10
51	Mosselhi A. N. Mosselhi	Dept. of Chemistry	10

Appendix 3

Top 5 authors of Cairo University Faculties

(According to no. of publications from Top 50)

1- Kasr El-Aini School of Medicine,

Rank	Author Name	No. of Pub
1	Ahmed A. Shafik	540
2	Mohamed A A Aboulghar	172
3	Hesham G. Al-Inany	152
4	Olfat Gamil Shaker	118
5	Gamal Esmat	117

2- Faculty of Engineering,

Rank	Author Name	No. of Pub
1	Ahmed M. Soliman	377
2	Essam E. Khalil	252
3	Yasser M. Kadah	147
4	Said R. Grace	146
5	Amir F. Atiya	109

3- Faculty of Science,

Rank	Author Name	No. of Pub
1	Mohamed Hilmy Elnagdi	255
2	Yousry M. Issa	209
3	Gehad Genidy Mohamed	141
4	Ahmad S. A. S. Shawali	139
5	Ahmad Mohamed Galal	139

4- Faculty of Pharmacy,

Rank	Author Name	No. of Pub
1	Mohamed T. Khayyal	91
2	Mohamed Talaat Abdel Aziz	85
3	Mohamed S. Karawya	68
4	Ahmed A. Kassem	56

5- National Cancer Institute,

Rank	Author Name	No. of Pub
1	Hussien M. Khaled	102
2	Abdel Rahman Zekri	82
3	Abber Ahmed Bahnassy	50
4	Nadia Mokhtar	44
5	Rabab M. Gaafar	39

6- Natl. Inst. of Laser Enhanced Sci.

Rank	Author Name	No. of Pub
1	Yehia Ahmadi Kh. Badr	98
2	Mohamed Abdel Harith	85

7- Faculty of Veterinary Medicine,

Rank	Author Name	No. of Pub
1	A. M. Abd El-Aty	142

**Top 5 authors of Cairo University Faculties
(According to total no. of citations from Top 50)**

1- Kasr El-Aini School of Medicine,

Rank	Author Name	Tot. Citation
1	Mohamed A A Aboulghar	4038
2	Ahmed A. Shafik	3436
3	Hesham G. Al-Inany	1816
4	Gamal Esmat	1364
5	Rashad S. Barsoum	1197

2- Faculty of Science,

Rank	Author Name	Tot. Citation
1	Mohamed Hilmy Elnagdi	2598
2	Gehad Genidy Mohamed	1846
3	Ahmed Mohamed Galal	1813
4	Waheed A. Badawy	1788
5	Yousry M. Issa	1462

3- Faculty of Engineering,

Rank	Author Name	Tot. Citation
1	Ahmed M. Soliman	3712
2	Amir F. Atiya	1887
3	Said R. Grace	1013
4	Yasser M. Kadah	779
5	EIBatt, Tamer A.	745

4- National Cancer Institute,

Rank	Author Name	Tot. Citation
1	Hussien M. Khaled	1620
2	Rabab M. Gaafar	1204
3	Abdel Rahman Zekri	822
4	Nadia Mokhtar	587
5	Abber Ahmed Bahnassy	481

5- Faculty of Pharmacy,

Rank	Author Name	Tot. Citation
1	Ramy K. Aziz	2247
2	Mohamed A. Farag	1644
3	Mohamed T. Khayyal	685

6- Natl. Inst. of Laser Enhanced Sci.,

Rank	Author Name	Tot. Citation
1	Badr, Yahia A. kh.	659
2	Mohamed Abdel Harith	650

7- Faculty of Veterinary Medicine,

Rank	Author Name	Tot. Citation
1	A. M. Abd El-Aty	1226

8- Faculty of Agriculture,

Rank	Author Name	Tot. Citation
1	Radwan S. Farag	562
2	Hany Abdelaziz El Shemy	407

Top 5 authors of Cairo University Faculties (According to h-index from Top 50)

1-Faculty of Engineering,

Rank	Author Name	h_Index
1	Ahmed M. Soliman	23
2	Amir F. Atiya	18
3	Said S. E. H. Elnashaie	14
4	Said R. Grace	13
5	Yasser M. Kadah	11

2- Faculty of Science,

Rank	Author Name	h_Index
1	Kamal Mohammed Dawood	19
2	Ahmed M. Farag	18
3	Mohamed Saada El-Deab	18
4	Mohamed Hilmy Elnagdi	17
5	Gehad Genidy Mohamed	17

3- Kasr El-Aini School of Medicine,

Rank	Author Name	h_Index
1	Hesham G. Al-Inany	18
2	Gamal Esmat	18
3	Ahmed A. Shafik	18
4	Taymour Mostafa	16
5	Rany M. Shamloul	16

4- National Cancer Institute,

Rank	Author Name	h_Index
1	Hussien M. Khaled	16
2	Abdel Rahman Zekri	15
3	Rabab M. Gaafar	13
4	Abber Ahmed Bahnassy	12

5- Faculty of Pharmacy,

Rank	Author Name	h_Index
1	Ramy K. Aziz	18
2	Mohamed A. Farag	16
3	Mohamed T. Khayyal	10

6- Natl. Inst. of Laser Enhanced Sci.

Rank	Author Name	h_Index
1	Mohamed Abdel Harith	14
2	Badr, Yahia A. kh.	14

7- Faculty of Veterinary Medicine,

Rank	Author Name	h_Index
1	A. M. Abd El-Aty	17

8- Faculty of Agriculture,

Rank	Author Name	Tot. Citation
1	Hany Abdelaziz El Shemy	13
2	Radwan S. Farag	9



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