Cairo University

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Cairo University International Publications Awards

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Dear colleagues,

We are pleased to introduce vol. 7 (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 Cairo University 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 2012 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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Dept. of Astronomy and Meteorology

1. Acceleration and Particle Field Interactions of Cosmic Rays: Formalism

A. Tawfik, A. Saleh, M. T. Ghoneim and A. A. Hady

Physics International, 3 (2): 64-73, (2012).

The acceleration of ultra high energy cosmic rays is conjectured to occur through various interactions with the electromagnetic fields in different astrophysical objects, like magnetic matter clumps, besides the well-known shock and stochastic Fermi mechanisms. It is apparent that the latter are not depending on the particle's charge, quantitatively. Based on this model, a considerable portion of the dynamics, that derives a charged particle parallel to a magnetic field and under the influence of a force, is assumed to be composed of an acceleration by a non-magnetic force and a gyromotion along direction, plus drifts in the direction of The model and its formalism are introduced. Various examples for drift motions and accelerating forces are suggested. The formalism is given in a non-relativistic version. Obviously, the translation into the relativistic version is standard. In a forthcoming work, a quantitative estimation of the energy gained by charged cosmic rays in various astrophysical objects will be evaluated.

Keywords: Ultra high energy cosmic rays (UHECR); Greisen-zatsepiti-kuzmin (GZK); Cosmic microwave background (CMB); Active galactic nuclei (AGN); Gamma-ray bursts (GRB).

2. GPS Satellite Range and Relative Velocity Computation

Owis Ashraf H., Mohammed Hani M., Dwidar Hany and Mortari Daniele

Theory and Applications of Mathematics & Computer Science, 4 (1): 53-60, (2012)

In this work the estimation of a Global Positioning System satellite orbit is considered. The range and relative velocity of the satellite is computed in the observer's local reference frame (topocentric system of coordinates) by including the Earth gravitational perturbations (up to J3 term) and the solar radiation pressure. Gauss perturbation equations are used to obtain the orbital elements as a function of time, from which the position vector is derived.

Keywords: GPS satellite; Gauss equations; Solar radiation pressure; Range.

Dept. of Botany

3. Combined Effect of Npk Levels and Foliar Nutritional Compounds on Growth and Yield Parameters of Potato Plants (SolanumTuberosum L)

Mona Eleiwa, S. A. Ibrahim and Manal F. Mohamed

African Journal of Microbiology Research, 6 (24): 5100-5109, (2012). IF: 0.539

Field experiment was conducted to study the effect of NPK levels and foliar nutritional compounds on growth yield, chemical constituents and nutrients content of potato plants grown in newly reclaimed soil. The obtained results could be summarized as follows: Increasing the NPK levels significantly increased all the growth, and yield parameters (except for number of aerial stem, plant), photosynthetic pigments, chemical constituents of potato tuber at harvest, and macro and micronutrients in potato shoots and tubers. The highest values of the mentioned parameters were obtained by using the highest NPK (120:80:100) as compared with the other two NPK levels (Medium: 102:68:85 and low: 90: 60: 75). Foliar application with folifertile, Byfolane and fetriloncombi significantly increased growth and yield parameters, photosynthetic pigments, chemical constituents and nutrients content of shoots and tubers as compared with the control treatment. The highest effective treatment in this respect was folifertile followed by Byfolane and fetriloncombi in decreasing order. The interaction between NPK levels and foliar nutritional compounds significantly affected leaves number (LN)/plant, chl. b and chl. a + b, tuber yield, mono sugars, carbohydrate and L-ascorbic acid as well as p, Mn and Cu concentration in shoots, and N and Fe in tubers. The interaction did not significantly affect the other studied parameters.

Keywords: Foliar compounds; Nutrients content; Potato NPK chemical constituents; Interactions.

Dept. of Chemistry

4. DNA-Binding, Spectroscopic and Antimicrobial Studies of Palladium (II) Complexes Containing 2,20-Bipyridine and 1-Phenylpiperazine

Azza A. Shoukry and Mervat S. Mohamed

SpectrochimicaActa Part A: Molecular and Biomolecular Spectroscopy, 96: 586-593, (2012). IF: 2.098

With the purpose of evaluating the ability of Pd(II) complex to interact with DNA molecule as the main biological target, two new complexes [Pd(bpy)(OH2)2] (1) and [Pd(Phenpip)(OH2)2] (2), where (bpy = 2,2′-bipyridine; Phenpip = 1-phenylpiperazine), have been synthesized and the binding properties of these complexes with CT-DNA were investigated. The intrinsic binding constants (Kb) calculated from UV–Vis absorption studies were 3.78 × 103 M−1 and 4.14 × 103 M−1 for complexes 1 and 2 respectively. Thermal denaturation has been systematically studied by spectrophotometric method and the calculated ΔTm was nearly 5 °C for each complex.

All the results suggest an electrostatic and/or groove binding mode for the interaction between the complexes and CT-DNA. The redox behavior of the two complexes in the absence and in the presence of calf thymus DNA has been investigated by cyclic voltammetry.

The cyclic voltammogram exhibits one quasi-reversible redox wave. The change in E1/2, ΔEp and Ipc/Ipa supports that the two complexes exhibit strong binding to calf thymus DNA. Further insight into the binding of complexes with CT-DNA has been made by gel electrophoresis, where the binding of complexes is confirmed through decreasing the intensity of DNA bands. The two complexes have been screened for their antimicrobial activities using the disc diffusion method against some selected Gram-positive and Gram-negative bacteria. The activity data showed that both complexes were more active against Gram-negative than Gram-positive bacteria. It may be concluded that the antimicrobial activity of the compounds is related to cell wall structure of bacteria.

5. Synthesis and Structural Characterization of Ternary Cu (II) Complexes of Glycine with 2,2-Bipyridineand 2,2-Dipyridylaminethe DNA-Binding Studies and Biological Activity

Mervat S. Mohamed, Azza A. Shoukry and Ayat G. Ali

SpectrochimicaActa Part A: Molecular and Biomolecular Spectroscopy, 86: 562-570, (2012). IF: 2.098

In this study two new complexes [Cu(bpy)(Gly)Cl]·2H2O (**1**) and [Cu(dpa)(Gly)Cl]·2H2O (**2**) (bpy = 2,2′-bipyridine; dpa = 2,2′-dipyridylamine, Gly = glycine) have been synthesized and characterized by elemental analysis, IR, TGA, UV–vis and magnetic susceptibility measurements. The binding properties of the complexes with CT-DNA were investigated by electronic absorption spectra. The intrinsic binding constants (*K*b) calculated from UV–vis absorption studies were $1.84 \times 103\ M{-}1$ and $3.1 \times 103\ M{-}1$ for complexes **1** and **2** respectively. Thermal denaturation has been systematically studied by spectrophotometricmethod and the calculated Δ*T*m was nearly 5 °C for each complex. All the results suggest that the interaction modes between the complexes and CT-DNA were electrostatic and/or groove binding. The redox behavior of the two complexes was investigated by cyclic voltammetry. Both complexes, in presence and absence of CT-DNA show a quasi-reversible wave corresponding to CuII/CuI redox couple. The change in *E*1/2, Δ*E* and *I*pc/*I*pa ascertain the interaction of complexes **1** and **2** with CT-DNA. Further insight into the binding of complexes with CT-DNA has been made by gel electrophoresis, where the binding of complexes is confirmed through decreasing the mobility and intensity of DNA bands. In addition, the antitumor activity of the complexes was tested on two cancer cell lines; the breast cancer (MCF7) and the human hepatocellular carcinoma (HEPG2), as well as one normal cell line; the human normal melanocytes (HFB4). The results showed that complex **1** was more potent antitumor agent than complex **2**. The in-vitro antimicrobial activity of the two complexes was carried out using the disc diffusion method against different species of pathogenic bacteria and fungi. The activity data showed that complex **2** was more active in inhibiting the growth of the tested organisms.

6. Synthesis, Characterization, Equilibrium Study and Biological Activity of Cu (Ii),Ni(Ii) and Co(Ii) Complexes of Polydentate Schiff Base Ligand

Ahmed A. El-Sherif, Mohamed R. Shehata, Mohamed M. Shoukry and Mohammad H. Barakat

SpectrochimicaActa Molecular and BiomolecularSpectroscopy, 96: 889-897, (2012). IF: 2.098

Chiff base ligand, 1,4-bis[(2-hydroxybenzaldehyde) propyl] piperazine (BHPP), and its Cu(II), Ni(II) and Co(II) metal complexes were synthesized and characterized by elemental analysis, magnetic susceptibility, molar conductance and spectral (IR and UV–vis) studies. The ground state of BHPP ligand was investigated using the BUILDER module of MOE. Metal complexes are formed in the 1:1 (M:L) ratio as found from the elemental analysis and found to have the general formula [ML]·*n*H2O, where M = Co(II), Ni(II) and Cu(II), L = BHPP. In all the studied complexes, the (BHPP) ligand behaves as a hexadentate divalent anion with coordination involving the two azomethine nitrogen's, the two nitrogen atoms of piperazine ring and the two deprotonated phenolic OH-groups. The magnetic and spectral data indicates octahedral geometry of metal(II) complexes. The ligand and their metal chelates have been screened for their antimicrobial activities using the disc diffusion method against the selected bacteria and fungi. They were found to be more active against Gram-positive than Gram-negative bacteria. Protonation constants of (BHPP) ligand and stability constants of its Cu^{2+}, Co^{2+} and Ni^{2+} complexes were determined by potentiometric titration method in 50% DMSO–water solution at ionic strength of 0.1 M sodium nitrate. It has beenobserved that the protonated Schiff base ligand (BHPP) have four protonation constants. The divalent metal ionsCu^{2+}, Ni^{2+} and Co^{2+} form 1:1 complexes.

Keywords: Copper (II); Electronic spectra; Stability constants; Potentiometric studies; Biological activity.

7. Coordination Properties of N,O-Carboxymethyl Chitosane (NOCC). Synthesis and Equilibrium Studies of Some Metal Ion Complexes. Ternary Complexes Involving Cu (II) with (NOCC) and Some Biorelevant Ligand

Azza A. Shoukry and Wafaa M. Hosny

Central European Journal of Chemistry 10 (1): 59-70, (2012). IF: 1.073

In the present study, the acid-baseequilibria of N,O-carboxymethy chitosan abbreviated as (NOCC), is investigated. The complex formation equilibria with the metal ions $Cu^{(II)}$, $Ni^{(II)}$, $Co^{(II)}$, $Mn^{(II)}$, and $Zn^{(II)}$ are investigated potentiometrically. The stability constant values of the binary and ternary complexes formed in solution were determined and the binding centers of the ligands were assigned. The relationships between the properties of the studied central metal ions as ionic radius, electronegativity, atomic number, and ionization potential, and the stability constants of the formed complexes were investigated in an effort to give information about the nature of chemical bonding in complexes and make possible the calculation of unknown stability constants. $Cu^{(II)}$, $Ni^{(II)}$, and $U^{(VI)}$ complexes with NOCC are isolated as solid complexes and characterized by conventional chemical and physical methods. The structures of the isolated solid complexes are proposed on the basis of the spectral and magnetic studies. The ternary copper(II) complexes involving NOCC and various biologically relevant ligands containing different functional groups, as amino acids and DNA constituents are investigated. The stability constants of the complexes are determined and the concentration distribution diagrams of the complexes are evaluated.

Keywords: N,O-Carboxymethyl chitosan (NOCC); Metal complexes; Potentiometry; IR spectroscopy.

8. Gazar Virus Y, A New Member of the Celery Mosaic Virus Group of Potyviruses, Isolated From Carrots in Egypt

A. M. Soliman, Amal A. Ahmed, Mervat S. Mohamed, Demiana H. Hanna and B. N. Barsoum

Australasian Plant Pathology, 41: 529-534, (2012). IF: 0.837

A novel potyvirus we call Gazar virus Y (GVY) A novel potyvirus we call Gazar virus Y (GVY) was isolated from diseased carrot plants in Egypt. It produced symptoms similar to

those caused by carrot virus Y. Its particles were visualized in leaf extracts using negative stain, and leaf tissues from carrot plants infected with GVY had many ultra-structural differences from healthy ones. Chemical analyses of healthy and infected carrot roots showed that carrot roots infected with GVY had increased dry weight and decreased moisture, total ash, total carbohydrates, total fibres, vitamin C, β-carotene, vitamin A and the minerals of K, Mg, Na, P and Ca compared to the healthy carrot roots. Molecular methods, including reverse transcription-polymerase chain reaction (RT-PCR), were used to amplify a 335 bpcDNA fragment transcribed from infected plant extracts using degenerate oligonucleotide primers specific for potyviruses. The amplified cDNA was cloned into pGEM®-T Easy vector, and transformed into Escherichia coli (E. coli) strain DH5α . The recombinant inserts were sequenced. The nucleotide sequence (GenBank Accession Code GQ148776) was matched against viral nucleotide sequences in the GenBank database. It is most closely related to viruses of the celery mosaic virus group of potyviruses, but is distinct from all and represents a sister lineage to all others described so far.

Keywords: Gazar virus Y; Celery mosaic virus group; Ultra-structural; Chemical analyses; RT-PCR.

9. Facile Synthesis of New (Z)-6-Arylmethylidene- 1,3,4-Thiadiazin-5(6H)-One Derivatives

N. H. Metwally, F. M. Abdelrazek and A. Jaeger

*Chemistry Heterocyclic Compounds*11: 1813-1816, (2012). IF: 0.725

3-Aryl-2-sulfanylpropenoic acids reacted with acetohydrazonyl chlorides in refluxing absolute ethanol in the presence of equimolar amount of triethylamine forming (Z)-6-arylmethylidene- 1,3,4-thiadiazin-5-one derivatives. X-Ray study on the crystal of one of the obtained products was carried out.

Keywords: (Z)-6-arylmethylidene-1,3,4-thiadiazin-5(6H)-one derivatives; 3-aryl-2-sulfanylpropenoic acids; N'-arylacetonitrilimines.

10. Thermodynamic Investigation and Mixed Ligand Complex Formation of 1,4-Bis-(3-Aminopropyl)-PiperazineandBiorelevant Ligands

Ahmed A. El-Sherif, Mohamed R. Shehata, Mohamed M. Shoukry and Mohammad H. Barakat

*Bioinorganic Chemistry and Applications,*1-10, (2012).IF: 0.716

Thermodynamic parameters for protonation of 1,4-bis(3-aminopropyl)-piperazine (BAPP) and its metal complexation with some divalent metal ions were determined in aqueous solution at constant ionic strength (0.1 M NaNO3) using a potentiometric technique. The order of $-\Delta G0$ and $-\Delta H0$ was found to obey $Co^{2+}<Ni^{2+}<Cu^{2+}>Zn^{2+}$, in accordance with the Irving-Williams order. The formation equilibria of zinc (II) complexes and the ternary complexes Zn(BAPP)L, where L = amino acid, amides, or DNA constituents), have been investigated. Ternary complexes are formed by a simultaneous mechanism. The concentration distribution of the complexes in solution was evaluated as a function of pH. Stoichiometry and stability constants for the complexes formed are reported and discussed. The stability of ternary complexes was quantitatively compared with their corresponding binary complexes in terms of the parameter $\Delta\log K$.

11. Transition Metal Complexes Derived from Natural Schiff Bases for Determination of Fe (III) Spectrophotometricallyin Natural Water

Khalil, M. M. H., Mohamed, G. G., Ismail, E. H., Zayed, M. E., and Kamel, B. A

Chinese Journal of Inorganic Chemistry 28 (7): 1495-1505, (2012). IF: 0.628

A novel, simple approach to the synthesis of macrocyclic Schiff base ligand bearing pendent coordinating groups is described and its 1:1 inclusion complexes are prepared and characterized. The composition of the title material was determined by the chemical and spectroscopic methods and the surrounding of metal with the octahedral structure for the all complexes was suggested. The data reveal that the ligand acts as O2N4 hexadentate structure with each metal atom in an octahedral environment.

Infrared and 1HNMR spectra of the complexes agree with the coordination to the central metal atom. The stability constants of the complexes are calculated spectrophotometrically. The activation kinetic and thermodynamic parameters are calculated in different stages of thermal decomposition using the conjugate residual method (CR method). Moreover, the ligand and its metal complexes are screened against bacteria and fungi using the inhibitory zone diameter. The effect of a neutral chelating ligand on the complexation with iron in different types of natural water was studied by using recovery test.

Dept. of Geophysics

12. Reconnaissance of Freshwater Conditions in a Coastal Aquifer: Synthesis of 1D Geoelectric Resistivity Inversion and Geohydrological Analysis

Mohamed H. Khalil

Near Surface Geophysics, 10: 427-441, (2012). IF: 0.945

Despite the saltwater intrusion of the Gulf of Suez, a Quaternary alluvial aquifer constitutes the main source of freshwater in the coastal city of El-Tor, the administrative capital of South Sinai, Egypt.

A conceptual technique synthesizing one-dimension (1D) Schlumberger geoelectric resistivity inversion, geohydrological analysis, borehole data, pumping tests and hydrochemical analysis is conducted to reconnaissance the freshwater aquifer condition in the study area. Aquifer qualitative and quantitative properties in terms of electric and hydraulic conditions were investigated. Furthermore, aquifer loss in relation to a pumping regime was analysed as well. The freshwater aquifer is effectively demarcated with true resistivity and thickness ranges of 71~110 ohm-m and 22~83 m, respectively.

The eastern part of the freshwater aquifer reveals better conditions characterized by increased values of thickness (83 m), tortuosity (1.306), hydraulic conductivity (53 m/day), transmissivity (4399 m2/day), formation resistivity factor (4.4), storativity (0.267) and grain size. Whereas, it characterizes by decreased values of electrical conductivity (1.2 ~ 7.5 mS/m), electric anisotropy (1.08), mean resistivity (285.5 ohm-m), porosity (38.7%) and total dissolved solid (TDS) (530 ppm).

Dept. of Mathematics

13. Generalized Beta-Conformal Change and Special Finsler Spaces

Nabil L. Youssef, S. H. Abed and S. G. Elgendi

International Journal of Geometric Methods in Modern Physics 9: 1250016-1250016, (2012). IF: 0.856

This work is a continuation of the paper [Generalized beta-conformal change of Finsler metrics, Int. J. Geom. Meth. Mod. Phys. 7(4) (2010) 565–582]. In the present paper, we investigate the change of Finsler metrics $L(x,y) \rightarrow L(x,y) = f(e\sigma(x)L(x,y), \beta(x,y))$, which we refer to as a generalized β-conformal change. Under this change, we study some special Finsler spaces, namely, quasi-C-reducible, semi-C-reducible, C-reducible, C2-like, S3-like and S4-like Finsler spaces. We obtain some characterizations of the energy β-change, the Randers change and the Kropina change. We also obtain the transformation of the T-tensor under this change and study some interesting special cases. We then impose a certain condition on the generalized β-conformal change, which we call the b-condition, and investigate the geometric consequences of such a condition. Finally, we give the conditions under which a generalized β-conformal change is projective and generalize some known results in the literature.
Keywords: Generalized β-conformal change; β-conformal change; Randers change; Kropina change; Projective change; Special Finsler spaces; B-condition; T-tensor.

14. The Coefficients of Differentiated Expansions of Double and Triple Jacobi Polynomials

Eid H. Doha

Bulletin of the Iranian Mathematical Society, 38 (3): 739-766, (2012). IF: 0.316

Formulae expressing explicitly the coefficients of an expansion of double Jacobi polynomialswhich has been partially differentiated an arbitrary number of times with respectto its variables in terms of the coefficients of the original expansion are stated and proved. Extension to expansion of triple Jacobi polynomials is given. The results for the specialcases of double and triple ultrasphericalpolynomials are considered. Also the resultsforChebyshev polynomials of the first, second, third and fourth kinds and of Legendrepolynomials are noted. An application of how to use double Jacobi polynomials forsolving Poisson's equation in two variables subject to nonhomogeneous mixed boundaryconditions is described.
Keywords: Jacobi polynomials; Spectral methods; Hypergeometric series, Poisson's equation.

15. Generalized Beta-Conformal Changes: General Theory of (Alpha,Beta)- Metric With Applications to Special Finsler Spaces

Nabil Youssef, Sayed Abed and Salah Elgendi

Book Published by Lambert Academicpublishing (Lap), (2012)

Transformations or changes of Finsler metrics have many applications not only in differential geometry but also in various branches of science, especially in physics. These changes have been studied by many authors, from both the mathematical and physical aspects. G. Randers, in 1941, introduced the Randers change. M. Masumoto, in 1974, studied the Randers change and generalized Randers change. V. Kropina, in 1961, introduced the Kropina change. On the other hand, in 1976, M. Hashiguchi studied the conformal change of Finsler metrics. In 2008, S. Abed introduced the β-conformal change, thus generalizing the conformal, Randers and generalized Randers changes. In this work, we introduce a more general change of Finsler metrics, which is referred to as a generalized β-conformal change. This change combines both β-change and conformal change, in a general setting, generalizing the most important changes existing in the literature. The geometric consequences of such change are investigated. Various special Finsler spaces are studied under this change. This book is highly recommended to both postgraduate students and researchers in geometry and its applications, especially in physics.

Dept. of Physics

16. Azimuthal Anisotropy of Charged Particles at High Transverse Momenta in Pb-Pb Collisions at $\sqrt{S_{NN}}$=2.76Tev

S. Chatrchyan, V. Khachatryan, A. Ellithi Kamel et al. (CMS Collaboration)

*Physical Review Letters*109: 1-15, (2012). IF: 7.37

The azimuthal anisotropy of charged particles in Pb-Pb collisions at$\sqrt{S_{NN}}$=2.76TeV is measured with the CMS detector at the LHC over an extended transverse momentum (p_T) range up to approximately 60GeV/c. The data cover both the low-p_T region associated with hydrodynamic flow phenomena and the high-p_T region where the anisotropies may reflect the path-length dependence of parton energy loss in the created medium. The anisotropy parameter ($\upsilon 2$) of the particles is extracted by correlating charged tracks with respect to the event-plane reconstructed by using the energy deposited in forward-angle calorimeters. For the six bins of collision centrality studied, spanning the range of 0–60% most-central events, the observed $\upsilon 2$ values are found to first increase with p_T, reaching a maximum aroundp_T=3GeV/c, and then to gradually decrease to almost zero, with the decline persisting up to at least p_T=40GeV/c over the full centrality range measured.
Keywords: Supersymmetric; Partners of known particles; Supersymmetric models.

17. Beam-Target Double-Spin Asymmetry A_{LT} in Charged Pion Production from Deep Inelastic Scattering on a Transversely Polarized ^{3}He Target At 1.4 Lt Q^2 Lt 2.7 GeV^2

H. F. Ibrahim,..et. al

Physical Review Letters, 108: 52001-52001, (2012). IF: 7.37

We report the first measurement of the double-spin asymmetry A_{LT} for charged pion electroproduction in semi-inclusive deep-inelastic electron scattering on a transversely polarized ^{3}He target. The kinematics focused on the valence quark region, 0.16 LT x LT 0.35 with 1.4 LT Q^2 LT 2.7 GeV^2. The corresponding neutron A_{LT} asymmetries were extracted from the measured 3He asymmetries and proton over ^{3}He cross section ratios using the effective polarization approximation. These new data probe the

transverse momentum dependent parton distribution function g1Tq and therefore provide access to quark spinorbit correlations. Our results indicate a positive azimuthal asymmetry forproduction on ^{3}He and the neutron, while our asymmetries are consistent with zero.

Keywords: Double-spin; Asymmetry; Electroproduction; Semi-inclusive; Deep-inelastic; Electron scattering; Transversely polarized target.

18. Measurement of the Electron Charge Asymmetry in Inclusive W Production in *PP* Collisions at$\sqrt{}$ S=7TeV

S. Chatrchyan, V. Khachatryan, A. Ellithi Kamel et al. (CMS Collaboration)

Physical Review Letters, 109: 111803-15, (2012). IF: 7.37

A measurement of the electron charge asymmetry in inclusive pp→W þ X → eυ + X production at $\sqrt{}$S=7TeV is presented based on data recorded by the CMS detector at the LHC and corresponding to an integrated luminosity of 840 pb^{-1}. The electron charge asymmetry reflects the unequal production of W$^+$ and W$^-$bosons in pp collisions. The electron charge asymmetry is measured in bins of the absolute value of electron pseudorapidity in the range of |η|< 2.4. The asymmetry rises from about 0.1 to 0.2 as a function of the pseudorapidity and is measured with a relative precision better than 7%. This measurement provides new stringent constraints for parton distribution functions.

19. Measurement of the Pseudorapidityand Centrality Dependence of the Transverse Energy Density in Pb-Pb Collisions at Snn=2.76Tev

S. Chatrchyan, V. Khachatryan, A. Ellithi Kamel et al. (CMS Collaboration)

Physical Review Letters, 109: 152303-15, (2012). *IF*: 7.37

The transverse energy (ET) in Pb-Pb collisions at 2.76 TeV nucleon -nucleon center- of-mass energy (sNN) has been measured over a broad range of pseudorapidity ( ) and collision centrality by using the CMS detector at the LHC. The transverse energy density per unit pseudorapidity (dET/d) increases faster with collision energy than the charged particle multiplicity. This implies that the mean energy per particle is increasing with collision energy. At all pseudorapidities, the transverse energy per participating nucleon increases with the centrality of the collision. The ratio of transverse energy per unit pseudorapidity in peripheral to central collisions varies significantly as the pseudorapidity increases from =0 to | |=5.0. For the 5% most central collisions, the energy density per unit volume is estimated to be about 14GeV/fm3 at a time of 1fm/c after the collision. This is about 100 times larger than normal nuclear matter density and a factor of 2.6 times higher than the energy density reported at sNN=200GeV at the Relativistic Heavy Ion Collider.

Keywords: Particle correlations; Relativistic collisions.

20. New Measurements of the Transverse Beam Asymmetry for Elastic Electron Scattering from Selected Nuclei

H. F. Ibrahim, …et al

Physical Review Letters, 109: 192501-192501, (2012). IF: 7.37

We have measured the beam-normal single-spin asymmetry An in the elastic scattering of 1–3 GeV transversely polarized electrons from 1H and for the first time from 4He, 12C, and 208Pb. For 1H, 4He, and 12C, the measurements are in agreement with calculations that relate.

An to the imaginary part of the two-photon exchange amplitude including inelastic intermediate states. Surprisingly, the 208Pb result is significantly smaller than the corresponding prediction using the same formalism. These results suggest that a systematic set of new An measurements might emerge as a new and sensitive probe of the structure of heavy nuclei.

21. Observation of a New Ξ*b* Baryon

S. Chatrchyan, V. Khachatryan, A. Ellithi Kamel et al. (CMS Collaboration)

Physical Review Letters, 108: 252002-252002, (2012). IF: 7.37

The observation of a new b baryon via its strong decay into Ξb-π+ (plus charge conjugates) is reported. The measurement uses a data sample of pp collisions at $\sqrt{}$S=7 TeV collected by the CMS experiment at the LHC, corresponding to an integrated luminosity of 5.3 fb-1. The known Ξb- baryon is reconstructed via the decay chain Ξb-→J/ψΞ-→μ+μ-Λ0π-, with Λ0→pπ-. A peak is observed in the distribution of the difference between the mass of the Ξb-π+ system and the sum of the masses of the Ξb- and π+, with a significance exceeding 5 standard deviations. The mass difference of the peak is 14.84±0.74 (stat)±0.28(syst) MeV. The new state most likely corresponds to the JP=3/2+ companion of the Ξb.

Keywords: KW1, KW2

22. Observation of Sequential Y Suppression in Pbpb Collisions

S. Chatrchyan, V. Khachatryan, A. Ellithi Kamel et al. (CMS Collaboration)

Physical Review Letters, 109: 22301-15, (2012). IF: 7.37

The suppression of the individual Υ(nS) states in PbPb collisions with respect to their yields in pp data has been measured. The PbPb and pp data sets used in the analysis correspond to integrated luminosities of 150 μb-1 and 230 nb-1, respectively, collected in 2011 by the CMS experiment at the LHC, at a center-of-mass energy per nucleon pair of 2.76 TeV. The Υ(nS) yields are measured from the dimuon invariant mass spectra. The suppression of the Υ(nS) yields in PbPb relative to the yields in pp, scaled by the number of nucleon-nucleon collisions, RAA, is measured as a function of the collision centrality. Integrated over centrality, the RAA values are 0.56±0.08(stat)±0.07(syst), 0.12±0.04(stat)±0.02(syst), and lower than 0.10 (at 95% confidence level), for the Υ(1S), Υ(2S), and Υ(3S) states, respectively. The results demonstrate the sequential suppression of the Υ(nS) states in PbPb collisions at LHC energies.

Keywords: Quark deconfinement; Heavy quarkonia.

23. Search for a Light Pseudoscalar Higgs Boson in the Dimuon Decay Channel in pp Collisions at √s=7 TeV

S. Chatrchyan, V. Khachatryan, A. Ellithi Kamel et al. (CMS Collaboration)

Physical Review Letters, (2012). IF: 7.37

he dimuon invariant mass spectrum is searched in the range between 5.5 and 14 GeV for a light pseudoscalar Higgs boson a, predicted in a number of new physics models, including the next-to-minimal supersymmetric standard model.
The data sample used in the search corresponds to an integrated luminosity of 1.3 fb-1 collected in pp collisions at √s=7 TeV with the CMS detector at the LHC. No excess is observed above the background predictions and upper limits are set on the cross section times branching fraction σ×B(pp→a→μ+μ-) in the range of 1.5–7.5 pb. These results improve on existing bounds on the $ab\bar{b}$ coupling for ma <mY(1S) and are the first significant limits for ma>mY(3S). Constraints on the supersymmetric parameter space are presented in the context of the next-to-minimal model.

24. Search for A W0 or Techni- Decaying Into Wzin *PP* Collisions at Ffisffiffi P ¼7 Tev

S. Chatrchyan, V. Khachatryan, A. Ellithi Kamel et al. (CMS Collaboration)

Physical Review Letters, 109: 121801-15, (2012). IF: 7.37

A search is performed in pp collisions at s=7TeV for Exotic particles decaying via WZ to final states with electrons and muons. The data sample corresponds to an integrated luminosity of approximately 5fb-1. No significant excess is observed in the data above the expected standard model background.
Upper bounds at 95% confidence level are set on the production cross section of the W boson described by the sequential standard model and on the W WZ coupling. W bosons with masses below 1143 GeV are excluded. Limits are also set in the context of low-scale Technicolor models, under a range of assumptions concerning the model parameters.
Keywords: Isotretinoin; Surfactant enriched tablets; HP-β-CD; Co-evaporation; Freeze drying.

25. Searchfor Dark Matter and Large Extra Dimensions in *pp* Collisions Yielding a Photon and Missing Transverse Energy

S. Chatrchyan, V. Khachatryan, A. Ellithi Kamel et al. (CMS Collaboration)

Physical Review Letters, 108: 261803-16, (2012). IF: 7.37

To Results are presented from a search for new physics in the final state containing a photon (γ) and missing transverse energy ($\not{E}_T$). The data correspond to an integrated luminosity of 5.0fb^{-1} collected in *pp* collisions at$\sqrt{\ }$S=7TeV by the CMS experiment. The observed event yield agrees with standard-model expectations for the $\gamma+\not{E}_T$ events.
Using models for the production of dark-matter particles (*x*).we set 90% confidence level (C.L.) upper limits of 13.6–15.4 fb on *x*production in the $\gamma+\not{E}_T$state.
These provide the most sensitive upper limits for spin-dependent*x*_nucleon scattering for masses (M_x) between 1 and 100 GeV. For spin-independent contributions, the present limits are extended to M_x<3.5 GeV. For models with 3–6 large extra dimensions, our data exclude extra-dimensional Planck scales between 1.64 and 1.73 TeV at 95% C.L.
Keywords: Gravitons; Neutralinos.

26. Search for Heavy Neutrinos and Wr Bosons with Right-Handed Couplings in A Left-Right Symmetric Model in Pp Collisions at Vs=7Tev

S. Chatrchyan, V. Khachatryan, A. Ellithi Kamel et al. (CMS Collaboration)

Physical Review Letters,109: 261802-15, (2012). IF: 7.37

Results are presented from a search for heavy, right-handed muon neutrinos, N, and right-handed WR bosons, which arise in the left-right symmetric extensions of the standard model. The analysis is based on a 5.0fb^{-1} sample of proton-proton collisions at a center-of-mass energy of 7 TeV, collected by the CMS detector at the Large Hadron Collider.
No evidence is observed for an excess of events over the standard model expectation. For models with exact left-right symmetry, heavy right-handed neutrinos are excluded at 95% confidence level for a range of neutrino masses below the WR mass, dependent on the value of MWR.
The excluded region in the two-dimensional (MWR, MN) mass plane extends to MWR=2.5TeV
Keywords: Muon neutrino; W boson.

27. Search for New Physics in the Multijetand Missing Transverse Momentum Final State in Proton-Proton Collisions at S=7Tev

S. Chatrchyan, V. Khachatryan, A. Ellithi Kamel et al. (CMS Collaboration)

Physical Review Letters, 109: 171803-15, (2012). IF: 7.37

A search for physics beyond the standard model is performed in events with at least three jets and large missing transverse momentum produced in proton-proton collisions at a center-of-mass energy of √S=7 TeV.
No significant excess of events above the expected backgrounds is observed in 4.98 fb-1 of data collected with the CMS detector at the Large Hadron Collider.
The results are presented in the context of the constrained minimal supersymmetric extension of the standard model and more generically for simplified models.
For the simplified models of gluino-gluino and squark-squark production, gluino masses below 1.0 TeV and squark masses below 0.76 TeV are excluded in case the lightest supersymmetric particle mass is below 200 GeV. These results significantly extend previous searches.
Keywords: Supersymmetric; Partners of known particles; Supersymmetric models.

28. Search for New Physics with Same-Sign Isolated Dilepton Events with Jets and Missing Transverse Energy

S. Chatrchyan, V. Khachatryan, A. Ellithi Kamel et al. (CMS Collaboration)

Physical Review Letters, 109: 71803-15, (2012). IF: 7.37

Search for new physics is performed in events with two same-sign isolated leptons, hadronic jets, and missing transverse energy in the final state. The analysis is based on a data sample corresponding to an integrated luminosity of 4:98 fb1 produced in pp collisions at a center-of-mass energy of 7 TeV collected by the CMS experiment at the LHC.
This constitutes a factor of 140 increase in integrated luminosity over previously published results. The observed yields agree with the standard model predictions and thus no evidence for new physics is found. The observations are used to set upper limitson possible new physics contributions and to constrain supersymmetricodels. To facilitate the interpretation of the data in a broader range of new physics scenarios, information on the event selection.

29. Study of the Dijet Mass Spectrum in PpW+Jets Events at S=7Tev

S. Chatrchyan, V. Khachatryan, A. Ellithi Kamel et al. (CMS Collaboration)

*Physical Review Letters,*109: 251801-15, (2012).IF: 7.37

We report an investigation of the invariant mass spectrum of the two jets with highest transverse momentum in pp→W+2-jet and W+3-jet events to look for resonant enhancement. The data sample corresponds to an integrated luminosity of 5.0 fb-1 collected with the CMS detector at √s=7 TeV.
We find no evidence for the anomalous structure reported by the CDF Collaboration, and establish an upper limit of 5.0 pb at 95% confidence level on the production cross section for a generic Gaussian signal with mass near 150 GeV. Additionally, we exclude two theoretical models that predict a CDF-like dijet resonance near 150 GeV.
Keywords: Jets; W boson.

30. Effect of Filler Concentration on the Physico-Mechanical Properties of Super Abrasion Furnace Black and Silica Loaded Styrene Butadiene Rubber

H.H. Hassan, E. Ateia, N.A. Darwish, S.F. Halim, and A.K. Abd El-Aziz

Materials and Design, 34: 533-540, (2012). IF: 2.913

Different concentrations of super abrasion furnace black filler [SAF (N 115)] and white filler [Silica (Hi-Sil 233D)] were mixed with styrene-butadiene rubber [SBR-1502] cured by conventional sulfur system. Rhe- ometer characteristics, the physico-mechanical behavior, abrasion resistance, hardness and swelling measurements were performed and studied.
Comparison between black and white fillers was established and it was found that, filler incorporation into the rubber matrix is one of the major factors that improve the tensile strength, abrasion resistances, hardness and swelling resistance.
The increase in tensile strength as well as Young's modulus was attributed to improve interfacial bonding between filler and SBR matrix. The results reveal that vulcanizates containing 30 phr of carbon black and 50 phr of silica respectively exhibit the better overall physico-mechanical properties.
Keywords: Elastomers and rubber; Physical properties; Mechanical properties.

31. Dynamical Localization in Disordered Quantum Spin Systems

Eman Hamza, Robert Sims and Günter Stolz

Communications in Mathematical Physics, 315: 215-239, (2012).IF: 1.941

We say that a quantum spin system is dynamically localized if the time-evolution of local observables satisfies a zero-velocity Lieb-Robinson bound. In terms of this definition we have the following main results: First, for general systems with short range interactions, dynamical localization implies exponential decay of ground state correlations, up to an explicit correction. Second, the dynamical localization of random xy spin chains can be reduced to dynamical localization of an effective one-particle Hamiltonian. In particular, the isotropic xy chain in random exterior magnetic field is dynamically localized.

32. Correlated Markov Quantum Walks

Eman Hamza and Alain Joye

Annales Henri Poincaré, 13: 1767-1805, (2012). IF: 1.211

We consider the discrete time unitary dynamics given by a quantum walk on Zd performed by a particle with internal degree of freedom, called coin state, according to the following iterated rule: a unitary update of the coin state takesplace, followedby a shift on the lattice, conditioned on the coin state of the particle. We study the large timebehavior of the quantum mechanical probability distribution of the position observable in Zd for random updates of the coin states of the following form.
The random sequences of unitary updates are given by a site-dependent function of a Markov chain in time, with the following properties: on each site, they share the same stationary Markovian distribution and, for each fixed time, they form a deterministic periodic pattern on the lattice. We prove a Feynman–Kac formula to express the characteristic function of the averaged distribution over the randomness at time n in terms of the nth power of an operator M.
By analyzing the spectrum of M, we show that this distribution possesses a drift proportional to the time and its centered counterpart displays a diffusive behavior with a diffusion matrix we compute. Moderate and large deviation principles are also proven to hold for the averaged distribution and the limit of the suitably rescaled corresponding characteristic function is shown to satisfy a diffusion equation.
An example of random updates for which the analysis of the distribution can be performed without averaging is worked out. The random distribution displays a deterministic drift proportional to time and its centered counterpart gives rise to a random diffusion matrix, the law of which we compute. We complete the picture by presenting an uncorrelated example.
Keywords: Quantum; Walks.

Faculty of Agriculture

Dept. of Agricultural Biochemistry Section

33. Phorate-Induced Oxidative Stress, DNA Damage and Transcriptional Activation of P53 and Caspase Genes in Male Wistar Rats

Quaiser Saquib, Sabry M. Attia, Maqsood A. Siddiqui, Mourad A.M. Aboul-Soud, Abdulaziz A. Al-Khedhairy, John P. Giesy, and Javed Musarrat

Toxicology and Applied Pharmacology, 259: 54-65, (2012). IF: 4.447

Male Wistar rats exposed to a systemic organophosphorus insecticide, phorate [O,O-diethyl S-[(ethylthio) methyl] phosphorothioate] at varying oral doses of 0.046, 0.092 or 0.184 mg phorate/kg bw for 14 days, exhibited substantial oxidative stress, cellular DNA damage and activation of apoptosis-related p53, caspase 3 and 9 genes. The histopathological changes including the pyknotic nuclei, inflammatory leukocyte infiltrations, renal necrosis, and cardiac myofiber degeneration were observed in the liver, kidney and heart tissues. Biochemical analysis of catalase and glutathione revealed significantly lesser activities of antioxidative enzymes and lipid peroxidation in tissues of phorate exposed rats. Furthermore, generation of intracellular reactive oxygen species and reduced mitochondrial membrane potential in bone marrow cells confirmed phorate-induced oxidative stress. Significant DNA damage was measured through comet assay in terms of the Olive tail moment in bone marrow cells of treated animals as compared to control. Cell cycle analysis also demonstrated the G2/M arrest and appearance of a distinctive SubG1 peak, which signified induction of apoptosis. Up-regulation of tumor suppressor p53 and caspase 3 and 9 genes, determined by quantitative real-time PCR and enzyme-linked immunosorbent assay, elucidated the activation of intrinsic apoptotic pathways in response to cellular stress. Overall, the results suggest that phorate induces genetic alterations and cellular toxicity, which can adversely affect the normal cellular functioning in rats.

Keywords: Organophosphates; Phorate; Toxicity; Histopatholog; Apoptosis; Pesticides.

34. HCV Infection Among Saudi Population: High Prevalence of Genotype 4 and Increased Viral Clearance Rate

Ahmed S. Abdel-Moneim, Mohammad S. Bamaga, Gaber M. G. Shehab, Abdel-Aziz S. A. Abu-Elsaad and Fayssal M. Farahat

Plos One, 7, (2012). IF: 4.092

HCV is a major etiological agent of liver disease with a high rate of chronic evolution. The virus possesses 6 genotypes with many subtypes. The rate of spontaneous clearance among HCV infected individuals denotes a genetic determinant factor. The current study wasdesigned in order to estimate the rate of HCV infection and ratio of virus clearance among a group of infected patients in SaudiArabia from 2008 to 2011. It was additionally designed to determine the genotypes of the HCV in persistently infected patients. HCV seroprevalence was conducted on a total of 15,323 individuals. Seropositive individuals were tested by CobasAmpliPrep/CobasTaqMan HCV assay to determine the ratio of persistently infected patients to those who showed spontaneous viral clearance. HCV genotyping on random samples from persistently infected patients were conducted based on the differences in the 59untranslated region (59UTR). Anti-HCV antibodies were detected in 7.3% of the totally examined sera. A high percentage of the HCV infected individuals experienced virus clearance (48.4%). HCV genotyping revealed the presence of genotypes 1 and 4, the latter represented 97.6% of the tested strains. Evidences of the widespread of the HCV genotype 4 and a high rate of HCV virus clearance were found in SaudiArabia.

Keywords: HCV; Genotyping; Virus clearance; Saudi Arabia

35. Regulation of the Fruit-Specific PEP Carboxylase SlPPC2 Promoter at Early Stages of Tomato Fruit Development

Carine Guillet, Mourad A. M. Aboul-Soud, Aline Le Menn, Nicolas Viron, Anne Pribat, Véronique Germain, Daniel Just, Pierre Baldet, Patrick Rousselle, Martine Lemaire- Chamley and Christophe Rothan

Plos One, 7: 1-11, (2012). IF: 4.092

The SlPPC2 phosphoenolpyruvate carboxylase (PEPC; EC 4.1.1.31) gene from tomato (Solanumlycopersicum) is differentially and specifically expressed in expanding tissues of developing tomato fruit. We recently showed that a 1966 bp DNA fragment located upstream of the ATG codon of the SlPPC2 gene (GenBank AJ313434) confers appropriate fruit-specificity in transgenic tomato. In this study, we further investigated the regulation of the SlPPC2 promoter gene by analysing the SlPPC2 cis-regulating region fused to either the firefly luciferase (LUC) or the b-glucuronidase (GUS) reporter gene, using stable genetic transformation and biolistic transient expression assays in the fruit. Biolistic analyses of 59 SlPPC2 promoter deletions fused to LUC in fruits at the 8th day after anthesis revealed that positive regulatory regions are mostly located in the distal region of the promoter. In addition, a 59 UTR leader intron present in the 1966 bp fragment contributes to the proper temporal regulation of LUC activity during fruit development. Interestingly, the SlPPC2 promoter responds to hormones (ethylene) and metabolites (sugars) regulating fruit growth and metabolism. When tested by transient expression assays, the chimeric promoter:LUC fusion constructs allowed gene expression in both fruit and leaf, suggesting that integration into the chromatin is required for fruit-specificity. These results clearly demonstrate that SlPPC2 gene is under tight transcriptional regulation in the developing fruit and that its promoter can be employed to drive transgene expression specifically during the cell expansion stage of tomato fruit. Taken together, the SlPPC2 promoter offers great potential as a candidate for driving transgene expression specifically in developing tomato fruit from various tomato cultivars.

36. Daily Intake of Selenium and Concentrations in Blood of Residents of Riyadh City, Saudi Arabia

Abdulaziz M. Al-Othman, Zeid A. Al-Othman, Gaber E. El-Desoky, Mourad A. M. Aboul-Soud, Mohamed A. Habil and John P. Giesy

Environmental Geochemistry and Health 34: 417-431, (2012). IF: 1.62

Concentrations of selenium (Se) in food from local markets of Riyadh, Kingdom of Saudi Arabia (KSA) were measured and

daily intake calculated based on information from a questionnaire of foods eaten by healthy Saudis.
The daily intake of Se was then compared to concentrations of Se in blood serum. Primary sources of Se in the diet of Saudis were as follows: meat and meat products (31%), egg (20.4%), cereals and cereal products (16%), legumes (8.7%), fruits (6.8%), milk and dairy products (2.0%), beverages (2%), sweets (1.8%), pickles (0.2%), and oil (0.02%).
Daily intake of Se, estimated to be 93 µg Se/person/day, was slightly greater than that calculated from the Food and Agriculture Organization (FAO) food balance sheet for KSA, which was approximately 90 µg Se/person/day. The daily intake of Se by Saudis in Riyadh was greater than that of Australians or Dutch but less that of Canadians and Americans.
There was a statistically significant correlation ($R = +0.38$, $P < 0.05$) between daily intake of Se and concentrations of Se in blood serum of Saudis in Riyadh. The mean concentration of Se in serum was $1.0 \times 102 \pm 30.5$ µg Se/l. Taken together, the results suggest that the average Se intake and Se serum concentrations are within the known limits and recommendations, making it unlikely that Saudis are on average at risk of deficiency or toxicity.
Keywords: Micronutrients; Deficiency; Blood serum; ICP-AES; Selenium; Toxicity; Diet; Food; Saudi arabia.

37. Ameliorative Effect of α-Tocopherol and Selenium on Effects of Malathion on Plasmatic Biochemical Indices and Lesions in the Liver of Rats

Abdulaziz M. Al-Othman, Zeid A. Al-Othman, Gaber E. El-Desoky, Karim Yusuf and Mourad A. M. Aboul-Soud

Current Pharmaceutical Analysis 8: 214-218, (2012). IF: 1.115

The aim of the present study was to evaluate the potential hepatoprotective effect of α-tocopherol and/or selenium on some plasmatic biochemical indices of liver profile and hepatic damage induced in adult male rats exposed to subchronic dose of malathion (MTN) equivalent to 1/50 LD50.
Oral administration of MTN for 45 days significantly induced severe hepatic injury as revealed by increased activity of plasmatic biochemical indices, including alanine aminotransferase (ALT), aspartate aminotransferase (AST), lactate dehydrogenase (LDH) and gamma-glutamyltransferase (GGT) enzymes. Oral administration of α -tocopherol (α-T) and selenium (Se) concomitant with MTN resulted in a significant ameliorative effect by lowering the elevated plasma levels of the previous enzymes.
Light microscopic investigation revealed that MTN exposure was associated with necrosis of hepatocytes and marked degenerative changes of liver tissues. Coadministration of (α-T) and Se concomitant with MTN to rats improved the histopathological severity score from severe to normal.
However the individual treatment of (α-T) or Se correlated with a relative protection as reflected in the change of the histopathological severity score from severe to mild and moderate, respectively. Thus, it appears that the treatment with (α-T) and/or Se improves MTN hepatotoxicity but is not completely protective.
Keywords: Hepatotoxicity; Histopathology; Malathion; Plasmatic biochemical indices; Selenium; α-Tocopherol.

38. Antidiabeticand Hypolipidemic Effects of Ceylon Cinnamon (CinnamomumVerum) in Alloxan-Diabetic Rats

Gaber E. El-Desoky, Mourad A. M. Aboul-Soud and Khalid S. Al-Numair

Journal of Medicinal Plants Research, 6: 1685-1691, (2012).

he objective of this study was to examine the effects of increasing doses of Ceylon cinnamon's aqueous extract on fasting plasma glycemic and lipidemic profiles, as well as body weight gain, food intake and food efficiency ratio (FER) in alloxan-diabetic rats. Cinnamon extract was administered to rats at different dosages (200, 400, 600 and 1200 mg/kg bw) for thirty days followed by a fifteen day wash out period. After thirty days, the administration of diabetic rats with the lowest dose (200 mg/kg bw) of cinnamon extracts was the most efficient in affecting significant ($P<0.05$) reduction in the levels of fasting blood glucose (FBG), but no hypoglycaemic activity was observed in the untreated diabetic control rats. Moreover, cinnamon treatment significantly ($P<0.05$) lowered the serum levels of total cholesterol (TC), high density lipoprotein (HDL) cholesterol, low density lipoprotein (LDL) cholesterol and triglycerides (TG), compared with the diabetic positive control (PC) rats. The observed hypoglycemic and hypolipidemic effects of cinnamon extracts in diabetic rats were associated with significant improvements in body weight gain, FI and FER. While, after the 15-day wash-out period, the level of FBG, TC, LDL and TG gradually increased, they were still lower than that in the diabetic PC group of rats. It can be concluded that cinnamon extract exhibits a modulatory role of glycemic and lipidimic profiles in diabetic rats.
Keywords: Diabetes mellitus; Cinnamon; Fasting blood glucose; Antiglycemic; Hypolipidemic; Diabetic rats.

Dept. of Agricultural Economics

39. Food Scare Crises and Developing Countries: The Impact of Avian Influenza on Vertical Price Transmission in the Egyptian Poultry Sector

Islam Hassouneh, Amr Radwan, Teresa Serra and José M. Gil

Food Policy, 37 (3): 264-274, (2012). IF: 2.054

A bivariate smooth transition vector error correction model is applied to monthly poultry price data to analyze the effects that avian influenza has had on price transmission along the Egyptian poultry marketing chain. In order to reflect consumer awareness of the crisis, an avian influenza food scare information index is developed and used within the model as a transition variable.
Our results suggest that price adjustments to deviations from the market equilibrium parity depend on the magnitude of the avian influenza crisis. Further these adjustments are found to have very different implications for market equilibrium: during the crisis retailers use their market power to increase marketing margins. In contrast, wholesaler margins are found to decline. Results also suggest that food safety information indices contribute to understanding the economic effects of food scare crises in developing countries.
Keywords: Food scare; Avian influenza; Price transmission; STAR model; Egypt.

Dept. of Agricultural Zoology and Nematology

40. Host Cues Induce Egg Hatching and Pre-Parasitic Foraging Behaviour in the Mosquito Parasitic Nematode, Strelkovimermis Spiculatus

Yi Wang, ZainalLutfi, Limin Dong, Devi S. Suman, Manar Sanad and Randy Gaugler

International Journal for Parasitology, 42: 881-886, (2012). IF:3.39

The responses of eggs in diapause and the infective stage of the nematode, Strelkovimermisspiculatus, to larvae of its host, Culexpipienspipiens, were investigated in the laboratory.

The results indicated that the presence of the host induced the egg hatching. The hatching rate increased when larger numbers of host larvae were present. Second instar mosquito larvae induced significantly higher hatching rates than any other stages.

These findings explain how S. spiculatus synchronizes its life cycle with its host life cycle and population dynamics to increase its fitness when the natural habitat is constantly covered by water. Direct exposure of the nematode eggs to host larvae resulted in consumption of as many as 20 eggs per host.

The eggs consumed caused 0–70% host mortality depending on the number consumed, which indicated an infection path other than cuticle penetration although it may represent a rare situation in nature. The result of host cue assays showed that the combination of chemical cues and physical vibration induced the highest egg hatching, which may increase the chance of host availability after hatching. However, once hatched, the nematodes ignored vibrations and used only chemical cues for host location. These findings suggest that eggs hatch synchronously with the most susceptible mosquito stage and with peak mosquito larval density.

Keywords: Strelkovimermisspiculatus; Diapause; Eggs; Egg hatching; Host location; Chemical cues; Vibration.

Dept. of Animal Production

41. Influence of Feeding Increasing Levels of Dry Corn Distiller'S Grains plus Solubles in Whole Corn Grain-Based Finishing Diets on Total Tract Digestion, Nutrient Balance, and Excretion in Beef Steers

H. Salim, K. M. Wood, M. K. Abo-Ismail, P. L. Mc Ewen, I. B. Mandell, S. P. Miller, J. P. Cant and K. C. Swanson

Journal of Animal Science, 90: 4441-4448, (2012). IF: 2.096

Four crossbred steers (average BW = 478 ± 33 kg) were used in a 4 × 4 Latin square design to determine the effects of dietary concentration of dry corn distillers grains plus solubles (DDGS) in whole corn-based finishing diets on total tract digestion and nutrient balance and excretion.

The DDGS were fed at 0% (control), 16.7%, 33.3%, and 50% of dietary DM. All diets contained 10% (DM basis) alfalfa/grass haylage and were formulated to meet or exceed the estimated requirements for CP.

Steers were fed the experimental diets ad libitum for a 14-d adaptation period followed by a 5-d period for fecal and urine collection. Increasing concentration of DDGS in diets from 0 to 50% of DM linearly decreased ($P < 0.05$) total tract DM and starch digestibility (from 77.8 to 72.9%, and 89.2 to 81.5%, respectively). Daily N and P intakes linearly increased ($P = 0.06$ and $P = 0.01$, respectively) with increasing DDGS concentration. Fecal and urinary N, P, S, Mg, and K excretion linearly increased ($P < 0.05$) with increasing DDGS concentration; however, Se and Na excretion did not differ ($P > 0.38$) among treatments. Retention (g/d; intake minus urinary and fecal excretion) of N did not differ ($P > 0.16$) among treatments. Retention of P tended ($P = 0.07$) to linearly increase and retention of S (g/d) linearly increased ($P = 0.004$), with increasing DDGS concentration. There were no effects ($P > 0.16$) of dietary treatment on digestion and retention of Se, Mg, K, and Na. Plasma P and S concentrations increased ($P = 0.03$ and 0.01, respectively) with increasing DDGS concentration. These data indicate that feeding DDGS up to 50% of dietary DM in whole corn grain-based finishing diets does not have a negative effect on nutrient retention but decreases digestibility. Total excretion of N, P, Ca, Mg, S, and K increased as DDGS concentration increased.

Keywords: Beef cattle; Digestion; Distillers grains; Nutrient balance.

42. Lipid and Fatty Acid Composition of Commercially Important Tropical Freshwater Fish Gonads: Guidelines for Specific Broodstock Diet

Ashraf Suloma and Hiroshi Y. Ogata

Turkish Journal of Fisheries and Aquatic Sciences 12: 743-749, (2012). IF: 0.432

Fatty acids compositions were analyzed in neutral lipids (NL) and polar lipid (PL) of gonads of Nile tilapia, ayunginand Africancatfish to elucidate some guesses for the fatty acids requirements for broodstock. The high value detected for both C16:0, C18:1 n-9 in all samples reflects a requirement for energy metabolism during the course of gonad development. The Lower proportion of polyunsaturated fatty acids (PUFA) was found in the NL of all gonads samples compared to PL. The higher percentages of n-3 HUFA in PL with respect to NL, suggests the importance of HUFA in the reproductive processes. In PL and NL, arachidonic acid (ARA) was the most abundant n-6 PUFA (ranged from 2.59 to 11.33% and from 0.16 to 3.19%, respectively). A relatively higher particularly eicosapentaenoic acid (EPA)/ docosahexaenoic acid (DHA) ratio was obtained in both NL and PL. All wild species studied are characterized by high ARA/EPA ratio in PL ranged from 1.72 to 5.47. Therefore, it is necessary to take into consideration not only the individual levels of HUFA but also the correct ratio among them (ARA/EPA/ DHA) through controling LA and LNA level and ratio in the diets of tropical freshwater broodstocks.

Keywords: Broodstocks; Gonads; Neutral lipids; Polar lipids.

Dept. of Genetics

43. Analysis of Molecular Marker-based Characterization and Genetic Variation in Date Palm ('Phoenix dactylifera' L)

Sakina Khanam, Arjun Sham, Jeffrey L Bennetzen and Mohammed A. M. Aly

Australian Journal of Crop Science (Ajcs) 6 (8): 1236-1244, (2012). IF: 1.632

Date palm breeding is challenging because of its long juvenility and dioecity. Genetic variation between cultivars is a pre-requisite

to develop improved varieties. DNA fingerprinting is an effective method for date palm cultivar identification, examining genetic diversity and phylogenetic analysis. This review discusses the different markers used in DNA fingerprinting and phylogeny analysis of date palm varieties and the advances achieved. The date palm fingerprint analyses reported so far are neither comprehensive nor particularly clear because of variable variety nomenclature, a large number of uninvestigated new introductions, and uneven geographic sampling, which itself leads to inconsistent nomenclature. Most of the molecular markers utilized such as RAPD, RFLP, AFLP, ISSR and SSR have some limitations related to their cost, ease of use, robustness, dominance/co dominance and polymorphism level.
Nuclear Microsatellite or (SSR) markers seem to fulfill most of the requirements to achieve accurate analysis of date palm fingerprints and phylogeny. The need for coordinated international, or at least regional, efforts to establish a comprehensive DNA fingerprint data set and phylogeny of all date palm cultivars is discussed in this review.

Faculty of Veterinary Medicine

Dept. of Food Hygeine and Control

44. Ohmic Sterilization inside a Multi-Layered Laminate Pouch for Long-Duration

Romel Somavata, Pitiya Kamonpatanac, Hussein M.H. Mohamed and Sudhir K. Sastryc

Journal of Food Engineering 112: 134-143, (2012). IF: 2.414

A pouch that can be used to ohmically reheat and sterilize food and later reused to stabilize waste will significantly reduce the Equivalent System Mass during a long term space mission. Reheating of food and stabilization of waste have been successfully done in the past using a V-shaped electrode pouch using pulsed ohmic heating, however improvement of field distribution was needed. The main goals of this work were to develop an improved pouch design to facilitate uniform ohmic heating of food; to model ohmic sterilization within the pouch; and to verify the model through an inoculated pack study.
The pouch was redesigned to improve the electric potential distribution and hence heating uniformity. A temperature distribution study on a pouch with 227 g of tomato soup showed the presence of cold regions at the non-electrode sides due to channeling of current through a hotter and more conductive centre. A much more uniform temperature distribution was obtained the use of two external strip heaters installed along these sides. The ohmic heating process inside the pouch was simulated in 3D to predict possible cold and hot spots.
The simulated heating profile was in good agreement with the measured values confirming the efficacy of the model. An inoculated pack study using Geobacillusstearothermophilus spores (ATCC 5973) confirmed the mathematical model. This technology provides a new method of sterilization inside sealed pouches/packets using ohmic heating.
Keywords: Ohmic heating; Pouch; Sterilization; Modeling; Inoculated pack; Space missions.

45. Biogenic Amines and Its Relation with Microbial Load in Some Fish Products

S.A. Ahmed, Hayam A. Mansour, Laila A. Mohamed, M. Deabes and Doha A. Salah El din

*Global Veterinaria*8 (6): 583-590, (2012).

A total of 10 each of feseikh, molouha, smoked herring, frozen fish fillet and frozen fish fingers wascollected from markets in Egypt and subjected to enumeration of aerobic mesophilic, psychrophilic,Enterobacteriaceae, Pseudomonas, coliforms (MPN) and fecal coliforms (MPN) counts in addition ofdetermination of pH values and biogenic amines contents using HPLC. Mean values for histamine content(µg/100g) were 117.6, 110.8, 3.3, 2 &1.74 for feseikh, molouha, smoked herring, frozen fish fillet and frozen fishfingers respectively, meanwhile the mean values for cadaverine content were 803, 921.3, 895, 247&196.4 and130.3, 208.4, 33, 25 & 22 for putrescine content respectively. Data of correlation coefficient revealed that notonly Enterobacteriaceae and Pseudomonas counts but also the other bacterial groups were correlated to theformation of biogenic amines among examined fish products. Psychrophilic bacteria were not correlated withthe formation of putrescine and had minimal contribution with the formation of histamine and cadaverine in thefrozen fish products. Putrescine and cadaverine contents were inversely correlated with pH. Such results canproposed that cadaverine and putrescine are the most objective quality indicators among fish products.
Keywords: Biogenic amines; Microbial load; Fish products; Molouha; Smoked herring.

Dept. of Microbiology

46. Complete Genome Sequence of Corynebacterium Pseudotuberculosis Cp31, Isolated From an Egyptian Buffalo

Artur Silva, Rommel Thiago Jucá Ramos, Salah Abdel Karim Selim *et al.*

Journal of Bacteriology, 194 (23): 6663-6664, (2012). IF: 3.825

Corynebacterium pseudotuberculosis is of major veterinary importance because it affects many animal species, causing economically significant livestock diseases and losses. Therefore, the genomic sequencing of various lines of this organism, isolated from different hosts, will aid in the development of diagnostic methods and new prevention and treatment strategies and improve our knowledge of the biology of this microorganism. In this study, we present the genome of C. pseudotuberculosis Cp31, isolated from a buffalo in Egypt.

Dept. of Parasitology

47. Studies on Coccidia of Egyptian Balady Breed Chickens

Ahmed A. Al-Gawad, Olfat A. Mahdy, Aida A. N. El-Massry and Mohamed S. A. Al-Aziz

Life Science Journal, 9 (3): 568-576, (2012). IF: 0.073

A total of 711 Balady breed chickens of different ages and sex were collected from houses and farms of 4 localities: Cairo & Giza, governorates Western delta governorates; El-Gharbiyah, El-

Behiera, Kafer El- Sheikh, Eastern governorates; El- Sharqiyah, Ismailia & Upper Egypt governorates; Qina and Aswan, during the period between September 1999 - August 2003 were sacrificed and their intestine were examined for the presence of Eimeria species. Microscopical identification of Eimeriaoocysts species revealed that 21.24% of these chickens were found infected with five species of Eimeria; which were E.necatrix (58.27%), E.tenella (25.82%), E.acervulina (19.20%), E.mitis (10.59%) and E.maxima (4.66%), respectively. It was found that chickens of 1-21 day old were found free from infection (0%), while chicken of 64 – 84 day old showed high infection rate (62.37%).The high rate of infection was noticed in winter season (45.13%), while the lowest rate was recorded during summer season (1.86%). The highest incidence of Eimeria species (37.16%) was found in (Cairo & Giza).While, the lowest incidence (7.32%) was found in Delta areas. The prepatent period, age resistance beside histological examination of the five previously identified Eimeria species, which were experimentally isolated and propagated, was also studied.

Keywords: Five eimeria species; Egyptian balady breed chickens; Incidence; Histopathology.

48. Elisa Assessment in the Diagnosis of Hepatic Coccidiosis in Experimentally Infected Rabbits

Nadia, M.T. Abu-El-Ezz, Kadria N. Abd El-Megeed, Olfat A.Mahdy and Soad E. Hassan

Global Veterinaria, 9 (5): 517-523, (2012).

The present study aims to early diagnosis of hepatic coccidiosis during the course of experimental infection of rabbits with Eimeriastiedae. Oocyst counts, histopathology and ELISA were used as diagnostic tools. ELISA using oocysts antigen can detect E. stiedae antibodies at first week after infection and reached its highest level 21st day post infection (PI). While, shedding of oocysts began from day 16th and reached the highest oocyst counts (276860 oocysts /g) 22nd day PI, then began to decline till 1000 oocysts/g 46th day post infection. Oocysts were not detected in feces from day 47th till the end of the experiment. Histopathological examination showed hyperplasia of the bile duct epithelium with different developmental stages of coccidiaoocysts in the lumen. Granuloma tissues encircled the bile duct with infiltration of inflammatory cells. Gross necropsy finding, hepatomegaly and multiple scattered yellowish white nodules of variable sizes throughout the liver were observed. The gall bladder may also be enlarged and contain exudates. In conclusion, ELISA using oocyts antigen proved to be the best tool for early diagnosis of hepatic coccidiosis and can be used in field studies in order to assess coccidiosisseroprevalence in rabbit farms.

Keywords: Eimeriastiedae; Hepatic coccidiosis; Histopathology; Rabbits; ELISA.

Dept. of Pathology

49. Polarity Effect of Microcurrent Electrical Stimulation on Tendon Healing: Biochemical and Histopathology

Amal F. Ahmed, Sherein S.A. Elgayed and Ibrahim M. Ibrahim

Journal of Advanced Research, 3: 109-117, (2012). IF: 3

The purpose of the current study was to investigate the effect of microcurrent electrical stimulation (MES) applied with different polarity on the biomechanical properties of injured tendons and to correlate results with histopathological studies. Ninety six male white New Zealand rabbits were used in the study. Six rabbits were kept as normal group with intact tendons and the remaining 90 rabbits with their right Achilles tendons tenotomized, sutured and immobilized. After that rabbits were allocated into equal three groups; cathodal, anodal and control. Each group was further subdivided into three subgroups according to the study period; 3, 5 and 8 weeks. There were significant increases of all biomechanical measurements for cathodal and anodal groups than those of control group at all study periods. Furthermore there were significant increases of all biomechanical measurements in the cathodal group more than the anodal group at the 3 week period, while there was significant increase of the anodal group more than the cathodal at 5 and 8 week periods. The histopathological findings supported the biomechanical results. Tendons in cathode group showed better healing picture compared to those of anodal group at third week. While tendons in the anodal group showed better improvement at the 5 and 8 week. MES improved the healing process of tendon and the polarity of MES could be an important factor to be considered in treating tendon injuries.

Keywords: Microcurrent electrical stimulation; Tendon; Healing; Polarity; Biochemical testing.

50. Application of Chitosan for Wound Repair in Dogs

Inas N.El-Husseiny and Kawkab A. Ahmed

Life Science Journal, 9 (1): 196-203, (2012). IF: 0.073

This experimental work was applied to study the effect of topical application of chitosan powder on the stimulation of healing of full thickness skin wounds. Experimental surgical wounds were done in 12 apparently healthy male Mongrel dogs of nearly the same age and weight. Experimental animals were classified into 4 groups each consisted of 3 dogs according to time of euthanasia. Full thickness equal longitudinal skin incision wounds were created on each dogs both side at the dorsal aspect of the animal. A comparative study was applied between wounds treated with chitosan powder and control wounds washed only by saline solution. Wound healing was clinically evaluated during the period of the experiment. Euthanasia was done at different period intervals, one week, two weeks, three weeks and four weeks after incisions. Specimenwere taken for histopathological investigations. Results proved rapid regeneration and reepithelization of the wounds treated with chitosan powder compared with those of the control group. Cinically,complete healing was seen after 3 weeks in the chitosan treated wounds which delayed to 4 weeks in the control ones. Histopatholgical investigations proved presence of more pronounced granulation tissues in the chitosan treated wounds than in the control ones .Healing started at 3 weeks post- incision in the treated group and complete repair was achieved at four weeks. Complete regeneration of epidermal cells with keratin layer occurred which was similar to the normal skin associated with dermal connective tissue proliferation. The fibroblast cells laid down a network of collagen fibers which appeared as wavy collagen bundlessurrounding the neovasculature of the wounds, whereas, in control group, hyalinosis of subcutaneous granulation tissue and haphazardly arranged collagen fibers were observed. In conclusion, chitosan proved to be a suitable biomedical agent

used for the acceleration of wound repair due to its biocompatibility, easy application and high effectiveness.

51. Pathological Consequences of Aflatoxins in Male Rabbit: Cellular, Genetic and Oxidative Damage

Kawkab A. Ahmed, M.M. El Mahady, S.A. Badawy, Y.F. Ahmed and M.A. Aly

Global Veterinaria, 8 (7): 721-731, (2012).

The purpose of the current investigation was to contributeadditional insight into links betweendietaryaflatoxins and the risk of adverse male reproductive. A total number of 28 adult NZ male rabbits were randomly allocated into one of the four treatment groups: the control group received basal diet containing Zero ppb aflatoxins and three aflaoxin treated groups (A, B and C) fed on basal diets containing 250, 500 and 1000 ppb aflatoxins respectively for 60 days. The histopathological examination revealed dose dependant changes varied from mild testicular degeneration to a complete atrophy of seminefrous tubules and loss of all stages of spermatogenesis. Prostate and bulbourethral glands showed marked hyperplasia, cystic dilatation and necrosis. Analysis of apoptosis showed massive necrosis in high doses and increased rate of apoptosis in low doses of aflatoxins. Extracted testicular and spermatic DNA showed marked DNA fragmentation indicating the genotoxic effect of aflatoxins. The activities of antioxidant biomarkers were decreased; however the content of oxidative products were increased due to aflatoxin administration. The Total antioxidant capacity and uric acid levels were decreased and the level of nitric oxide was higher in aflatoxin treated groups. In conclusion, the data presented showed that aflatoxin at graded doses induced severe oxidative damage in the testis and accessories promoting their apoptosis and thus consuming such doses simultaneously may be a greater risk of male infertility.

Keywords: Aflatoxins; Toxipathology; Male; Fertility; Apoptosis; Oxidative stress; DNA damage.

National Institute of Laser Enhanced Sciences

Dept. of Engineering Applications of Lasers (EAL)

52. Effect of Ambient Conditions on Laser Induced Breakdown Spectra1

M. A. Gondal and A. A. I. Khalil

Laser Physics, 22 (12): 1771-1779, (2012). IF: 3.605

The role of different ambient conditions on LIBS signal intensity was investigated for better understanding and performance of LIBS as a quantitative and qualitative analytical technique. For this purpose, the relative LIBS signal intensities were measured for a standard Cr line (520.8 nm) at different gas pressures of Ar, He, and air. The plasma was generated using a Q-switched pulsed Nd:YAG laser having wavelength of 1064 nm and pulse duration of 8 ns. The analysis revealed that the intensities of the spectral atomic Cr line (520.8 nm) were strongly enhanced under the argon environment in 10–40 mbar range. The electron excitation temperature (T_e) and number density (n_e) were estimated by using a Boltzmann plot and a Stark broadening profile, respectively. For optimum dependence of LIBS, laser energy and pressure dependence was also studied. The electron temperature and number density showed an increase with increase in ambient gas pressure.

Keywords: Effect of Ambient Conditions on LaserInduced Breakdown Spectra.

53. New Observation of the Quintet States of Co Excited by Glow Discharge

R. Al-Tuwirqi, N. Al-Suliman, A.A.I. Khalil and M.A. Gondal

Molecular Physics,110 (23) : 2951-2956, (2012). IF: 1.819

Emission from the lowest quintet state of CO is observed in low power glow discharge. Intersystem crossing from the $C^1\sum^+$ ($v = 1$) state to the $a''^5\prod$state makes transition from the$a''^5\prod$state to lower lying states possible. The term values for the three lower vibrational levels of the $a''^5\prod$state are found to be$\nu(0)$=84264cm^{-1}$\nu(1)$=85204cm^{-1}and $\nu(2)$=86077cm^{-1} above the ground level. The fundamental vibrational frequency of the $a''^5\prod$state is found to beω_e=907.18±6cm^{-1}. Analysis of the relaxation pathways of excited CO molecules via the a''^5 state is carried out and transition lines assigned.

Keywords: Co; Emission spectra; Quintet state; Dunham coefficients; Potential energy curves.

54. High Sensitive Detection of Nitric Oxide Using Laser Induced Photoacoustic Spectroscopy at 213 Nm

Mohammed A. Gondal, Ahmed Asaad. Khalil and Noura Al-Suliman

Applied Optics, 51(23): 5724-5734, (2012). IF: 1.748

Trace level detection of nitric oxide (NO) is of great interest for a wide range of applications suchas environment and human health. For this purpose, a high sensitive sensor based photoacoustic spectroscopy (PAS) principle has been developed at our laboratory for detection of NO at very low concentration (ppbV). For optimization of the PAS signal and to achieve higher sensitivity, parametric dependenceinvestigation was carried out where PAS signal dependence on NO gas pressure, cell geometry, buffergas (Ar, N2, He), and laser pulse energy used three PAS cells developed locally. The best sensitivityachieved with three cells was 41, 11, 20 ppbv, respectively. It is worth reporting that the best PAS signalto noise ratio was achieved by using a cylindrical cell having three acoustic filters and argon as a buffergas.

Keywords: High sensitive detection of nitric oxide using laser.

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

55. Nanotoxicity of Gold and Gold–Cobalt Nanoalloy

E. Girgis, W. K. B. Khalil, A. N. Emam, M. B. Mohamed and K. V. Rao

Chemical Research in Toxicology 25: 1086-1098, (2012). IF: 3.779

Nanotoxicology test of gold nanoparticles (Au NPs) and gold–cobalt (Au–Co) nanoalloy is an important step in their safety evaluation for biomedical applications. The Au and Au–Co NPs were prepared by reducing the metal ions using sodium borohydride (NaBH4 (in the presence of polyvinyl pyrrolidone (PVP) as a capping material. The average size and shape of the nanoparticles (NPs) were characterized using high resolution transmission electron microscopy (HRTEM). Cobalt presence in

the nanoalloy was confirmedby energy dispersive X-ray spectroscopy (EDX) analysis, and the magnetic properties of these particles were determined using a vibrating sample magnetometer (VSM). The Gold and gold–cobalt NPs of average size 15 ± 1.5 nm were administered orally to micewith a dose of 80, 160, and 320 mg/kg per body weight (bw) using gavages. Samples were collected after 7 and 14 days of the treatment. The results indicated that the Au–Co NPs were able to induce significant alteration in the tumor-initiating genes associated with an increase of micronuclei (MNs) formation and generation of DNA adduct (8-hydroxy-2-deoxyguanosine, 8-OHdG) as well as a reduction in the glutathione peroxidase activity. This action of Au–Co NPs was observed using 160 and 320 mg/kg bw at bothtime intervals. However, Au NPs had much lower effects than Au–Co NPs on alteration in the tumor-initiating genes, frequency of MNs, and generation of 8-OHdG as well as glutathione peroxidase activity except with the highest dose of Au NPs. This study suggests that the potential to cause in vivo genetic and antioxidant enzyme alterations due to the treatment by Au–Co nanoalloy may be attributed to the increase in oxidative stress in mice

Keywords: Au-co nanoalloys; Nanotoxicity; 8-ohdg; Micronuclei.

56. Effect of Shape and Interstice on Surface Enhanced Raman Scattering (SERS) of Molecules Adsorbed on Gold Nanoparticles in the Near-Dipole and Quadrupole Regions

T. Abdallah, T.A. El-Brolosy, M. B. Mohamed, K. Easawi, S. Negm and H. Talaat

J.of Raman Spectroscopy, 43 (12): 1924-1930, (2012). IF: 3.087

Surface enhanced Raman scattering (SERS) of adsorbed molecule on colloidal gold nanoparticles of different shapes, namely nanospheres (NSs), nanorods (NRs), and nanoprisms (NPs) as well as the three NPs arrays of different interstice prepared by NS lithography, are studied with incident wavenumbers in the near-dipole and near-quadrpole regions of the nanoparticles. In the colloidal gold nanoparticles, the SERS enhancement is the largest for the sharp tip followed by the truncated tip NPs, then the NRs andleast enhancement for the NSs. This decreasing order of enhancement occurs although the incident wavenumber was near the dipole resonance of NSs and the quadrupole resonance for the NPs. These varied enhancements are explained in part as due to the binding energies of the nanocrystal facets, but the larger contribution results from the plasmon electromagnetic fields. A parallel finite difference time domain (FDTD) calculations were carried out, which corporate the experimental results and show agreementwith ratios of the SERS enhancement for the different shapes. The normalized SERS intensity for NPs of different interstice distances show a sharp rise with the decrease of the interstice distances because of interparticle dipolar and quadrupolarcouplingas evidenced also by FDTD calculations. Furthermore, these calculations show that the enhancement is polarization independent for an incident wavelength near quadrupole resonance but polarization dependent for an incident wavelength near the plasmon dipole transition. In the last case, the enhancement is larger by an order of magnitude for a polarization parallel to the NPs bisector than for polarization normal to the bisector with no hot spots for the relatively large interstice dimensions used.

Keywords: Sers; Plasmonics; Nanostructures.

57. Weak Exciton–Plasmon and Exciton–Phonon Coupling in Chemically Synthesized Ag/Cdse Metal/ Semiconductor Hybrid Nanocomposite

Aly Okasha, Mona B. Mohamed, Sohair Negm and H. Talaat

Physica E, 44: 2094-2098, (2012). IF: 1.532

A recently developed method to synthesize metal/semiconductor Ag/CdSe core/shell hybrid nanocompositehas been used. Seed of silver nanoparticles was prepared by reduction of silver acetylacetonateorganometallic complex using alkyl amine. Different shellthicknesses have been grown, directly on theAg core, by the organometallic pyrolysis method. Absorption spectroscopy, photoacousticspectroscopy High Resolution Transmission Electron Microscopy (HRTEM), emission spectroscopy, and Ramanspectroscopy were used to characterize the Ag/CdSe core/shell samples. The effect of Ag plasmoncoreon the optical properties of CdSe shell is discussed in the weak exciton–plasmon coupling regime. Emission, absorption, and Raman spectra are employed to determine the Huang–Rhys parameter whichis found to show that the exciton–phonon is in the weak coupling regime.

Keywords: Exciton-phonon coupling; Ag/cdse; Metal-semiconductor; Nanocomposites.

58. Effect of Experimental Parameters on the Fabrication of Gold Nanoparticles via Laser Ablation

H Imam, K.Elsayed and M.A. Ahmed

Optics and Photonics Journal (2012).

In this study we report the effect of laser parameters such as laser energy, laser wavelength as well as focusingcondition of laser beam on the size and morphology of the gold nanoparticles (GNPs) prepared in deionised water bypulsed laser ablation. Theoptimum conditions at which gold nanoparticles obtained with controllable average size havebeen reported as these parameters affected the size, distribution and absorbance spectrum. Effect of energy was studied.The laser energy was divided into three regions (low, middle and high). A noteworthy change was observed at eachregion, as the average size changed from 5.9 nm at low energy to 14.4 nm at high energy and the gold nanoparticlesreached a critical size of 8 nm at 100 mJ. The Effect of the wavelength on the particle size was examined at 1064 nm532nm. It was found that, the optimum ablation laser wavelength was 1064 nm. Finally, significant results obtainedwhen the effect of focusing conditions studied.

Keywords: Laser ablation; Goldnanparticle.

59. Nanotechnology Role for the Production of Clean Fuel E-85 and Petrochemical Raw Materials

Iskander K. Basily, Amira L. Shafik, Ali A. Sarhan and Mona B. Mohamed

Journal of Nanotechnology, 1-5, (2012).

There have been a number of substantive technical changes that can be described as revolutionary process and evolutionary process. One of these approaches is the use of nanotechnology in the two-stage pyrolysis of petroleum residues of the heavy distillates separated from the Arabian crude oil. Two-stage

catalytic pyrolysis technique proved to be an excellent method for the production of unsaturated hydrocarbons (which easily can be converted to alcohol, by addition of H2O, for the production of E 85, i.e.clean fuel) regardless the type of feed stocks used. Basically, the catalysts are arranged into three large groups; amorphous and crystalline alumino-silicates, alkaline or alkaline earth alumino compounds, and different metal oxides on different catalyst carriers such as Zeolites. The high yield of ethylene (30–40%) brought by different catalysts at temperatures of 700–750°C appear to justify the intensive research work in this field.
Keywords: Clean fuel; E-85; Arabian crude oil; Gold nanoparticles; Catalyst; Nanotechnology.

60. Primary Study of the Use of Laser-Induced Plasma Spectroscopy for the Diagnosis of Breast Cancer

Hisham Imam, Raeesa Mohamed and Ashraf A. Eldakrouri

Optics and Photonics Journal 2: 193-199, (2012).

Breast cancer, or malignant breast neoplasm, is a type of cancer that originates from breast tissue, most commonly from the inner lining of the milk ducts or the lobules that supply the ducts with milk. It is one of the most widespread dis-eases, especially in women. Thus far, large efforts have been towards the early diagnosis of cancer in general, and breast cancer specifically. Most of these techniques deal with malignant tissues without inducing or increasing patho-logical tissue changes or causing major side effects for the patient. This paper proposes a new technique for diagnosing the presence or occurrence of cancer and assessing its grade early, accurately, and safely. The presented technique de-pends on the interaction between the laser and thesoft tissue in order to induce plasma, and allows us to classify the cancer by studying the difference in the intensity ratio of the trace elements in normal and malignant tissues. The results presented here are show that only four patients out of the total sample of 30 have erroneous trace elements and that this does not affect the overall decision. Hence, the performance of LIPS can be measured as 87%, while retaining 100% accuracy. Furthermore, LIPS technique is a simple and promising technique that iscapable of diagnosing malignant cells and tissues.
Keywords: Lips; Malignant; Breast.

Cairo University

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2-1 Faculty of Engineering

Faculty of Engineering

Dept. of Electric Power and Machines

61. A Robust Lmi-Based Pitch Controller for Large Wind Turbines

H.M. Hassan, A.L. ElShafei, W.A. Farag and M.S. Saad

Renewable Energy, 44: 63-71, (2012). IF: 2.978

This paper utilizes the linear matrix inequalities' techniques (LMI) for designing a robust collective pitch controller (CPC) for large wind turbines. CPC operates during up rated wind speeds to regulate the generator speed in order to harvest the rated electrical power.

The proposed design takes into account model uncertainties by designing a controller based on a polytopic model. The LMI-based approach allows additional constraints to be included in the design (e.g. H_∞ problem, H_2 problem, H_∞/H_2 trade-off criteria, and pole clustering).

These constraints are exploited to include requirements for perfect regulation, efficient disturbance rejection, and permissible actuator usage.

The proposed controller is combined with individual pitch controller (IPC)that reduces the periodic blade's load by alleviating once per revolution (1P) frequency fatigue loads. FAST (Fatigue, Aero-dynamics, Structures, and Turbulence) software code developed at the US National Renewable Energy Laboratory (NREL) is used to verify the results.

Keywords: Pitch control; Lmi; H Problem; H2 Problem; Polytopic system; Pole clustering.

62. High-Impedance Faults Analysis in Distribution Networks Using an Adaptive Neuro Fuzzy Inference System

M. S. Abdel Aziz, M. A. Moustafa Hassan and E. A. Zahab

Electric Power Components and Systems, (2012). IF: 0.681

This article presents a new approach for high-impedance fault analysis (detection, classification, and location) in distribution networks using the adaptiveneuro fuzzy inference system. The proposed scheme was trained by data from simulation of a distribution system under various faults conditions and tested for differentsystem conditions.

Details of the design process and the results of performance usingthe proposed method are discussed in this article. The results show that the proposedtechnique has very good performance in detecting, classifying, and locating high-impedance faults.

The third harmonics, magnitude, and angle for the three-phasecurrents give superior results for fault detection as well as for fault location in high-impedance faults. The fundamental components magnitude and angle for the three-phase currents give superior results for the classification phase of high-impedancefaults over other types of data inputs.

Keywords: Adaptive neuro fuzzy inference system; Discrete Fourier transform; High-impedance faults; Protection of distribution networks.

63. Advanced Distance Protection Technique Based on Multiple Classified Anfis Considering Different Loading Conditions for Long Transmission Lines in Eps

Tamer S. Kamel, Mohamed A. Moustafa Hassan and Ahdab El-Morshedy

International J.of Modelling, Identification and Control, (2012)

The advanced application of artificial intelligent techniques (AIT) was introducedrecently in protection of transmission lines in electric power systems (EPS). Adaptiveneuro-fuzzy inference system (ANFIS) is a promising tool among these AIT. In this proposedresearch, the application of ANFIS for distance relay protection for long transmission line, underdifferent loading conditions, in electrical power systems (EPS) will be introduced and discussedBased on multiple classified ANFIS and considering different loading conditions for longtransmission lines in EPS, the suggested and proposed technique deals with fault detection, classification, and location in long transmission lines. All these tasks will be addressed in detailsin this article. It considers, firstly, detecting the fault occurrence in very short time and isolate thefaulty section of the long transmission lines. Secondly to classify the fault type and deduce whichof the three phases are exposed to the fault. Finally, locating the faultwillbe achieved easilyeven if the procedure here is completely different from short and medium transmission lines. Theinput training data of the ANFIS detection units are firstly derived from the fundamental valuesof the voltage and current measurements [using digital signal processing via discrete Fouriertransform (DFT)]. These measurements were simulated considering different loading conditions.

Keywords: Adaptive neuro-fuzzy inference system; Anfis; Artificial intelligent techniques; Ait.

64. An Artificial Intelligence Based Approach for High Impedance Faults Analysis in Distribution Networks

M. S. Abdel Aziz Shaker, M. A. Moustafa Hassan and E. A. El-Zahab

International Journal of System Dynamics Applications (2012)

This paper presents a new approach for high impedance faultsanalysis (detection, classification and location) in distribution networks using Adaptive Neuro Fuzzy Inference System. The proposed scheme was trained by data from simulation of a distributionsystem under various faults conditions and tested for different system conditions. Details of the design process and the results of performance using the proposed method are discussed. The results show the proposed technique effectiveness in detecting, classifying, and locating high impedance faults. The 3rd harmonics, magnitude and angle, for the 3 phase currents give superior results for fault detection as well as for fault location in High Impedance faults. The fundamental components magnitude and angle for the 3 phase currents give superior results for classification phase of High Impedance faults over other types of data inputs.

Keywords: Adaptive neuro fuzzy inference system (Anfis); Discretefourier transform; High impedance faults (Hif); High impedance faults analysis; Protection of distribution networks1.

65. Using Positive and Negative Sequence Components of Currents and Voltages for High Impedance Fault Analysis ViaAnfis

Mohamed M. Ismail and M. A.Moustafa Hassan

International Journal o System Dynamics Applications, (2012)

High Impedance Faults are defined as unwanted electrical contact between an energized conductor and a non-conducting foreign object. Non-conducting foreign object present high impedances to current flow due to their material, so a fault of this type willnot appear to the classical protection equipment as abnormal conditions. Presented is an approach for detection, classification, and location of high impedance faults in a distribution system using Adaptive Neuro Fuzzy Inference System (ANFIS) based on positive and negative sequence components of voltages and currents. The proposed scheme was trained by data from simulation of a distribution system under different faults conditions and different distances in a short and long transmission lines. Details ofthe design procedure and the results of performance using the proposed method are discussed in this paper.

Keywords: Adaptive neuro fuzzy inference system (ANFIS); Faultsanalusis.

66. Parameter Identification Using Anfisfor Magnetically Saturated Induction Motor

Mohamed M. Ismail Ali and M. A. Moustafa Hassan

International Journal of System Dynamics Applications, (2012)

The problem of controlling the p-model induction motor with magnetic saturation is considered in this paper. The motor parameters such that stator resistance Rs, rotor resistance Rr and load torque TL can be varied during the operation, many techniquesare used for online identification of the motor parameters. In this paper we use a new technique which is the Adaptive Neuro Fuzzy Inference Systems (ANFIS) technique for online identification of the motor parameters. A simulation study is illustratedusing MATLAB/Simulink depending on stator currents and speed measurements. All the unknown parameters are assumed constant or slowly varying and are estimated online by the controller. The proposed technique shows promising results.

Keywords: Adaptive neural fuzzy inference systems; Artificial neural networks; Fuzzy logic; Magnetically saturated in duction motor; Parameter identifications.

67. Load Frequency Control for Four Different Areas Power System Using Different Artificial Intelligent Algorithms

Mohamed M. Ismail and M. A. Mustafa Hassan

Iinternational Journal of Innovations in Electrical Power Systems, (2012)

The main objective of Load Frequency Control (LFC) is toregulate the power output ofthe electric generator within an area in response to changes in system frequency and tielineloading .Thus the LFC helps in maintaining the scheduled system frequency and tielinepower interchange with the other areas within the prescribed limits. Most LFCs areprimarily composed of an integral controller. This type of controller is slow and does notallow the controller designer to take into account possible changes inoperatingconditionand non-linearities in the generator unit. This paper studies the LFC in a four areas powersystem using tuned PID controller. In this study, PID parameters are tuned using differentartificial intelligent techniques. The performance of the proposed controllers are betterthan the outputs of the conventional PID controllers. The effectiveness of the proposedscheme is confirmed via extensive study using MATLAB/SIMULINK. Comparison ofperformance of conventional PID controller with tuned PID controller based on differentintelligent techniques show that the Fuzzy logic a tuned controller has better satisfactorygeneralization capability, feasibility and reliability, as well as accuracy than ParticleSwarm Optimization and the Genetic Algorithms.

Keywords: Artificial intelligence algorithms; Genetic algorithm; Fuzzy logic; Load frequency control, Multi areas power system; Particle swarm optimization;Pid; Controller;Tuningof pid controller.

68. Design of Robust Power System Stabilizer Based on Particle Swarm Optimization

Magdi S. Mahmoud and Hisham M. Soliman

Circuits and Systems, (2012)

In this paper, we examine the problem of designing power system stabilizer (PSS). A new technique is developed using particle swarm optimization (PSO) combined with linear matrix inequality (LMI). The main feature of PSO, not stick- ing into a local minimum, is used to eliminate the conservativeness of designing a static output feedback (SOF) stabi- lizer within an iterative solution of LMIs. The technique is further extended to guarantee robustness against uncertain- ties wherein power systems operationis changing continuously due to load changes. Numerical simulation ahsillus- trated the utility of the developed technique.

Keywords: Dynamic stability; Power system stabilizer; Static output feedback; Particle Swarm Optimization; Linear Matrix Inequality.

69. Robust Guaranteed-Cost Sliding Control for Brushless Dc Motors by Lmi

Hisham M. Soliman, Ehab H.E. BayoumiandMostafaSoliman

Int. J. Modelling, Identification and Control, (2012)

Two state feedback sliding mode control schemes are developed for position controlfor brushless DC motor drives. The first controller design achieves the desired swiftness ofresponse. In addition to swiftness, the second controller drastically reduces system's chatteringby adding the guaranteed cost constraint. The proposed controller consists of two parts, linear andnon-linear. Linear matrix inequalities (LMIs) optimisation is used to design the linear part thatachieves the desired dynamic performance: it is robust against system uncertainties, and is basedon a new sufficient conditionfor the existence problem; the non-linear part is created toguarantee that the sliding surface is attained. System uncertainty due to changes in drive's loadinertia is represented with norm- bounded structure.The main advantages of this technique are that: the LMI algorithm includes an optimalpart to preclude high control efforts, and the control burden is heavily

placed on the linear part toimprove the chattering problem of the conventional sliding mode control.
Keywords: Dc machines; Electric drives; Non-Linear Systems; Sliding Mode Control; Smc; State Feedback; Guaranteed Cost Control; Linear Matrix Inequalities; Lmis.

70. Speed Sensorless Field-Oriented Control of A Six-Phase Saturated Model of Induction Motors Drive with Online Stator Resistance Estimation Using Anfis

Mohamed M. Ismail Ali and Mohamed A. Moustafa Hassan

International Journal ofModelling, Identification and Control, (2012)

In this paper, a field-oriented control-space vector modulation scheme is presented for a six-phase speed and voltage sensorless saturated model of induction motor drive. The new in this paper is that the saturation model of induction motor is taken intoconsideration. Also, a simple method is introduced to estimate the motor rotor speed and on line estimation of the stator resistance using adaptive neural fuzzy inference system (ANFIS). Finally, some simulation results are presented to verify the effectiveness and capability of the proposed control scheme.
Keywords: Adaptive neural fuzzy nnferencesystem; Anfis; Field-Oriented control; Foc; Multiphase induction motors; Online estimation; Speed sensorlesscontrol; Six-phase saturated models; Online stator resistance; Resistance estimation; Modelling; vectormodulation; Fuzzy logic; Neural networks; Rotor speed; Simulation.

Dept. of Electronics and Communication Engineering

71. Proposed Relay Selection Scheme for Physical Layer Security in Cognitive Radio Networks

H. Sakran, M. Shokair, O. Nasr, S. El-Rabaie and A.A. El-Azm

Iet Communications, (2012). IF: 0.829

In this study, the physical layer security for cognitive radio network (CRN) will be investigated in which a secondary user transmitter (SU-Tx) sends confidential information to a SU receiver (SU-Rx) on the same frequency band of a primary user (PU) in the presence of an eavesdropper receiver. Moreover, relay selection scheme is proposed for the security constrained CRNs with single eavesdropper, multiple eavesdroppers and PUs.
The proposed scheme selects a trusted decode and forward relay to assist the SU-Tx and maximise the achievable secrecy rate that is subjected to the interference power constraints at the PUs for the different number of eavesdroppers and PUs under available channel knowledge.
The SU cooperates with relays only when a high secrecy rate is achieved. Secrecy rate and secrecy outage probability are the two performance metrics that are used to verify the effectiveness of the proposed scheme although asymptotic approximations of the secrecy outage probability are also derived. Simulationand analytical results demonstrate that the performance improvement of the proposed scheme reaches to the double relative to the conventional scheme for the secrecy capacity.
Keywords: Cognitive radios; Relays; Eavesdropper.

72. Generation of two Output CCII and two Output ICCII Based Current Mode Filters and Oscillators

Ahmed M. Soliman

Active and Passive Electronic Devices, (2012)

A well known current mode bandpasslowpass filter using two balanced output current conveyors is found to be a member of a family of eight current mode circuits. The discovery of the inverting current conveyor and its generalized forms of balanced outputinverting current conveyors have resulted in the generation of the second member of the current mode bandpasslowpass filter family.
The combination of both balanced output current conveyors and inverting current conveyors resulted in other six more current mode bandpasslowpass filters thus completing the family of eight circuits. The generation method introduced in this paper based on two output current conveyors and inverting current conveyors is also applied to two well known grounded passive elementcurrent mode oscillators to obtain four more new oscillator circuits. The proposed generation method can be applied to many other filter and oscillator circuits.
Keywords: Two output current conveyor; Two-Output inverting current conveyor; Generation method; Filters; Oscillators.

73. On Oscillator Circuits Using Two Output CCII, DVCC and FDCCII

Ahmed M. Soliman

Active and Passive Electronic Devices, (2012)

Eight oscillator circuits using two-output Current Conveyors (CCII) are given. The reported oscillators are employing grounded passive elements and have independent control on the condition of oscillation and on the frequency of oscillation. Six of the reported oscillators are new. Eight oscillator circuits using the Differential Voltage Current Conveyor (DVCC) are also given. Two of the reported oscillators are equivalent to the two known Fully Differential Current Conveyor (FDCCII) based oscillators. Three of the proposed oscillators are new. The eight DVCC oscillators are the adjoint of the two output CCII oscillators as demonstrated in Table 1. Simulation results to confirm theoretical analysis are included.
Keywords: Oscillators; DVCC; FDCCII.

74. Generalized Realizations of the Basic Zero Section Using Two Current Conveyor Blocks

Ahmed M. Soliman

Journal of Active and Passive Electronic Devices, (2012)

Two alternative methods of the generation of the basic zero section family using current conveyors are given. It is found that there are sixteen different basic zero section circuits that belong to two different configurations. The basic zero section circuits include two previously published circuits among the generated family. The two generated configurations are related to each other by the adjoint network theorem. Among the eight basic zero circuits for each configuration only two circuits are floating.
Keywords: Basic zero section; Pathological voltage mirror; Pathological current mirror; Nullor; Current conveyor.

Dept. of Engineering Mathematics and Physics

75. On the Oscillation of Fractional Differential Equations

Said R. Grace, Ravi P. Agarwal, Patricia J.Y. Wong and Zafer Ağacık

Fractional Calculus and Applied Analysis, (2012)

In this paper we initiate the oscillation theory for fractional differentialequations. Oscillation criteria are obtained for a class of nonlinear fractionaldifferential equations of the formwhere denotes the Riemann-Liouville differential operator of order

D $^{q}_{a}x+f_1\ (t,x)=v(t)+f_2\ (t,x)$,$\lim_{t\to a}J_a^{1-q}$ a $x(t)=b_1$,where D^{q}_{a}denotes the Riemann-Liouville differential operator of order*q*, $0< q \leq$ The results are also stated when the Riemann-Liouvilledifferentialoperator is replaced by Caputo's differential operator.

Keywords: Fractional differential equation; Oscillation; Riemann-Liouvilleoperators; Caputo derivative.

Dept. of Mining, Petroleum and Metallurgy

76. Friction Resistant Composite Materials: Corrosive Wear of Bronze Anti-Friction Composites Prepared By Powder Metallurgy Technique

Khaled Ragab, Randa Abdel-karim and Saad El-Raghy

Book Published By Lambert Academic Publishing, (2012)

With the development of cars, tractors, railway vehicles, and with growing requirements on speed, performance and reliability, the demands on development of high temperature resistant friction materials are increasing, which could satisfy the high safety requirements and environment protection. This contribution concerns the development of new metal-ceramic friction materials. Metal-ceramic friction composites are multi–component materials, beside basic metal matrix (bronze) they contain slide additives (graphite) and friction additives (SiO2-SiC). Many applications of such alloy P/M parts are based on these characteristics such as controlled porosity and friction applications (brakes and clutches)applied in automotive industry. The most problems which cause road accidents occur because of brake systems. For this reason metallic brakes are important automotive parts. The advantages of metallic brakes are absorbing more energy under high speed, more wear resistance, high heat conductivity which helps in heat dissipation and stable friction coefficient. This book, therefore, explains the corrosive wear of bronze friction resistant composites prepared by powder metallurgy technique.

Dept. of Structural Engineering

77. Considerations for the Design of Doubly Unsymmetrical Precast Pretensioned Beams Used for Box Girder Construction

Essam Ayoub, Charles Malek and Gamal Helmy

Structural Concrete, (2012). IF: 0.27

Many box girder bridges are constructed with doubly unsymmetrical precast beam units. The aim of this paper is to present special considerations for the optimum arrangement of pretensioned strands in a simply supported precast pretensionedbeam with a doubly unsymmetrical section. The goal of the optimum arrangement is to minimize the distortion (lateral sway phenomenon) caused by the doubly unsymmetrical characteristic of the beam section at transfer. The study shows that the distortion of the unsymmetrical section is minimized when the resultant stresses at transfer are constant over all of the top flange and over all of the bottom flange of the precast beam for most of the sections within the beam length. In this case, the neutral axes of these sections will be horizontal with respect to the beam section. This approach is verified with the help of two different finite element models. In the first model, the beam is modelled as one-dimensional space frame elements; in the second model, the beam is modelled using three-dimensional solid elements. A practical example of a box girder bridge made from doubly un- symmetrical precast pretensioned beams in the APM (Automated People Mover) elevated bridge project in Saudi Arabia is also presented.

Keywords: Bridge; Precast beam; Unsymmetrical section;Prestressing; Distortion; Finite element; Stress analysis.

78. Are Theoretically Calculated Periods of Vibration for Skeletal Structures Error-Free?

Sameh S.F. Mehanny

Earthquakes and Structures, (2012)

Simplified equations for fundamental period of vibration of skeletal structures provided by most seismic design provisions suffer from the absence of any associated confidence levels and of any reference to their empirical basis. Therefore, such equationsmay typically give a sector of designers the false impression of yielding a fairly accurate value of the period of vibration. This paper, although not addressing simplified codes equations, introduces a set of mathematical equations utilizing the theoryof error propagation and First-Order Second-Moment (FOSM) techniques to determine bounds on the relative error in theoretically calculated fundamental period of vibration of skeletal structures. In a complementary step, and for verification purposes, Monte Carlo simulation technique has been also applied. The latter, despite involving larger computational effort, is expected to provide more precise estimates than FOSM methods. Studies of parametric uncertainties applied to reinforced concrete frame bents- potentially idealized as SDOF systems- are conducted demonstrating the effect of randomness and uncertainty of various relevant properties, shaping both mass and stiffness, on the variance (i.e., relative error) in the estimated period of vibration. Correlation between mass and stiffness parameters – regarded as random variables – is also thoroughly discussed. According to achieved results, a relative error in the period of vibration in the order of 19% for new designs/constructions and of about 25% for existing structures for assessment purposes – and even climbing up to about 36% in some special applications and/or circumstances – is acknowledged when adopting estimates gathered from the literature for relative errors in the relevant random input variables.

Keywords: Period of vibration; Mass; Stiffness; Error propagation; Monte carlosimulation.

Dept. of Systems and Biomedical Engineering

79. Detection of Biomarkers for Hepatocellular Using a Hybrid Univariate Gene Selection Methods

Nagwan M. Abdel Sameea, Nahed H. Solouma and Yasser M. Kadah

*Theoretical Biology and Medical Modelling, (*2012). IF: 1.859

Background: Discovering new biomarkers has a great role in improving early diagnosis of Hepatocellular carcinoma (HCC). The experimental determination of biomarkers needs a lot of time and money. This motivates this work to use in-silico prediction of biomarkers to reduce the number of experiments required for detecting new ones. This is achieved by extracting the most representative genes inmicroarrays of HCC.
Results: In this work, we provide a method for extracting the differential expressed genes, up regulated ones, that can be considered candidate biomarkers in highthroughput microarrays of HCC. We examine the power of several gene selection methods (such as Pearson's correlation coefficient, Cosine coefficient, Euclideandistance, Mutual information and Entropy with different estimators) in selecting informative genes. A biological interpretation of the highly ranked genes is done using KEGG (Kyoto Encyclopedia of Genes and Genomes) pathways, ENTREZ and DAVID (Database for Annotation, Visualization, and Integrated Discovery) databases. The top ten genes selected using Pearson's correlation coefficient and Cosinecoefficient contained six genes that have been implicated in cancer (often multiple cancers) genesis in previous studies. A fewer numberof genes were obtained by theother methods (4 genes using Mutual information, 3genes using Euclidean distance and only one gene using Entropy). A better result was obtained by the utilization ofa hybrid approach based on intersecting the highly rankedgenes in the output of all investigated methods. This hybrid combination yielded seven genes (2 genes forHCC and 5 genes in different types of cancer) in the top ten genes of the list of intersected genes.
Conclusions: To strengthen the effectiveness oftheunivariate selection methods, we propose a hybrid approach by intersecting several of these methods in a cascaded manner. This approach surpasses all of univariate selection methods when used individually according to biological interpretation and theexamination of geneexpression signal profiles.
Keywords: Bioinformatics; Gene selection; Statistics.

80. Influenza a Subtyping and Host Origin Classification Using Profile Hidden Markov Models

Fayroz F. Sherif, Yasser M. Kadah and Mahmoud El-Hefnawi

Journal of Mechanics in Medicine and Biology, (2012). IF: 0.468

Influenza is one of the most important emerging and reemerging infectious diseases, causing highmorbidity and mortality in communities (epidemic) and worldwide (pandemic). Here, classification of human vs. non-human influenza, and subtyping of human influenza viral strains virus is done based on profile hidden Markov models (HMM). The classical ways of determininginfluenza viral subtypes depend mainly on antigenic assays, which is time-consuming and not fully accurate. The introduced technique is much cheaper and faster, yet usually can still yield high accuracy. Multiple sequence alignments were done for the 16 HA subtypes and 9 NAsubtypes, followed by profile-HMMs models generation, calibration and evaluation using the HMMER suite for each group. Subtyping accuracy of all HA and NA models achieved 100%, while host classification achieved accuracies around 53% and 95.1% according to HA subtype.
Keywords: Bioinformatics; Hidden markov model; Influenza subtyping.

81. Wavelet Domain Bilateral Filtering With Subband Mixing For Magnetic Resonance Image Enhancement

Zeinab A. Mustafa, Banazier A. Abrahim, Inas A.Yassine, Nourhan Zayed and Yasser M. Kadah

Journal of Medical Imaging and Health Informatics, (2012)

A method for magnetic resonance image denoising based on wavelet domain bilateral filtering (WDBF) is proposed. The main problem in bilateral filtering based methods is that the choice of filtration parameters has a trade-off between preserving edges andnoise removal. In this work, a solution that would allow different components of the image to be filtered using different parameters is presented. The bilateral filtering is applied in a customized manner to different wavelet subbands and followed by subband mixing to form the final image. The proposed method is implemented to filter magnetic resonance images and verified both qualitatively and quantitatively. Verification of the new method was carried out on synthetic as well as real data sets. Qualitative and quantitative comparisons with present techniques indicate that the proposed method produces superior denoisingresults and suggesting potential for clinical application to boost the signal-to-noise ratio of low magnetic field scanners.
Keywords: Magnetic resonance imaging; Denoising algorithms; Multiresolution processing; Method noise; Wavelet transform; Bilateral filter; Image quality factor; Gaussiannoise.

82. Hybrid Total Variation and Wavelet Thresholding Speckle Reduction for Medical Ultrasound Imaging

Banazier A. Abrahim, Zeinab A.Mustafa, InasA. Yassine, Nourhan Zayed and Yasser M. Kadah

Journal of Medical Imaging and Health Informatics, (2012)

Ultrasound imaging is a widely used and safe medical diagnostic technique, due to its noninvasive nature, lowcost, capability of forming real time imaging, and the continuing improvements in image quality. However, theusefulness of ultrasound imaging isdegraded by the presence of signal dependent noise known as speckle. In this paper, we propose a new method for speckle reduction and coherence enhancement of ultrasoundimages based on a hybrid of total variation (TV) method and wavelet thresholding. Inthis model, a noisy imageis decomposed into four subbands in wavelet domain. The low frequency subband contains the low frequencycoefficients with less noise that can be easily eliminated using TV-based method. More edges and other detailed informationlike textures are contained in the other three subbands the wavelet based soft thresholding is applied on these three subbands. In the last step we use TV method to get the final denoised image since the TV is the ability of preserving edge is smoothening by wavelet thresholding. The proposed method is compared withprevious methods as applied to simulated and real data using quantitative quality evaluation metrics to showthe advantage of the new method.

Keywords: Ultrasound imaging; Speckle reduction; Total variation; Wavelet thresholding.

83. Automatic Detection of Melanoma Skin Cancer Using Texture Analysis

Mariam A.Sheha, Mai S.Mabrouk and Amr Sharawy

International Journal of Computer Applications, (2012)

Melanoma is considered the most dangerous type of skincancer. Early and accurate diagnosis depends mainly onimportant issues, accuracy of feature extracted and efficiency of classifier method. This paper presents an automated method for melanoma diagnosis applied on a set ofdermoscopy images. Features extracted are based on graylevel Co-occurrence matrix (GLCM) and Using Multilayerperceptron classifier (MLP) to classify between MelanocyticNevi and Malignant melanoma. MLP classifier was proposedwithtwo different techniques in training and testing process: Automatic MLP and Traditional MLP. Results indicated that texture analysis is a useful method for discrimination of melanocytic skin tumors with high accuracy. The first technique, Automatic iteration counter is faster but the second one, Default iteration counter gives a better accuracy, which is 100 % for the training set and 92 % for the test set.

Keywords: Texture analysis; Glcm, cad; Melanocytic nevi; Melanoma; Ann; Mlp.

84. Principles, Applications, and Technology of Craniofacial Bone Engineering

Mona K.Marei, Mohamed A. Alkhodary, Rania M. Elbackly, Samir H. Zaky, Ahmed M. Eweida, Muhammed A. Gad, Naglaa Abdel-Wahed and Yasser M. Kadah

Integrated Biomaterials in Tissue Engineering, Published by Wiley, (2012)

Currently, there are increasingly urgent demands for various biomedical bone implants to repair craniofacial bone defects, damages caused by bone fractures, bone cancer, infections, and other injuries. However conventional tissue replacement, such as autografts and allografts cannot meet the quantity and performance needed, and remain an issue of legitimate concern which could lead to patient dissatisfaction. Treatments directed to enhanced bone healing and restoration of function benefit from the effort of tissue engineering strategies that combine the three main components of natural bone: cells, growth factors and scaffold. Increasingly, experimental evidence supports the notion that stem cells can adjusttheir properties according to their surrounding and select specific lineages according to the cues they receive from their niche .it is apparent that the complexity of biological processes dwarfs the sophistication of the current generation of therapy intended to direct accelerate, repair, and regenerate tissues. for this reason, the present strategies of tissue engineering are focused on recapitulating the cascade of embryonic tissue development, with a particular interest in the growth of a robust blood vessel network within the new tissues. Decades of contemporary biomedical research have focused primarily on understanding the mechanisms of biological functions in health and disease. This is a departure from conventional therapy toward strategic tissue engineering for craniofacial bone, and extends beyond to a new concept of healing for clinical practice. in this chapter, we will engineer the strategy, the roadmapping, and the principle of craniofacial bone therapy. The concept of this novel approach is discussed from a basic and clinical point of view. The auspice of regenerative dental therapy has relied on the interdisciplinary fields by its nature to make it feasible for mankind.

(3)
Medical Sciences Sector

Faculty of Medicine

Dept. of Andrology & Sexolog

85. Non-obstructive Azoosperimia: Evaluation and Management

Ibrahim Fahmy

Clinical Infertility and in Vitro Fertilization, Jaypee Brothers Medical Publishers, (2012)

NOA result from a wide variety of congenital and acquired causes. Genetic basis play a crucial A complete andrological work-up including hormonal profile is essential to estabkish the diagnosis of NOA and exclude frequently associated disorders. Sperm extraction from the testis with ICSI is an established standard treatment. Testicular histopathology remains the best predictive indicator for sperm retrieval. Future studies in NOA should report histopathology using a comparable classification system. Current guidelines on surgical sperm retrieval techniques for NOA are only based on observational studies; hence no definitive conclusions can de drawn However, best available evidence suggests that open biopsy is better than needle aspiration Multiple biopsies yield better results than a single random biopsy. Micro-dissection TESE may improve the yield and sacrifice less testicular tissue especially in patients with SCOS. There is no difference in the outcome with the use of fresh or frozen testicular sperm. However in some cases, the cryopreservation process may not allow adequate recovery of viable sperm. Finally, further research should focus on new techniques that can help improving the sperm retrieval rates.

Dept. of Clinical & Chemical Pathology

86. FcγRIIa and FcγRIIIa Genetic Polymorphisms in a Group of Pediatric Immune Thrombocytopenic Purpura in Egypt

Eyada, Tayseer K.; Farawela, Hala M.; Khorshied, Mervat M.; Shaheen, Iman A.; Selim, Neama M.; Khalifa and Iman A.S.

Blood Coagulation and Fibrinolysis, (1): 64 -68 (2012). IF: 1.238

Immune thrombocytopenic purpura (ITP) is an acquired autoimmune disorder caused by the production of antiplatelet antibodies. The current case-control study aimed at detecting the frequency of FcγRIIa-131H/R and FcγRIIIa-158F/V genes polymorphism in Egyptian children with ITP as genetic markers for ITP risk, and to clear out their possible role in choosing the treatment protocols of ITP. To achieve this aim, FcγRIIa genotyping was tested by PCR-restriction fragment length polymorphism (RFLP) technique, whereas FcγRIIIa genotyping was tested by nested PCR followed RFLP analysis. The current case-control study was conducted on 92 children with ITP; 12 acute and 80 chronic cases and 90 controls. The V allele and FcγRIIIa FV heterotype were significantly higher in ITP patients and conferred increased ITP risk [odds ratio (OR)=1.96 and 2.55, respectively]. The frequency of FcγRIIa H allele was significantly higher among chronic ITP patients. In conclusion, FcγRIIIa gene polymorphism may contribute to susceptibility to ITP. Moreover, analysis of the FcγR polymorphisms in ITP patients could influence the effectiveness of medications and selection of the line of treatment.

Keywords: Childhood itp; Fcgr iia; Fcgr iiia; Pcr-restriction fragment length polymorphism.

Dept. of Dermatology

87. Hair Loss in Pityriasis Versicolor Lesions: A Descriptive Clinicopathological Study

Wedad Z. Mostafa, Magda I. Assaf, Iman A. Ameen, Omar S. El Safoury and Shatha A. Al Sulh

Journal of the American Academy of Dermatology, 69 (1): e19-e23 (2012). IF: 3.99

Background We have observed that hair thinning and/or loss occur at times as a presenting symptom or sign in patients with pityriasis versicolor (PV). Objective Our objective was to verify and explore this clinical observation and depict its underlying pathology. Methods A total of 39 patients with PV were examined during a period of 11 months and skin biopsy specimens were taken from lesional and nonlesional skin. Hematoxylin-eosin– and periodic acid–Schiff–stained sections were examined and described. Results were statistically analyzed. Results Hair loss and/or thinning within PV lesions was shown in 61.5% of patients (P value < .0005), appearing most commonly on forearms, abdomen, and neck as well as the beard area (only in male participants). Histopathologically, in addition to the classically described features of PV, basal hydropic degeneration, follicular degeneration, miniaturization, atrophy, plugging, and/or hair shaft absence occurred in 46% of lesional versus 20.5% of nonlesional biopsy specimens (P value < .05); these changes appeared to be directly or indirectly related to the presence of Malassezia organisms in hair follicles and/or stratum corneum. Limitations Some patients with PV lesions on the face did not approve facial biopsy. Conclusion This study provides clinical and histopathological evidence that PV lesions may be associated with hair thinning and/or loss.

Keywords: Hair loss; Hair shaft; Histopathology; Hydropic degeneration; Hyphae; Malassezia; Pityriasis versicolor.

Dept. of Diagnostic Radiology

88. Repeated Transarterial Chemoembolisation using Different Chemotherapeutic Drug Combinations Followed by Mr-Guided Laser-Induced Thermotherapy in Patients with Liver Metastases of Colorectal Carcinoma

TJ Vogl, A Jost, NA Nour-Eldin, MG Mack, S Zangos and NNN Naguib

British Journal of Cancer,106 (7): 1274-1279 (2012). IF: 5.042

Background: To evaluate a treatment protocol with repeated transarterial-chemoembolisation (TACE) downsizing before MR-guided laser-induced interstitial thermotherapy (LITT) using different chemotherapeutic combinations in patients with unresectable colorectal cancer (CRC) liver metastases.

Methods: Two hundred and twenty-four patients were included in the current study. Transarterial-chemoembolisation (mean 3.4 sessions per patient) was performed as a downsizing treatment to meet the LITT requirements (number≤5, diameter <5 cm). The intra-arterial protocol consisted of either Irinotecan and Mitomycin (n=77), Gemcitabine and Mitomycin (n=49) or Mitomycin alone (n=98) in addition to Lipiodol and Embocept in all patients. Post TACE, all patients underwent LITT (mean 2.2 sessions per patient).

Results: Overall, TACE resulted in a mean reduction in diameter of the target lesions of 21.4%. The median time to progression

was 8 months, calculated from the start of therapy and the median local tumour control rate was 7.5 months, calculated as of therapy completion. Median survival of patients calculated from the beginning of TACE was 23 months (range 4-110 months), in patients treated with Irinotecan and Mitomycin the median was 22.5 months, Gemcitabine and Mitomycin 23 months and Mitomycin only 24 months with a statistically significant difference between the groups (P<0.01).
Conclusion: Repeated TACE offers adequate downsizing of CRC liver metastases to allow further treatment with LITT. The combined treatment illustrates substantial survival rates and high local tumour control with statistically significant differences between the three protocols used. Further randomised trials addressing the current study results are required.
Keywords: Transarterial chemoembolisation; MR-guided laser-induced thermotherapy; Liver metastases; Colorectal carcinoma.

89. Initial Experience with Repetitive Transarterial Chemoembolization (TACE) as a Third Line Treatment of Ovarian Cancer Metastasis to the Liver: Indications, Outcomes and Role in Patient's Management

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

Gynecologic Oncology, 124 (2): 225-229 (2012). IF: 3.888

Objective: To evaluate local tumor control and survival data after transarterial chemoembolization (TACE) with different drug combinations in the palliative third-line treatment of patients with ovarian cancer liver metastases.
Methods: Sixty-five patients (mean age: 51.5 year) with unresectable hematogenous hepatic metastases of ovarian cancer who did not respond to systemic chemotherapy were repeatedly treated with TACE in 4-week intervals. The local chemotherapy protocol consisted of Mitomycin (group 1) (n=14; 21.5%), Mitomycin with Gemcitabine (group 2) (n=26; 40%), or Mitomycin with Gemcitabine and Cisplatin (group 3) (n=25; 38.5%). Embolization was performed with Lipiodol and starch microspheres. Local tumor response was evaluated by MRI according to RECIST criteria. Survival data were calculated according to the Kaplan-Meier method.
Results: The local tumor control was: partial response (PR) in 16.9% (n=11), stable disease (SD) in 58.5% (n=38) and progressive disease (PD) in 24.6% (n=16) of patients. In group 1, we observed SD in 78.6% (11/14), and PD in 21.4% (3/14) of patients. In group 2, PR in 7.7% (2/26), SD in 57.7% (15/26), and PD in 34.6% (9/26) of patients.In group 3, PR in 36% (9/25), SD in 48% (12/25), and PD in 16% (4/25) of patients. Survival rate from the start of TACE was 58% after 1-year, 19% after 2-years, and 13% after 3-years. The median and mean survival times were 14 and 18.5 months without statistically significant difference for the 3 groups of patients (p=0.502).
Conclusion: Transarterial chemoembolization is effective palliative treatment in achieving local control in selected patients with liver metastases from ovarian cancer.
Keywords: Transarterial chemoembolization; Ovarian cancer; Liver metastases.

90. Role of Uterine Artery Doppler in the Management of Uterine Leiomyoma by Arterial Embolization

N. N. N. Naguib, N.-E. A. Nour-Eldin, F. Serag-Eldin, Y. Z. Mazloum, A. F. Agameya, S. Abou-Seif, A. N. Etaby, T. Lehnert, T. Gruber-Rouh, S. Zangos, H. Ackermann and T. J. Vogl

Ultrasound in Obstetricsand Gynecology, 40 (4): 452-458 (2012). IF: 3.007

Objectives: To study Doppler changes in the uterine artery immediately following and 3 months after uterine artery embolization (UAE) and to test the feasibility of using uterine artery Doppler as a predictor of the predominant side of arterial supply to leiomyomas, amount of embolizing material needed and leiomyoma tumor volume at follow-up.
Methods: The study included 38 patients undergoing UAE for leiomyomas. Uterine artery Doppler was performed transabdominally before, within 6 hours after and 3 months after UAE to determine the peak systolic (PSV) and end-diastolic (EDV) velocities and resistance index (RI). Leiomyoma volume was measured using contrast-enhanced magnetic resonance imaging (MRI) before and 3 months after UAE. The predominant side of arterial supply to the leiomyoma was determined on digital subtraction angiography using the uterine artery diameter and tumor blush after contrast injection. For correlations with leiomyoma volume, the average PSV, EDV and RI of both sides was used, while for prediction of the predominant side of supply and for correlation with the amount of embolizing material needed, separate measurements from each side were used. **Results:** Relative to the pre-embolization value, the uterine artery PSV and EDV were significantly reduced ($P < 0.05$) immediately following UAE, while the RI was significantly elevated ($P < 0.05$). For prediction of the predominant side of supply, the lowest RI showed the highest accuracy (81.6%). There was no significant correlation between the pre-embolization PSV, EDV or RI and the amount of embolizing material utilized. Immediately post-embolization EDV and RI values were statistically significantly correlated with the 3-month follow-up leiomyoma volume, with RI showing the strongest correlation ($P = 0.0400$ and 0.0002, rho = 0.34 and - 0.58, respectively). The leiomyoma volume was predicted to have reduced by 38-61% after 3 months if the immediate post-embolization average RI value was between 0.82 and 0.88. **Conclusion:** Pre-interventional Doppler assessment can be used to predict the predominant side of supply to leiomyomas but not the amount of embolizing material needed. Immediate post-interventional Doppler assessment can predict the leiomyoma volume after UAE.
Keywords: Uterine artery doppler; Uterine leiomyoma; Arterial embolization.

91. Mr-Based Thermometry of Laser Induced Thermotherapy: Temperature Accuracy and Temporal Resolution in Vitro at 0.2 and 1.5 T Magnetic Field Strengths

Thomas J. Vogl, Frank Huebner, Nagy N.N. Naguib, Ralf W. Bauer, Martin G. Mack, Nour-Eldin A. Nour-Eldin and Dirk Meister

Lasers in Surgery and Medicine, 44(3): 257-265 (2012). IF: 2.748

Purpose: To evaluate MR-thermometry using fast MR sequences for laser induced interstitial thermotherapy (LITT) at 0.2 and 1.5 T systems.

Methods & Materials: In-vitro experiments were performed using Agarose gel mixture and lobes of porcine liver. MR-thermometry was performed by means of longitudinal relaxation time (T1) and proton resonance frequency shift (PRF) methods under acquisition of amplitude and phase shift images. Four different sequences were used for T1 thermometry: A gradient-echo (GRE), a True Fast Imaging with Steady Precession (TRUFI), a Saturation Recovery Turbo-FLASH (SRTF), and an Inversion Recovery Turbo-FLASH (IRTF) sequence (FLASH-Fast Low Angle Shot). PRF was measured with four sequences: Two fast-spoiled GRE sequences (one as WIP sequence), a Turbo-FLASH (TFL) sequence (WIP sequence), and a multiecho-TrueFISP sequence. Temperature was controlled and verified using a fiber-optic Luxtron device. The temperature was correlated with the MR measurement.
Results: All sequences showed a good linear correlation $R(2) =$ 0.97-0.99 between the measured temperature and the MR-thermometry measurements. The only exception was the TRUFI sequence in the Agarose phantom that showed a non-linear calibration curve $R(2) =$ 0.39-0.67. At 1.5 T, the Agarose experiments revealed similar temperature accuracies of 4-6°C for all sequences excluding TRUFI. During experiments with the liver, the PRF sequences showed better performance than the T1, with accuracies of 5-12°C, contrary to the T1 sequences at 14-18°C. The accuracy of the Siemens PRF-FLASH sequence was 5.1°C. At 0.2 T, the Agarose experiments provided the highest accuracy of 3.3°C for PRF measurement. At the liver experiments the T1 sequences SRTF and FLASH revealed the best accuracies at 6.4 and 7.0°C.
Conclusion: The accuracy and speed of MR temperature measurements are sufficient for controlling the temperature-based tumor destruction. For 0.2 T systems SRTF and FLASH sequences are recommended. For 1.5 T systems SRTF and FLASH are the most accurate.
Keywords: MR-based thermometry; Laser induced thermotherapy.

92. Analysis of Disk Volume before and after Ct-Guided Intradiscal and Periganglionic Ozone-Oxygen Injection for the Treatment of Lumbar Disk Herniation

Thomas Lehnert, Nagy N. N. Naguib, Sebastian Wutzler, Nour-Eldin A. Nour-Eldin, Ralf W. Bauer, Josef Matthias Kerl, Thomas J. Vogl and Joern O. Balzer

Journal of Vascular and Interventional Rdiology, 23 (11): 1430-1436 (2012). IF: 2.075

Purpose: To quantify the change in volume in herniated lumbar disk after computed tomography (CT)-guided intradiscal and periganglionic ozone-oxygen injection and to assess the effects of patient age, sex, and initial disk volume on disk volume changes.
Materials and Methods: A total of 283 patients with lumbar radiculopathy received a single intradiscal (3 mL) and periganglionic (7 mL) injection of an ozone-oxygen mixture (ratio, 3:97; ozone concentration, 30 μg/mL). Under CT guidance, intradiscal and periganglionic injection was performed through an extraspinal lateral approach with a 22-gauge spinal needle. All disk volume changes were evaluated on CT 6 months after the procedure in all patients.
Results: Initial mean disk volume was 17.37 cm (3) ± 4.70 (standard deviation; range, 8.12-29.15 cm(3)). Disk volume reduction (mean, 7.70% ± 5.45; range, 0.29%-22.31%) was seen in 96.1% of treated disks (n = 272) at 6 months after treatment and was found to be statistically significant ($P < .0001$). In 3.9% of patients (n = 11), disk volume increased (mean, 0.59% ± 0.24; range, 0.11%-0.81%). Patient age correlated negatively with disk volume reduction ($r = -0.505$; $P < .0001$) at 6 months after treatment, whereas initial disk volume correlated positively with volume reduction ($r = 0.225$; $P = .00014$) after therapy. No correlation was noted between patient sex and disk volume reduction after treatment ($P = .09$).
Conclusions: Intradiscal administration of medical ozone is associated with a statistically significant volume reduction of the herniated lumbar disk. The volume-reduction effect of ozone correlates negatively with the patient's age and positively with initial disk volume.
Keywords: CT-guided; Intradiscal; Periganglionic; Ozone–oxygen injection; Lumbar disk herniation.

93. Pediatric Primary and Metastatic Neuroblastoma: MRI Findings: Pictorial Review

Nour-Eldin A. Nour-Eldin, Ola Abdelmonem, Ahmed M. Tawfik, Nagy N.N. Naguib, Thomas Klingebiel, Udo Rolle, Dirk Schwabe, Marc Harth, Mohammed M. Eltoukhy and Thomas J. Vogl

Magnetic Resonance Imaging, 30 (7): 893-906 (2012). IF: 1.991

Magnetic resonance imaging (MRI) has become one of the most valuable modalities for initial and follow-up imaging of suspected or known neuroblastoma (NBL) owing to its excellent inherent contrast, lack of ionizing radiation and multiplanar imaging capability. Importantly, NBL has a variable appearance on different imaging modalities, and this is particularly pertinent to MRI. MRI is a cornerstone for management of NBL, providing essential information at initial presentation regarding diagnosis, staging, resectability and relation to vital structures.
It can also define the extent of residual disease after surgical resection or assess the efficacy of treatment. Follow-up MRI is frequently performed to ensure sustained complete remission or to monitor known residual disease. This pictorial review article aims to provide the reader with a concise, yet comprehensive, collection of MR images of primary and metastatic NBL lesions with relevant correlation with other imaging modalities.
Keywords: Pediatric primary; Metastatic; Neuroblastoma; MRI.

94. Retrospective Study on the use of Different Protocols for Repeated Transarterial Chemoembolization in the Treatment of Patients with Hepatocellular Carcinoma

Thomas J. Vogl, Nagy N. N. Naguib, Nour-Eldin A. Nour-Eldin, Parviz Farshid, Thomas Lehnert, Tatjana Gruber-Rouh and Katharina Sophia Engels

Academic Radiology, 19(4): 434-439 (2012). IF: 1.692

Purpose: To evaluate local tumor control and survival rate after repeated transarterial chemoembolization using two different protocols in hepatocellular carcinoma (HCC) patients.
Materials and Methods: A total of 190 patients (mean, 68 years) with HCC were repeatedly treated with transarterial chemoembolization in 4-week intervals. The chemotherapy protocol consisted of mitomycin C alone (n = 111) and mitomycin C with gemcitabine (n = 79). Embolization was performed with

lipiodol and microspheres. Tumor response was evaluated by magnetic resonance imaging using Response Evaluation Criteria In Solid Tumors (RECIST) criteria. Survival rates were calculated using Kaplan-Meier method.
Results: In the mitomycin C-only group, we observed partial response in 38.8% (43/111), stable disease in 27% (30/111), and progressive disease in 34.2% (38/111). In the mitomycin C/gemcitabine group (n = 79), partial response was observed in 43% (34/79), stable disease in 16.5% (13/79) and progressive disease in 40.5% (32/79). The overall 1- and 2-year survival rates were 56% and 28%, respectively. The overall median survival time from the start of transarterial chemoembolization treatment was 15 months. The median survival of patients treated with mitomycin C was 16.5 months and it was 12 months for patients treated with a combination of mitomycin C and gemcitabine. No statistically significant difference between the two groups was observed (P = .7). **Conclusion:** Chemoembolization is an effective minimally invasive therapy option for palliative treatment of HCC patients. Mitomycin C only proves to be effective, the addition of gemcitabine was not advantageous.
Keywords: Transarterial chemoembolization; Hepatocellular carcinoma.

Dept. of Ear Nose & Throat

95. Palatal Eversion: A New Technique in Treatment of Nasopharyngeal Stenosis

G. Abdel-Fattah

International Journal of Pediatric Otorhinolaryngology, 76: 879-882 (2012). IF: 1.167

Objective The treatment of nasopharyngeal stenosis is challenging because of a high incidence of recurrence after surgical correction. Therefore, many treatment modalities are being tried to cure this problem. The aim of this study is to assess the efficacy of palatal eversion as a new technique for treatment of nasopharyngeal stenosis after adenotonsillectomy. Study Design Case series. **Methods** This study was conducted on 12 patients with nasopharyngeal stenosis after adenotonsillectomy were subjected to treatment by palatal eversion by dividing the soft palate in the midline and removal of the fibrous tissue causing stenosis followed by evertion and fixation of the two palatal division on either side for six weeks to allow complete epithelialization of the stenotic area followed by another operation to reunion the soft palate in the midline. Post-operative follow up was done for one year by flexible nasopharyngoscopy, perceptual speech analysis and polysomnography. **Results** Flexible nasopharyngosopic examination of the 12 patients at the end of post-operative period revealed a freely mobile soft palate with no nasopharyngeal stenosis or palatal fistula. Velopharyngeal function and speech assessment by perceptual speech analysis was normal in all 12 cases. No obstructive episodes were recorded in polysomnograms. **Conclusions** Palatal eversion is a promising technique in treatment of post-adenotonsillectomy nasopharyngeal stenosis and it is recommended to be used in a wider scale of patients and other indications as nasopharyngeal stenosis following uvulopalatoplasty and post nasopharyngeal radiotherapy.
Keywords: Nasopharyngeal stenosis; Palatal eversion; Adenotonsillectomy complications.

Dept. of Endemic

96. A Review of Chronic Hepatitis B Epidemiology and Management Issues in Selected Countries in the Middle East

Abdo A.A. Abdou A.M., Akarca U.S., Aljumah A.A., Amir G., Bzeizi K., Dixon J., Al Dweik N.Z., El-Sayed M.H., Esmat G., Jazzar A., Mostafa I. and Nawaz A.A.

J. Viral Hepatitis, 19 (1): 9-22 (2012). IF: 4.088

Experts from seven countries convened as a Specialist Panel for the Middle East to share information on practical issues relating to the epidemiology, diagnosis and management of chronic hepatitis B (CHB) infection. The Middle East is regarded as a region of high-to-intermediate epidemicity; however, infant vaccination programmes have successfully lowered the prevalence of hepatitis B infection in most countries to that of low-to-intermediate endemicity. Vaccine issues still to be addressed included improving coverage in some rural/poor communities, instituting hepatitis B vaccine at birth and providing vaccines for high-risk population groups. Hepatitis B infection in the Middle East primarily occurs as a result of perinatal infection, horizontal transmission between family members and transmission from injections. Blood transfusion services have broadly efficient screening programmes, but immunocompromised and haemodialysis patients are at risk. The cost of screening, monitoring and treating CHB influences practice in a number of Middle East countries, and there is a need for information on the most cost-effective options.
Keywords: Epidemiology; Hepatitis B virus; Middle East; Treatment; Vaccination.

97. Role of Helicobacter Pylori in Patients with HCV-Related Chronic Hepatitis and Cirrhosis with or Without Hepatocellular Carcinoma: Possible Association with Disease Progression

G. Esmat, M. El-Bendary, S. Zakarya, M.A. Ela and K. Zalata

*J. Viral Hepatitis,*19 (7): 473-479 (2012). IF: 4.088

The discovery of Helicobacter hepaticus as a causal agent of hepatitis and hepatocellular carcinoma (HCC) in mice has Stimulated interest in looking for Helicobacter species in human liver samples. In this study, we searched for association between H. pylori and HCV-related liver disease. Liver specimens were collected from eighty-five patients; they were divided into five different groups according to liver pathology (METAVIR system). Group I (the 1st control group) consisted of 16 patients with chronic hepatitis C without histological activity. Group II consisted of 25 patients with chronic active hepatitis C, Group III, 17 patients with HCV-related cirrhosis and Group IV, 16 patients with HCV-related cirrhosis and HCC. Group V (2nd control group) consisted of 11 patients suffering from gastro duodenal and gall bladder diseases but negative for HCV. All cases were tested by polymerase chain reaction on liver samples for the presence of H. pylori DNA Cag A gene. Routine biochemical, radiological and RT-PCR for HCV RNA were also performed for all cases. The positivity of H. pylori PCR CagA gene in liver tissue was directly proportional to the severity of liver pathology, this being 75%, 52.9% and 32% in groups IV, III and II, respectively, which was more significant than the 1st and 2nd control groups (P < 0.001). There was a significant difference

between H. pylori PCRvalues when compared to METAVIR staging (F) in different groups (P = 0.001). Helicobacter pylori PCR (Cag A gene) was positive in about 28.2% cases of late fibrosis (F3 + F4) while positivity was (5.9%) in early fibrosis (F1 + F2) (P = 0.0001). There wassignificant difference between H. pylori PCR (Cag A gene) in liver tissue and METAVIR activity in different groups (P = 0.002) as most of H. pylori PCR–positive cases were METAVIR activity A1 and A2 (15.3% and 12.9%, respectively). There was no association between H. pylori PCR and quantitative HCV RNA (P = 0.531). Also there was no significant difference of Child-Pugh staging in the H. pylori PCR–positive group when compared to the negative group (P = 0.996). There may be an association between the presence of H. pylori (Cag A gene) in the liver and disease progression in HCV-related chronic hepatitis and cirrhosis with and without HCC.
Keywords: Cag A gene; Chronic hepatitis; Cirrhosis; H. Pylori; Hepatitis C virus; Hepatocellular carcinoma; Metavir.

98. Risk Factors for Hepatitis C Virus Acquisition and Predictors of Persistence among Egyptian Children

Esmat G., Hashem M., El-Raziky M., El-Akel W., El-Naghy S., El-Koofy N., El-Sayed R., Ahmed R., Atta-Allah M., Hamid M.A., El-Kamary S.S.and El-Karaksy H.

Liver Int., 32 (3): 449-456(2012). IF: 3.824

Background: Hepatitis C virus (HCV) has a lower prevalence in children and knowledge is limited regarding the natural outcome of HCV infection in children. **Aim:** To study the risk factors of HCV acquisition and predictors of persistence in Egyptian children. **Methods:** Children, 1-9 years of age, were evaluated for acquisition of HCV (anti-HCV positive regardless of viraemia) and persistence of HCV (anti-HCV and HCV-RNA positive) at two paediatric hepatology clinics in Cairo at enrolment and at 3 monthly intervals. Spontaneous clearance of HCV was defined as >= two positive anti-HCV antibody tests with negative HCV-RNA at least 6 months apart. **Results:** Over a 33-month-period a total of 226 children < 9 years of age were screened for HCV antibodies. Of those,146) 65 (%were anti-HCV positive of which 87 (60%) were HCV-RNA positive. The HCV acquisition was more likely to occur in older children (P = 0.003) with comorbid conditions (P < 0.01) compared to anti-HCV negative children. In a multivariate logistic regression analysis, the highest risk factors for HCV acquisition were surgical interventions [odds ratio (OR): 4.7] and blood transfusions (OR: 2.3). The highest risk factor for HCV persistence was dental treatment (OR: 16.9) and male gender (OR: 7.5). HCVpersistence was also strongly associated with elevated baseline alanine aminotransaminase (ALT) levels (OR: 4.9) and fluctuating aspartate aminotransferase (AST) levels (OR: 8.1). **Conclusion**: Although surgical interventions and blood transfusion are significant risk factors for HCV acquisition in Egyptian children, dental treatment remains the highest risk factor for HCV chronic persistence in children.

99. miR-615-5p is restrictedly expressed in Cirrhotic and Cancerous Liver Tissues and its Overexpression Alleviates the Tumorigenic Effects in Hepatocellular Carcinoma

H. M. El Tayebi, K. A. Hosny, G. Esmat, K. Breuhahn and A. I. Abdelaziz

Febs Lett, 586 (19): 3309-3316 (2012). IF: 3.538

MicroRNAs aberrant behavior in heptocellular carcinoma (HCC) plays a major role in HCC pathogenesis. miR-615-5p expression has never been evaluated in HCC. We showed that miR-615-5p was preferentially expressed in HCC, cirrhotic liver tissues and HCC cell lines, but undetected in normal livers. Forced miR-615-5p expression in HCC cell lines led to significant decrease in cell growth and migration. In-silico predication revealed insulin-like growth factor-II (IGF-II) as a potential downstream target for miR-615-5p. Forcing the expression of miR-615-5p showed downregulation of IGF-II mRNA, as well as inhibition of the luciferase activity in a luciferase reporter vector harboring the IGF-II-3'UTR target sequence. miR-615-5p acts as tumor-suppressor in HCC through targeting IGF-II
Keywords: Microrna-615-5P; Heptocellular carcinoma; Proliferation; Migration.

100. Estrogen-Related Mxa Transcriptional Variation in Hepatitis C Virus-Infected Patients

Mekky R.Y., Hamdi N., El-Akel W., Esmat G.and Abdelaziz A.I.

Transl Res., 159 (3):190-196 (2012). IF: 2.986

Sex has been reported to influence the rates of viral clearance in hepatitis C virus (HCV)-infected patients. However, little is known regarding the influence of sex on the host genetic response to HCV, which is mediated by the expression of interferon (IFN)-stimulated genes (ISGs) after the activation of janus kinase (JAK)/signal transducer and activator of transcription (STAT) pathway by IFN. Thus, we investigated gender differences in MxA genetic profile, which is a downstream reliable marker for JAK/STAT pathway activation. In all, 40 untreated HCV-infected patients were subclassified into premenopausal, postmenopausal, and male patients. The peripheral blood mononuclear cells (PBMCs) from premenopausal women showed the highest MxA gene expression compared to both postmenopausal females and males before and after IFN stimulation. The prestimulation of PBMCs with 17beta-estradiol prior to IFN treatment resulted in a decrease of MxA expression in all groups of patients. That was confirmed by the reversal of this effect using estrogen antagonist ICI182/780. This study demonstrates for the first time the presence of gender variations in the genetic response to chronic HCV infection and to interferon treatment. It also clarifies that estrogen is not the key player in enhancing the JAK/STAT pathway.

101. Transcriptional Response of MXA, PKR and SOCS3 to Interferon-Based Therapy in HCV Genotype 4-Infected Patients and Contribution of p53 to Host Antiviral Response

Hamdi N., El-Akel W., El-Serafy M., Esmat G., Sarrazin C. and Abdelaziz A.I.

Intervirology, 55(3): 210-218 (2012). IF: 2.337

Aims: To investigate the myxovirus-resistance protein A (MxA) and double-stranded RNA-activated protein kinase (PKR) genetic response to interferon (IFN) therapy in hepatitis C virus (HCV) genotype 4-infected patients. Moreover, we studied the associationbetween suppressor of cytokine signaling 3 (SOCS3) gene expression and therapy resistance in genotype 4. Finally, we investigated the novel link between p53 and IFN-stimulated genes (ISGs) in humans.

Methods: Gene expression analyses were performed in peripheral blood using TaqMan real-time PCR. Virologic response was assessed with a branched-DNA assay. Genotyping was confirmed.
Results: Early virologic responders (EVRs, n = 23) but not non-EVRs (n = 7) showed strong upregulation of PKR at week 12 of therapy compared to baseline. Both EVRs and non-EVRs showed MxA upregulation at week 12 compared to baseline. Baseline SOCS3 expression did not distinguish EVRs from non-EVRs in genotype 4. An association was found between p53 and MxA and PKR gene expression.
Conclusion: Measurement of MxA and PKR transcriptional induction during treatment may distinguish EVRs from non-EVRs in genotype 4. SOCS3 gene does not seem to be implicated in therapy resistance in genotype 4. An association between p53 and ISGs expression was shown for the first time in HCV-infected patients, further supporting the contribution of p53 to host antiviral response.
Keywords: Hepatitis C virus; Genotype 4; Interferon-α; Peripheral blood mononuclear cells; Myxovirus-resistance protein A; Double-stranded rna-activated protein kinase; Suppressor of cytokine signaling 3, P53.

102. Long Term Follow Up of Sustained Virological Responders to Interferon Therapy for Chronic Hepatitis C Genotype 4: Is there A Possibility of Relapse?

M. El-Raziky, W. El-Akel, M. Anwar, S. El-Kafrawy, M. Abdel-Hamid, MK. Mohammed, H. Kattab, T. Strickland and G. Esmat

Prime Research on Biotechnology (Prb), 2 (1): 6 - 17(2012)

Administration of pegylated interferon with ribavirin improved the virological response rates. Assessment of chronic hepatitis C outcome in sustained responders requires prolonged observation and close monitoring. To estimate the possibility of relapse among sustained virological responders (SVR) to Pegylated Interferon or Convential Interferon therapy for up to three years of follow up. Also to study the characteristics of relapsers and to test the possibility of persistence of HCV RNA in peripheral blood mononuclear cells (PBMCs) or liver tissues of SVR as a risk for relapse. Two hundred patients with chronic HCV (90% genotype IV) were included in a randomized controlled clinical trial for treatment of chronic HCV with either Pegylated Interferon or Conventional Interferon α 2b both with ribavirin for 48 weeks. Eighty-three subjects were SVR. Seventy of the responders were available for follow-up at 24 weeks interval, which was carried out by clinical assessmement and ALT levels evaluation as well as HCV RNA testing in serum, PBMCs and liver tissues. Sequencing of the HCV RNA was performed in the initial stored blood samples and in those who were viral positive during the follow up period. We followed the responders for a mean follow up period of 143 weeks (range 108-174) after end of therapy. Most of the patients (84.3%) reported the disappearance of side effects developed while on treatment with significant increase in their Body Mass Index. During the follow up period elevated ALT was found in 6% (max 1.85 folds) HCV RNA was present in 10% of the tested sera, in 1.5 % of PBMCs in absence of serum viraemia, and in none of liver tissues. Paired sequencing revealed completely different genotyping for each of the patients when comparing pre-treatment and end of follow up samples. HCV re-infection rather than relapse occurred in genotype 4 Egyptian patients with SVR to interferon based combined therapies which proved to be safe on the long term
Keywords: SVR; HCV; Relapse; Re-infection; PEG; INF.

Dept. of Internal Medicine

103. CRP and Acute Renal Rejection: A Marker to the Point

Amin Roshdy, Mohamed M. El-Khatib, Mary N. Rizk and Amal M. El-shehaby

Int. Urol. Nephrol., 44: 1251-1255 (2012). IF: 1.471

Objectives: C-reactive protein (CRP) is increased in end-stage renal disease patients. Recent studies have shown positive associations between inflammatory markers and cardiovascular mortality in kidney transplant recipients. The aim of the present study was to examine the correlation between CRP and early detection of renal allograft rejection. Furthermore, investigate the association between pretransplant levels of CRP with the development of acute renal allograft rejection as a possible predictive marker.
Methods: Ninety-one renal transplant recipients were sequentially analyzed. The median follow up of patients was 8 weeks. Basal and 8 weeks post transplant CRP levels were assessed.
Results: CRP levels were significantly higher in allograft rejection both in the pretransplant (n = 25, P = 0.001) and postransplant (n = 33, P = 0.001) phases when compared to those without rejection. By stepwise multiple regression analysis, rejection in transplanted patients was independently correlated to albumin/creatinine ratio and CRP 8 weeks after transplantation.
Conclusion: Elevated pretransplant serum CRP level is a risk predictor for acute rejection episodes and may be a useful predictive marker in the follow-up of post-transplantation patients.
Keywords: Renal transplant; CRP; Acute rejection; Inflammation.

104. Sirolimus Produced S-Shaped Effect on Adult Polycystic Kidneys after 2-Year Treatment

A. Soliman, S. Zamil, A. Lotfy and E. Ismail

Transplantation Proceedings, 44: 1251-1255 (2012). IF: 1.005

This double-blind trial followed 16 patients with autosomal dominant polycystic kidney disease (ADPKD) who received telmisartan or sirolimus plus telmisartan for 24 months. The 6-month pilot study showed a promising effect of sirolimus. The primary metric of this 2-year study was the change in total kidney volume at 12 and 24 months, as measured on magnetic resonance imaging. Secondary outcome was changes in renal function from the baseline at months 12 and 24. Among patients receiving sirolimus, the mean total kidney volume increased from 2845 mL to 3381 mL at 1 year and to 3901 mL at 2 years versus placebo values increasing from 2667 mL to 3680 mL and 3776 mL, respectively. The posttreatment mean total kidney volume increased less on sirolimus (P = .07) versus control therapy (P = .05) after 1 year, but there was no difference at 24 months. Kidney volume was stable on sirolimus to 12 months, increasing steadily to 24 months. In contrast, kidney volume increased steadily among patients on telmisartan alone both at 12 and 24 months. In conclusion, sirolimus appeared to retard kidney

growth among patients with ADPKD during the first 6 months of therapy but not to halt growth thereafter, thus eliciting S-shaped effect. The dose of sirolimus (1 mg per day) was associated with a low rate of side effects similar those observed in kidney transplantation.

Keywords: Sirolimus; Polycystic kidneys; Renal failure.

105. The Growing Burden of End-Stage Renal Disease in Egypt

Amin Roshdy Soliman, Ahmed Fathy and Dalia Roshd

Renal Failure, 34: 425-428 (2012). IF: 0.824

Background: End-stage renal disease (ESRD) has significantly increased in developing countries such as Egypt. Diabetes mellitus is still the leading cause of ESRD, while numbers of hypertensive patients among that population have significantly risen.

Materials and Methods: The data presented in this article were obtained from various nephrology centers in response to the specific questionnaires distributed by the researchers.

Results: Hemodialysis is available in most parts of the country. Continuous ambulatory peritoneal dialysis and renal transplantation programs have been performed in few nephrology centers. Costs for dialysis and renal transplantation are still unaffordable for most patients with ESRD. Since the cost burden has significantly increased, nephrology services should be changed from curative medicine to preventive medicine. Currently, the Egyptian Ministry of Health plans to have a detection and prevention program for chronic kidney disease.

Conclusion: These data give the impression that both incidence and prevalence rates of ESRD in various areas of Egypt are increasing over time, although the rates presented here are far lower than expected.

Keywords: Incidence; Prevalence; End-stage renal disease; Egypt.

Dept. of NeuroSurgery

106. Bilateral Occlusion of the Foramina of Monro after Third Ventriculostomy

Ehab El Refaee, Joerg Baldauf and Henry W. S. Schroeder

Jounal of Neurosurgery, 116: 1333-1336 (2012). IF: 2.965

Occlusion of both foramina of Monro following third ventriculostomy is a very rare complication. The authors present the case of a 30-year-old female who underwent endoscopic third ventriculostomy (ETV) for occlusive hydrocephalus due to aqueductal stenosis. Thirty months after the ETV, she reported recurrent headaches. Magnetic resonance imaging demonstrated bilateral enlargement of the lateral ventricles with a collapsed third ventricle caused by bilateral stenosis of the foramina of Monro. Left-sided endoscopic foraminoplasty and stenting of the left foramen of Monro were performed with immediate neurological improvement.

Keywords: Endoscopic third ventriculostomy; Foraminoplasty; Foramen of monro; Stent; Hydrocephalus; Functional neurosurgery.

Dept. of Ophthalmology

107. Repeatability of Pachymetric Mapping using Fourier Domain Optical Coherence Tomography in Corneas with Opacities

Nehal M. Samy El Gendy, Yan Li, Xinbo Zhang and David Huang

Cornea, 31: 418-423 (2012). IF: 1.733

Purpose: To evaluate the repeatability of Fourier domain optical coherence tomography (OCT) pachymetric mapping in patients with corneal opacities and to assess the reliability of Fourier domain OCT with 830 nm wavelength as a pachymetric measurement tool in opaque corneas.

Methods: A Fourier domain OCT system was used to map the corneal thickness of patients with corneal scars or dystrophy. A retrospective study of a consecutive series was conducted. The repeatability was measured using pooled standard deviation of repeated measurements. A slit-scanning tomography device provided pachymetric mapping for comparison.

Results: Seventeen eyes of 12 patients with corneal scars (7 trauma and 3 post infection) or dystrophy (2 Reis–Bucklers and 5 granular dystrophy) were included. The posterior corneal boundary was detectable in all cases. The average corneal thickness measured by OCT was 536 ± 89 μm in central 2 mm area, 553 ± 76 μm in pericentral 2- to 5-mm area, and 508 ± 93 μm for the minimum corneal thickness. The slit-scanning tomography central corneal thickness, 433 ± 111 μm, was significantly lower than OCT readings (mean difference −91.1 ± 33.3 μm, P = 0.002). Repeatability of the OCT measurements was 2.1 μm centrally and 1.2 μm pericentrally.

Conclusion: Pachymetric mapping with Fourier domain OCT was highly repeatable. Fourier domain OCT is a reliable pachymetric tool in opaque corneas. In comparison, corneal thickness measured by the slit-scanning tomography is significantly thinner than those measured by the Fourier domain OCT in the presence of corneal opacities.

Keywords: Fourier domain optical coherence tomography; Pachymetry map; Corneal opacities; Repeatability; Corneal scar; Corneal dystrophy.

108. Role of Prisms in the Management of Horizontal Deviations

Rehab Rashad Kassem

Advances in Eye Research, 2 (2012)

Prisms have a role both in the evaluation and in the treatment of strabismus. Prisms are used to measure the angle of strabismus, using 3 tests: Krimsky test, alternate prism and cover test or simultaneous prism and cover test. The prism is applied with its apex towards the deviation in all 3 tests. In Krimsky test, light is shone on the patient's eyes and the prism power is increased till the light reflex is central in both eyes. In the alternate prism and cover test, the alternate cover test is performed and the prism power is increased till the deviation is neutralized as determined when the refixation movement of the eye is abolished. In the simultaneous prism and cover test, the cover-uncover test is performed and the prism power is increased till the deviation is neutralized. The prism adaptation test is used to disclose the full deviation and determine the potential for fusion. In this test, Fresnel prisms equivalent to the patient's measured deviation are worn for 1 week. If the deviation increases, the Fresnel prisms are

changed to ones of a higher power, and the process is repeated till stability of the deviation. Surgery is performed for the full deviation. In case of paralytic strabismus, the patient complains of diplopia. Surgery has to be postponed for 6 months to wait for spontaneous resolution. Meanwhile, prisms are also used to abolish diplopia as a temporary measure

Dept. of Orthopaedic

109. Critical Analysis of Tibial Fracture Healing Following Unreamed Nailing

Salem KH.

Int. Orthop, 36 (7): 1471-1477 (2012). IF: 2.025

Purpose: Unreamed nails have revolutionised the treatment of tibial shaft fractures. Many authors, however, have reported increasing bone healing complications with these implants. Unfortunately, few studies have addressed the factors affecting bone healing after unreamed tibial nailing.
Methods: One-hundred and sixty tibial fractures in 158 patients (mean age 39.5 years) fixed using unreamed nails were reviewed. There were 78 AO type-A, 65 type-B and 17 type-C fractures (115 closed and 45 open fractures). Twelve patient, injury and surgery variables were analysed for their influence on fracture healing.
Results: Union occurred in all fractures after a mean time of 24.3 weeks. Additional surgery to achieve union, apart from dynamisation, was done in nine (6%) cases. The most important variables affecting healing were the mechanism of trauma (p=0.005), fracture site gap (p=0.01), degree of comminution (p=0.0003), associated soft tissue injuries (p=0.02) and the time to dynamisation (p=0.0001).
Conclusions: High-energy trauma and fracture comminution have a negative impact on bone union and require close follow-up. It is essential to avoid distraction over three millimetres with unreamed nailing. Dynamisation is advised within ten weeks in axially stable fractures to encourage bone healing and avoid failure of the locking screws.

110. Resistant Plantar Fasciopathy: Shock Wave versus Endoscopic Plantar Fascial Release

Yasser A. Radwan, Ali M. Reda Mansour and Walid S. Badawy

International Orthopaedics, 36: 2147-2156 (2012). IF: 2.025

Purpose: To compare the results of Extracorporeal shock wave (ESWT) with a modified endoscopic plantar fasciotomy technique for the treatment of recalcitrant heel pain.
Method: Sixty-five patients suffering from chronic heel pain that failed to respond to standard nonoperative methods were randomized to undergo either high-energy extracorporeal shock wave therapy (group 1), or modified endoscopic plantar fasciotomy (group 2). The primary outcome measure was the reduction of pain in the two groups from base line to month three post intervention at the first few steps in the morning. In addition, patients' functions were assessed using American Orthopedic Foot and Ankle-Hindfoot Scale (AOFAS) at week three, month three, and month 12 postintervention, and finally, Roles and Maudsley scores were assessed. The primary analysis was intention-to-treat and involved all patients who were randomly assigned.
Results: Both groups achieved improvement from the base line at 3 weeks, 3 months and 12 months post-intervention. The success rate (Roles and Maudsley score excellent and good) in the ESWT group at month 12 was 70.6 %, while in the fasciotomy group, the success rate was 77.4 % ($p = 0.19$).
Conclusion: In patients who had experienced failure of conventional treatment of plantar fasciopathy, both endoscopic plantar fasciotomy and shock wave therapy can be potentially helpful lines of management.
Keywords: Endoscopic; Plantar fascia; Shock wave.

111. Percutaneous Distal Metatarsal Osteotomy versus Distal Chevron for Correction of Mild-To-Moderate Hallux Valgus Deformity

Yasser A. Radwan and Ali M. Reda Mansour

Archives of Orthopaedic and Trauma Surgery,132: 1539-1546 (2012). IF: 1.369

Purpose: A lot of procedures were described for managing hallux valgus deformity. Percutaneous metatarsal osteotomies have received increasing recognition in the previous decade. The proposed benefits revolve primarily around the shorter surgical time, lower incidence of complications, and higher patient satisfaction. However, there is insufficient evidence to determine whether this technique is comparable to traditional open approaches.
Materials and methods: A total of 64 consecutive feet (53 patients) with mild-to-moderate symptomatic hallux valgus were randomly assigned into two groups to compare the results of percutaneous distal metatarsal osteotomy (group I, 31 feet) and distal chevron osteotomy (group II, 33 feet). All patients were clinically assessed using the American Orthopedic Foot and Ankle Society (AOFAS) scoring system. Radiographical assessment was done using the hallux valgus angle (HVA) and intermetatarsal angle (IMA). Results: The mean correction of HVA and IMA achieved in group I was 14.4° and 4.8°, respectively, while in group II, it was 13.1° and 3.9°, respectively. The mean AOFAS score improved from a pre-operative of 44.6 points to 90.2 points in group I, and from 47.5 points to 87.7 points in group II. In group I, 26/29 patients (89.6 %) were happy with the cosmetic results of the surgery, compared to 20/31 patients (64.5 %) in group II.
Conclusion: The results of this study support the idea that percutaneous distal metatarsal osteotomy yields good functional and radiological result and is associated with a high degree of postoperative patient satisfaction.
Keywords: Hallux valgus; Percutaneous; Osteotomy.

112. Electrostimulation with or Without Ultrasound-Guidance in Interscalene Brachial Plexus Block for Shoulder Surgery

Mohamed H. Salem, Jörg Winckelmann, Peter Geiger, Hans-Hinrich Mehrkens and Khaled H. Salem

J. Anesth, 26 (4): 610-613 (2012). IF: 0.831

In a prospective controlled trial to compare conventional interscalene brachial plexus block (ISBPB) using anatomic landmarks and electro-stimulation with a combined technique of ultrasound guidance followed by nerve stimulation, 60 patients were randomized into 2 matched equal groups: Group A using nerve stimulation (NS) alone and Group B using the combination of ultrasound and NS. The time to detect the plexus (3.9 ± 4 min

in Group A and 3.3 ± 1.4 min in Group B) was not significantly different. We needed to reposition the needle once (n = 13) or twice (n = 4) in Group B. First-shot motor response was achieved in all but one patient in Group A; here we were only able to locate the plexus by use of ultrasound. None of the patients needed general anaesthesia. There were no significant differences between postoperative pain, motor power, or patient's satisfaction. ISBPB seems similarly effective using electro-stimulation and ultrasound if performed by experienced anesthesiologists.

Keywords: Ultrasound; Nerve stimulation; Interscalene brachial plexus block.

Dept. of Pediatrics

113. Biomarkers and Early Detection of Late Onset Anthracycline-Induced Cardiotoxicity in Children Hematology

Sherief LM., Kamal AG., Khalek EA., Kamal NM., Soliman AA. and Esh AM

Hematology, 17 (3): 151-156 (2012). IF: 1.487

The main strategy for minimizing anthracycline cardiotoxicity is early detection of high-risk patients.

Aim of the Study: To investigate the role of cardiac biomarkers; cardiac troponin T (cTnT) and N-terminal probrain natriuretic peptide (NT-pro-BNP), and tissue Doppler imaging (TDI), as early predictors of chronic cardiotoxicity in survivors of acute leukemia.

Patients and Methods: We carried a retrospective study on 50 asymptomatic survivors of acute leukemia who received anthracycline in their treatment protocols. All patients underwent blood sampling to determine the levels of NT-pro-BNP and cTnT along with conventional echocardiography and TDI.

Results: None had abnormal cTnT levels. About 20% had abnormal NT-pro-BNP levels. Diastolic dysfunction of the left ventricle was the most significant in conventional echocardiography. TDI was superior as it detected myocardial affection in 10% more than echo. TDI demonstrated global myocardial damage with significant aberrations in peak myocardial velocities and ratios.

Conclusions: NT-pro-BNP can be used as a sensitive cardiac biomarker in monitoring of anthracycline-induced cardiotoxicity. Follow up is essential to validate the role of NT-pro-BNP as an early marker for late onset anthracycline-induced cardiotoxicity. Tissue Doppler is marvelous as it could detect early cardiac dysfunction even in those with normal study by conventional echocardiography.

Keywords: Biomarkers; Anthracycline; Cardiotoxicity; Leukemia; Children.

114. Diarrhea in Neutropenic Children with Cancer: an Egyptian Center Experience, with Emphasis on Neutropenic Enterocolitis

Laila M. Sherief, Mohamed R. Beshir, Naglaa Mohamed Kamal, Maha K. Gohar and Ghada K. Gohar

Indian Journal of Medical and Paediatric Oncology, 33 (2): 95-101 (2012)

Background: Diarrhea is a frequent complication in children with cancer who received intensive chemotheraputic regimens. It may be caused by several factors, neutropenic enterocolitis (NE) being the most serious.

Aim: To study diarrhea in neutropenic cancer patients in the pediatric age group, with its underlying etiologies and risk factors, especially the bacterial causes, with special concern on NE.

Materials and Methods: This study was carried out at the Pediatric Hematology and Oncology Units, Zagazig University Hospitals, Egypt, from January 2009 to September 2010. All children with malignant diseases who are ≤12 years of age were included. Patients who were neutropenic (<500/ mm(3)) on admission or who became neutropenic during their stay in the hospital were monitored regularly (daily) for diarrhea. Neutropenic cancer patients with diarrhea were grouped into two groups: Group 1, with NE, and group 2, with neutropenic diarrhea rather than NE. On the first day of diarrhea, patients were subjected to complete blood count, blood cultures, stool microscopy and culture. Abdominal ultrasonography was carried out within 3 days of diarrhea. RESULTS: A total of 200 children ≤12 years old, suffering from different malignancies, with a total of 180 neutropenic episodes were followed. Diarrhea was observed in 100 episodes (55.5%). NE constituted 16% of these diarrheal episodes. All patients with NE had significantly more severe neutropenia, and this was of longer duration than the other group. All patients with NE were febrile, with 100% positive blood culture. Stool analysis diagnosed giardiasis in 4.8% of the non-NE patients and in none of the NE patients, while stool culture was positive in 75% of the NE patients compared with 40.5% of the other group.

Conclusions: Diarrhea is a common complication in neutropenic cancer children. Gram negative bacteria and Candida are the most incriminated pathogens. Duration and severity of neutropenia carry a great risk for the development of NE.

Keywords: Cancer; Children; Diarrhea; Neutropenia; Neutropenic enterocolitis.

Dept. of Physiology

115. Study of the Effect of Mesenchymal Stem Cells on Colitis: Possible Role of Galectins

Nashwa El-Tablawy, Laila Ahmed Rashed and Magdy Fouad Youakim

Life Science Journal, 10 (2): 711-721 (2012). IF: 0.073

Background: The anti-inflammatory and reparative properties of mesenchymal stem cells (MSCs) make them a promising tool for treating inflammatory and immune-mediated disorders. T cell dysfunction is undoubtedly a key feature in the pathogenesis of inflammatory bowel disease (IBD). MSCs suppress proliferation and alloreactivity of T cells, where several signaling molecules contribute to this effect. Galectins, a family of β- galactoside binding proteins, now emerge as a main regulator of MSCs immunomodulatory function. However, whether MSCs can be used for treatment of IBD still remains unclear.

Aim: In this study, a dextran sulfate sodium (DSS) - induced colitis model was used to test the effect of infused bone marrow-derived MSCs on immunomodulatory molecules and if they could exert anti-inflammatory effects against experimental colitis.

Methods: The study was carried on female albino rats, which were divided into three groups; Group 1 [Control group], Group 2 [Dextran sulfate sodium (DSS)-induced colitis group] and Group 3 [MSCs treated group]. Serum values of pro-inflammatory cytokines [tumor necrosis factor-alpha (TNF-α) and interleukin 6

(IL6)] as well as anti- inflammatory cytokines [interleukin 10 (IL10) and prostaglandin E_2 (PGE_2)] in the three groups were evaluated quantitatively by enzyme-linked immunosorbent assay (ELISA). Quantitative analysis of galectins 1, 2, 3 and 4 as well as basic fibroblast growth factor (bFGF) gene expression was done by Real Time PCR. Colon sections were stained with hematoxylin and eosin and examined for histopathological changes.
Results: DSS-induced colitis group showed similar findings to that of ulcerative colitis in human, including body weight loss, bloody diarrhea, mucosal inflammation and ulceration. PKH26 labeled bone marrow-derived MSCs accumulated in inflamed regions of the colon, mainly in the submucosa and significantly ameliorated the clinical and histopathologic severity of DSS-induced colitis. Pro-inflammatory cytokines (TNF-α and IL6) were significantly lower in MSCs-treated rats compared to DSS-induced colitis rats. On the contrary, anti-inflammatory cytokines IL10, PGE2 and bFGF were significantly higher in MSCs-treated rats compared to DSS-induced colitis rats. Galectin 1 (Gal1), Galectin 2 (Gal2), Galectin 3 (Gal3) and Galectin 4 (Gal4) were significantly higher in MSCs-treated rats compared to DSS-induced colitis rats.
Conclusions: Systemic infusion of bone marrow-derived MSCs may exert therapeutic efficacy on acute DSS-induced colitis in rats through their immonumodulatory and anti-inflammatory effects, which demonstrates the feasibility of using bone marrow-derived MSCs to treat IBD. Also the results presented in this study illustrate the involvement of the measured members of the endogenous galectin family (galectins 1, 2, 3 and 4) in the experimental model of colitis. The changes in their levels during inflammation evidenced that they play important role in MSCs immunomodulatory and anti-inflammatory actions.
Keywords: Mesenchymal stem cells; Galectins; Colitis.

Dept. of Public Health

116. Schistosomiasis and Soil-Transmitted Helminths among an Adult Population in a War Affected Area, Southern Kordofan State, Sudan

Alaa Hammad Ali Abou-Zeid, Tigani Abdullah Abkar and Rashid Osman Mohamed

Parasites and Vectors, 5 (133): (2012). IF: 2.937

Schistosomiasis remains a major health problem at global and national levels, contributing to the vulnerability of the poor people in Sudan. Southern Kordofan is affected by Schistosomiasis but the disease prevalence was unknown. Methods 1826 adults were recruited in a community-based survey. Each recruited subject submitted at least 10 ml urine and one stool sample; they were also interviewed and filled in a questionnaire. Results 1826 adults were recruited in a community-based survey. Each recruited subject submitted at least 10ml urine and one stool sample; they were also interviewed and filled in a questionnaire. The prevalence of S. haematobium was 6.9% among the adult population. We estimated S. mansoni prevalence as 0.0%. S. haematobium infection was focally distributed at the village level. The infection was associated with non preference of latrine use – if available, use of open water source for household affairs such as cleaning and also with the history of schistosomiasis treatment. The prevalence of soil transmitted helminths (STH) was also reported as high at 7.8%, and two species were identified; Hymenolepis nana and Giardia lamblia. Conclusion Schistosomiasis is a significant health problem among the adult population in Southern Kordofan. The estimated prevalence will serve as a guide in developing a Schistosomiasis Control Program and applying treatment plans.
Keywords: Schistosomiasis; Household; S. haematobium; S. mansoni; Soil-transmitted helminths; Southern kordofan; Sudan.

Dept. of Surgery

117. Tibial Angioplasty in Diabetic Patients: Should All Vessels Be Dilated?

Sayed A., Taha A., Elkholy M., Gelsharnobi H. and Khairy H.

International Angiology, 31: 239-244 (2012). IF: 1.652

Aim: Patients with severe critical limb ischemia (CLI) due to tibial disease are commonly treated nowadays with tibial angioplasty. However, the benefits and complications of treating "more than one tibial vessel" have not yet been determined. This study compares the outcome of angioplasty of one vessel versus that of more than one vessel in patients with CLI due to tibial disease.
Methods: We retrospectively reviewed all consecutive diabetic patients with tibial disease with no concomitant proximal lesions who were treated by angioplasty. Among 82 patients with isolated tibial disease 48 patients were selected. All patients had to have more than one diseased tibial vessel that can be treated by angioplasty. Group A patients (N.=25) had only one tibial vessel treated while group B patients (N.=23) had more than one tibial vessel treated. We compared both groups with respect to patients' characteristics, lesion morphology, and limb salvage rate.
Results: Lesion morphology was worse in group A than B: anterior tibial artery showed more long lesions (17 vs. 8), more multiple lesions (22 vs. 11), and peroneal artery showed more long lesions (23 vs. 10), more multiple lesions (24 vs. 12), and more occlusions (18 vs. 10). Limb salvage rate at 12 months was similar (91%) in both groups. There were 5 complications in each group.
Conclusion: The lesion morphology was worse in group A. Simpler lesions in group B motivated performing more than one vessel angioplasty. There was no difference in the limb salvage rate in the medium term among both groups. Additional vessels angioplasty in less diseased arteries was not associated with substantial additional morbidity.
Keywords: Angioplasty; Lower extremity; Ischemia.

118. Quantitative Analysis of Aesthetic Results: Introducing a New Paradigm

Al Aly, Andre Tolazzi, Shehab Soliman and Albert Cram

Aesthetic Surgery Journal, 32 (1): 120-124 (2012). IF: 1.649

When perusing a plastic surgery journal or attending a plastic surgery meeting, it is evident that the results shown in any given aesthetic presentation are considered by some to be excellent, whereas others deem the same results to be average or less than optimal. This disparity occurs when the interpretation of posttreatment results is based solely on subjective opinion. Certainly, the task of quantifying the results of aesthetic surgery (rather than just subjectively assessing their quality) is immense, but it is essential for aesthetic surgery to follow the trend toward evidenced-based medicine (EBM) that is becoming ingrained in the fabric of the medical profession as a whole.

In fact, the quantification of aesthetic surgery results has more far-reaching ramifications than simply determining objective measures by which results can be judged. Objectively assessing the results of our cosmetic surgeries has the potential to change the way surgery is performed. As we all learn more about the philosophies behind EBM (eg, in the Editorial[1] by Dr. Felmont Eaves and Dr. Andrea Pusic in this month's issue, on page 117), it is helpful to also find support among colleagues who have begun implementing it in their own practices.

To that end, we would like to share with you the ways in which adding quantitative outcomes assessment, which is the cornerstone of EBM, has changed some of our own clinical approaches. Rigorous research has been conducted and published on how to quantify (instead of merely qualify) patient satisfaction outcomes.[2-4] However, as Millard5 taught us, patient satisfaction or dissatisfaction with surgical results should never dissuade us from critically evaluating the results themselves objectively. Thus, it is necessary for us, as plastic surgeons, to adopt a twopronged approach to the critical evaluation of our surgical results: we must understand our patients' satisfaction/ dissatisfaction with those results and conduct objective evaluations of them.

Our ultimate goal in this editorial is to introduce a practical framework for incorporating quantitative analysis measurements into the clinical practice of aesthetic surgery. To begin, it is important that we recognize that what is considered "aesthetic" is based, at least partially, on previous life experiences. A classic example of this from popular media is the nevus on supermodel Cindy Crawford's left cheek. It is an abnormality, but because a previous cultural beauty icon, Marilyn Monroe, had a similar nevus, Crawford's nevus is considered attractive.

There is no method by which we can quantitate this aspect of aesthetics because it varies tremendously between individuals and can sometimes even lead to certain individuals finding considerably unattractive appearances pleasing. Thus, our discussion about quantifiable results will be limited to the "non-environmentally influenced" aspects of aesthetics.

Keywords: Quantitative analysis; Aesthetic results; New paradigm.

Faculty of Oral Dental Medicine

Dept. of Oral and Maxillofacial Surgery

119. Autogenous Transplantation of Maxillary and Mandibular Molars

Maha Negm, Sameh Seif, Khaled El Hayes and Galal Beheiri

Life Science Journal 9 (4): 2804-2812 (2012) IF: 0.073

Objectives: To evaluate the validity and reliability of the autogenous transplantation of maxillary ormandibular molars.

Methods: Ten patients received either a mandibular or maxillary third molar to replace a nonrestorable mandibular first or second molar. The clinical parameters were mobility and probing pocket depth.Radiographic assessment of progress of root development, periapical or periodontal radiolucencies, root resorptionand ankylosis, was done by using digital panoramic radiographs with1:1 magnification correction. All clinicalparameters and panoramic radiographs were taken at 2, 4, 6 and 9 months postoperatively.

Results: The pocketdepth readings and teeth mobility showed statistical significant decrease throughout the study. Regarding theradiographic results, no root resorption or ankylosis and 80% of patients had root development with no observedradiolucencies.

Conclusion: The transplantation of developing molars in growing adults is a viable and reliabletreatment option.

Keywords: Autogenous transplantation; Third molars; Immature root.

Dept. of Oral Pathology

120. Stem Cell-Calcium Phosphate Scaffolds for Bone Engineering

R. Khashaba and M. Moussa

European Cells and Materials, 23 (2012). IF: 3.028

Introduction: Seven million people suffer bone fractures in the US each year [1, 2], and muculoskeletal conditions cost $215 billion annually [1]. These numbers are predicted to increase rapidly as the population ages. Allografts and xenografts raise concerns of immunorejection and disease transmission. Recent advances in tissue engineering have led to the development of new materials and strategies offering immense promise for these patients. The introduction of stem cells into the clinical settings opens new horizons. New injectable calcium phosphate scaffolds with the ability to deliver cells and bioactive factors in minimally invasive surgeries make attractive alternatives to the current conventional treatments. The aim of this study was to 1- develop injectable, mechanically strong titanate- loaded calcium phosphate scaffolds, characterize the physicochemical and biological properties of developed scaffolds. 2- evaluate the cytotoxicity of human bone marrow mesenchymal stem cells (hBMSCs) encapsulated in vitro 3- investigating the effects of CPC-titanate scaffold on the adhesion, proliferation and differentiation of the hBMSCs.

Methods: Cement powder was combined with either polymethylvinyl ether maleic acid or polyacrylic acid and ceramic titanate nanopaticles to obtain Type I and Type II scaffolds respectively. Commercial injectable calcium phosphate cement was selected as control. Phase composition was examined by x-ray diffraction. Setting time, injectability, compressive and diametral strengths were measured and compared with the control. Set scaffolds were placed in cell culture with (hBMSCs). Cellular function, alkaline phosphatase activity (ALP) and osteogenic differentiation were assessed.

Results: X-ray diffraction patterns of Type I and Type II scaffolds showed hydroxyapatite. Setting time was 5-15 minutes. The scaffolds showed superior injectability, significantly higher compressive and diametral strengthsvalues compared to commercial cement. Percentage of live (hBMSCs) attaching to scaffolds increased to 99% at 14 days. Cells proliferated to (1808±317cells/mm2) at 14 days.

Dept. of Orthodontics

121. Three-Dimensional Prospective Evaluation of Tooth-Borne and Bone-Borne Surgically Assisted Rapid Maxillary Expansion

Rania M. Nada, Piotr S. Fudalej, Thomas J.J. Maal, Stefaan J. Bergé, Yehya A. Mostafa and Anne Marie Kuijpers-Jagtman

J. of Craniomaxillofacial Surgery, 40: 757-762 (2012). IF:1.643

Aim: To three-dimensionally (3D) assess the long-term effects of tooth-borne and bone-borne surgically assisted rapid maxillary expansion (SARME).
Subjects and methods: This prospective cohort study comprised 45 consecutive skeletally mature nonsyndromic patients with transverse maxillary hypoplasia. In 28 patients, a tooth-borne distractor (Hyrax) was used for expansion, whereas in the remaining 17 a bone-borne distractor (transpalatal distractor, TPD) was used. Cone beam computed tomography (CBCT) scans were performed before treatment (T0) and 22 months later, after fixed appliance treatment (T1). 3D models were constructed from CBCT data and superimposed using voxel-based matching. Distance maps between the superimposed models were computed to evaluate the amount of skeletal changes.
Results: The distance maps of the superimposed models showed positive distances on the right and left posterior alveolar segments of the maxilla indicating lateral expansion. The anterior maxillary region showed negative distances or posterior displacement and remodelling of the anterior alveolar region. There was no statistically significant difference between TPD and Hyrax for the three alveolar segments (p values ranged 0.63e0.81).
Conclusion: Bone-borne and tooth-borne SARME were found to produce comparable results at the end of fixed appliance treatment regarding skeletal changes.
Keywords: Tooth-borne; Bone-borne; Surgically assisted rapid maxillary expansion; (SARME); Hyrax.

122. Dental Crowding as a Caries Risk Factor: A Systematic Review

Hend Salah Hafez, Sherif Mohamed Shaarawy, Ahmed Awadh Al-Sakiti and Yehya Ahmed Mostafa

American Journal of Orthodontics and Dentofacial Orthopedics, 142: 443-450 (2012). IF: 1.381

Introduction: The association between dental crowding and dental caries has long been accepted because of increased food accumulation and plaque retention in areas of crowding. The aim of this review was to evaluate this potential causal relationship systematically.
Methods: Six electronic databases were accessed, supplemented by manual searching of the references of the relevant retrieved articles, peer-reviewed orthodontic journals, and gray literature. Search terms included caries, decay, crowding, and irregularity. Non-English articles were excluded from the review in the study-selection stage. Data extraction and evaluation of primary studies were performed independently by 2 reviewers.
Results: The initial search retrieved 6914 citations. However, only 18 articles met the inclusion criteria. The qualitative systematic review included 8 studies, with articles of low or moderate quality. No association between crowding and caries was reported in 4 studies, a significant negative correlation was found in 2 studies, 1 study showed a direct and significant relationship, and another study showed a positive association in the mandibular anterior region but an inverse correlation in the maxillary posterior region.
Conclusions: To date, there are no high-quality studies to resolve the possible association between dental crowding and caries; further high-quality longitudinal studies are needed to clarify this relationship.
Keywords: Dental crowding; Dental caries; Systematic review; Decay.

123. Inter-Occlusal Separation in CBCT Imaging: Rationale and Method

Amr El-Beialy and Yehya Mostafa

Open Journal of Medical Imaging, 2: 76-79 (2012)

A major advantage of CBCT is the ability to allow single-step data acquisition that computes all our diagnostic infor-mation and substitutes several conventional procedures of record taking. Yet, there are several protocols for CBCT im-aging as regards the interocclusal separation, each with a drastic shortcoming. The authors herein propose a protocol that offers acceptable inter-occlusal separation during CBCT imaging using a radiolucent splint that guarantees repro-ducibility, undisrupted facial form, centric condylar position concurrently with feasibility for occlusal analysis, separa-tion of the maxillary and mandibular teeth and hence digital simulation of the orthodontic treatment.
Keywords: Diagnosis; Diagnostic imaging; Radiography; Cone-beam computed tomography.

Faculty of Pharmacy

Dept. of Analytical Chemistry

124. Development and Validation of Spectrophotometric Methods for Simultaneous Determination of Sitagliptin and Simvastatin in Binary Mixture

Sherif Abdel-Naby Abdel-Gawad and Zeinab Abd el-Aziz El-Sherif

European Journal of Chemistry, 3: 447-454 (2012)

Simple, selective and precise spectrophotometric methods were adopted for simultaneous determination of sitagliptin (SIT) and simvastatin (SIM) in new co-formulated pharmaceutical dosage form. In the first method, SIT was determined by measuring its zero order absorbance at 266.4 nm in the range of 40-360 µg/mL in the presence of up to 70% of SIM. While, the two cited drugs were determined simultaneously using third derivative method by measuring the sum of peak amplitudes (peak & valley) at 275.3-280.3 nm and 240.5-244.7 nm in the ranges of 40-360 µg/mL and 2-18 µg/mL for SIT and SIM, respectively. In the second method, the first derivative of ratio spectra method was applied by measuring the peak height at 255.9 and 275.2 nm using 18 µg/mL SIM as devisor over a concentration range of 40-360 µg/mL of SIT and at 228.3, 240.5 and 248 nm using 100 µg/mL of SIT as divisor over a concentration range 2-18 µg/mL SIM. In the third method the ratio subtraction spectrophotometric method was used, where SIM can be determined by dividing the spectra of the mixtures by the spectrum of SIT (40 µg/mL) followed by subtracting the constant absorbance value of the plateau, then finally multiply the produced spectrum by the spectrum of the devisor. Laboratory prepared mixtures were successfully tried for the three compositions of tablets (10, 20 and 40 mg of SIM) with 100 mg of SIT. The developed methods were validated as per International Conference of Harmonization guidelines.
Keywords: Sitagliptin; Validation; Simvastatin; Ratio subtraction; Spectrophotometric analysis; Derivative spectrophotometry.

125. Stability-Indicating PLS and PCR Chemometric Methods for the Determination of Rosuvastatin in Presence of its Two Acid Degradation Products

Nadia M. Mostafa, Amr M. Badawey, Nesrine T. Lamie and Abd El-Aleem A.E. B.

International Journal of Drug Targets, 3 (2): 149-159 (2012)

Two multivariate calibration methodsincluding principal component regression (PCR) and partial least square (PLS), have been usedfor the determination of rosuvastatin calcium in the presence of its acid degradation products. ThePCR and PLS techniques are usefulin spectral analysis due tothe simultaneous inclusion of many spectral wavelengths instead of the single wavelength used in derivativespectrophotometry, thus a great improvement in the precision and predictive abilities of these multivariate calibrations is observed. Acalibrationset wasconstructed for the mixture and the best model was used for the prediction of the concentrate ion of the selecteddrug. The proposed procedures were applied successfully in the determination of rosuvastatin calciumin laboratoryprepared mixturesandin commercial preparations. Rosuvastatin calcium was analyzed with mean accuracies 99.93 ± 0.699 and 0.630±100.06 using the PCR and PLS methods respectively. The validity of the proposed methods was assessed using the standa rd addition technique. Th E prop osed procedures were found to be rapid and simple and required no preliminary separation. They can t herefore be used for the routine analysis of rosuvastatin in quality-control laboratories.

Keywords: Rosuvastatin; Chemometry; Stability indicating method.

Dept. of Bio Chemsitry

126. Anti-Inflammatory Therapy in Type 1 Diabetes

Bernd Baumann, Heba H. Salem and Bernhard O. Boehm

Current Diabetes Reports, 12 (5): 499-509 (2012). IF: 2.496

Type 1 diabetes (T1D) is a multi-factorial, organ-specific autoimmune disease in genetically susceptible individuals, which is characterized by a selective and progressive loss of insulin-producing β-cells. Cells mediating innate as well as adaptive immunity infiltrate pancreatic islets, thereby generating an aberrant inflammatory process called insulitis that can be mirrored by a pathologic autoantibody production and autoreactive T-cells.

In tight cooperation with infiltrating innate immune cells, which secrete high levels of pro-inflammatory cytokines like IL-1β, TNFα, and INFγ effector T-cells trigger the fatal destruction process of β-cells. There is ongoing discussion on the contribution of inflammation in T1D pathogenesis, ranging from a bystander reaction of autoimmunity to a dysregulation of immune responses that initiate inflammatory processes and thereby actively promoting β-cell death. Here, we review recent advances in anti-inflammatory interventions in T1D animal models and preclinical studies and discuss their mode of action as well as their capacity to interfere with T1D development.

Keywords: Type 1 diabetes; Insulitis; β-cell death; Inflammation; Anti-inflammatory therapy; Combination therapy; NF-kB; NOD mice.

Dept. of Microbiology and Immunology

127. Phispy: A Novel Algorithm for Finding Prophages in Bacterial Genomes that Combines Similarity- and Composition-Based Strategies

Sajia Akhter, Ramy K. Aziz and Robert A. Edwards

Nucleic Acids Research 40 (16): 1-13 (2012) IF: 8.026

Prophages are phages in lysogeny that are integrated into, and replicated as part of, the host bacterial genome. These mobile elements can have tremendous impact on their bacterial hosts' genomes and phenotypes, which may lead to strain emergence and diversification, increased virulence or antibiotic resistance. However, finding prophages in microbial genomes remains a problem with no definitive solution.

The majority of existing tools rely on detecting genomic regions enriched in protein-coding genes with known phage homologs, which hinders the *de novo* discovery of phage regions. In this study, a weighted phage detection algorithm, *PhiSpy* was developed based on seven distinctive characteristics of prophages, i.e. protein length, transcription strand directionality, customized AT and GC skew, the abundance of unique phage words, phage insertion points and the similarity of phage proteins.

The first five characteristics are capable of identifying prophages without any sequence similarity with known phage genes. *PhiSpy* locates prophages by ranking genomic regions enriched in distinctive phage traits, which leads to the successful prediction of 94% of prophages in 50 complete bacterial genomes with a 6% false-negative rate and a 0.66% false-positive rate.

Keywords: Genomics; Bacteriophage; Prophages; Genomc annotation; Microbiology.

128. Tracing the Evolutionary History of the Pandemic Group a Streptococcal M1T1 Clone

Peter G. Maamary, Nouri L. Ben Zakour, Jason N. Cole, Andrew Hollands, Ramy K. Aziz, Timothy C. Barnett, Amanda J. Cork, Anna Henningham, Martina Sanderson-Smith, Jason D. McArthur, Carola Venturini, Christine M. Gillen, Joshua K. Kirk, Dwight R. Johnson, William L. Taylor, Edward L. Kaplan, Malak Kotb, Victor Nizet, Scott A. Beatson and Mark J. Walker

Faseb Journal, 26 (11): 4675-4684 (2012). IF: 5.712

The past 50 years has witnessed the emergence of new viral and bacterial pathogens with global effect on human health. The hyperinvasive group A Streptococcus (GAS) M1T1 clone, first detected in the mid-1980s in the United States, has since disseminated worldwide and remains a major cause of severe invasive human infections. Although much is understood regarding the capacity of this pathogen to cause disease, much less is known of the precise evolutionary events selecting for its emergence. We used high-throughput technologies to sequence a World Health Organization strain collection of serotype M1 GAS and reconstructed its phylogeny based on the analysis of core genome single-nucleotide polymorphisms.

We demonstrate that acquisition of a 36-kb genome segment from serotype M12 GAS and the bacteriophage-encoded DNase Sda1 led to increased virulence of the M1T1 precursor and occurred relatively early in the molecular evolutionary history of this strain. The more recent acquisition of the phage-encoded superantigen SpeA is likely to have provided selection advantage for the global dissemination of the M1T1 clone. This study provides an exemplar for the evolution and emergence of virulent

clones from microbial populations existing commensally or causing only superficial infection.
Keywords: Streptococcus pyogenes; Virulence factors; Reemergent pathogens; Comparative genomics; Epidemiology.

129. SEED Servers: High-performance Access to the Seed Genomes, Annotations and Metabolic Models

Ramy K. Aziz, Scott Devoid, Terrence Disz, Robert A. Edwards, Christopher S. Henry, Gary J. Olsen, Robert Olson, Ross Overbeek, Bruce Parrello, Gordon D. Pusch[c], Rick L. Stevens, Veronika Vonstein and Fangfang Xia

Plos One, 7 (10): 1-10 (2012). IF: 4.092

The remarkable advance in sequencing technology and the rising interest in medical and environmental microbiology, biotechnology, and synthetic biology resulted in a deluge of published microbial genomes. Yet, genome annotation, comparison, and modeling remain a major bottleneck to the translation of sequence information into biological knowledge, hence computational analysis tools are continuously being developed for rapid genome annotation and interpretation.
Among the earliest, most comprehensive resources for prokaryotic genome analysis, the SEED project, initiated in 2003 as an integration of genomic data and analysis tools, now contains >5,000 complete genomes, a constantly updated set of curated annotations embodied in a large and growing collection of encoded subsystems, a derived set of protein families, and hundreds of genome-scale metabolic models. Until recently, however, maintaining current copies of the SEED code and data at remote locations has been a pressing issue. To allow high-performance remote access to the SEED database, we developed the SEED Servers (http://www.theseed.org/servers): four network-based servers intended to expose the data in the underlying relational database, support basic annotation services, offer programmatic access to the capabilities of the RAST annotation server, and provide access to a growing collection of metabolic models that support flux balance analysis.
The SEED servers offer open access to regularly updated data, the ability to annotate prokaryotic genomes, the ability to create metabolic reconstructions and detailed models of metabolism, and access to hundreds of existing metabolic models. This work offers and supports a framework upon which other groups can build independent research efforts. Large integrations of genomic data represent one of the major intellectual resources driving research in biology, and programmatic access to the SEED data will provide significant utility to a broad collection of potential users.
Keywords: Genomics; Annotation; Sequence analysis; Metabolic models; Metabolic reconstruction; Systems biology; Biocuration; Perl; Java; Computational biology; Web services; Bioinformatics; Application programming interface.

130. A Conserved Udp-Glucose Dehydrogenase Encoded Outside the Hasabc Operon Contributes to Capsule Biogenesis in Group A Streptococcus.

Jason N. Cole, Ramy K. Aziz, Kirsten Kuipers, Anjuli M. Timmer, Victor Nizet and Nina M. van Sorge

Journal of Bacteriology,194 (22): 6154-6161 (2012). IF: 3.825

Group a Streptococcus (GAS) is a human-specific bacterial pathogen responsible for serious morbidity and mortality worldwide. The hyaluronic acid (HA) capsule of GAS is a major virulence factor, contributing to bloodstream survival through resistance to neutrophil and antimicrobial peptide killing and to *in vivo* pathogenicity.
Capsule biosynthesis has been exclusively attributed to the ubiquitous *hasABC* hyaluronan synthase operon, which is highly conserved across GAS serotypes. Previous reports indicate that *hasA*, encoding hyaluronan synthase, and *hasB*, encoding UDP-glucose 6-dehydrogenase, are essential for capsule production in GAS. Here, we report that precise allelic exchange mutagenesis of *hasB* in GAS strain 5448, a representative of the globally disseminated M1T1 serotype, did not abolish HA capsule synthesis.
In silico whole-genome screening identified a putative HasB paralog, designated HasB2, with 45% amino acid identity to HasB at a distant location in the GAS chromosome. *In vitro* enzymatic assays demonstrated that recombinant HasB2 is a functional UDP-glucose 6-dehydrogenase enzyme. Mutagenesis of *hasB2* alone slightly decreased capsule abundance; however, a Δ*hasB* Δ*hasB2* double mutant became completely acapsular. We conclude that HasB is not essential for M1T1 GAS capsule biogenesis due to the presence of a newly identified HasB paralog, HasB2, which most likely resulted from gene duplication. The identification of redundant UDP-glucose 6-dehydrogenases underscores the importance of HA capsule expression for M1T1 GAS pathogenicity and survival in the human host.
Keywords: Streptococcus; Capsule; Infectious diseases; Pathogenicity; Microbial genetics; Bioinformatics.

131. The Important Role of Inflammatory Biomarkers Pre and Post Bare-Metal and Drug-Eluting Stent Implantation

Rami N. Khouzam, Mazen Shaheen, Ramy K. Aziz and Uzoma N. Ibebuogu

Canadian J. of Cardiology, 28 (6): 700-705 (2012). IF: 3.358

In-stent restenosis and stent thrombosis are major complications after percutaneous coronary intervention and coronary stent placement. The inflammatory status of an individual, as reflected by biomarkers and genetic polymorphisms, is a strong predictor of the risk of in-stent restenosis and stent thrombosis. Identifying biomarkers and studying their values are crucial for a more efficient personalized intervention. General inflammatory biomarkers, evidence of inflammation, and the difference between inflammatory biomarkers after bare-metal stent and drug-eluting stent placement are discussed. Clinical implications and the use of antiplatelet and anti-inflammatory medications, as well as future directions in coronary intervention, in reducing the occurrence of these complications, are also discussed.
Keywords: Biomarkers; Stent; Implantation; Drug elution.

132. Gut Pharmacomicrobiomics: the Tip of an Iceberg of Complex Interactions between Drugs and Gut-Associated Microbes

Rama Saad, Mariam R Rizkallah and Ramy K Aziz

Gut Pathogens, 4 (16): 1-13 (2012). IF: 2.109

The influence of resident gut microbes on xenobiotic metabolism has been investigated at different levels throughout the past five

decades. However, with the advance in sequencing and pyrotagging technologies, addressing the influence of microbes on xenobiotics had to evolve from assessing direct metabolic effects on toxins and botanicals by conventional culture-based techniques to elucidating the role of community composition on drugs metabolic profiles through DNA sequence-based phylogeny and metagenomics.

Following the completion of the Human Genome Project, the rapid, substantial growth of the Human Microbiome Project (HMP) opens new horizons for studying how microbiome compositional and functional variations affect drug action, fate, and toxicity (pharmacomicrobiomics), notably in the human gut.

The HMP continues to characterize the microbial communities associated with the human gut, determine whether there is a common gut microbiome profile shared among healthy humans, and investigate the effect of its alterations on health. Here, we offer a glimpse into the known effects of the gut microbiota on xenobiotic metabolism, with emphasis on cases where microbiome variations lead to different therapeutic outcomes. We discuss a few examples representing how the microbiome interacts with human metabolic enzymes in the liver and intestine. In addition, we attempt to envisage a roadmap for the future implications of the HMP on therapeutics and personalized medicine.

Keywords: Human microbiome project; Xenobitoics; Liver enzymes; Metagenome; Microbiota; Metabolomics; Metabonomics; Pharmacokinetics; Pharmacodynamics; Pharmacomicrobiomics.

133. Rethinking Pharmacogenomics in an Ecosystem: Drug-Microbiome Interactions, Pharmacomicrobiomics, and Personalized Medicine for the Human Supraorganism

Ramy K. Aziz

Current Pharmacogenomics and Personalized Medicine,10 (4): 258-261 (2012)

The human microbiota directly and indirectly impacts drug pharmacokinetics and pharmacodynamics, thus affecting treatment outcome and subsequently human health. The Human Microbiome Project (HMP) revived interest in the role of human microbiota in health and disease. Yet, no repository of reported drug-microbe interactions is publicly available, and no attempts have been made to link those interactions to the human microbiome in a structured way. To begin addressing the need for such a crucial and timely resource, we analyzed published experimental data to extract drug-microbe interactions so as to enable the application of emerging HMP knowledge in postgenomics personalized medicine. We hereby report the creation of the PharmacoMicrobiomics Database, which aims to collect, classify, and cross-reference known drug-microbiome interactions and categorize them according to body site and microbial taxonomy. The database is integrated into a web portal that includes a search engine, through which students and scholars can locate drug-microbiome interaction of interest, compiled from and connected to public databases, such as PubMed, PubChem, and Comparative Toxicogenomics. Making these data available is a significant first step towards the prediction of interactions between drugs with similar chemical properties and microbes with similar metabolic abilities. Currently, the PharmacoMicrobiomics Database contains drug-microbiome interactions for more than 60 drugs curated from over 100 research and review articles. Further developments will include the automation of data updating, classification based on drug classes and biochemical pathways, and the participation of the community into data curation and analysis. This work provides a timely and much needed pioneering resource to the global open science community and usefully builds bridges between the rapidly growing fields of pharmacogenomics and human microbiome research.

Keywords: Biocuration; Human microbiome research; Microbiota; Personalized medicine; Pharmacodynamics; Pharmacokinetics; Pharmacomicrobiomics; Relational database.

134. The Pharmaco Microbiomics Portal: A Database for Drug-Microbiome Interactions

R. Rizkallah, Mariam Gamal-Eldin, Soha Saad, Rama, K. and Aziz Ramy

Current Pharmacogenomics and Personalized Medicine, 11(4): 195-203 (2012)

The human microbiota directly and indirectly impacts drug pharmacokinetics and pharmacodynamics, thus affecting treatment outcome and subsequently human health. The Human Microbiome Project (HMP) revived interest in the role of human microbiota in health and disease. Yet, no repository of reported drug-microbe interactions is publicly available, and no attempts have been made to link those interactions to the human microbiome in a structured way. To begin addressing the need for such a crucial and timely resource, we analyzed published experimental data to extract drug-microbe interactions so as to enable the application of emerging HMP knowledge in postgenomics personalized medicine. We hereby report the creation of the PharmacoMicrobiomics Database, which aims to collect, classify, and cross-reference known drug-microbiome interactions and categorize them according to body site and microbial taxonomy. The database is integrated into a web portal that includes a search engine, through which students and scholars can locate drug-microbiome interaction of interest, compiled from and connected to public databases, such as PubMed, PubChem, and Comparative Toxicogenomics.

Making these data available is a significant first step towards the prediction of interactions between drugs with similar chemical properties and microbes with similar metabolic abilities. Currently, the PharmacoMicrobiomics Database contains drug-microbiome interactions for more than 60 drugs curated from over 100 research and review articles. Further developments will include the automation of data updating, classification based on drug classes and biochemical pathways, and the participation of the community into data curation and analysis. This work provides a timely and much needed pioneering resource to the global open science community and usefully builds bridges between the rapidly growing fields of pharmacogenomics and human microbiome research.

Keywords: Biocuration; Human microbiome research; Personalized medicine; Pharmacokinetics; Pharmacodynamics; Pharmacomicrobiomics; Microbiota; Relational database.

135. The Next Revolution in Scholarly Publishing

Ramy Karam Aziz and Peter Binfield

Publishing Scientific Papers in the Developing World, Bibliothca Alexandrina, (2012)

The advanced of sciece largely relies on the timely sharing and propagation of experimental data, result, and analyses between scientists.However, the current situation within the publishing enterprise suffers from several problems, including the overemphasis (for individuals) on high publication volume and citations, the cumbersome process of submitting papers, the obstacles against free access to published articles, and the misuse of existing metrics intended to measure performance. Being aware of these problems, several players have attempted to challenge the status quo by adopting new or revolutionary publication models. Most prominent among these attempts in recent yaers is the emergence and growth of the Open Access movement. Here, we focus on the experience of the Public Library of Science (Plos), now the largest not-for-profit Open Access publisher, and report on some of its innovative projects, which attempt to overcome existing pre- and post-publication problems.

Dept. of Pharmaceutical Chemistry

136. Design, Synthesis, Biological Evaluation, and Comparative Cox1 and Cox2 Docking of *P*-substituted Benzylidenamino Phenyl Esters of Ibuprofenic and Mefenamic Acids

Gehan H. Hegazy and Hamed I. Ali

Bioorganic & Medicinal Chemistry, 20: 1259-1270 (2012)
IF: 2.921

Nonsteroidal anti-inflammatory drugs (NSAIDs) are frequently associated with gastric mucosal and renal adverse reactions, related to inhibition of cyclooxygenase1 (Cox1) in tissues where prostaglandins exert physiological effects. This led us to develop a set of ibuprofenic acid and mefenamic acid esters, namely: 4-((4-substituted benzylidene)amino)phenyl 2-(4-isobutylphenyl) propanoate and 4-((4-substituted benzylidene)amino)phenyl 2-((2,4-dimethylphenyl)amino) benzoate analogs, which were synthesized by condensation of the corresponding acids with Schiff's bases [4-(4-substituted benzylideneamino)phenols] involving dicyclohexyl carbodiimmide (DCC) as mild dehydrating agent.
The main objective is to reduce the GIT toxicity associated with acute and chronic NSAIDs use. Anti-inflammatory, analgesic as well as ulcerogenic activities of the prepared esters were evaluated in vivo and compared with that of ibuprofen as reference standard in all screenings, involving the carrageenan induced paw oedema model and hot plate method. Most of the synthesized esters showed remarkable analgesic and anti-inflammatory activities. Interestingly, all of the compounds were found to be non-ulcerogenic under the tested conditions. This evidence have suggested that modification of the carboxyl function of representative NSAIDs results in retained or enhanced anti-inflammatory and analgesic activities with reduced ulcerogenic potential. Additionally, a comparative AutoDock study into Cox 1 and Cox2 has been done involving both of rigid and flexible docking for potential selectivity of our compounds within different Cox enzymes and to find out the binding orientation of these novel esters into their binding site. Some of the newly prepared aforementioned compounds showed considerable more Cox2 over Cox1 binding affinities by flexible docking better than rigid one.
Keywords: NSAIDs; Molecular docking; Ibuprofen; Mefenamic acid; Cox.

Dept. of Pharmaceutical Organic Chemistry

137. Synthesis and Antitumor Activity of Novel Pyrazolo [3,4-D]Pyrimidines and Related Heterocycles

Manal M. Kandeel, Sameha M. Ali, Eman K. A. Abed ElALL, Mohamed A. Abdelgawad and Phoebe F. Lamie

Der Pharma Chemica, 4 (4): 1704-1715 (2012)

The reaction between 5-amino-4-imino-3-methyl-1-phenyl-1,4-dihydro-pyrazolo[3,4-d]pyrimidine (2a) or (3-methyl-1-phenyl-1H-pyrazolo[3,4-d]pyrimidin-4-yl)- hydrazine (3) and several available reactants afforded newheterocycles with pyrazolo[3,4-d]pyrimidine nucleus. Some of the newly synthesized compounds were screenedagainst MCF-7 cell line, compounds 4b, 5a, 10c and 12c showed the highest activity among the tested compoundswithIC50 between 0.013 and 0.018 μM.
Keywords: Pyrazolo [3,4-d]pyrimidine derivatives; Imino, MCF-7; Z and E Geometrical isomers.

138. Synthesis and Antitumor Activity of Novel Pyrazolo [3,4-D]Pyrimidin-4(5H)-One Derivatives

Manal M. Kandeel, Sameha M. Ali, Eman K. A. Abed ElALL, Mohamed A. Abdel gawad and Phoebe F. Lamie

Journal of Chemical and Pharmaceutical Research, (2012)

Starting from pyrazolo[3,4-d]pyrimidine ethyl ester 4 and its corresponding acid hydrazide5, several newcompounds were synthesized such as schiff bases 6a-e, acetyl azide derivative 7, phthalimido derivatives 8, compounds containing oxadiazole ring 9,10a-c, triazole ring system 11, 14,15, thiadiazole moiety 13 and phenylthiosemicarbazide part 12. Some of the synthesized compounds were screened for their antitumor activity againsthuman breast adenocarcinoma cell line (MCF-7) using doxorubicin as a positive control. Compounds 6d, 10b, 12were found to exhibit good cytotoxic activity with IC50 equal to (4.6, 4.6, 4.8 μg/mL), respectively.
Keywords: Pyrazolo [3,4-d]pyrimidine-4(5H)-ones; Hydrazide; Schiff bases; Antitumor activity.

The National Cancer Institute

Dept. of Medical Oncology

139. Associations Differ By Sex for Catechol-*O*-Methyltransferase Genotypes and Bladder Cancer Risk in South Egypt

Beverly J. Wolpert, Sania Amr, Doa'a A. Saleh, Sameera Ezzat, Iman Gouda, Iman Loay, Tamer Hifnawy, Mohamed Abdel-Hamid, Nabiel N. Mikhail, Min Zhan, Yun-Ling Zheng, Katherine Squibb, Mohamed A. Abdel-Aziz, Mohamed S. Zaghloul, Hussein Khaled and Christopher A. Loffredo

Urologic Oncology: Seminars and Original Investigations, 30 (6): 841-847 (2012). IF: 3.216

Objectives: to examine associations between urinary bladder cancer risk and polymorphisms of the gene encoding the catechol estrogen-metabolizing enzyme, catechol-O-methyltransferase (COMT), among Egyptian women and men.

Materials and Methods: We used questionnaire and genotype data from a case-control study in Egypt. This analysis focused on South Egypt cases with confirmed urothelial (UC) or squamous cell (SCC) carcinoma of the bladder, and controls frequency-matched on sex, 5-year age-group, and residence governorate. Real-time PCR on blood specimen DNA was used to determine COMT genotypes encoding for Val/Val, Val/Met, and Met/Met, the enzyme forms associated with high, intermediate, or low activity, respectively.
Results: The study sample, which included 255 women and 666 men, consisted of 394 cases with histologically confirmed UC (225) or SCC (n = 169), and 527 controls. The odds of having either type of bladder cancer were lower among men with genotypes encoding Val/Met or Met/Met than among those with the genotype encoding Val/Val, even after adjustment for other factors, such as smoking and schistosomiasis history [adjusted odds ratio (AOR): 0.64; 95% confidence interval (CI): 0.43, 0.96]; however, the association was statistically significant for SCC (AOR 0.57; 95% CI: 0.34, 0.96) but marginal for UC (AOR: 0.64; 95% CI: 0.39, 1.02). No significant associations were detected between bladder cancer risk and COMT genotypes among postmenopausal women.
Conclusions: These findings suggest that even after controlling for established risk factors, the involvement of COMT genotypes in bladder cancer risk differs among men compared with women in South Egypt.Keywords: Etoposide; Curcumin; Antagonism; DNA damage response (DDR).

Dept. of Surgical Oncology

140. Pedicled Dermoglandular Flap Reconstruction Following Breast Conserving Surgery

M. Khafagy, I. Fakhr, A. Hamed and O. Youssef

Journal of the Egyptian National Cancer Institute, 24: 91-96 (2012). IF: 2

Breast conserving therapy is the gold standard treatment of early breast cancer. However, a balance between good cosmetic outcome and limiting the risk of locoregional recurrence remains the key of success. The aim of this work was to evaluate the outcome of partial breast reconstruction using pedicled dermo-glandular flap from the upper outer quadrant, for central quadrantectomy BCS. Patients & methods: Thirty patients underwent wide excision of carcinoma of retroareolar or periareolar regions of the breast, from July 2008 to August 2011. Excisions included the nipple/areola complex down to the pectoralis fascia with a wide safety margin, and complete axillary dissection. Breast reconstruction was done by means of pedicled dermoglandular flap. Results: Mean age of patients was 51.86 years (range from 30 to 70 years). Tumor size ranged from 1 to 4.2 cm. Postoperative pathological results came out with 21 (70.0%) patients mean (range) of the tumor safety margin 2.01 (0.5–2.8). Seventeen (56.7%) patients had positive axillary lymph nodes. All patients received postoperative radiation therapy to the breast, while 17/30 (56.67%) and 6/30 (20%) received endocrine therapy or adjuvant chemotherapy, respectively, and only 7/30 (23.34%) patients received both therapies. During a median follow-up period of 24 months, neither local nor distant metastasis, were detected. The postoperative cosmetic result was excellent in 80% patients, good in 13.3% patients, acceptable in 6.7% with no poor result. Conclusion: Following central quadrantectomy BCS for small centrally located breast cancer, a pedicled dermoglandular flap from the upper outer quadrant is a good reconstructive option.
Keywords: Dermoglandular flap; Breast cancer; Central defects; Oncoplastic surgery.

Dept. of Tumor Biology

141. Antagonism Between Curcumin and the Topoisomerase II Inhibitor Etoposide: a Study of DNA Damage,Cell Cycle Regulation and Death Pathways

Ekram M. Saleh, Raafat A. El-awady, Nadia A. Eissa and Wael M. Abdel-Rahman

Cancer Biology and Therapy, 13:11: 1058-1075 (2012). IF: 2.636

The use of combinations of chemotherapy and natural products has recently emerged as a new method of cancer therapy, relying on the capacity of certain natural compounds to trigger cell death with low doses of chemotherapeutic agents and few side effects. The current study aims to evaluate the modulatory effects of curcumin (CUR), Nigella sativa (NS) and taurine on etoposide (ETP) cytotoxicity in a panel of cancer cell lines and to identify their underlying mechanisms. CUR alone showed potent antitumor activity, but surprisingly, its interaction with ETP was antagonistic in four out of five cancer cell lines. Neither taurine nor Nigella sativa affect the sensitivity of cancer cells to ETP. Examination of the DNA damage response machinery (DDR) showed that both ETP and CUR elicited DNA double-strand breaks (DSB) and evoked γ-H2AX foci formation at doses as low as 1 μg/ml. Cell cycle analysis revealed S phase arrest after ETP or CUR application, whereas co-treatment with ETP and CUR led to increased arrest of the cell cycle in S phase (MCF-7 cells) or the accumulation of cells in G 2/M phases (HCT116, and HeLa cells). Furthermore, cotreatment with ETP and CUR resulted in modulation of the level of DNA damage induction and repair compared with either agent alone. Electron microscopic examination demonstrated that different modalities of cell death occurred with each treatment. CUR alone induced autophagy, apoptosis and necrosis, whereas ETP alone or in combination with CUR led to apoptosis and necrosis. Conclusions: Cotreatment with ETP and CUR resulted in an antagonistic interaction. This antagonism is related, in part, to the enhanced arrest of tumor cells in both S and G 2/M phases, which prevents the cells from entering M-phase with damaged DNA and, consequently, prevents cell death from occurring. This arrest allows time for the cells to repair DNA damage so that cell cycle - arrested cells can eventually resume cell cycle progression and continue their physiological program.
Keywords: Etoposide; Curcumin; Antagonism; DNA damage response (DDR).

142. Pharmacokinetics, Immunogenicity and Anticancer Efficiency of Aspergillus Flavipesl-Methioninase

Ashraf S. El-Sayed, Samia A. Shouman and Hatem M. Nassrat

Enzyme and Microbial Technology, 51(4): 200–210 (2012). IF: 2.367

Methionine starvation can powerfully modulate DNA methylation, cell cycle transition, polyamines and antioxidant synthesis of tumor cells, in contrary to normal ones. Aspergillus

flavipesl-methioninase was previously characterized by our studies, displaying affordable biochemical properties comparing to Pseudomonas putida enzyme (ONCASE). Thus, the objective of current study was to evaluate the catalytic properties of Af-METase in New Zealand rabbits, exploring its antitumor efficacy. In vivo, Af-METase (40.8 U/ml) have $T_{1/2}$ 19.8 h, elimination constant 0.088 U/h and apparent volume distribution 85 U/ml. Also, Af-METase has two maxima one at $A_{280\ nm}$ (apo-enzyme) and at A_{420} nm (internal Schiff base of PLP), unlike control plasma (without enzyme). The two peaks of absorption spectra were detected maximally at 15 min then the absorbance at 420 nm was subsequently decreased with circulation time, due to dissociation of the co-enzyme. The $A_{280/420}$ ratio was increased from 1.69 to 5.81 with circulation time from 15 to 30 h. Rabbits plasma methionine was depleted from 18.7 μM (control) to 8.8 μM after 1 h of enzyme injection and completely omitted after 2 h till 19 h, assuming the sustainability of negligible levels of methionine (<2 μM) in plasma of rabbits, for about 17 h. Upon infusion of PLP, the $T_{1/2}$ of Af-METase was significantly prolonged by 3.2 fold, assuming the fully reconstitution of the enzyme. The holo-AfMETase still retained its co-enzyme, completely, till 33 h of PLP infusion. From spectral studies, the internal aldimine linkage of apo-Af-METase was constructed upon PLP infusion, with fully catalytic structure after less than 4 h of its infusion, the $A_{280/420}$ ratio being not relatively changed till 45 h. After 25 days of last enzyme dose, the titer of IgG was increase by about 1.66 fold comparing to control (without enzyme). However, IgM was not detected along the tested challenge points. In vitro, plasma anti-Af-METase neutralizing antibodies (NAb) were assessed, with no significant reduction on activity of Af-METase by Nab. All the hematological parameters were in normal range, otherwise, the RBCs titer and platelet level was slightly increased, after 25 days of Af-METase injection, comparing to control. There is no obvious negative effect on chemistry of liver, kidney, glucose, lipids, and other electrolytes. Additionally, the anticancer activity of Af-METase was evaluated against five types of human cancer cell lines, in vitro. The enzyme showed a powerful activity against prostate (PC3), liver (HEPG2) and breast (MCF7) cancers, with IC50 0.001 U/ml, 0.26 U/ml and 0.37 U/ml, respectively.

Keywords: Aspergillus flavipes l-methioninase pharmacokinetics antigenicity anticancer activity.

143. Induction and Repair of DNA Double-Strand Breaks Using Constant-Field Gel Electrophoresis and Apoptosis as Predictive Markers for Sensitivity of Cancer Cells to Cisplatin

Ekram M. Saleh, Raafat A. El-awady, Noha Anis and Nahla El-sharkawy

Biomedicine &Pharmacotherapy, 66 (7): 554-562 (2012). IF: 2

This study was designed to evaluate some parameters that may play a role in the prediction of cancer cells sensitivity to cisplatin (CIS). Sensitivity, induction and repair of DNA double-strand breaks (DSB), cell cycle regulation and induction of apoptosis were measured in four cancer cell lines with different sensitivities to CIS. Using a sulphorhodamine-B assay, the cervical carcinoma cells (HeLa) were found to be the most sensitive to CIS followed by breast carcinoma cells (MCF-7) and liver carcinoma cells (HepG2). Colon carcinoma HCT116 cells were the most resistant. As measured by constant-field gel electrophoresis (CFGE), DSB induction, but not residual DSB exhibited a significant correlation with the sensitivity of cells to CIS. Flow cytometric DNA ploidy analysis revealed that 67% of HeLa cells and 10% of MCF-7 cells shift to sub-G1 phase after incubation with CIS. Additionally, CIS induced the arrest of MCF-7 cells in S-phase and the arrest of HepG2 and HCT116 cells in both S phase and G2/M phase. Determination of the Fas-L level and Caspase-9 activity indicated that CIS-induced apoptosis results from the mitochondrial (intrinsic) pathway. These results, if confirmed using clinical samples, indicate that the induction of DNA DSB as measured by CFGE and the induction of apoptosis should be considered, along with other predictive markers, in future clinical trials to develop predictive assays for platinum -based therapy.

Keywords: Cisplatin; Drug-resistance;Induction of DSB; Residual breaks; Cell cycle regulation; Apoptosis.

144. Effect of Tumour Necrosis Factor-Alpha on Estrogen Metabolic Pathways in Breast Cancer Cells

Marwa Kamel, Samia Shouman, Mahmoud El-Merzebany, Gokhan Kilic, Timothy Veenstra, Muhammad Saeed, Mohamed Wagih, Concepcion Diaz-Arrastia, Deepa Patel and Salama Salama

Journal of Cancer, 3: 310-321 (2012)

Tumor necrosis factor-alpha (TNF-α) is a proinflammatory cytokine that has been linked to breast cancer development. Estrogen metabolic pathway is also involved in breast carcino-genesis and DNA adducts formation. In this study we investigated the effectof TNF- α on the estrogen metabolic pathway in MCF-7, a breast cancer cell line. Capillary liquid chromatog-raphy/mass spectrometry (LC/MS) and High performance liquid chromatography (HPLC) were used for analysis of estrogen metabolites and estrogen-DNA adducts levels respectively. Reporter gene assay, Real time reverse transcription polymerase chain reaction (real time RT-PCR) and Western blot were used to assess the expression of estrogen metabolizing genes and enzymes. TNF-α significantly increased thetotal EM and decreased the estrone (E1) / 17-β estradiol (E2) ratio. Moreover, it altered the expression of genes and enzymes involved in E2 activation and deactivation pathways e.g. Cytochrome P-450 1A1 (CYP1A1), Cyto-chrome P-450 1B1 (CYP1B1), Catechol-O-methyl transferase (COMT) and Nicotinamide adenine dinucleotide phosphate-quinone oxidoreductase 1 (NQO1). In addition, there were increased levels of some catechol estrogens e.g. 4-hydroxy-estrone (4-OHE1) and 2-hydroxyestradiol (2-OHE2) with decreasedlevels of methylated catechols e.g. 2-methoxy estradiol (2-MeOE2). DNA adducts especially 4-OHE1-[2]-1-N3 Adenine was significantly increased. TNF-α directs the estrogen metabolism into more hormonally active and car-cinogenic products in MCF-7. This mayimplicate a new possible explanation for inflammation associated breast cancer.

Keywords: Breast cancer; Tumor necrosis factor-alpha; Estrogen metabolites; Estrogen metabo-lizing genes and enzymes; DNA adducts.

Faculty of Physical Therapy

Dept. of Physical Therapy for BioMechanics

145. Plantar-Flexor Static Stretch Training Effect on Eccentric and Concentric Peak Torque – A Comparative Study of Trained Versus Untrained Subjects

Amr Almaz Abdel-Aziem and Walaa Sayed Mohammad

Journal of Human Kinetics, 34: 49-58 (2012). IF: 0.329

The aim of this study was to examine the long-term effects of static stretching of the plantar-flexor muscles oneccentric and concentric torque and ankle dorsiflexion range of motion in healthy subjects. Seventy five healthy malevolunteers, with no previous history of trauma to the calf that required surgery, absence of knee flexion contracture andno history of neurologic dysfunction or disease, systemic disease affecting the lower extremities were selected for thisstudy. The participants were divided into three equal groups. The control group did not stretch the plantar-flexormuscles. Two Experimental groups (trained and untrained) were instructed to perform static stretching exercise of 30second duration and 5 repetitions twice daily. The stretching sessions were carried out 5 days a week for 6 weeks. Thedorsiflexion range of motion was measured in all subjects. Also measured was the eccentric and concentric torque ofplantar-flexors at angular velocities of 30 and 120o/s pre and post stretching. Analysis of variance showed a significantincrease in plantar-flexor eccentric and concentric torque ($p < 0.05$) of trained and untrained groups, and an increase indorsiflexion range of motion ($p < 0.05$) at both angular velocities for the untrained group only. The static stretchingprogram of plantar-flexors was effective in increasing the concentric and eccentric plantarflexion torque at angularvelocities of 30 and 120o/s. Increases in plantar-flexors flexibility were observed in untrained subjects.

Keywords: Calf muscle; Isokinetic torque; Static stretching.

Dept. of Physical Therapy of Surgery

146. A Systematic Review of the Effect of Low-Level Laser Therapy in the Management of Breast Cancer-Related Lymphedema

Mohammed T. Omar, Afaf A.A.Shaheen and Hamayun Zafar

Supportive Care in Cancer, 20: 2977-2984 (2012). IF: 2.597

Purpose: The purpose of this study was to review the effect of low-level laser therapy (LLLT) in the management of breast cancer-related lymphedema (BCRL).
Methods: A systematic review of seven databases for clinical trials for LLLT in the management of BCRL published between 1990 and 2011 was performed.
Results: A total of eight studies on 230 patients were found. The methodological qualities of the selected studies were assessed with the Physiotherapy Evidence Database scale, and the studies were categorized according to Sackett's levels of evidence. Five studies were graded at evidence level II. Two studies were graded at evidence level III, and the remaining study was graded at evidence level V.
Conclusions: There is moderate to strong evidence for the effectiveness of LLLT for the management of BCRL from five small studies of acceptable methodological quality. A dose of 1-2 J/cm(2) per point applied to several points covering the fibrotic area can reduce limb volume following BCRL. Further well-designed, large-scale studies are required to determine more precisely how effective LLLT may be in BCRL.
Keywords: Breast cancer; Lymphedema; Low-level laser therapy.

147. Effect of 12-Week Isokinetic Training on Muscle Strength in Adult with Healed Thermal Burn

Anwar A. Ebid, Mohammed T.A. Omar and Amal M. Abd El Baky

Burns, 38: 1019-1026 (2012). IF: 1.962

Introduction: Severe burns result in marked and prolonged skeletal muscle catabolism and weakness, which persist despite 'standard'' rehabilitation programmes of occupational and physical therapy. Therefore, the objectives of this study were of twofold: to quantify the long-term effects of burns on leg muscle strength and to assess whether adults with thermal burn would benefit from the isokinetic training programme.
Materials And Methods: Burned adult patients, with 35-55% total body surface area (TBSA) burned, were assessed at 6 months after burn in respect to leg muscle strength at 150° s(-1), using isokinetic dynamometry. Non-burned adults were assessed similarly, and served as controls. The burned adults participated in the resistance training programme 3 times weekly. The isokinetic exercise programme was begun with 60% of the average peak torque. Intensity of isokinetic exercise was increased from one set to five sets during the first through fifth sessions and remained at six sets for the remaining 6th to 24th sessions. Finally, a dose of 10 sets was applied for the 25th to the 36th sessions. Each set consisted of five repetitions of concentric contraction in angular velocities of 150° s(-1) for knee extensors, and flexors. All exercise sessions were preceded by a 5-min warm-up period on the treadmill.
Results: Subjects with burns more than 35% of TBSA produced significantly less torque, work, and power in the quadriceps and hamstring than control subjects (20.5%, 15.2%, $p<0.05$). Three months after isokinetic programme, muscle strength further increased by 17.9%±10.1% compared to the baseline measurement for burned patients but continued to be below the concurrent age-matched, non-burned adult.
Conclusion: We found that adults with severe burns, relative to non-burned adults, had significantly lower peak torque as well as total work performance using the extensors and flexors muscles of the thigh. Participation in isokinetic training resulted in a greater improvement in extensor and flexor muscle strength in adults with held thermal burn compared to base line values.
Keywords: Burn; Isokinetic; Muscle Torque; Rehabilitation.

148. Effect of Whole Body Vibration on Leg Muscle Strength after Healed Burns: A Randomized Controlled Trial

Anwar Abdelgayed Ebid, Mohamed Taher Ahmed, Marwa Mahmoud Eid and Mohamed Salah Eldien Mohamed

Burns, 38: 1019 -1026 (2012) IF: 1.946

Objective: To investigate the effects of eight weeks whole body vibration training program on leg muscle strength (force-producing capacity) in adults after healed burns.
Design: Randomized controlled trial.
Setting: Faculty of Physical Therapy, Cairo University.

Subjects: Thirty-one burned patients participated in the study and were randomized into whole body vibration group and control group. Non-burned healthy adults were assessed similarly to burned subjects and served as matched healthy controls.**Methods:** The whole body vibration group performed an eight weeks vibration program three times a week on a vibration platform; the control group received home based physical therapy program without vibration training.
Main Measures: Assessment of knee extensors and ankle planter flexor strength by isokinetic dynamometer at 150°/s were performed at the beginning of the study and at the end of the training period for both groups.
Results: Subjects with burns more than 36% TBSA produced significantly less torque in the quadriceps and calf muscle than non-burned healthy subjects. Patients in whole body vibration group showed a significant improvement in knee extensor and ankle planter flexor strength as compared with those in the control group. Knee extensor strength and percent improvement was 233.40±5.74 (64.93±3.03 change score) and 38.54% for the vibration group and 190.07±3.99 (21.66±4.41 change score) and 12.86% for the control group, ankle plantar flexor strength and percent improvement was 156.27±5.95 (54.53±6.16 change score) and 53.70% for the vibration group and 116.13±3.24 (14.66±2.71 change score) and 14.52% for the control group.
Conclusions: Participation in whole body vibration program resulted in a greater improvement in quadriceps and calf muscle strength in adults with healed thermal burn compared to base line values; a WBV program is an effective for strength gain in rehabilitation of burned patients.
Keywords: Whole body vibration; Thermal burn; Leg muscle strength.

149. Influences of Purposeful Activity versus Rote Exercise on Improving Pain and Hand Function in Pediatric Burn

Mohammed T.A. Omar, Fatma A. Hegazy and Sunil P. Mokashi

Burns, 38: 261-268 (2012). IF: 1.962

Purpose: To explore the influences of purposeful activities versus rote exercises on pain, range of motion and hand function in children with hand burn.
Methods: Thirty patients had superficial and deep partial and full-thickness burns, including hand and wrist with less than 25% total body surface area (TBSA) was included in this study. The patients were randomly allocated to one of the two groups; purposeful activity group (PA-group, n = 15) and rote exercises group (Rex-group, n = 15). Outcomes measured were pain severities using the self-report faces scale and analogue scale (VAS), total active motion (TAM) using standard dorsal hand goniometer, and hand function using Jebsen–Taylor hand function test (JTHFT). Measurements were recorded 72 h post-burn, after 1, 2, and 3 weeks, at the time of discharge and at 3 months follow up.
Results: In PA-group, results regarding to pain modulation ($p < 0.05$), TAM ($p < 0.01$), and JTHFT ($p < 0.01$) was statistically significance in comparison to Rex-group.
Conclusion: This study supports the belief that the purposeful activity based on playing, and games can reduce pain, improve hand movement and functions better than rote exercise. As well as its reusability and versatility, suggesting another option in the rehabilitation of children with hand burn.
Keywords: Pediatric burn; Purposeful activities; Rote exercises; Pain.

150. Effect of Pelvic Floor Electrical Stimulation and Biofeedback on the Recovery of Urinary Continence after Radical Prostatectomy

Mohammed Taher Ahmed, Ashraf Hassan Mohammed and Abozeid Amansour

Turkish Journal of Physical Medicine and Rehabilitation, 58: 170-176 (2012). IF: 0.233

Objective: Urinary incontinence (UI) is one of the most distressing postoperative problems of radical prostatectomy (RP) and negatively affects the quality of life (QOL). We assessed the effect of pelvic muscle exercises (PME), electrical stimulation (ES) and biofeedback (BFB) on UI after RP.
Materials and Methods: 80 patients, who underwent RP, were randomized into three groups. Group I (n=26) received instructions about PME, group II (n=26) received ES and group III (n=28) received ES plus BFB. The treatment was started one week after catheter removal, twice a week for 12 weeks. The evaluation of continence was performed at time 0, 6, 12 weeks, and 24 weeks during follow-up, using the 24-hour pad test and the QOL using the incontinence impact questionnaire -7 (IIQ-7).
Results: The mean leakage weight became significantly lower ($p<0.05$) in group III than in groups II and I starting at 6 weeks until 24 weeks of follow-up. A significant difference ($p<0.05$) between the groups in terms of percentage of continent patients was achieved from 12 weeks (71.42%, 53.85% and 34.62%) to 24 weeks (96.43%, 76.92% and 65.38%) for groups III, II and I, respectively.
Conclusion: Early, noninvasive therapy with ES and BFB has a significant positive effect on the duration and the degree of UI and QOL.
Keywords: Urinary incontinence; Radical prostatectomy; Electrical stimulation; Biofeedback.

Faculty of Nursing

Dept. of MedicalSurgical Nursing

151. Translating and Testing the Liver Disease Symptom Index 2.0 for Administration to People with Liver Cirrhosis in Egypt

Naglaa .F A. Youssef, Ashley Shepherd, Josie M. M. Evans and Sally Wyke

International Journal of Nursing Practice,18 (4):406-416 (2012). IF: 0.716

The Liver Disease Symptom Index (LDSI) 2.0 is a simple, short and specific liver disease questionnaire in English, but an Arabic version does not exist, therefore we translated the LDSI-2.0 into Arabic and tested its psychometric properties in a pilot cross-sectional study. A convenience sample of 38 patients with liver cirrhosis from one hospital in Cairo, Egypt, were interviewed for approximately 45 min. Patients completed a background data sheet, the translated LDSI-2.0 and the Short Form (SF)-36v(2). Construct convergent validity was examined by correlating LDSI-2.0 items with the SF-36v(2) eight domains. Reliability was estimated using measures of internal consistency, test-retest reliability and internal consistency reliability. Median completion time was 10 min. The correlation between the translated LDSI-2.0 items and the SF-36 domains confirmed that there was moderate to high overlapping between the two measures, suggesting

convergent validity of the LDSI-2.0. The LDSI-2.0 showed good to very good retest reliability (kappa value 0.62-0.94). Chronbach's alpha coefficient for the multi-item scales ranged from 0.73 to 0.96. The Arabic LDSI-2.0 therefore has satisfactory validity, retest reliability and internal consistency.

Dept. of Mental Health Nursing

152. Psycho Educational Program for Caregivers of Schizophrenic Patients

Enas Mahrous, Nefissa Mohamed Abd El Kader and Mostafa Omar Shaheen

Book Published by Lambert Academic Publishing, (2012)

This book examined the effectiveness of a psycho educational program on burdens among family caregivers of chronic schizophrenic patient. This study was conducted at the outpatient department in El Abassia Hospital for mental health. A quasi-experimental design (pre/ post and follow-up) was used in this study .The researcher selected 40 chronic schizophrenic patients with their family caregivers, based on inclusion and exclusion criteria for both, They were equally assigned randomly to a control and study groups. This book involved program included 12 sessions for study group over six months. The designed educational program involved in this book could helpe family caregivers through providing efficient knowledge related to relatives' illness, teaching and practicing new skills as communication, and more adaptive coping strategies to reduce caregivers' burdens. The book revealed significant results about effectiveness of this designed program on reducing family burdens among caregivers who practice effective coping strategies and received more practical support from health team members. In addition, the book elaborated how family burdens could decrease with more using active -interactive coping methods, which in turns improve patient's symptoms. This book finally concluded how family caregivers burdens and coping methods could improve patients symptoms. These points emphasized the necessity to provide families with schizophrenic patients with psycho educational interventions.

(4)
Social & Humanity Sciences Sector

Faculty of Economics and Political Science

Dept. of Economics

153. Economic Incentives and Environmental Regulation Evidence from the MENA Region

Hala Muhamed Sultan

Book Published By Edward Elgar, (2012)

This unique book explores a wide range of environmental issues centered on the Middle-East and North Africa region, where environmental degradation and impacts of climate change are known to be more critical than in others parts of the world. Extensive country analyses are supported by references to the economic literature on regulation and incentives, and encompass recent trends in environmental management modes and policy orientations. The topical chapters include a critical review of environmental policies with a focus on economic incentives on various environmental issues including irrigation water, air pollution, solid waste management and the impact of climate change and fisheries. The book combines econometric applications, theoretical models of regulation, and policy-oriented economic analyses with fundamental recommendations for policymakers.

Faculty of Commerce

Dept. of Accounting

154. E-Business Audit: Advisory Jurisdiction or Occupational Invasion?

Amr Kotb, Clare Roberts and S. Sian

Critical Perspectives on Accounting, 23: 468-482 (2012). A+

This study sets out to examine the impact of technological change on the external audit function of e-businesses and, specifically, the professionals involved in executing it. Utilising semi-structured interviews combined with a questionnaire survey, thispaper explores the possible implications of developments in e-business audit for financial auditors as a professional group. The findings suggest that the traditional authority enjoyed by external financial auditors is being, and will be, increasingly challenged by IT audit specialists. The role of the professional bodies, responsible for the education and training of financial audit professionals, in particular, is highlighted as key to the outcome if they are to fend off challenges in this growing arena and retain jurisdictional control.
Keywords: Accountability; Critical; Accounting firms; Information technology; Audit.

155. Internal Auditors Perception about Their Role in Risk Management Audit in Egyptian Banking Sector

Tariq H. Ismail

Int. J. of Economics and Accounting, 3 (2): 196 -220 (2012)

The purpose of this paper is to constitute a comprehensive framework of risk management and to explore the role played by internal auditors in the audit of risk management. This paper also attempts to collect internal auditors opinion regarding other factors on risk-management auditing, where it uses surveys from internal auditors working in banks to test its predictions. The results indicate that there is a strong association between the type of bank ownership and the quality of the risk-based audit procedures. The results show that this relationship is in favour of private and joint-venture banks, hence suggesting that internal auditors see themselves capable of playing a larger role in the audit of risk management framework rather than outsourcing experts such as consulting certified public accountants (CPA). A majority of internal auditors recommend that risk management audit might be carried out, as a second option, by an independent risk management consulting firm.
Keywords: Risk management; Risk-based audit; Internal auditors; External auditors; Audit committee; Bank supervisors; Auditing; Egypt; Auditor perceptions; Auditor role.

156. Disclosure Practices in Egypt: What Are Factors Beyond the Low Level?

Tariq H. Ismail and Nermeen F. Shehata

International Journal of Economics and Accounting, 3 (4): 264-275 (2012)

In Egypt, as one of the emerging markets, mandatory disclosure of financial information on annual reports has attracted the attention of many researchers. Results of prior studies analyzing disclosure level concluded that mandatory financial disclosure inannual reports is low. The purpose of this paper is to shed the light and analyze those factors affecting disclosure level in the Egyptian environment including political and economic conditions, legal system and regulatory framework, nature of the capital market, prevailing culture, and accounting practices. Our analysis suggests that secretive culture is the major reason behind the low disclosure practices found in Egypt overcoming the efforts exerted by regulators. Additionally, the paper provides thereasons that lead to the low disclosure level as follows: (i) presence of uniform, secretive, and conservative accounting practices, (ii) absence of a unified law governing Egyptian companies' activities and transactions, (iii) and lack of strict enforcements imposed by the Egyptian Capital Market Authority on non complying companies to comply with the mandatory requirements of the Egyptian accounting standards.
Keywords: Disclosure; Financial reporting; Culture.

157. Impact of Market and Organizational Determinants on Voluntary Disclosure in Egyptian Companies

Tariq H. Ismail and Nesma M. El-Shaib

Meditari Accountancy Research, 20 (2): 113-133 (2012)

Purpose – The purpose of this paper is to investigate the impact of market and organizational determinants on the voluntary disclosure level of Egyptian companies. Design/ methodology/ approach – Uses a disclosure index of voluntary disclosure that is based upon the following information categories: strategic information; financial information; non-financial information; and future prospect information to rate the level of disclosure. Multivariate analysis, voluntary disclosure determinants: earnings quality; ownership structure; competition intensity; information asymmetry, and possible relationships with disclosure level provide the basis for discussion. Findings – It is found that the level of voluntary disclosure in the emerging market of Egypt

ranges from low to moderate level. There is no significant relationship between a company's voluntary disclosure level and earnings quality and competition intensity, while this relationship is significant for information asymmetry and ownership structure. Research limitations/implications – The results are constrained by the proxies that represent non-financial factors of the market. Originality/value – This paper extends prior studies on voluntary disclosure in Egypt by looking at a comprehensive set of market and organizational factors that might affect the disclosure level, based on a structured disclosure index of strategic, financial and non-financial, and future prospect information. The findings would help boards of directors to explain the adoption of certain disclosure strategies, and understand the corporate disclosure behavior.

Keywords: Voluntary disclosure; Earnings quality; Management ownership; Block-holder ownership; Government ownership; Competition intensity; Information asymmetry; Listed companies; Emerging markets; Egypt.

158. The Influence of Organizational and Environmental Factors on Cost Systems Design in Egypt

Tariq H. Ismail and Nancy Mohamed Mahmoud

British Journal of Economics, Finance and Management Sciences, 4 (2): 31-51 (2012)

This paper aims at examining the extent to which organizational and environmental factors influence the cost systems design in Egyptian manufacturing firms. We use a questionnaire to survey a sample of Egyptian privately held firms in a wide spectrum of industrial sectors. The results reveal that the use of highly sophisticated cost systems in Egyptian manufacturing firms is limited, simple and complex traditional systems are widely used, and very few firms adopting simple Activity-Based Costing. Additionally, it was found that the sophistication level of cost systems is positively associated with the importance of cost information, while no association was found with product diversity, intensity of the competitive environment and cost structure. The results suggest that improvement in manufacturing performance resulting from reducing cycle and lead times, improving product quality and reducing costs is associated with an effective selection of cost system.

The findings of this study will help managementand practitioners in the Egyptian industrial sector to design effective cost systems with a certain level of sophistication that rationalize decisions and improve manufacturing performance. This study is one of few surveys that examine the impact of contextual factors on the product cost sophistication level and manufacturing performance in the Egyptian context.

Keywords: Product cost systems; Activity- based costing; Cost centers; Cost pools; Cost drivers; Environmental culture; Organization culture; Egypt.

Dept. of Business Administratio

159. The Impact of E-Marketing Practices on .1 Marketing Performance of Small Business Enterprises

Hatem El-Gohary

Book Published By Lambert Academic Publishing, (2012)

business enterprises. It aims to develop and test a theoretical model that can help to understand and interpret the relationship between E-Marketing adoption and industrial and trading SBEs marketing performance and seeks to evaluate the potential of E-Marketing for SBEs in developed countries (UK) and developing countries (Egypt). This book builds on previous research in the fields of E-marketing and SBEs and adds to the relatively limited empirical research that has been conducted on E-Marketing in a small business context .The book provides an insight for entrepreneurs, policy makers, practitioners, researchers, and educators by providing a clearer view and deep understanding of the issues related to E-Marketing adoption and practices by small business enterprises as opposed to large companies. Overall as the theory in the field of E-Marketing is still in its infancy stage and is not yet well established. This book can be considered as a step towards a theory building in the field of E-marketing.

Faculty of Arts

Dept. of English Language and its Literature

160. A study of the Translation of Figurative Language in the Qur'an

Khaled Muhamed Tawfik

Book Published By Lambert Academic Publishing, (2012)

The focus of study in this book is the analysis of the problems faced by translators in rendering figures of speech in the Qur'an especially the culture- specific ones. To achieve this aim, Abdullah Yusuf Ali's The Holy Qur'an: Text, Translation and Commentary (1938), Arthur J. Arberry's The Koran Interpreted (1955), N. J. Dawood's The Koran (1956) and Muhammad Mahmud Ghali's Towards Understanding the Ever Glorious Qur'an (1997) have been chosen. The four translations have been selected because of their objectivity, accuracy and adoption of the traditional order of suras.

Dept. of French Language and its Literature

161. Picasso-labyrinthe: Le Monstrueux e (s) tI'humain Chez Michel Butor

Aziza Ibrahim

Le Monstrueux Et L'humain, Presses Universitaires De Brodeaux, (2012)

Je récuserais le termehumanistesil'on y voyaitunevalorisa-tionabsolued'une notion de l'hommedéfinieunefois pour toutes, en oppositionavecce qui n'est pas humain. Je suishomme, certes, j'aime les homes, mais je n'aime pas seulement les hommes, et toute idée de l'homme quine se déborde pas versl'animalou la machine, ou plus généralementversl'abhumain et le surhumain, aboutitnécessairement à une oppression del'homme par lui-même1.

Faculty of Archaeology

Dept. of Conservation

162. History of Dyes Used in Different Historical Periods of Egypt

Omar Abdel-Kareem

Research J. of Textile and Apparel (Rjta), 16 (4): 79-92 (2012)

This paper is a review article which presents brief historical information about natural dyes in different historical periods in Egypt. This information will assist archaeologists, dyers, artists and conservators who seek information about ancient dyes inEgypt. For example, the data will help conservators in choosing natural dyes that can be used in producing new models of dyed textile samples that simulate the original historical ones. These models of textile samples can be used as experimental samplesin conservation research and training of young conservators. Also, this information can be used by technologists to conduct comparison studies on the technology of natural dyes in ancient Egypt. The dyes are presented according to their alphabetical namesin this paper. All data in this paper have been collected from references related to this topic without any changes from the researcher.

Keywords: Egypt; History; Natural dyes; Cochineal; Henna; Indigo; Kermes; Madder.

163. Complementary Techniques for Pigment Analysis from the Festival Hall of Thutmosis Iii, the Karnak Temples Complex (Luxor, Egypt)

Hussein Hassan and Marey Mahmoud

Archeomatica, 4: 46-48 (2012)

The present paper aims at analyzing some ancient pigments from the festival hall of Thutmosis III, the Karnak temples complex (Luxor, Egypt). The wall decorations of the festival hall are carved with raised and sunken reliefs and painted with religious scenes and hieroglyphs texts. The analytical techniques utilized in this study were optical microscopy (OM), environmental scanning electron microscopy (ESEM) coupled with an energy dispersive X-ray analysis system (EDX), μ-X-ray fluorescence spectrometry and colorimetry. Based on the results of these analyses, the microscopic features, microstructure and the chemical composition of the studied pigments were identified. The results revealed the blue pigment as Egyptian blue (cuprorivaite, CaCuSi4O10), the green pigment as Egyptian green (Cu-wollastonite), the yellow pigment as yellow ochre, and the red pigment as red ochre.

Keywords: Pigments; TheKarnak temples complex; Egyptian blue; ESEM−eDX; M-XRF.

164. Using SEMin Monitoring Changes in Archaeological Wood: A Review

Safa A. M Hamed, Mona F. Ali and Nesrin M. N. ElHadidi

Current Microscopy Contributions to Advances in Sciences and Technology - Microscopy Book Series - Number 5, Formatex, (2012)

This paper focuses on the role of scanning electron microscope in understanding and assessing the changes in theanatomical structure of archaeological wood caused by deterioration agents and treatment procedures. Scanning electronmicroscopy is considered an important tool for observing the structural changes in degraded wood tissues at the level ofcell wall, evaluating their damage, and identifying the causal agent of decay patterns. Additionally it is very helpful in theassessment of materials and methods used in treatment of archaeological wood, especially during cleaning andconsolidation processes which have different effects on the wood structure. Such valuable information helps in developingappropriate procedures for conserving wooden artifacts. Although the data obtained from SEM examination illustrates themorphological and structural changes of the wood, it sometimes provides an indication to the changes in its chemicalcomposition. Therefore, investigations based on SEM xamination seek to determine the condition of archaeologicalwood.

Dept. of Egyptian Archaeology

165. A New Demotic Private Letter from Hermopolis

Mahmoud Ebeid

Journal of Egyptian Archaeology, 98: 211-223 (2012)

Publication of a Demotic papyrus, now in the al-Ashmunein magazine (Inv. No. 1455), found in the necropolis of Tuna al-Gebel during excavations by the Cairo University mission. The document is a private letter and dates to the Ptolemaic period. The writerof the letter and the addressee are probably officials in the ibis administration of the necropolis. The letter concerns income received by one of the officials in the local community and reports problems that have arisen between some individuals, possibly members of the ibis community, concerning the distribution of an amount of money that might be salaries or daily allowances.

Keywords: Tuna al-gebelnercropolis; Al-ashmunein magazine; Demotic letter, Ibis organization.

Authors' Index

Authors' Index

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Appendix

Appendix 1

Statistical Data

List of top 10 authors according to the number of publications
(Year 2012)

Rank	Name	Faculty	No. of Pub.
1	Gehad Genidy Mohamed Genidy	Faculty of Science	21
2	Ali Yehia Ellithi Kamel	Faculty of Science	18
2	Olfat Gamil Shaker	Faculty of Medicine	18
4	Gamal Esmat	Faculty of Medicine	17
4	Ahmed Galal	Faculty of Science	17
6	Nada Farouk Ahmed Atta	Faculty of Science	14
6	Abdul Hady Nabih Ahmed	Institute of Statistical Studies and Research	14
8	Abd El-Aty Mostafa Abd El-Aty	Faculty of Veterinary Medicine	13
9	Abd El-Moneim Radwan Afify	Faculty of Agriculture	12
9	Hassen Taher Dorrah	Faculty of Engineering	12
9	Ahmed Mohamed Soliman	Faculty of Engineering	12
12	Nasser Hassan Sweilam	Faculty of Science	11
12	Mervat Mamdooh Khorshied	Faculty of Medicine	11
14	Taymour Mostafa	Faculty of Medicine	10
14	Yousry Moustafa Issa	Faculty of Science	10
14	Nour Tawfik Abdel Ghani	Faculty of Science	10
14	Mohamed Mohamed Shoukry	Faculty of Science	10
14	Hossam El-Din Saad El-Beltagi	Faculty of Agriculture	10
14	Ahmed Gomaa Ahmed Radwan	Faculty of Engineering	10

List of top 10 authors according to the sum of their impact factor
(Year 2012)

Rank	Name	Faculty	Sum IF
1	Ali Yehia Ellithi Kamel	Faculty of Science	151.513
2	Ahmed Galal Helmy	Faculty of Science	58.286
3	Nada Farouk Ahmed Atta	Faculty of Science	50.071
4	Gamal Eldein Esmat Mohamed	Faculty of Medicine	45.396
5	Mohamed Mohsen Ibrahim	Faculty of Medicine	38.278
6	Ramy Karam Aziz	Faculty of Pharmacy	27.122
7	Mohamed Saada El-Deab	Faculty of Science	25.782
8	Olfat Gamil Shaker	Faculty of Medicine	24.022
9	Rasha Mohamed El Nashar	Faculty of Science	23.316
10	Abd El-Aty Mostafa Abd El-Aty	Faculty of Veterinary Medicine	22.889
11	Gehad Genidy Mohamed Genidy	Faculty of Science	22.695
12	Taymour Mostafa	Faculty of Medicine	22.656
13	Mohamed Abd El-Gawad Zayed	Faculty of Science	22.586

List of top 10 authors according to highest single impact factor
(Year 2012)

Rank	Name	Faculty	Max. IF
1	**Mohamed Mohsen Ibrahim**	**Faculty of Medicine**	**38.278**
2	**Ali Yehia Ellithi Kamel**	**Faculty of Science**	**31.2**
3	**Abdullah Ameen Salem**	**Faculty of Medicine**	**14.739**
4	**Ashraf Salah Mohamed Selim**	**Faculty of Medicine**	**14.093**
5	**Ahmed Sherif Mohamed Hussein Attia**	**Faculty of Pharmacy**	**13.5**
6	**Mostafa Ibrahim Attia**	**Faculty of Medicine**	**11.003**
7	**Sahar Nasr Saleem**	**Faculty of Medicine**	**9.457**
8	**Ramy Karam Aziz**	**Faculty of Pharmacy**	**8.026**
9	**Ismail Hassan Ismail**	**Faculty of Science**	**8.026**
10	**Laila Abdel Moteleb Selim**	**Faculty of Medicine**	**7.804**
11	**Mohamed Diaa Sarhan**	**Faculty of Medicine**	**7.492**
12	**Hassan Fathy Ibrahim**	**Faculty of Science**	**7.37**
13	**Mohammad Hassan Shehata**	**Faculty of Pharmacy**	**7.115**

Statistical Data

List of faculties with highest score of impact factor
(Year 2012)

Faculty	Count	%	Tot. IF	%	Avg.	Max.	Min.
Faculty of Science	**447**	24.507	**813.961**	35.217	1.821	**31.2**	**0.07**
Faculty of Medicine	**338**	18.531	**587.451**	25.416	1.738	**38.278**	**0.073**
Faculty of Pharmacy	**261**	14.309	**324.991**	14.061	1.245	**13.5**	**0.073**
Faculty of Engineering	**228**	12.500	**158.528**	6.859	0.695	**3.734**	**0.051**
Faculty of Agriculture	**148**	8.114	**109.164**	4.723	0.738	**4.98**	**0.073**
Faculty of Veterinary Medicine	**95**	5.208	**102.678**	4.442	1.081	**4.601**	**0.061**
The National Cancer Institute	**46**	2.522	**69.181**	2.993	1.504	**8.026**	**0.073**
Institute of Statistical Studies and Research	**43**	2.357	**5.849**	0.253	0.136	**2.833**	**0.073**
Faculty of Computers and Information	**35**	1.919	**10.606**	0.459	0.303	**2.612**	**2.386**
Faculty of Archaeology	**32**	1.754	**10.347**	0.448	0.323	**1.914**	**0.703**
Faculty of Physical Therapy	**30**	1.645	**37.985**	1.643	1.266	**3.064**	**0.233**
National Institute of Laser Enhanced Sciences	**26**	1.425	**39.672**	1.716	1.526	**3.794**	**0.6**
Faculty of Commerce	**24**	1.316	**6.893**	0.298	0.287	**3.5**	**0.661**
Faculty of Oral Dental Medicine	**21**	1.151	**28.307**	1.225	1.348	**3.028**	**0.073**
Faculty of Arts	**20**						
Faculty of Economics and Political Science	**10**	0.548	**0.387**	0.017	0.039	**0.387**	**0.387**
Institute of African Research and Studies	**8**	0.439	**1.641**	0.071	0.205	**1.641**	**1.641**
Faculty of Nursing	**5**	0.274	**0.716**	0.031	0.143	**0.716**	**0.716**
The Institute of Educational Studies and Research	**4**	0.219	**0.562**	0.024	0.140	**0.346**	**0.216**
Faculty of Regional and Urban Planning	**1**	0.055	**2.386**	0.103	2.386	**2.386**	**2.386**
Faculty of Law	**1**	0.055					
Faculty of Dar El-Ulum	**1**	0.055					
Total	**1824**	100	**2311.305**	100			

Statistical Data

List of number of publications
(2006-2012)

Faculty	2006	2007	2008	2009	2010	2011	2012	Total
Science	142	162	241	242	290	425	447	**1963**
Medicine	49	64	124	154	226	350	338	**1305**
Engineering	56	79	109	140	131	198	228	**941**
Pharmacy	27	40	77	104	126	224	261	**859**
Agriculture	8	14	35	83	75	136	148	**499**
Veterinary Medicine	11	20	47	53	86	136	95	**448**
National Cancer Institute	9	16	16	27	37	52	46	**203**
National Institute of Laser Enhanced Sciences	13	11	9	21	27	33	26	**140**
Economics and Political Science	13	14	13	8	10	6	10	**74**
Arts	7	7	17	15	15	22	20	**103**
Statistical Studies and Research Institute	8	6	11	7	4	17	43	**98**
Archaeology	1	2	5	16	19	26	32	**101**
Computers and Information	2	3	4	11	6	32	35	**93**
Oral and Dental Medicine			1	15	19	23	21	**79**
Physical Therapy					1	3	30	**34**
Nursing			1	4	2	6	5	**18**
Commerce	4	2	1	4	6	17	24	**58**
Mass Communication			1		3	1		**5**
Educational Studies and Research					2	2	4	**8**
African Research and Studies Institute		1	2			3	8	**14**
Dar Al-Oloum	1						1	**2**
Law						1	1	**2**
Regional and Urban Planning							1	**1**
Total	**351**	**441**	**814**	**926**	**1089**	**1712**	**1824**	**7157**

Appendix 2

Top 50 authors of Cairo University
(According to no. of publications)

Rank	Author Name	Affiliation	No. of Pub
1	Ahmed Mohamed Soliman	Faculty of Engineering	373
2	Yousry Moustafa Issa	Faculty of Science	199
3	Essam Eldien Khalil Hassan	Faculty of Engineering	182
4	Ali Ahmed Shafik Ali	Faculty of Medicine	177
5	AlZahraa Mahmoud El-Sayed	Faculty of Physical Therapy	148
6	Hesham Gaber Al-Inany	Faculty of Medicine	147
7	Said Rezk Grace	Faculty of Engineering	141
8	Yasser Mostafa Ibrahim Kadah	Faculty of Engineering	140
9	Mohamed Waheed Eldein Abdullah Badawy	Faculty of Science	137
10	Ahmad Sami Abdelshakour Shawali	Faculty of Science	137
11	Aboul Ella Hassanien	Faculty of Computers and Information	130
12	Abd El-Aty Mostafa Abd El-Aty	Faculty of Veterinary Medicine	129
13	Gehad Genidy Mohamed Genidy	Faculty of Science	123
14	Ahmed Ahmed Soliman	Faculty of Science	116
15	Mohamed Mohamed Shoukry	Faculty of Science	104
16	Ismail Ahmed Shafik	Faculty of Medicine	100
17	Yehia Abdel Hamid Badr	National Institute of Laser Enhanced Sciences	95
18	Mohamed Taqy Eldein Khayyal	Faculty of Pharmacy	93
19	Abdou Osman Abdelhamid	Faculty of Science	93
20	Taymour Mostafa	Faculty of Medicine	84
21	Amira Hassan Mohamed	Faculty of Veterinary Medicine	90
22	Hussein Mostafa Mosa Khaled	The National Cancer Institute	87
23	Kamal Mohamed Dawood	Faculty of Science	85
24	Amr Amin Adly	Faculty of Engineering	85
25	Olfat Gamil Shaker	Faculty of Medicine	84

Rank	Author Name	Affiliation	No. of Pub
26	**Mohamed Abd El-Gawad Abd El-Salam Zayed**	**Faculty of Science**	**84**
27	**Mohamad Abdel Harith Mohamad**	**National Institute of Laser Enhanced Sciences**	**80**
28	**Rashika El Ridi**	**Faculty of Science**	**80**
29	**Ahmed Galal Helmy**	**Faculty of Science**	**79**
30	**Laila Ahmed Rashed**	**Faculty of Medicine**	**77**
31	**Fathy Abd El-Aty Abdel-Ghaffar**	**Faculty of Science**	**76**
32	**Abdel Rahman Nabwi Zekri**	**The National Cancer Institute**	**71**
33	**Magdy Sabaa Wadid Farag**	**Faculty of Science**	**67**
34	**Ahmad Mahmoud Farag**	**Faculty of Science**	**72**
35	**Maher Zaki Elsabee**	**Faculty of Science**	**71**
36	**Abdel Latif Mohamed Ragaee Elshafei**	**Faculty of Engineering**	**68**
37	**Rafat Milad Mohareb**	**Faculty of Science**	**67**
38	**Ahmed Gomaa Ahmed Radwan**	**Faculty of Engineering**	**63**
39	**Rany Shamloul**	**Faculty of Medicine**	**63**
40	**Hussein Anis**	**Faculty of Engineering**	**62**
41	**Mohamed Farid Abdel-Wahab**	**Faculty of Medicine**	**60**
42	**El-Sayed Mohamed Abdel-Rahman**	**Faculty of Science**	**60**
43	**Samy Abbas Madbouly**	**Faculty of Science**	**58**
44	**Magdy Abdel Aty El-Tawil**	**Faculty of Engineering**	**58**
45	**Nour Tawfik Abdel Ghani**	**Faculty of Science**	**57**
46	**Ahmed Hassan Abutaleb**	**Faculty of Engineering**	**55**
47	**Mohammed Nafie**	**Faculty of Engineering**	**54**
48	**Fakiha El-Taib Heakal**	**Faculty of Science**	**54**
49	**Mohamed Saada El-Deab**	**Faculty of Science**	**53**
50	**Serag Eldin ElSayed Habib**	**Faculty of Engineering**	**53**
51	**Youssef Fawzy Rashed**	**Faculty of Engineering**	**53**

Top 50 authors of Cairo University
(According to total no. of citations)

Rank	Author Name	Affiliation	Tot. Citation
1	Mona Bakr Mohamed Mahmoud	National Institute of Laser Enhanced Sciences	2201
2	Ahmed Ahmed Soliman	Faculty of Science	1586
3	Ahmed Mohamed Soliman	Faculty of Engineering	1552
4	Mohamed Waheed Eldein Abdullah Badawy	Faculty of Science	1550
5	Ramy Karam Aziz	Faculty of Pharmacy	1472
6	Hesham Gaber Al-Inany	Faculty of Medicine	1425
7	Mohamed Saada El-Deab	Faculty of Science	1327
8	Hussein Mostafa Mosa Khaled	The National Cancer Institute	1154
9	Mohamed Ali Farag	Faculty of Pharmacy	1131
10	Ahmad Sami Abdelshakour Shawali	Faculty of Science	1126
11	Gehad Genidy Mohamed Genidy	Faculty of Science	1082
12	Yousry Moustafa Issa	Faculty of Science	1072
13	Rabab Mohamed Gaafar	The National Cancer Institute	1023
14	Kamal Mohamed Dawood	Faculty of Science	1001
15	Abd El-Aty Mostafa Abd El-Aty	Faculty of Veterinary Medicine	820
16	Ahmad Mahmoud Farag	Faculty of Science	806
17	Ahmed Galal	Faculty of Science	748
18	Ali Ahmed Shafik Ali	Faculty of Medicine	740
19	Yasser Mostafa Ibrahim Kadah	Faculty of Engineering	696
20	Magdy Sabaa Wadid Farag	Faculty of Science	687
21	Samy Abbas Madbouly	Faculty of Science	632
22	Mohamed Farid Abdel-Wahab	Faculty of Medicine	625
23	Abdel Rahman Nabwi Zekri	The National Cancer Institute	605
24	Rany shamloul	Faculty of Medicine	595
25	Tamer Abdel Mottalib Farid ElBatt	Faculty of Engineering	593
26	Rashika El Ridi	Faculty of Science	582
27	Taymour Mostafa	Faculty of Medicine	580
28	Moamena Abdel Wahab Kamel	Faculty of Medicine	575

Rank	Author Name	Affiliation	Tot. Citation
29	**Mohamed Taqy Eldein Khayyal**	**Faculty of Pharmacy**	**559**
30	**Maher Zaki Elsabee**	**Faculty of Science**	**559**
31	**Mohy Saad Mansour**	**Faculty of Engineering**	**545**
32	**Nadia Mahmoud Mokhtar Abdel Reheem**	**The National Cancer Institute**	**530**
33	**Nour Tawfik Abdel Ghani**	**Faculty of Science**	**530**
34	**Nada Farouk Ahmed Atta**	**Faculty of Science**	**525**
35	**Nadia Ahmed Mohamed**	**Faculty of Science**	**515**
36	**Yehia Abdel Hamid Badr**	**National Institute of Laser Enhanced Sciences**	**511**
37	**Fawzy Ali Attaby**	**Faculty of Science**	**508**
38	**Said Rezk Grace**	**Faculty of Engineering**	**506**
39	**Ahmed Helmy Mahmoud Elwahy**	**Faculty of Science**	**494**
40	**Amr Amin Adly**	**Faculty of Engineering**	**486**
41	**Mohamed Mohamed Shoukry**	**Faculty of Science**	**475**
42	**Fakiha El-Taib Heakal**	**Faculty of Science**	**474**
43	**Radwan Sedki Farag**	**Faculty of Agriculture**	**473**
44	**Mohamed Abd El-Gawad Abd El-Salam Zayed**	**Faculty of Science**	**449**
45	**A. Abutaleb**	**Faculty of Engineering**	**443**
46	**Abdou Osman Abdelhamid**	**Faculty of Science**	**442**
47	**Laila Ahmed Rashed**	**Faculty of Medicine**	**438**
48	**Fathy Mohamed Abdelrazek**	**Faculty of Science**	**432**
49	**Mohamed Abdel Harith Mohamed**	**National Institute of Laser Enhanced Sciences**	**429**
50	**Mohamad Warda**	**Faculty of Veterinary Medicine**	**426**

Top 50 authors of Cairo University
(According to h-index)

Rank	Author Name	Affiliation	h-index
1	Ahmed Mohamed Soliman	Faculty of Engineering	27
2	Gehad Genidy Mohamed Genidy	Faculty of Science	23
3	Hesham Gaber Al-Inany	Faculty of Medicine	21
4	Mona Bakr Mohamed Mahmoud	National Institute of Laser Enhanced Sciences	20
5	Ahmed Ahmed Soliman	Faculty of Science	20
6	Hussein Mostafa Mosa Khaled	The National Cancer Institute	19
7	Mohamed Saada El-Deab	Faculty of Science	19
8	Kamal Mohamed Dawood	Faculty of Science	19
9	Ramy Karam Aziz	Faculty of Pharmacy	17
10	Mohamed Waheed Eldein Abdullah Badawy	Faculty of Science	17
11	Ahmad Mahmoud Farag	Faculty of Science	17
12	Abdel Rahman Nabwi Zekri	The National Cancer Institute	16
13	Abd El-Aty Mostafa Abd El-Aty	Faculty of Veterinary Medicine	16
14	Mohamed Mohamed Shoukry	Faculty of Science	15
15	Magdy Sabaa Wadid Farag	Faculty of Science	15
16	Samy Abbas Madbouly	Faculty of Science	15
17	Taymour Mostafa	Faculty of Medicine	15
18	Rany shamloul	Faculty of Medicine	15
19	Yousry Moustafa Issa	Faculty of Science	15
20	Ahmad Sami Abdelshakour Shawali	Faculty of Science	15
21	Yehia Abdel Hamid Badr	National Institute of Laser Enhanced Sciences	14
22	Rabab Mohamed Gaafar	The National Cancer Institute	14
23	Mohamed Ali Farag	Faculty of Pharmacy	14
24	Fawzy Ali Attaby	Faculty of Science	14

25	**Eid Hassan Abd Elrahman Doha**	**Faculty of Science**	**14**
26	**Mohamed Abdel Harith Mohamed**	**National Institute of Laser Enhanced Sciences**	**13**
27	**Nadia Ahmed Mohamed**	**Faculty of Science**	**13**
28	**Ahmed Galal**	**Faculty of Science**	**13**
29	**Said Rezk Grace**	**Faculty of Engineering**	**13**
30	**Amal Mohamed Ibrahim El Beshlawy**	**Faculty of Medicine**	**13**
31	**Alzahraa Mahmoud Elsaid**	**Faculty of Physical Therapy**	**13**
32	**Ahmed Helmy Mahmoud Elwahy**	**Faculty of Science**	**12**
33	**Nour Tawfik Abdel Ghani**	**Faculty of Science**	**12**
34	**Yasser Mostafa Ibrahim Kadah**	**Faculty of Engineering**	**12**
35	**Tamer Macky**	**Faculty of Medicine**	**12**
36	**Mahmoud Mohamed Ghorab**	**Faculty of Pharmacy**	**12**
37	**Mohamed Abd El-Gawad Abd El-Salam Zayed**	**Faculty of Science**	**12**
38	**Rashika El Ridi**	**Faculty of Science**	**12**
39	**Nadia Mahmoud Mokhtar Abdel Reheem**	**The National Cancer Institute**	**11**
40	**Abeer Bahnsy**	**The National Cancer Institute**	**11**
41	**Hany El-Shemy**	**Faculty of Agriculture**	**11**
42	**Hossam El-Din Saad El-Beltagi**	**Faculty of Agriculture**	**11**
43	**Fathy Mohamed Abdelrazek**	**Faculty of Science**	**11**
44	**Gamal R.Saad**	**Faculty of Science**	**11**
45	**Hala Gamil El-Shobaky**	**Faculty of Science**	**11**
46	**Nada Farouk Ahmed Atta**	**Faculty of Science**	**11**
47	**Amany Mohamed Fekry**	**Faculty of Science**	**11**
48	**Ali Ahmed Shafik Ali**	**Faculty of Medicine**	**11**
49	**Olfat Gamil Shaker**	**Faculty of Medicine**	**11**
50	**Laila Ahmed Rashed**	**Faculty of Medicine**	**11**
51	**Mohamad warda**	**Faculty of Veterinary Medicine**	**11**
52	**Mohy Saad Mansour**	**Faculty of Engineering**	**11**

Appendix 3

Top 5 authors of Cairo University Faculties
(According to no. of publications from Top 50)

1- Faculty of Engineering,

Rank	Author Name	No. of Pub
1	Ahmed M Soliman	373
2	Essam E.Khalil	182
3	Said Rezk Grace	141
4	Yasser Mostafa Ibrahim Kadah	140
5	Amr Amin Adly	85

2- Faculty of Science,

Rank	Author Name	No. of Pub
1	Yousry Moustafa Issa	205
2	Mohamed Waheed A. Badawy	137
3	Ahmad Sami Abdelshakour Shawali	137
4	Gehad Genidy Mohamed Genidy	123
5	Ahmed Ahmed Soliman	116

3- Kasr El-Aini School of Medicine,

Rank	Author Name	No. of Pub
1	Ali Ahmed Shafik Ali	177
2	Hesham Gaber Al-Inany	147
3	Ismail Ahmed Shafik	100
4	Taymour Mostafa	92
5	Olfat Gamil Shaker	84

4- Faculty of Computers and Information

Rank	Author Name	No. of Pub
1	Aboul Ella Hassanien	130
2	Ahmed Mahmoud Hany Aly Awad	24
3	Hoda Mohamed Onsi Ali	14
4	Hisham Abdelsalam	14
5	Fatma Abd El Sattar Hassan Omara	11

5- Faculty of Veterinary Medicine

Rank	Author Name	No. of Pub
1	Abd El-Aty Mostafa Abd El-Aty	129
2	Amira Hassan Mohamed	90
3	Ayman Goudah Moustafa Abouzeid	45
4	Mohamad Warda	34
5	Khaled Abo-EL-Sooud	31

7- Natl. Inst. of Laser Enhanced Sci.

Rank	Author Name	No. of Pub
1	Yehia Abdel Hamid Badr	95
2	Mohamed Abdel Harith Mohamed	82
3	Mona Bakr Mohamed Mahmoud	46
4	Ahmed Asaad ibrahim khalil	19
5	Nahed Hussein Solouma	16

9- Faculty of Pharmacy,

Rank	Author Name	No. of Pub
1	Mohamed Taqy Eldein Khayyal	93
2	Essam Abdel Sattar	45
3	Ramy Karam Aziz	42
4	Mohamed Ali Farag	36
5	Fatma Abdel Fatah Ragab	31
6	Mahmoud Mohamed Ghorab	31

6- National Cancer Institute

Rank	Author Name	No. of Pub
1	Hussein Mostafa Mosa Khaled	87
2	Abdel Rahman Nabwi Zekri	74
3	Hossam Kamel Mahmoud	49
4	Mohamed Saad Zaghloul	44
5	Nadia Mahmoud Mokhtar Abdel Reheem	43

8- Faculty of Agriculture

Rank	Author Name	No. of Pub
1	Hany El-Shemy	52
2	Radwan Sedki Farag	44
3	Hossam El-Din Saad El-Beltagi	40
4	Nabil Abrahim Hegazi	29
5	Gamal Said El baroty	26

10- Faculty of Oral Dental Medicine

Rank	Author Name	No. of Pub
1	Yehya Ahmed Mostafa	39
2	Enas Mobarak	11
3	Amr Ragab El-Beialy	11
4	Emad Tawfik Mahmoud Mohamad Daif	8
5	Rania Mohamed Nada	6

11- Institute of Statistical Studies and Research,

Rank	Author Name	No. of Pub
1	Hesham Ahmed Hefny	22
2	Abdul Hady Nabih Ahmed	14
3	Samir Kamel Ashour	12
4	Amal Soliman Hassan	12
5	Abdallah Mohamed Abdelfattah	8

Top 5 authors of Cairo University Faculties (According to total no. of citations from Top 50)

1- Natl. Inst. of Laser Enhanced Sci.,

Rank	Author Name	Tot. Citation
1	Mona Bakr Mohamed Mahmoud	2201
2	Yehia Abdel Hamid Badr	511
3	Mohamed Abdel Harith Mohamed	429
4	Ahmed Asaad Ibrahim Khalil	66
5	Souad Zakria Elfeky	57

2- Faculty of Science,

Rank	Author Name	Tot. Citation
1	Ahmed Ahmed Soliman	1586
2	Mohamed Waheed Eldein Abdullah Badawy	1550
3	Mohamed Saada El-Deab	1327
4	Ahmad Sami Abdelshakour Shawali	1126
5	Gehad Genidy Mohamed Genidy	1082

3- Faculty of Engineering,

Rank	Author Name	Tot. Citation
1	Ahmed Mohamed Soliman	1566
2	Yasser Mostafa Ibrahim Kadah	696
3	Tamer Abdel Mottalib Farid ElBatt	593
4	Mohy Saad Mansour	545
5	Said Rezk Grace	506

4- Faculty of Pharmacy,

Rank	Author Name	Tot. Citation
1	Ramy Karam Aziz	1472
2	Mohamed Ali Farag	1131
3	Mohamed Taqy Eldein Khayyal	559
4	Mahmoud Mohamed Ghorab	386
5	Hanan Salah El-Din El-Abhar	374

5- Kasr El-Aini School of Medicine,

Rank	Author Name	Tot. Citation
1	Hesham Gaber Al-Inany	1425
2	Ali Ahmed Shafik Ali	740
3	Mohamed Farid Abdel-Wahab	625
4	Rany shamloul	595
5	Taymour Mostafa	580

6- National Cancer Institute,

Rank	Author Name	Tot. Citation
1	Hussein Mostafa Mosa Khaled	1154
2	Rabab Mohamed Gaafar	1023
3	Abdel Rahman Nabwi Zekri	605
4	Nadia Mahmoud Mokhtar Abdel Reheem	530
5	Mohamed Saad Zaghloul	381

7- Faculty of Veterinary Medicine,

Rank	Author Name	Tot. Citation
1	Abd El-Aty Mostafa Abd El-Aty	820
2	Mohamad Warda	426
3	Ayman Goudah Moustafa Abouzeid	273
4	Khaled Abo-EL-Sooud	199
5	Amira Hassan Mohamed	148

8- Faculty of Agriculture,

Rank	Author Name	Tot. Citation
1	Radwan Sedki Farag	473
2	Gamal Said El baroty	396
3	Hany El-Shemy	281
4	Hossam El-Din Saad El-Beltagi	254
5	Nesreen Samir Mahmoud	165

9- Faculty of Computers and Information

Rank	Author Name	Tot. Citation
1	Aboul Ella Hassanien	262
2	Ahmed Mahmoud Hany Aly Awad	142
3	Hisham Abdelsalam	47
4	Hoda Mokhtar Omar Mokhtar	33
5	Abeer Mohamed Elkorany	32

10- Faculty of Oral Dental Medicine

Rank	Author Name	Tot. Citation
1	Yehya Ahmed Mostafa	229
2	Amr Ragab El-Beialy,	31
3	Rania Mohamed Nada	24
4	Enas Mobarak	20
5	Mona Mohamed Salah Fayed	12

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 Mohamed Soliman	27
2	Said Rezk Grace	13
3	Yasser Mostafa Ibrahim Kadah	12
4	Mohy Saad Mansour	11
5	Magdy Abd El-Aty El-Tawil	10
6	Ahmed Gomaa Ahmed Radwan	10
7	Youssef Fawzy Rashed	10

2- Faculty of Science,

Rank	Author Name	h_Index
1	Gehad Genidy Mohamed Genidy	23
2	Ahmed Ahmed Soliman	20
3	Mohamed Saada El-Deab	19
4	Kamal Mohamed Dawood	19
5	Ahmad Mahmoud Farag	17
6	Mohamed Waheed A. Badawy	17

3- Kasr El-Aini School of Medicine,

Rank	Author Name	h_Index
1	Hesham Gaber Al-Inany	21
2	Taymour Mostafa	15
3	Rany shamloul	15
4	Amal Mohamed Ibrahim El Beshlawy	13
5	Tamer Macky	12

4- Natl. Inst. of Laser Enhanced Sci.

Rank	Author Name	h_Index
1	Mona Bakr Mohamed Mahmoud	20
2	Yehia Abdel Hamid Badr	14
3	Mohamed Abdel Harith Mohamed	13
4	Ahmed Asaad ibrahim khalil	8
5	Souad Zakria Elfeky	5

5- National Cancer Institute,

Rank	Author Name	h_Index
1	Hussein Mostafa Mosa Khaled	19
2	Abdel Rahman Nabwi Zekri	16
3	Rabab Mohamed Gaafar	14
4	Nadia Mahmoud Mokhtar Abdel Reheem	11
5	Abeer Bahnsy	11

6- Faculty of Pharmacy,

Rank	Author Name	h_Index
1	Ramy Karam Aziz	17
2	Mohamed Ali Farag	14
3	Mahmoud Mohamed Ghorab	12
4	Essam Abdel Sattar	10
5	Hanan Salah El-Din El-Abhar	10
6	Mohamed Taqy Eldein Khayyal	10

7- Faculty of Veterinary Medicine,

Rank	Author Name	h_Index
1	Abd El-Aty Mostafa Abd El-Aty	16
2	Mohamad Warda	11
3	Ayman Goudah Moustafa Abouzeid	9
4	Khaled Abo-EL-Sooud	7
5	Alaa Eldin Abdel Mouty Eissa	5

8- Faculty of Agriculture

Rank	Author Name	h_Index
1	Hany El-Shemy	11
2	Hossam El-Din Saad El-Beltagi	11
3	Radwan Sedki Farag	8
4	Gamal Said El baroty	7
5	Abd El-Moneim Radwan Afify	6
6	Mourad Aboul-Soud	6

9- Faculty of Computers and Information

Rank	Author Name	h_Index
1	Aboul Ella Hassanien	8
2	Ahmed Mahmoud Hany Aly Awad	6
3	Hisham Abdelsalam	4
4	Hoda Mokhtar Omar Mokhtar	3
5	Hoda Mohamed Onsi Ali	3
6	Nedaa Mohamed Ezzat ElSayed Agami	3

10- Faculty of Oral Dental Medicine

Rank	Author Name	h_Index
1	Yehya Ahmed Mostafa	5
2	Rania Mohamed Nada	3
3	Amr Ragab El-Beialy	3
4	Enas Mobarak	2

General Scientific Research Department
Phone: +(202)35704943 - 35676918 - 35675597
Fax: +(202)37745324
Web site: http://gsrd.cu.edu.eg.
www.cu.edu.eg
E-mail: resinfo@cu.edu.eg