

Documents

Alshaer, W.G.^a, Nada, S.A.^a, Rady, M.A.^b, Del Barrio, E.P.^c, Sommier, A.^c
Thermal management of electronic devices using carbon foam and PCM/nano-composite
(2015) *International Journal of Thermal Sciences*, 89, pp. 79-86. Cited 1 time.

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^a Mechanical Engineering Department, Benha Faculty of Engineering, Benha University, Benha, Egypt

^b Mechanical Engineering Department, Faculty of Engineering, Helwan University, Helwan, Egypt

^c Université de Bordeaux, Laboratoire TREFLE, Esplanade des Arts et Métiers, Talence, France

Abstract

A detailed experimental study of a hybrid composite system for thermal management (TM) of electronics devices was performed. Three different TM modules made of pure carbon foam (CF), a composite of CF and Paraffin wax (RT65) as a phase change material (PCM), and a composite of CF, RT65 and multi wall carbon nanotubes (MWCNTs) as a thermal conductivity enhancer were developed and tested. Two types of carbon foam materials of different thermal conductivities, namely CF-20 of low thermal conductivity (3.1 W/m K) and KL1-250 of medium thermal conductivity (40 W/m K) were used in the three Modules. Tests conducted at different power densities showed a reasonable delay in reaching the heater steady state temperatures using TM module made of CF + RT65 as compared to pure CF. Heat transfer enhancement due to entrapped MWCNTs in the CF micro cells have a significant effect on the thermal response of the TM modules. The delay and decrease of heater surface temperature increase with the inclusion of MWCNTs in the TM module made of CF + RT65/MWCNTs. TM modules with enhanced thermal conductivity of carbon foam KL1-250 was shown to have good capability to control a high power loads as compared to CF-20. The effectiveness of inclusion of MWCNTs was remarkable in TM modules based on CF-20 as compared to KL1-250. © 2014 Elsevier Masson SAS. All rights reserved.

Author Keywords

Carbon foam; Electronics cooling; Nano-composite; PCM; Thermal management

Document Type: Article

Source: Scopus

Downes, M.A.^{a b}, Berling, I.L.^{a b}, Mostafa, A.^{c d}, Grice, J.^d, Roberts, M.S.^{d e}, Isbister, G.K.^{a b}
Acute behavioural disturbance associated with phenibut purchased via an internet supplier
(2015) *Clinical Toxicology*, 53 (7), pp. 636-638.

DOI: 10.3109/15563650.2015.1059945

^a Department of Clinical Toxicology and Pharmacology, Calvary Mater Newcastle, Edith Street, Waratah, NSW, Australia

^b School of Medicine and Public Health, University of Newcastle, Newcastle, NSW, Australia

^c Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Helwan University, Egypt

^d Therapeutics Research Centre, School of Medicine, University of Queensland, Brisbane, QLD, Australia

^e School of Pharmacy and Medical Sciences, University of South Australia, Adelaide, SA, Australia

Abstract

Context. Toxicity from recreational substances marketed for other purposes is a well-documented clinical entity. We present two cases of phenibut toxicity procured via the internet. Case Details. A 20-year-old female presented to the emergency department (ED) having used phenibut the prior day. The main finding was a decreased level of consciousness, however when roused she became delirious. Supportive care only was required with no specific intervention. The patient made a full recovery over a 24-hour period and admitted to use of phenibut purchased online. Plasma phenibut concentration was 29.7 µg/ml. A 38-year-old male presented to ED with an agitated delirium. The prior evening he had used tetrahydrocannabinol or THC, alcohol and phenibut, the latter purchased via the internet. His behavioural state had a suboptimal response to parenteral sedation. He was subsequently intubated for airway protection in the context of ongoing sedation to optimally manage his behavioural state. Post extubation the next morning he admitted using phenibut. Plasma phenibut concentration was 36.5 µg/ml. Discussion. Altered mental status was the predominant manifestation of phenibut toxicity in these cases. Clinicians to be aware of how phenibut

toxicity may present as the internet has widened access to such substances. © 2015 Informa Healthcare USA, Inc.

Author Keywords

Internet; Phenibut; Poisoning; Toxicity

Document Type: Article

Source: Scopus

Atta, A.M.^{a b}, El-Mahdy, G.A.^{a c}, Allohedan, H.A.^a, El-Saeed, S.M.^b

Application of nonionic surfactants based on rosin as corrosion inhibitor for tubing steel during acidization of petroleum oil and gas wells

(2015) *International Journal of Electrochemical Science*, 10 (1), pp. 8-21. Cited 1 time.

^a Chemistry Department, College of Science, King Saud University, P.O. Box - 2455, Riyadh, Saudi Arabia

^b Egyptian Petroleum Research Institute, Petroleum Application Department, Nasr city, Cairo, Egypt

^c Chemistry Department, Faculty of Science, Helwan University, Cairo, Egypt

Abstract

The rosin as natural product became a source for production of eco-friendly bio-surfactants which widely used in environmental protection issues. In this respect, nonionic surfactant was prepared from reaction of rosin maleic anhydride acid chloride with triethylene tetramine followed by etherification with poly (ethylene glycol600 to produce etherified rosin imide (ERIT-PEG) surfactant. The surface activity parameters of the prepared surfactant such as surface excess concentration (Tmax), the area per molecule at interface (Amin), and the effectiveness of surface tension reduction were measured in aqueous and 1M HCl solutions to determine the micellization and adsorption characteristics of the prepared surfactants at water/air interface. The inhibition effects of the etherified rosin imide (ERIT-PEG) surfactant on the corrosion of steel in 1 M HCl solution was studied by potentiodynamic polarization curves and electrochemical impedance spectroscopy (EIS). Inhibition efficiency (%IE) increased with increasing inhibitor concentration. Etherified rosin imide (ERIT-PEG) surfactant acts as a mixed-type inhibitor with a capability of blocking both anodic and cathodic sites on the steel surface immersed in 1M HCl. The inhibition efficiencies calculated from EIS are in good agreement with those obtained from potentiodynamic polarization. © 2015 The Authors.

Author Keywords

EIS; Electrochemical; FTIR; Polarization; Steel

Document Type: Article

Source: Scopus

Dkhil, M.A.^{a b}

Sex-determined susceptibility and differential MUC2 mRNA expression during the course of murine intestinal eimeriosis

(2015) *Parasitology Research*, 114 (1), pp. 283-288.

DOI: 10.1007/s00436-014-4192-2

^a Department of Zoology, College of Science, King Saud University, P.O. box: 2455, Riyadh, Saudi Arabia

^b Department of Zoology and Entomology, Helwan University, Cairo, Egypt

Abstract

Parasitic diseases differ in prevalence, course, and severity between males and females. The study was designed to compare males with females for the susceptibility to *Eimeria papillata* infection as well as the expression of the mucin gene, MUC2. Oocysts output was detected to be more in the feces of male mice ($3.5 \times 10^4 \pm 4000$ oocysts/g feces) than in females ($2 \times 10^4 \pm 2000$ oocysts/g feces). In addition, infected males showed a significant higher number of meronts, gamonts, and developing oocysts compared to infected female mice. Moreover, *E. papillata* induced a marked goblet cell hypoplasia where the jejunum of infected male mice contained lower numbers of goblet cells per ten villus-crypt units compared to infected females. Also, the expression of MUC2 mRNA is found to be more expressed in infected females than males. In addition, testosterone, nitric oxide, and inducible nitric oxide synthase activities were found to be higher in infected male mice than in infected females. In general, male Swiss albino mice have been shown to be relatively more susceptible to infection with *E. papillata* when compared with female mice. © 2014, Springer-Verlag Berlin Heidelberg.

Author Keywords

Eimeria papillata; Jejunum; Mice; MUC2 gene expression; Sex

Document Type: Article

Source: Scopus

El-Mahdy, G.A.^{a b}, Atta, A.M.^{a c}, Al-Lohedan, H.A.^a, Ezzat, A.O.^a

Influence of green corrosion inhibitor based on chitosan ionic liquid on the steel corrodibility in chloride solution (2015) *International Journal of Electrochemical Science*, 10 (7), pp. 5812-5826.

^a Department of Chemistry, College of Science, King Saud University, P.O.Box 2455, Riyadh, Saudi Arabia

^b Chemistry Department, Faculty of Science, Helwan University, Helwan, Egypt

^c Petroleum Application Department, Egyptian Petroleum Research Institute, Nasr city, Cairo, Egypt

Abstract

Ionic liquids (ILs) attracted great attention as green corrosion inhibitors for steel in aggressive environments. The present work synthesizes new IL using chitosan through amidation and quaternization reaction with oleic acid and p-toluene sulfonic acid, respectively. The chemical structure of the prepared polymeric ionic liquid was investigated using NMR analysis. The corrosion inhibitive effect of the prepared polymeric ionic liquid on steel corrosion in acid chloride solution was studied using different electrochemical techniques. Potentiodynamic polarization data revealed that the prepared ionic liquid reduces both dissolution and hydrogen evolution corrosion reactions. Impedance technique shows one capacitive loop that indicated the charge-transfer process of the steel corrosion. Langmuir isotherms found to fit properly the adsorption of the prepared polymeric ionic liquid over the steel surfaces. © 2015 The Authors.

Author Keywords

Acid medium; Adsorption; Corrosion inhibition; EIS; Polarization

Document Type: Article

Source: Scopus

Abd-Elhady, A.A.^a, Al-Maghrabi, M.N.H.^b

Effect of poisson's ratio on stress/strain concentration at circular holes in elastic plates subjected to biaxial loading- Three dimensional finite element analysis (2015) *Proceedings of the 24th International Mining Congress of Turkey, IMCET 2015*, pp. 481-487.

^a Mechanical Engineering Dept., Faculty of Engineering, Helwan University, Jazan 706, Cairo, Egypt

^b Mining Engineering Department, Faculty of Engineering, King Abdulaziz University, Jeddah, Saudi Arabia

Abstract

The influence of Poisson's ratio (ν) on stress and strain concentration factors of plate contains a circular notch and subjects to biaxial loading have been systematically analyzed by using three dimensional finite element (3DFE) method. It is necessary to determine stress and strain concentration factors around the circular notch in order to determine the site of crack initiation. The numerical results of the stress and strain concentration factors are traced through the plate thickness. A plate under elastic state has been used in the present work. Four values of Poisson's ratio (ν) were studied numerically, varied from 0.1 to 0.4. It is found that the maximum stress and strain concentration factors increase with increasing the Poisson's ratio (ν). The stress and strain concentration factors increase with decrease the biaxial ratio. Furthermore, the effect of Poisson's ratio (ν) on stress and strain concentration factor decreases with increasing the biaxial ratio.

Author Keywords

Biaxial load; Circular notch; SCF; Strain concentration factor; Stress concentration factor; Three dimension finite element

Document Type: Conference Paper

Source: Scopus

Shehata, H.S.^a, Galal, T.M.^b

Factors affecting the distribution and associated species of Malva parviflora in the Nile Delta, Egypt (2015) *Weed Biology and Management*, 15 (1), pp. 42-52.

DOI: 10.1111/wbm.12063

^a Department of Botany, Faculty of Science, Zagazig University, Zagazig, Egypt

^b Department of Botany and Microbiology, Faculty of Science, Helwan University, Cairo, Egypt

Abstract

Malva parviflora (little mallow) is a wild herb with agricultural importance in Egypt, where it is cultivated as a food crop. The main objective of the present work was to study the distribution and common associated species of the arable weed, *M. parviflora*, in the Nile Delta, Egypt. In addition, the diversity and behavior of the common species along the prevailing environmental conditions were assessed. Fifty stands, representing five common habitats (crop fields, orchards, canals, drains and roadsides), were selected. Eighty-five species and one variety (50 annuals and 36 perennials) were recorded. Therophytes dominated the other life forms and bi-regional taxa contributed the highest chorological elements. *Malva parviflora* is a therophytic plant that has a Mediterranean distribution intermingled with Irano-Turanian elements. Moreover, the highest coverage percentage of *M. parviflora* was recorded in the canal banks. Four vegetation groups that represented the distinct habitats were produced by the application of a two-way indicator species analysis and a detrended correspondence analysis as a classification and ordination technique, respectively. Vegetation group C, which inhabited the crop fields, was the most diverse. A canonical correspondence analysis indicated that calcium carbonate, organic carbon, carbonate, potassium and the potassium adsorption ratio and electrical conductivity are the most effective soil variables on the distribution of *M. parviflora* and its associated species in the different habitats. It was found that *M. parviflora* was affected greatly by calcium carbonate, sand and magnesium. In addition, it was significantly associated with soil bicarbonate. Such a study could help in managing this important agricultural weed. © 2014 Weed Science Society of Japan.

Author Keywords

Communities; Distribution; Diversity; Little mallow; Weeds

Document Type: Article

Source: Scopus

Fadel, I.^{a b}, van der Meijde, M.^a, Kerle, N.^a, Lauritsen, N.^c

3D object-oriented image analysis in 3D geophysical modelling: Analysing the central part of the East African Rift System

(2015) *International Journal of Applied Earth Observation and Geoinformation*, 35 (PA), pp. 44-53. Cited 4 times.

DOI: 10.1016/j.jag.2013.11.004

^a University of Twente, Faculty of Geo-information Science and Earth Observation (ITC), P.O. Box 6, Enschede, Netherlands

^b Geology Department, Faculty of Science, Helwan University, Ain Helwan, Egypt

^c DTU Space, National Space Institute, Elektrovej, Building 327+328 and Ørsteds Plads, Building 348, Kgs. Lyngby, Denmark

Abstract

Non-uniqueness of satellite gravity interpretation has traditionally been reduced by using a priori information from seismic tomography models. This reduction in the non-uniqueness has been based on velocity-density conversion formulas or user interpretation of the 3D subsurface structures (objects) based on the seismic tomography models and then forward modelling these objects. However, this form of object-based approach has been done without a standardized methodology on how to extract the sub-surface structures from the 3D models. In this research, a 3D object-oriented image analysis (3D OOA) approach was implemented to extract the 3D subsurface structures from geophysical data. The approach was applied on a 3D shear wave seismic tomography model of the central part of the East African Rift System. Subsequently, the extracted 3D objects from the tomography model were reconstructed in the 3D interactive modelling environment IGMAS+, and their density contrast values were calculated using an object-based inversion technique to calculate the forward signal of the objects and compare it with the measured satellite gravity. Thus, a new object-based approach was implemented to interpret and extract the 3D subsurface objects from 3D geophysical data. We also introduce a new approach to constrain the interpretation of the satellite gravity measurements that can be applied using any 3D geophysical model. © 2013 Elsevier B.V.

Author Keywords

3D gravity model; Inversion; Object-oriented image analysis; Satellite gravity; Seismic tomography; Tanzania craton

Document Type: Article

Source: Scopus

Daoush, W.M.^a, Imae, T.^b

Fabrication of PtNi bimetallic nanoparticles supported on multi-walled carbon nanotubes

(2015) *Journal of Experimental Nanoscience*, 10 (5), pp. 392-406. Cited 1 time.

DOI: 10.1080/17458080.2013.838703

^a Department of Production Technology, Helwan University, Cairo, Egypt

^b Graduate Institute of Applied Science and Technology, Honors College, National Taiwan University of Science and Technology, Taipei, Taiwan

Abstract

Platinum/nickel bimetallic nanoparticles supported on multi-walled carbon nanotubes (xPtNi/CNTs) were synthesised. The fabrication process includes the chemical modification on the graphene surface of CNTs by acid treatment and the subsequent deposition of Pt or PtNi bimetallic nanoparticles with different compositions of Pt ($x = 100, 90, 80$ and 70 wt%). The deposition was carried out using ethylene glycol as a reducing agent in the polyol method or using poly(amidoamine) dendrimer as a platform and sodium borohydride as a reducing agent to load the metal nanoparticles on the CNT surface. The structures of the produced PtNi/CNT nanoparticles were investigated by ultraviolet absorption spectra, X-ray diffraction (XRD) and the composite ratio consisting of 70 wt% of metal content and 30 wt% of CNTs was confirmed by the thermogravimetric analysis. The morphology and the phase identification of the produced PtNi/CNT nanoparticles were investigated by high-resolution scanning electron microscope, transmission electron microscope and XRD measurements. It was observed that the deposited Pt and PtNi bimetallic nanoparticles on the surface of CNTs had average particle sizes of 2 – 16 nm, when they were prepared from the polyol method. On the other hand, the PtNi/CNT nanoparticles prepared by using a dendrimer as an intermediate had a smaller particle size and more uniform size distribution of the quantum dot size ranged from 2 to 4 nm. © 2013, © 2013 Taylor & Francis.

Author Keywords

bimetallic nanoparticle; carbon nanotube; dendrimer; polyol method

Document Type: Article

Source: Scopus

Atta, A.M.^{a b}, El-Mahdy, G.A.^{a c}, Al-Lohedan, H.A.^a, Al-Hussain, S.A.^{a d}

Application of eco-friendly magnetite nanoparticles coated with rosin amidoxime as corrosion inhibitor for mild steel in 1 M hydrochloric acid solution

(2015) *International Journal of Electrochemical Science*, 10 (3), pp. 2621-2633.

^a Department of Chemistry, College of Science, King Saud University, Riyadh, Saudi Arabia

^b Egyptian Petroleum Research Institute, 1 Ahmad Elzomor St., Nasr city, Cairo, Egypt

^c Chemistry Department, College of Science, Helwan university, Helwan, Cairo, Egypt

^d Faculty of science, Department of Chemistry, Al-Imam Muhammad Bin Saud Islamic University, Riyadh, Saudi Arabia

Abstract

In the present study, new magnetite nanoparticles coated with rosin amidoxime prepared to apply as corrosion inhibitors for steel in 1 M HCl. Rosin midoxime was prepared from from hydrolysis of rosin- acrylonitrile Diels Alder adduct using hydroxylamine in basic medium. A new monodisperse magnetite nanoparticles was prepared by a simple and inexpensive co-precipitation method followed by capping with rosin amidoxime. The chemical structure, particle size and morphology of magnetite capped with rosin amidoxime were characterized by Fourier transform infrared spectroscopy (FTIR), transmission electron microscopy (TEM), and dynamic light scattering (DLS). Corrosion protection properties of magnetite-RK/amidoxime nanoparticles on steel in hydrochloric acid have been studied by polarization and electrochemical impedance spectroscopy (EIS). The results show that magnetite-RK/amidoxime nanoparticles. acts as good inhibitor and inhibition efficiency (%IE) increases with inhibitor concentration. Potentiodynamic polarization measurements indicated that magnetite-RK/amidoxime nanoparticles. acts as a mixed type inhibitor. EIS results indicated that the charge transfer resistance (R_{ct}) increases with magnetite-RK/amidoxime concentration. IE values obtained from potentiodynamic polarization showed a reasonable agreement with those obtained from EIS measurements. © 2015 The Authors.

Author Keywords

Acid; Corrosion; EIS; Inhibition; Magnetite-RK/amidoxime nanoparticles; Polarization; Steel

Document Type: Article

Source: Scopus

Almetwally, A.A.^a, Mourad, M.M.^b, Hebeish, A.A.^a, Ramadan, M.A.^a

Comparison between physical properties of ring-spun yarn and compact yarns spun from different pneumatic compacting systems

(2015) *Indian Journal of Fibre and Textile Research*, 40 (1), pp. 43-50.

^a Textile Research Division, National Research Center, Dokki, Cairo, Egypt

^b Helwan University, Helwan, Egypt

Abstract

A comparative study pertaining to physical and mechanical properties of ring-spun yarn vis-à-vis compact yarns spun using three different compacting systems has been reported. Rieter (K-44), Toyota (RX-240) and Suessen (Fiomax) spinning machines have been used and the condensing process of the fibres in the yarn cross-section as per these compact spinning systems is accomplished pneumatically. Thus, a yarn of linear density 5.9 tex (100 Ne) is spun on the spinning systems using Egyptian cotton of the type Giza 86. One way Anova together with least significant difference are employed to feature the means of the properties of spun yarns and a significant difference among them is observed. According to the performed statistical analysis, there is a significant difference between ring - spun yarn properties and each of the pneumatic compact spun yarns. These compact-spun yarns are also found to differ significantly in terms of their physical and mechanical properties; however, they are all found superior to the ring-spun yarn. © 2015 National Institute of Science Communication and Information Resources (NISCAIR). All rights reserved.

Author Keywords

Breaking strength; Compact spinning; Compact-spun yarn; Physical properties; Ring spinning; Yarn hairiness; Yarn imperfections

Document Type: Article

Source: Scopus

El-Mezayen, H.A.^a, Habib, S.^{b d}, Marzok, H.F.^c, Saad, M.H.^b

Diagnostic performance of collagen IV and laminin for the prediction of fibrosis and cirrhosis in chronic hepatitis C patients: A multicenter study

(2015) *European Journal of Gastroenterology and Hepatology*, 27 (4), pp. 378-385.

DOI: 10.1097/MEG.0000000000000298

^a Chemistry Department, Helwan University, Cairo, Egypt

^b Chemistry Department, Damietta University, Damietta, Egypt

^c Clinical Pathology Department, Mansoura University, Mansoura, Egypt

^d Chemistry Department, Faculty of Science, Tabouk University, Tabouk, Saudi Arabia

Abstract

Background/aim: To date, liver biopsy has been the gold standard used for the assessment of liver fibrosis in patients with chronic hepatitis C. Our aim was to evaluate the diagnostic performance of a panel of simple blood markers of liver fibrosis and the development a novel score to replace liver biopsy. Patients and methods: Liver biochemical profile including transaminases, bilirubin, alkaline phosphatase, and albumin, in addition to platelet count, was evaluated using standard methods in 305 chronic hepatitis C patients. Serum type IV collagen and laminin were assayed using the ELISA technique. Liver biopsies were performed. Statistical analyses were carried out by logistic regression and receiver operating characteristic curves to assess and compare the diagnostic accuracy of blood markers. A stepwise combination algorithm was developed and validated in 317 additional patients. Results: The Fibrosis Discriminant Score (FDS) was developed combining collagen, laminin, aspartate aminotransferase/platelet ratio index, and albumin. FDS produced an area under receiver operating characteristic curve of 0.831 for significant fibrosis, 0.791 for advanced fibrosis, and 0.881 for cirrhosis. The FDS was correctly classified in 82% of patients with significant fibrosis with 79% sensitivity and 88% specificity at cut-off 0.66 or more. Similar results were obtained in a validation study in which, of 317 patients, liver biopsy could have been avoided in 81%. Conclusion: A simple fibrosis index can be useful to select hepatitis C virus-infected patients with a very low risk of significant fibrosis in whom the protocol of liver biopsies may be avoided. Copyright © 2015 Wolters Kluwer Health, Inc. All rights reserved.

Author Keywords

Biopsy; Hepatitis C virus; Laminin; Liver fibrosis; Type IV collagen

Document Type: Article

Source: Scopus

Youssef, E., El Azab, R.M., Amin, A.M.

Comparative study of voltage stability analysis for renewable energy grid-connected systems using PSS/E

(2015) *Conference Proceedings - IEEE SOUTHEASTCON*, 2015-June (June), art. no. 7133012, .

DOI: 10.1109/SECON.2015.7133012

Department of Electrical Power and Machines, Helwan University, P.O. Box 11792, Helwan, Egypt

Abstract

The voltage stability of large scale renewable energy grid-connected system plays a major role in a power system

environment. Nowadays, Integration of large scale wind power may have severe impacts on the power system operation. Stable, reliable and economic operation of the power system under the massive integration of wind power is a big challenge to power system operators. This paper seeks to study the voltage stability problems for the integration of wind power and Photovoltaic (PV) to the IEEE-14 bus network. Modern analytical tools are demonstrated to study voltage stability analysis by using PV analysis and dynamic analysis. Comparative study is developed to present the behavior of voltage stability of the system that employs PV and different types of wind farms. These analyses define the amount of reactive power required to enhance voltage stability. Simulation of 14-IEEE network with integrated renewable energy sources is developed using PSS/E. © 2015 IEEE.

Author Keywords

contingency analysis; PSS/E; PV; voltage stability; wind farm

Document Type: Conference Paper

Source: Scopus

Abdel Moneim, A.E.

Mercury-induced neurotoxicity and neuroprotective effects of berberine

(2015) *Neural Regeneration Research*, 10 (6), pp. 881-882.

DOI: 10.4103/1673-5374.158336

Department of Zoology and Entomology, Helwan University, Cairo, Egypt

Document Type: Article

Source: Scopus

Awad, S.M.^a, Fathalla, O.A.^b, Wietrzyk, J.^c, Milczarek, M.^c, Soliman, A.M.^b, Mohamed, M.S.^a

Synthesis of new pyrimidine derivatives and their antiproliferative activity against selected human cancer cell lines

(2015) *Research on Chemical Intermediates*, 41 (3), pp. 1789-1801.

DOI: 10.1007/s11164-013-1312-z

^a Pharmaceutical Organic Chemistry Department, Faculty of Pharmacy, Helwan University, Helwan, Egypt

^b Therapeutic Chemistry Department, National Research Centre Dokky, P.O. Box 12622, Cairo, Egypt

^c Department of Experimental Oncology, Institute of Immunology and Experimental Therapy, 12, Rudolf Weigl St., Wroclaw, Poland

Abstract

6-Amino-2-thiouracil (1) was condensed with benzenesulfonyl chloride and p-toluenesulfonyl chloride in presence of pyridine as an acid binder to give sulfonamides 2a, b, which could be methylated in basic medium to give methylmercapto derivatives 3a, b, which in turn reacted with bromine in glacial acetic acid to yield 5-bromo derivatives 4a, b. On the other hand, compounds 2a, b were cyclocondensed with monochloroacetyl chloride, p-tolualdehyde in glacial acetic acid/pyridine, and ethyl bromoacetate to give the corresponding thiazolopyrimidines 5a, b, 6a, b, and 7a, b, respectively; also compounds 2a, b were hydrazinolyzed to compounds 8a, b, which could be cyclized to triazolopyrimidines 9a, b in presence of formic acid. They could also be condensed with p-anisaldehyde to give hydrazones 10a, b. In another pathway, compounds 2a, b were reacted with monochloroacetic acid in basic medium to give acetic acid derivatives 11a, b. It can be deduced from the preliminary screening results that the cell lines most sensitive to the antiproliferative activity of tested compounds are human liver HEPG2 and colon cancer HT-29. All selected compounds exhibited moderate to strong growth inhibition activity against the HEPG2 cell line with 50 % inhibitory concentration (IC50) ranging between 1 and 10 µg/ml. The most active compounds, which revealed antiproliferative activity also against human colon HT-29 and breast MCF-7 cell lines, were 3a, 3b, 4a, and 10a. © 2013 The Author(s).

Author Keywords

6-Sulfonamide derivatives; Antiproliferative activity; New pyrimidine derivatives; Thiazole; Triazole

Document Type: Article

Source: Scopus

Obaid, M.^{a b c}, Fadali, O.A.^c, Lim, B.-H.^b, Fouad, H.^{d e}, Barakat, N.A.M.^{b c}

Super-hydrophilic and highly stable in oils polyamide-polysulfone composite membrane by electrospinning

(2014) *Materials Letters*, 138, pp. 196-199. Cited 1 time.

DOI: 10.1016/j.matlet.2014.09.121

- ^a Bionanosystem Department, Chonbuk National University, Jeonju, South Korea
^b Organic Materials and Fiber Engineering Department, Chonbuk National University, Jeonju, South Korea
^c Chemical Engineering Department, Faculty of Engineering, El-Minia University, El-Minia, Egypt
^d Applied Medical Science Department, RCC, King Saud University, P.O. Box 800, Riyadh, Saudi Arabia
^e Biomedical Engineering Department, Faculty of Engineering, Helwan University, P. O. Box 11792, Helwan, Egypt

Abstract

Low stability in oil media and the hydrophobicity problems of the polysulfone electrospun membranes could be overcome in the present study. Synthesis of super-hydrophilic and highly stable in oil polysulfone electrospun nanofiber membrane was achieved by electrospinning of polysulfone solution containing NaOH nanoparticles followed by activation of the dried electrospun membrane by deposition of polyamide layer on the surface using m-phenylenediamine and 1,3,5-benzenetricarbonyl chloride. The introduced membrane has super-hydrophilicity characteristic (contact angle=30), excellent stability in oil media and distinct performance in oil-water separation process. © 2014 Elsevier B.V. All rights reserved.

Author Keywords

Electrospinning; Membrane; Nanofibers; Oil-degradability

Document Type: Article

Source: Scopus

Hassan, L.M., Galal, T.M., Farahat, E.A., El-Midany, M.M.

The biology of *Calotropis procera* (Aiton) W.T.

(2015) *Trees - Structure and Function*, 29 (2), pp. 311-320.

DOI: 10.1007/s00468-015-1158-7

Botany and Microbiology Department, Faculty of Science, Helwan University, Cairo, Egypt

Abstract

Key message: This review article contributes in more understanding of most aspects of *Calotropis procerabiology* and extend our knowledge about its behavior. *Calotropis procera* (Aiton) W.T (Asclepiadaceae) (Giant milkweed) is a xerophytic perennial shrub or small tree. It is native to tropical and subtropical Africa, Asia and common in the Middle East. It grows on a variety of soils, from fine to coarse texture, with varying degrees of salinity. The importance of *C. procera* in the functioning of ecosystems is reflected in its hosting of butterflies, while it also acts as a food plant for arthropods. In addition, it is used for medicinal purposes in many arid countries. Potential new uses of this species in semi-arid regions include the phytoremediation of soils contaminated with trace elements and the use of biomass as a source of renewable energy. © 2015, Springer-Verlag Berlin Heidelberg.

Author Keywords

Anatomy; *Calotropis procera*; Macromorphology; Phytochemistry; Phytoremediation; Reproduction

Document Type: Review

Source: Scopus

El-Dars, F.M.S.E.^a, Elngar, M.A.G.^b, Abdel-Rahim, S.T.^c, El-Hussiny, N.A.^d, Shalabi, M.E.H.^d

Kinetic of nickel (II) removal from aqueous solution using different particle size of water - cooled blast furnace slag

(2015) *Desalination and Water Treatment*, 54 (3), pp. 769-778.

DOI: 10.1080/19443994.2014.883578

^a Faculty of Science, Chemical Department, Helwan University, Ain Helwan, Helwan, Cairo, Egypt

^b Chemical Department, El-Tabbin Building Institute, Helwan, Cairo, Egypt

^c Faculty of Science, Chemistry Department, Ain Shams University, Cairo, Egypt

^d Agglomeration Department, Central Metallurgical Research and Development Institute (CMRDI), El-Tabbin, Helwan, Cairo, Egypt

Abstract

Abstract: The adsorption of nickel (II) from aqueous solution onto different particle sizes of water-cooled blast furnace slag (WCBFS) was investigated. Batch experiments were performed to study the effect of contact time, initial concentration of nickel ions, initial pH of the solution, and temperature. The data was fitted to Langmuir and Freundlich isotherm models. The results showed that the Langmuir model better fitted the data obtained for the large-sized particles, while that for the finer-sized particles followed the Freundlich model best. Overall, the process was

considered a second-order reaction which involved some degree of intraparticle diffusion. The calculated energy of activation indicated that it was a chemisorption process for both fine- and coarse-sized particles. In conclusion, the finest WCBFS particle size (0.3 mm) showed a good potential as an adsorbent to remove this divalent metal ions from solution. © 2014, © 2014 Balaban Desalination Publications. All rights reserved.

Author Keywords

Acidic WCBFS; Kinetics; Nickel adsorption; Particle size; Thermodynamics

Document Type: Article

Source: Scopus

Hamada, A.M.^a, Mahrous, A.M.^a, Fathy, I.^a, Ghamry, E.^{b c}, Groves, K.^d, Yumoto, K.^e

TEC variations during geomagnetic storm/substorm with Pc5/Pi2 pulsation signature

(2015) *Advances in Space Research*, 55 (11), pp. 2534-2542.

DOI: 10.1016/j.asr.2015.02.010

^a Space Weather Monitoring Center, Faculty of Science, Helwan University, Cairo, Egypt

^b National Research Institute of Astronomy and Geophysics (NRIAG), Helwan, Cairo, Egypt

^c School of Space Research, Kyung Hee University, Yongin-Gyeonggi-Do, North Korea

^d Institute for Scientific Research, Boston College, Boston, MA, United States

^e International Center for Space Weather Science and Education, Kyushu University, Japan

Abstract

The electron density integral along the paths between a GPS satellite and receiver is known as Total Electron Content (TEC), and this parameter is used in studying the ionosphere behaviors. TEC can be obtained by means of many methods. A space-based radio navigation system, such as Global Positioning System (GPS), offers good opportunities for studying the ionosphere. The TEC is calculated from the group path delay and phase advance in GPS satellite signals along the slant paths connecting GPS receivers and satellites at 22,000 km. Locally, a dual frequency GPS receiver was installed in Helwan, Egypt (29.86°N, 31.32°E) in November 2009. Here, GPS data were analyzed to establish a daily observation of Vertical TEC in a region located near to the northern crest of the ionospheric equatorial anomaly. During a moderate geomagnetic storm, observed on 02-05 May 2010, a number of ionospheric/magnetic phenomena were observed. Also, observations for Pc5/Pi2 pulsations were recorded during the geomagnetic storm phases. These geomagnetic observations are taken from MAGDAS-magnetometer station, located at Aswan (23.59°N, 32.51°E). More than 10 TECU increase in the ionospheric TEC values were recorded during the daytime of 02 May, followed by a large reduction during 03 May, reference to the pre-storm conditions. This confirms the enhancement in the geomagnetic H-component peak during the storm's initial phase and its reduction during the main phase. © 2015 COSPAR.

Author Keywords

Geomagnetic storm; Ionospheric storm; Magnetic pulsations; Substorm

Document Type: Article

Source: Scopus

Elnakady, Y.A.^a, Al Rez, M.F.^b, Fouad, H.^{c d}, Abuelreich, S.^e, Albarrag, A.M.^e, Mahmood, A.^e, Alothman, O.Y.^f, Elsarnagawy, T.^g, Ansari, S.G.^h

Vascular tissue engineering using polycaprolactone nanofibrous scaffolds fabricated via electrospinning

(2015) *Science of Advanced Materials*, 7 (3), pp. 407-413.

DOI: 10.1166/sam.2015.2252

^a College of Science, Zoology Department, King Saud University, Riyadh, Saudi Arabia

^b Biomedical Technology Department, College of Applied Medical Sciences, King Saud University, P.O. Box 25110, Riyadh, Saudi Arabia

^c Applied Medical Science Department, RCC, King Saud University, Riyadh, Saudi Arabia

^d Biomedical Engineering Department, Faculty of Engineering, Helwan University, P.O. Box, Helwan, Egypt

^e Stem Cell Unit, Department of Anatomy, College of Medicine, King Saud University, Riyadh, Saudi Arabia

^f Chemical Engineering Department, King Saud University, P.O. Box 800, Riyadh, Saudi Arabia

^g Department of Communications and Networks Engineering, Prince Sultan University, Riyadh, Saudi Arabia

^h Centre for Interdisciplinary Research in Basic Sciences, Jamia Millia Islamia, New Delhi, India

Abstract

Electrospinning technique was used for the fabrication of Polycaprolactone (PCL) nanofibrous scaffolds as 2D

biodegradable polymer for soft and hard tissue replacement. Nanofiber's morphology, porosity, phase identification as well as thermal and biological properties were assessed using standard techniques. Bone marrow mesenchymal stem cells (BMSCs-hTERT) were used for investigating properties of PCL scaffolds in the field of tissue engineering. The ability of PCL nanofibrous scaffolds to attach, grow and differentiate the hBMSCs into matrix mineralizing osteoblastic cells was investigated. The SEM micrographs showed beads free and non-agglomerated highly aligned nanofibrous morphology with uniform diameter varied from 200 to 1000 nm depending on the solution concentration and voltage. The EDS results showed that the carbon is the principal element of PCL nanofibers indicating that there are no chemical impurities into PCL polymer. The results of DSC confirmed the semi-crystalline nature of PCL. The TGA results showed that the PCL nanofibers have single stage thermal degradation with no weight loss up to 220 °C, with a slight weight loss from 240-440 °C due to the combustion of organic PCL matrix. The cell culture results showed that the cells do attach to the scaffold and they are alive and proliferate in the same rate as when cultured on plastic. Moreover the human MSCs differentiated to osteoblasts with calcium deposition when cultured on PCL nanofibrous scaffold, this was confirmed by ALP-, Alizarin staining and by scanning electron microscopy. © 2015 by American Scientific Publishers.

Author Keywords

DSC; Electrospinning; Nanofiber; PCL; SEM; TGA; XRD

Document Type: Article**Source:** ScopusAtta, A.M.^{a b}, El-Mahdy, G.A.^{a c}, Al-Lohedan, H.A.^a, Shoueir, K.R.^d**Electrochemical behavior of smart N-isopropyl acrylamide copolymer nanogel on steel for corrosion protection in acidic solution**(2015) *International Journal of Electrochemical Science*, 10 (1), pp. 870-882.^a Department of Chemistry, College of Science, King Saud University, Riyadh, Saudi Arabia^b Egyptian Petroleum Research Institute, 1 Ahmad Elzomor St., Nasr city, Cairo, Egypt^c Chemistry Department, Faculty of Science, Helwan University, Helwan, Egypt^d Chemistry Department, Faculty of Science, Mansoura University, Mansoura, Egypt**Abstract**

Nanostructured composites increase their sensitivity and performance when employed as material in corrosive environments. In the present study, poly(2-acrylamido-2-methyl-1-propane- sulfonic acid -co-N-isopropylacrylamide) hydrogels, were synthesized by free- radical crosslinking solution polymerization with different ratios of monomers to form colloidal hydrogels shell around poly(vinyl alcohol) core through epichlorohydrine, in order to obtain well-define PVA(AMPS-NIPAm) core/shell nanogels with diameter nearly 30nm, which characterized by Fourier transform infrared spectroscopy (FTIR), transmission electron microscopy (TEM) and dynamic light scattering (DLS). The inhibition effect of PVA-NIPAm/AMPS nanogel on the corrosion of steel in 1.0 M HCl solution was studied by potentiodynamic polarization curves and electrochemical impedance spectroscopy (EIS). Potentiodynamic polarization studies indicate that the new PVA-NIPAm/AMPS nanogel is a mixed inhibitor. Impedance studies show that a protective film is formed on the steel surface in the presence of the inhibitor and exhibit its protective nature even at low concentration. The results of polarization measurements are in good agreement with those obtained from EIS data for acting PVA-NIPAm/AMPS nanogel as an efficient corrosion inhibitor in 1 M HCl. © 2015 The Authors.

Author Keywords

Acid inhibition; EIS; N-Isopropyl acrylamide copolymer nanogel; Polarization; Steel

Document Type: Article**Source:** Scopus

El-Bendary, M.A.M.M.K.

Developing security tools of WSN and WBAN networks applications(2015) *Lecture Notes in Electrical Engineering*, 316, pp. iii-iv.**DOI:** 10.1007/978-4-431-55069-3

Department of Electronics and Communications Technology, Helwan University, Cairo, Egypt

Document Type: Article**Source:** ScopusEl Morsy, M.^{a b}, Achtenova, G.^a**Fault Diagnosis of Rolling Bearing Based on Time Waveform Analysis**

(2015) *SAE Technical Papers*, 2015-April (April), .

DOI: 10.4271/2015-01-1671

^a Czech Technical University, Helwan University, Prague, Czech Republic

^b Faculty of Engineering, Helwan University, Cairo, Egypt

Abstract

In this paper, a fault in rolling bearing is diagnosed using time waveform analysis. In order to verify the ability of time waveform analysis in fault diagnosis of rolling bearing, an artificial fault is introduced in vehicle gearbox bearing: an orthogonal placed groove on the inner race with the initial width of 0.6 mm approximately. The faulted bearing is a roller bearing located on the gearbox input shaft - on the clutch side. An optimal Morlet Wavelet Filter and autocorrelation enhancement are applied in this paper. First, to eliminate the frequency associated with interferential vibrations, the vibration signal is filtered with a band-pass filter determined by a Morlet wavelet whose parameters are optimized based on maximum Kurtosis. Then, to further reduce the residual in-band noise and highlight the periodic impulsive feature, autocorrelation enhancement is applied to the filtered signal. The proposed techniques are used respectively to analyze the experimental signal of vehicle gearbox rolling bearing. The test stand is equipped with two dynamometers; the input dynamometer serves as internal combustion engine, the output dynamometer introduce the load on the flange of output joint shaft. Copyright © 2015 SAE International.

Document Type: Conference Paper

Source: Scopus

El Morsy, M.^{a b} , Achtenova, G.^a

Gear Fault Diagnosis Based on Optimal Morlet Wavelet Filter and Autocorrelation Enhancement

(2015) *SAE Technical Papers*, 2015-April (April), .

DOI: 10.4271/2015-01-0212

^a Czech Technical University, Helwan University, Prague, Czech Republic

^b Faculty of Engineering, Helwan University, Cairo, Egypt

Abstract

An efficient condition monitoring system provides early warning of faults by predicting them at an early stage. When a localized fault occurs in gears, the vibration signals always exhibit non-stationary behavior. The periodic impulsive feature of the vibration signal appears in the time domain and the corresponding gear mesh frequency (GMF) emerges in the frequency domain. However, one limitation of frequency-domain analysis is its inability to handle non-stationary waveform signals, which are very common when machinery faults occur. Particularly at the early stage of gear failure, the GMF contains very little energy and is often overwhelmed by noise and higher-level macro-structural vibrations. An effective signal processing method would be necessary to remove such corrupting noise and interference. In this paper, a new hybrid method based on optimal Morlet wavelet filter and autocorrelation enhancement is presented. First, to eliminate the frequency associated with interferential vibrations, the vibration signal is filtered with a band-pass filter determined by a Morlet wavelet whose parameters are selected or optimized based on maximum Kurtosis. Then, to further reduce the residual in-band noise and highlight the periodic impulsive feature, an autocorrelation enhancement algorithm is applied to the filtered signal. The pitting defect is manufactured on the tooth side of a gear of the fifth speed on the secondary shaft. The gearbox used for experimental measurements is of the type most commonly used in modern small to mid-sized passenger cars. The results show the ability of the proposed method to enhance the capability of condition monitoring systems by identifying gear faults at early stages. Copyright © 2015 SAE International.

Author Keywords

autocorrelation; pitted gear; wavelet analysis

Document Type: Conference Paper

Source: Scopus

Allam, A.M.^a , Ali, I.A.^a , Mahgoub, S.M.^b

A provably secure certificateless organizational signature schemes

(2015) *International Journal of Communication Systems*, . Article in Press.

DOI: 10.1002/dac.3038

^a Department of Electronic, Communication and Computer Engineering Helwan University Cairo Helwan Egypt

^b Arab Radio and Television Union Egypt

Abstract

'Organization signature is a new variant of digital signature in organization transactions. It allows the employee in the organization to generate the message signature through his affiliation rather than his personal description. Certificateless public key cryptography solved the key escrow problem in identity-based cryptography, and the certificate distribution in the traditional public key infrastructure. In this paper, we present a provable secure pairing-free certificateless organizational signature scheme. Our scheme is more computationally efficient because it does not depend on pairings. The new scheme is provably secure in the random oracle model, assuming the hardness of elliptic curves discrete logarithm problem.' © 2015 John Wiley & Sons, Ltd.

Author Keywords

Certificateless cryptography; Digital signature; Provable security; Random oracle model

Document Type: Article in Press

Source: Scopus

Ebrahim, A.F.^a, Ahmed, S.M.W.^a, Elmasry, S.E.^b, Mohammed, O.A.^b

Implementation of a PV emulator using programmable DC power supply

(2015) *Conference Proceedings - IEEE SOUTHEASTCON*, 2015-June (June), art. no. 7133048, .

DOI: 10.1109/SECON.2015.7133048

^a Energy Systems Research Laboratory, ECE Department, Florida International University MiamiFL, United States

^b Electrical Machine and Power Engineering, Faculty of Engineering, Helwan University Cairo, Cairo, Egypt

Abstract

Installation of a Photovoltaic (PV) system needs an accurate design and evaluation test for the performance of its modules before using them in a system. This can be fulfilled with high accuracy in the laboratory without using commercial PV modules by using a PV emulator the PV emulator introduces a suitable tool which easily permits emulating PV system component with different parameters, teaching its characteristic and training researchers in this field the main purpose of this paper is introducing the development of a Photovoltaics (PV) emulator has the capability of emulate commercial PV modules with different parameters and under different environmental condition (irradiance or temperature change), constructing a PV array based on the series and parallel numbers of modules the PV emulator was implemented using a real-time algorithm representing the PV array mathematical model and generating the reference output power from a programmable DC power supply the PV model is simulated in MATLAB and interfaced to the real world through dSPACE using an evolutionary graphic user interface (GUI). This laboratory PV emulator is tested with real-time execution of PV model for the steady state and dynamic operating conditions. © 2015 IEEE.

Author Keywords

commercial PV modules; dSPACE; graphical user interface (GUI); Photovoltaic PV Emulator; Photovoltaic systems; real-time algorithm

Document Type: Conference Paper

Source: Scopus

Ammar, A.E.^{a b}, Esmat, A.^a, Hassona, M.D.H.^{b c}, Tadros, M.G.^a, Abdel-Naim, A.B.^a, Guns, E.S.T.^b

The effect of pomegranate fruit extract on testosterone-induced BPH in rats

(2015) *Prostate*, 75 (7), pp. 679-692.

DOI: 10.1002/pros.22951

^a Department of Pharmacology and Toxicology, Faculty of Pharmacy, Ain Shams University, Cairo, Egypt

^b Vancouver Prostate Centre, Department of Urologic Sciences, University of British Columbia, Vancouver, BC, Canada

^c Department of Pharmacology and Toxicology, Helwan University, Helwan, Egypt

Abstract

Background Benign prostatic hyperplasia (BPH) affects many men after the age of 50 years. Inflammation and oxidative stress along with apoptotic changes are thought to play an important role in the pathology of BPH. Pomegranate contains a variety of polyphenolic compounds that have been studied in a medley of diseases for their anti-oxidant, anti-inflammatory and pro-apoptotic properties. Therefore, this study examined the effect of Pomegranate Fruit Extract (PFE) on the development of BPH using a testosterone-induced BPH model in rats. Methods A total of 48 rats were randomly divided into six groups of eight, one group served as the control, BPH was induced by testosterone 3 mg/kg S.C. daily in four groups, three of them received PFE by oral gavage daily at doses of 25, 50, and 100 mg/kg respectively, while one group received PFE at a dose of 50 mg/kg without induction of BPH. Results PFE at a dose of 100 mg/kg was the most effective in decreasing testosterone-induced increase in prostate weight, prostate weight/body weight ratio, and PAP levels by 30.8%, 55%, and 68% respectively and in preventing the

accompanying histological changes. In the BPH model, testosterone significantly decreased GSH, SOD, and CAT to 0.45, 0.64, and 0.88 of the control group values respectively, and significantly increased MDA by >6-fold. In combination with testosterone, PFE dosed at 100 mg/kg significantly increased GSH, SOD, and CAT to 0.83, 0.92, and 0.93 of the control group values respectively, whereas MDA was significantly decreased by 72% compared with the testosterone treated group. In addition to this, at the range of doses studied, PFE lowered COX-II, iNOS, Ki-67 expression, and increased apoptotic index. **CONCLUSION** The current findings elucidate the effectiveness of PFE in preventing testosterone-induced BPH in rats. This could be attributed, at least partly, to its anti-oxidant, anti-inflammatory, and pro-apoptotic properties. © 2015 Wiley Periodicals, Inc.

Author Keywords

Benign Prostatic Hyperplasia; Inflammation; Oxidative stress; Pomegranate extract; Testosterone-Induced BPH Rat Model

Document Type: Article

Source: Scopus

Elgemeie, G.H.^a, Abouzeid, M.^b, Jones, P.G.^c, Parkin, S.^d

Crystal structure of 4-[(cyanoimino)(methyl-sulfanyl)methyl]amino}-1, 5-dimethyl-2-phenyl-2, 3-dihydro-1 H-pyrazol-3-one

(2015) *Acta Crystallographica Section E: Structure Reports Online*, 71 (1), pp. 104-106.

DOI: 10.1107/S2056989014027601

^a Chemistry Department, Faculty of Science, Helwan University, Cairo, Egypt

^b Green Chemistry Department, National Research Center, Dokki, Cairo, Egypt

^c Institut für Anorganische und Analytische Chemie, Technische Universität Braunschweig, Postfach 3329, Braunschweig, Germany

^d University of Kentucky, United States

Abstract

In the title compound, C₁₄H₁₅N₅O₅, the tautomer present in the solid state is that in which the immediately exocyclic N atom bears the H atom. The central five-membered ring is almost planar (r.m.s. deviation = 0.025 Å), but both its N atoms are significantly pyramidalized. A classical hydrogen bond from the N-H group to the cyanide N atom forms inversion-symmetric dimers, which are further linked by C-H...O interactions.

Author Keywords

Crystal structure; Hydrogen bond; Pyrazole; Thio-carbamate

Document Type: Article

Source: Scopus

Peng, J.C.-H.^a, Al-Hinai, A.^a, Al-Busaidi, A.^b, Al-Riyami, H.^b, Al-Nadabi, A.^b, Abdalla, O.H.^c, Fronius, R.^d, Mikša, P.^d

A review of reactive compensation in the Main Interconnected System of Oman

(2015) *2015 IEEE 8th GCC Conference and Exhibition, GCCCE 2015*, art. no. 7060096, .

DOI: 10.1109/IEEEGCC.2015.7060096

^a Institute Center for Energy, Department of Electrical Engineering and Computer Science, Masdar Institute of Science and Technology, Abu Dhabi, United Arab Emirates

^b Asset Management and Planning Department, Oman Electricity Transmission Company, Muscat, Oman

^c Faculty of Engineering, University of Helwan, Egypt

^d Électricité de France (EDF), Electricity Coordinating Center (EKC) Consultants, France

Abstract

Overvoltage is a concerning issue among Gulf Cooperation Council (GCC) nations during the winter light load period. This paper presented a review of the recent reactive compensation studies conducted by Oman Electricity Transmission Company (OETC) for the Main Interconnected System (MIS) of the Sultanate of Oman, regarding to its new 400 kV transmission systems. Discussions about challenges and possible solutions were outlined to highlight the unique operating nature of Middle East electrical infrastructures. Simulation results were presented to demonstrate the impact of 400 kV systems on the existing MIS grid. This paper serves as a contrasting example of voltage stability issues encountered by western utilities. © 2015 IEEE.

Author Keywords

GCC; OETC review; power systems; voltage stability

Document Type: Conference Paper
Source: Scopus

Garbie, I.H.^{a b}

Sustainability optimization in manufacturing enterprises
(2015) *Procedia CIRP*, 26, pp. 504-509.

DOI: 10.1016/j.procir.2014.07.085

^a Department of Mechanical and Industrial Engineering, Sultan Qaboos University, Oman

^b Department of Mechanical Engineering at Helwan, Helwan University, Helwan, Cairo, Egypt

Abstract

Nowadays and based on the globalization in the markets, optimization in manufacturing enterprises is strongly recommended and addressed to identify the time and cost to be sustainable. Although there are several issues/aspects that must be incorporated to achieve the targeted sustainability index, optimizing these indexes still need more attention from academicians and practitioners. The main goal of this paper is to optimize the sustainability index taking into consideration time and cost criteria. To achieve this goal, sustainability models were developed based on two mathematical formulations: minimum sustainable time and minimum sustainable cost. These sustainability optimization models are taken into consideration the triple bottom line (TBL): economic; social and environmental aspects and their associated issues/aspects. © 2015 The Authors. Published by Elsevier B.V. This is an open access article under the CC BY-NC-ND license.

Author Keywords

Manufacturing enterprises; Optimization; Sustainability

Document Type: Conference Paper
Source: Scopus

Nabil, S., Ghalwash, A.

Organic interactive displays: A bridge from history
(2015) *Procedia Computer Science*, 52 (1), pp. 1053-1058.

DOI: 10.1016/j.procs.2015.05.109

Helwan University, Faculty of Computers and Informatics, Cairo, Egypt

Abstract

Novel organic forms of interactive displays are developed recently from flexible materials that can bend, fold or roll between the hands of its user giving him a wholly new sense of digital interactive media. In this paper, we hold a survey for different OUIs (Organic User Interfaces) and categorize them into four main categories: flat surfaces, non-flat surfaces, digital substrates and handheld devices. Each of which has its uses that suites certain contexts and does not fit others. We discuss each category thoroughly with its possible sub-categories, examples and applications. Each category is noticed to have a physical design that has a great deal of resemblance to the physical form or design of a pharaonic monumental style or type of artifacts from the history of ancient Egypt. The paper highlights the observed resemblance between organic digital displays and ancient monumental displays with respect to the similarities and differences in the sense that they are both used as information displays for targeted users in certain contexts. This unintended physical resemblance points out to where we might inspire novel designs for digital content on interactive displays. © 2015 The Authors. Published by Elsevier B.V.

Author Keywords

E-paper; E-textiles; Flexible displays; Interaction design; Organic user interface

Document Type: Conference Paper
Source: Scopus

El-Khamy, S.^a, Hamid, K.A.^b, Saad, E.-S.M.^c, El-Badawy, H.^d, El-Hennawy, S.^e

Welcome to 2015 32nd National Radio Science Conference (NRSC) at MSA University
(2015) *National Radio Science Conference, NRSC, Proceedings*, 2015-June, art. no. 7117800, pp. vi-vii.

DOI: 10.1109/NRSC.2015.7117800

^a Alexandria University, Egypt

^b MSA University, Giza, Egypt

^c Helwan Univ., Egypt

^d NTI, Egypt

^e Ain Shams Univ., Egypt

Document Type: Editorial

Source: Scopus

Abdelaziz, D.H.A.^a, Khalil, H.^{b c}, Cormet-Boyaka, E.^d, Amer, A.O.^c

The cooperation between the autophagy machinery and the inflammasome to implement an appropriate innate immune response: Do they regulate each other?

(2015) *Immunological Reviews*, 265 (1), pp. 194-204. Cited 1 time.

DOI: 10.1111/imr.12288

^a Department of Biochemistry and Molecular Biology, Faculty of Pharmacy, Helwan University, Cairo, Egypt

^b Department of Molecular Biology, Genetic Engineering and Biotechnology Research Institute, University of Sadat City, Sadat City, Egypt

^c Department of Microbial Infection and Immunity, Ohio State University, Columbus, OH, United States

^d Department of Veterinary Biosciences, The Ohio State University, Columbus, OH, United States

Abstract

Autophagy is originally described as the main catabolic pathway responsible for maintaining intracellular nutritional homeostasis that involves the formation of a unique vacuole, the autophagosome, and the interaction with the endosome-lysosome pathways. This conserved machinery plays a key role in immune-protection against different invaders, including pathogenic bacteria, intracellular parasites, and some viruses like herpes simplex and hepatitis C virus. Importantly, autophagy is linked to a number of human diseases and disorders including neurodegenerative disease, Crohn's disease, type II diabetes, tumorigenesis, cardiomyopathy, and fatty liver disease. On the other hand, inflammasomes are multiprotein platforms stimulated upon several environmental conditions and microbial infection. Once assembled, the inflammasomes mediate the maturation of pro-inflammatory cytokines and promote phagosome-lysosome fusion to sustain an innate immune response. The intersections between autophagy and inflammasome have been observed in various diseases and microbial infections. This review highlights the molecular aspects involved in autophagy and inflammasome interactions during different medical conditions and microbial infections. © 2015 John Wiley & Sons A/S.

Author Keywords

Autophagy; Bacteria; Cell trafficking; Monocytes/macrophages; Toll-like receptors/pattern recognition receptors

Document Type: Review

Source: Scopus

Aboul-Yazid, A.M., Emam, M.A.A., Shaaban, S., El-Nashar, M.A.

Effect of spokes structures on characteristics performance of non-pneumatic tires

(2015) *International Journal of Automotive and Mechanical Engineering*, 11 (1), pp. 2212-2223.

DOI: 10.15282/ijame.11.2015.4.0185

Automotive and Tractor Engineering Department, Helwan University, Egypt

Abstract

In this paper, three different configurations of the Michelin's Tweel™, Resilient Technologies, and Bridgestone non-pneumatic tires (NPTs) are investigated by seeking compliant spoke structures. The quasi-static, two-dimensional analysis focuses on how the contact pressure, vertical tire stiffness and stresses are affected by the spoke structures and shear layer. Two cases of NPTs are investigated: (i) a tire with a composite ring and (ii) a tire without a composite ring. The results of the models were validated by comparison with four computational finite element models. The results showed that the shape of the spokes has a great effect on the tire's behavior in the second case, while the shear layer in the first case reduces the impact of the change of spokes shape especially in contact pressure distribution. © 2015 Universiti Malaysia Pahang.

Author Keywords

Contact pressure; FEM; Non-pneumatic tire (NPT); Rolling resistance

Document Type: Article

Source: Scopus

Nasr, E.A.^{a b}, Al-Ahmari, A.M.^c, Alkhawashki, H.^d, Altamimi, A.^c, Alkhuraisi, M.^c

Developing a methodology for analysis and manufacturing of proximal interphalangeal (PIP) joint using rapid prototyping technique

(2015) *Rapid Prototyping Journal*, 21 (4), pp. 449-460.

DOI: 10.1108/RPJ-11-2013-0118

^a Industrial Engineering Department, King Saud University, Faculty of Engineering, Riyadh, Saudi Arabia

^b Mechanical Engineering Department, Helwan University, Cairo, Egypt

^c Department of Industrial Engineering, King Saud University, Riyadh, Saudi Arabia

^d Department of Orthopaedics, King Saud University, Riyadh, Saudi Arabia

Abstract

Purpose: The purpose of this paper is to design and analyze four proximal interphalangeal joint (PIP) prosthesis thorough finite element analysis (FEA) and fabricate them using rapid prototyping (RP) technique. Arthritis of the finger joints is an important pathology of the hand. Major complaints in arthritis are stiffness, deformity and severe pain. The pain is due to the inflammatory process that occurs due to pathology, which involves joint degeneration, synovial swelling and ligament and muscle stiffness. Among the surgical treatment of arthritis is Arthroplasty which involves replacing the diseased joint with an artificial joint. **Design/methodology/approach:** In this paper, four proximal interphalangeal joint (PIP) prostheses are designed, analyzed using FEA and fabricated using rapid prototyping technique. Four different prostheses "BM", "IMP", "IMP2" and "FINS" are designed using CATIA software and tested by normal daily functions such as grasp, key pinch and tip pinch tests using FEA to analyze the results based on their stress and deformation. Finally, the prostheses are fabricated using electron beam melting technology. **Findings:** This paper examined and analyzed the relative motion of PIP designs using FEA by applying varying loads to check the stability and range of motion of the PIP implant. The ANSYS summary results were analyzed depending on the minimal results of equivalent stress and deformation from the taken tests that have happened on the designed prosthesis. The results conclude that, in the grasp test, the minimal equivalent stress and deformation have happened on the "BM" and "IMP2" implants. Furthermore, in the key pinch test, minimal equivalent stress and deformation occurred on the "FINS" implant, and finally, in the tip pinch, minimal equivalent stress occurred on the "FINS" and minimal deformation has happened on the "IMP2" implant. **Research limitations/implications:** These results conclude that both "IMP2" and "FINS" share the minimum results in the taken tests, and this shows that these implants may be further studied brainstormed upon to aid innovation of a better implant design that shares both of these implants' features and shape. Nevertheless, testing in an in vivo or in vitro model to prove more of the effectiveness of these implants should be taken into consideration, and to test how the prostheses will function in an actual environment, a simulated hand can be designed and made to discover the true forces and mechanics of the fingers and the hands with the prosthesis that is implanted, as well as to know if the hand works properly. **Originality/value:** This paper examined and analyzed the relative motion of PIP designs using FEA by applying varying loads to check the stability and range of motion of the PIP implant. © Emerald Group Publishing Limited [ISSN 1355-2546].

Author Keywords

Arthritis; Electron beam melting; Finite element analysis; Implants; Rapid prototyping

Document Type: Article

Source: Scopus

Shaltout, K.^a, Fawzy, M.^b, Galal, T.^c, Awad, M.^b, El-Barasi, Y.^d, Saeed, B.^d

Impact of waste water discharge on the plant communities and size structure of Wadi El-Shees, Al-Jabal Al-Akhdar, Libya

(2015) *Feddes Repertorium*, . Article in Press.

DOI: 10.1002/fedr.201400023

^a Botany Department, Faculty of Science, Tanta University, Tanta, Egypt

^b Department of Environmental Sciences, Faculty of Science, Alexandria University, Egypt

^c Botany and Microbiology Department, Faculty of Science, Helwan University, Cairo, Egypt

^d Botany Department, Faculty of Science, Garyonis University, Benghazi, Libya

Abstract

The present study assesses the impact of waste water discharge on the plant communities and size structure of the common woody species in Wadi El-Shees, Al-Jabal Al-Akhdar, Libya. Thirty stands were selected along two adjacent tributaries (polluted and un-polluted) in Wadi El-Shees. Sixty-five species belonging to 60 genera and 34 families were recorded, predominated with therophytes and mono-regional taxa and only one endemic species (*Arbutus pavarii*). The application of TWINSpan on the data set, led to the recognition of 4 vegetation groups, two represented each of the polluted and un-polluted regions. Soils of the polluted area have significant higher values of organic matter, salinity, chloride and iron. Ten common woody perennials were selected for estimating the variation in their size structure in the polluted and un-polluted tributaries. These species include one shrublet, two shrubs and 7 trees.

It was found that the density and volume of all species except *A. pavarii* and *Sarcopoterium spinosum* were higher in the polluted than the un-polluted area. Four size distributions were recognized: inverse J-shaped, bell-shaped, positive and negative skewed distributions. It was concluded that pollution had significant impact on the plant density and sizes structure of the common woody plants in Wadi El-Shees. Such study may help in managing and conserving plant diversity in Northern Libya. © 2014 WILEY-VCH Verlag GmbH & Co. KGaA, Weinheim.

Author Keywords

Density; Endemic; Libya; Pollution; Size structure; Wadi El-Shees

Document Type: Article in Press

Source: Scopus

El-Mahdy, G.A.^{a b}, Atta, A.M.^{a c}, Al-Lohedan, H.A.^a, Tawfik, A.M.^{d e}, Abdel-Khalek, A.A.^e

Application of silica/polyacrylamide nanocomposite as anticorrosive layer for steel

(2015) *International Journal of Electrochemical Science*, 10 (1), .

^a Department of Chemistry, College of Science, King Saud University, Riyadh, Saudi Arabia

^b Chemistry department, Faculty of Science, Helwan University, Helwan, Egypt

^c Petroleum Application department, Egyptian petroleum research institute, Nasr city, Cairo, Egypt

^d College of Science, King Saud University, Riyadh, Saudi Arabia

^e Chemistry department, Faculty of Science, Beni Suef University, Beni Suef, Egypt

Abstract

This work is aimed at developing and investigating silane based organic-inorganic hybrid polyacrylamide nanocomposite possessing unique properties, which can be used to improve the corrosion inhibition of steel subjected to corrosion. The nanocomposite was prepared using dispersion radical polymerization technique. Silica/polyacrylamide nanocomposite with various concentrations have been tested as potential inhibitor against corrosion of steel in 1 M HCl solution using electrochemical techniques. The nanocomposite behave as mixed type inhibitor and forms an inhibitive layer on the metal surface. The inhibition efficiency increased with increase in concentration of silica/polyacrylamide nanocomposite. It was found that the silica/polyacrylamide nanocomposite inhibited the acid induced corrosion of steel better than experienced by silica alone. © 2015 The Authors.

Author Keywords

Corrosion; EIS; Polarization; Polyacrylamide; Silicon; Steel

Document Type: Article

Source: Scopus

Ahmed, H.H.^a, Abdel-Rahman, M.^b, Shalby, A.B.^a, Salem, F.E.-Z.H.^b, Lokman, M.S.^b

Complementary therapy for colon cancer: Evidences based on pre-clinical study

(2015) *Der Pharmacia Lettre*, 7 (4), pp. 101-114.

^a Hormones Department, National Research Centre, El Bohous Street, Dokki, Giza, Egypt

^b Department of Zoology and Entomology, Faculty of Science, Helwan University, Cairo, Egypt

Abstract

The present study aimed to investigate the efficacy of *Rosmarinus officinalis* total methanolic extract on colon cancer-induced in rats. Rats were classified into 5 groups. Group (1) was control. Groups from (2) to (5) were intrarectally injected with N-methylnitrosourea (MNU) for induction of colon cancer then group (2) was left untreated (cancer group); group (3) was treated intraperitoneally with 5-fluorouracil while, groups (4 and 5) were treated orally with 1400 and 2800 mg/kg b.wt. of *R. officinalis* extract respectively. Cancer group declared significant increase in the expression levels of β -catenin and c-Myc genes in colon tissue. Furthermore, colon cancer induced-rats demonstrated significant increase in colon COX-2, cyclin D1 and survivin expression in colon tissue associated with significant elevation in the circulating levels of all studied biochemical markers. Additionally, histopathological investigation of colon tissue sections in cancer group showed dysplasia and anaplasia in the lining epithelial cells of the glandular structure. In the contrary, treatment of cancer group with 5-fluorouracil or *R. officinalis* extract showed significant decrease in the expression levels of β -catenin and c-Myc genes. Also, all treated groups exhibited marked decrease in COX-2, cyclin D1 and survivin expression in colon tissue accompanied with a significant reduction in the circulating levels of the all studied biomarkers. As well as, marked improvement in the histological structure of colon tissue was detected. In conclusion, the present study indicated that *R. officinalis* extract possess promising therapeutic role against colon cancer through their antiinflammatory property, antiproliferative capacity and apoptotic potential.

Author Keywords

5- fluorouracil; Colon cancer; N-methylnitrosourea; Rats; Rosemary

Document Type: Article

Source: Scopus

Dkhil, M.A.^{a b}, Metwaly, M.S.^a, Al-Quraishy, S.^a, Sherif, N.E.^c, Delic, D.^d, Al Omar, S.Y.^a, Wunderlich, F.^e
Anti-Eimeria activity of berberine and identification of associated gene expression changes in the mouse jejunum infected with Eimeria papillata
(2015) *Parasitology Research*, 114 (4), pp. 1581-1593.

DOI: 10.1007/s00436-015-4344-z

^a Department of Zoology, College of Science, King Saud University, Riyadh, Saudi Arabia

^b Department of Zoology and Entomology, Helwan University, Cairo, Egypt

^c Department of Zoology, Suez Canal University, Ismailia, Egypt

^d Boehringer-Ingelheim Pharma, Biberach, Germany

^e Department of Biology, Heinrich-Heine-University, Düsseldorf, Germany

Abstract

Plant-based natural products are promising sources for identifying novel agents with potential anti-Eimeria activity. This study explores possible effects of berberine on Eimeria papillata infections in the jejunum of male Swiss albino mice. Berberine chloride, when daily administered to mice during infection, impairs intracellular development and multiplication of E. papillata, evidenced as 60 % reduction of maximal fecal output of oocysts on day 5 p.i. Concomitantly, berberine attenuates the inflammatory response, evidenced as decreased messenger RNA (mRNA) expression of IL-1 β , IL-6, TNF α , IFN γ , and iNOS, as well as the oxidative stress response, evidenced as impaired increase in malondialdehyde, nitrate, and H₂O₂ and as prevented decrease in glutathione and catalase activity. Berberine also alters gene expression in the infected jejunum. On day 5 p.i., mRNA expression of 29 genes with annotated functions is more than 10-fold upregulated and that of 14 genes downregulated. Berberine downregulates the genes Xaf1, Itgb3bp, and Faim3 involved in apoptotic processes and upregulates genes involved in innate immune responses, as e.g., Colec11, Saa2, Klra8, Clec1b, and Crtam, especially the genes Cpa3, Fcer1a, and Mcpt1, Mcpt2, and Mcpt4 involved in mast cell activity. Additionally, 18 noncoding lincRNA species are differentially expressed more than 10-fold under berberine. Our data suggest that berberine induces hosts to exert anti-Eimeria activity by attenuating the inflammatory and oxidative stress response, by impairing apoptotic processes, and by activating local innate immune responses and epigenetic mechanisms in the host jejunum. Berberine has the potential as an anti-Eimeria food additive in animal farming. © 2015, Springer-Verlag Berlin Heidelberg.

Author Keywords

Anti-Eimeria activity; Berberine; Coccidiosis; Eimeria papillata; Eimeriosis

Document Type: Article

Source: Scopus

Abdul-Kader, A.M.^a, Radwan, R.M.^{b c}

Low-energy He-ion beam modifications the surface properties of biomaterial
(2015) *Journal of Adhesion Science and Technology*, 29 (15), pp. 1607-1616.

DOI: 10.1080/01694243.2015.1038104

^a Faculty of Science, Physics Department, Helwan University, Ain Helwan, Cairo, Egypt

^b Radiation Physics Department, National Center for Radiation Research and Technology (NCRRT), Atomic Energy Authority (AEA), P.O. Box 29, Nasr City, Cairo, Egypt

^c Diagnostic Radiology Department, College of Applied Medical Science, Jazan University, Jazan, Saudi Arabia

Abstract

In the present work, ultra-high-molecular-weight polyethylene (UHMWPE) films were irradiated with 130 keV He ions. The fluence of the ion beam was ranged from 1 × 10¹² to 1 × 10¹⁶ cm⁻². The chemical, morphological, and crystallite structure changes resulted from the ion bombardment were obtained using different spectroscopic techniques. These techniques were Fourier transform infrared spectrometer, scanning electron microscope, X-ray diffraction, and UV-vis spectrophotometry. The surface free energy for untreated and ion-beam-treated samples was determined by means of contact angle measurements of three different liquids. Our results showed a decrease in the crystallinity of UHMWPE and formation of C=O groups on the polymer surface for modified samples as well. A remarkable shifting in the UV-vis spectra toward lower energy and increase in the optical absorption were observed as the ion fluence increases. Measurements of the contact angle indicate remarkable increase in the surface free energy as a function of ion fluence. © 2015 Taylor & Francis.

Author Keywords

biocompatibility; ion bombardment; surface properties; ultra-high-molecular-weight polyethylene

Document Type: Article

Source: Scopus

Ali Mohsin, M.E.^a, Arsad, A.^a, Gulrez, S.K.H.^c, Muhamad, Z.^a, Fouad, H.^b, Alothman, O.Y.^c

Enhanced dispersion of carbon nanotubes in high density polyethylene matrix using secondary nanofiller and compatibilizer

(2015) *Fibers and Polymers*, 16 (1), pp. 129-137.

DOI: 10.1007/s12221-015-0129-3

^a Enhanced Polymer Research Group, Department of Polymer Engineering, Faculty of Chemical Engineering, Universiti Teknologi Malaysia(UTM), Bahru, Johor, Malaysia

^b Biomedical Engineering Department, Faculty of Engineering, Helwan University, Helwan, Egypt

^c Department of Chemical Engineering, College of Engineering, King Saud University, Riyadh, Saudi Arabia

Abstract

In this study, we have attempted to explain the influence of secondary filler on the dispersion of carbon nanotube (CNT) reinforced high density polyethylene (HDPE) nanocomposites (CNT/HDPE). In order to understand the mixed-fillers system, Montmorillonite (MMT) in addition with Maleic anhydride grafted high density polyethylene (PE-g-MA) was added to CNT/HDPE nanocomposites. It was followed by investigating their effect on the thermo-mechanical, rheological and morphological properties of the aforesaid nanocomposite. Incorporation of 3 wt% each of MMT and PE-g-MA into CNT/HDPE nanocomposites resulted to the increased values for the tensile and flexural strength (32 % increase in both), as compared to the pure HDPE matrix. The thermal analysis result showed improved thermal stability of the formulated nanocomposites. The initial decomposition temperature (Ti) for such nanocomposite with 9 wt% of MMT and 3 wt% of PE-g-MA reached to 296 °C from 265 °C (Ti for neat HDPE matrix). Addition of MMT to CNT/HDPE nanocomposites also increased the rheological properties indicating a dominating elastic response. A significant increase in loss, storage modulus and complex viscosity was observed upon addition of PE-g-MA, whereas $\tan \delta$ was found to be reduced. This might be due to better interfacial adhesion between MMT and HDPE phases that attributes to the elastic dominance. Improvement in dispersion of CNT upon addition of MMT and PE-g-MA was further supported by the morphological analysis. Transmission electron microscopy (TEM) images revealed that larger aggregates of CNTs were disappeared upon addition of these two components leading to the enhancement of thermo-mechanical properties for such composites. © 2015, The Korean Fiber Society and Springer Science+Business Media Dordrecht.

Author Keywords

Carbon nanotube/reinforced high density polyethylene composites; Mixed-fillers system; Thermo-mechanical properties; Transmission electron microscopy

Document Type: Article

Source: Scopus

Mahmoud, M.H.H.^{a b}, Abdel-Aal, E.A.^b, Abdel-hamed, R.M.^b, Kandil, A.T.^c

Denitration of coke plant wastewater using a bench-scale electro dialysis unit via statistical design

(2015) *International Journal of Electrochemical Science*, 10 (2), pp. 1478-1493.

^a Chemistry Department, College of Science, Taif University, Taif, Saudi Arabia

^b Central Metallurgical R and D Institute, P.O. Box 87, Helwan, Cairo, Egypt

^c Chemistry Department, Faculty of Science, Helwan University, Cairo, Egypt

Abstract

Nitrate content in surface and underground water increased in some areas of the world caused by runoff from some industrial processes such as coking industry. Several degradation and separation techniques have been developed to eliminate nitrate efficiently from water. Electrodialysis (ED) represents a modern progressive electromembrane technology gaining an increasing attention in wastewater recovery. In this work, a bench-scale ED unit has been used to separate nitrate from synthetic solution and industrial wastewater collected from an Egyptian coke plant. Statistical design was applied to study the influence of different parameters (time, nitrate concentration and applied potential) those affecting the nitrate removal efficiency, and a mathematical model was generated. The results on synthetic solutions showed that all studied parameters are effective. The results have been collected at a 3-D cube that showed that at high levels of parameters (25 min, 15 V and 700 ppm) the nitrate removal efficiency was almost 100%, while a small nitrate removal efficiency of about 51% was obtained at the low levels (5 min, 5 V and 100 ppm). The wastewater sample was found to contain several inorganic and organic pollutants those could be separated together with nitrate. Only 2.5 hrs is sufficient to separate about 80% of nitrate at 15 V where longer time has no pronounce

effect on nitrate separation. This is corresponding to about 15 ppm nitrate content in the output water, which is far less than the acceptable concentration of ≤ 44 ppm. After 5 hrs of ED operation, the removal efficiency of nitrate, sulphate, chloride, cyanide, ammonia phosphorus and phenol were 82, 99, 96, 99, 98, 60 and 40%, respectively. These results revealed that electro dialysis can efficiently separate nitrate and most pollutants from coking wastewater for possible re-use. Spherical particles (5-20 μm) of mainly ammonium nitrate were obtained by evaporating the rejected water after ED operation. © 2015 The Authors.

Author Keywords

Coking wastewater; Electrodialysis; Nitrate; Statistical design

Document Type: Article

Source: Scopus

Nassar, H.R.^a, Namour, A.E.^a, Shafik, H.E.^a, El Sayed, A.S.^b, Kamel, S.M.^c, Moneer, M.M.^d, Zakhary, N.I.^e

Prognostic significance of plasma osteopontin level in breast cancer patients

(2015) *Forum of Clinical Oncology*, 6 (1), pp. 27-32.

DOI: 10.1515/fco-2015-0005

^a Department of Medical Oncology, National Cancer Institute, Cairo University, Egypt

^b Department of Biochemistry, Faculty of Science, Cairo University, Egypt

^c Department of Biochemistry, Faculty of Science, Helwan University, Egypt

^d Department Epidemiology and Biostatistics, National Cancer Institute, Cairo University, Egypt

^e Department of Cancer Biology, National Cancer Institute, Cairo University, Egypt

Abstract

Many studies have demonstrated that osteopontin (OPN) contributes functionally to aggressive behaviour in many tumours including breast cancer. This study aims to investigate its role as a simple biochemical marker easily measured in plasma of breast cancer patients to give an early signal for metastases and to detect its relationship to clinicopathological findings and survival. We measured plasma OPN, CA15.3 and serum alkaline phosphatase (ALP) activity in 55 patients, 28 with early stage breast cancer and 27 with bone metastasis out of whom 20 had metastasis in other sites. The median age at diagnosis for non-metastatic cases was 60 years (range 35-85) and for metastatic cases was 45.5 years (range 32-59). In the non-metastatic group, 78.57% of the patients were histologically graded as grades I and II and 21.43% as grade III tumours. In the metastatic group, 81.48% of the patients had grades I and II and 18.52% had grade III tumours; 54% of patients in the non-metastatic group were at stage II and 46% were at stage III at presentation. All patients of group II had bone metastasis, 33% had liver metastases, 25.9% had lung metastasis and 14.8% had lymph node metastasis. Patients with non-metastatic disease had a median OPN level of 55 ng/ml (range 54-150 ng/l), while those in the metastatic group had a median of 148.0 ng/l (range 56.0-156.0 ng/l), a difference which was statistically significant ($P = 0.001$). There was no statistically significant difference in the median levels of CA15.3 and ALP between both groups. The median OPN level was significantly higher with serum ALP level above 90, progesterone receptor (PR) status, bone and visceral metastasis. Median OPN was not affected significantly by menopausal status (P -value 0.3), tumour grade (P -value 0.3), estrogen receptor (ER) status (P -value 0.7), pathological type (P -value 0.42) or serum CA15.3 level (P -value 0.6). At the end of 12-year follow-up, 83% of the patients survived (92.3% in the non-metastatic versus 74.1% in the metastatic group). The estimated median survival for the whole study population at 12 years was 13 years (95% CI 8.144-17.856). The estimated median survival was 13 years (95% CI 0) and 12 years (95% CI 4.893-19.11) in patients with median OPN levels of <142 and ≥ 142 , respectively, a difference which was not statistically significant ($P = 0.343$). No statistically significant difference in overall survival OS was noticed in relation to menopausal status ($P = 0.7$), pathological type ($P = 0.4$) and hormone receptor status ($P = 0.3$). At 6-year follow-up, it was found that OS was affected by the presence of visceral metastasis, tumour grade, serum plasma level of ALP and the serum level of CA15.3 ($P = 0.0006, 0.007, 0.001$ and 0.03 , respectively). However, the presence of bone metastasis did not affect OS ($P = 0.6$). Osteopontin level can be a simple biochemical marker easily measured in plasma of breast cancer patients to give early signals for metastases, but not a prognostic factor for survival. © De Gruyter Open.

Author Keywords

Breast cancer; Metastasis; Osteopontin; Tumour progression

Document Type: Article

Source: Scopus

El-Nabil, L.M.^a, Lofly, N.^a, Elkhatay, N.^a, Abdulghani, K.O.^b, Ahmed, M.^a, Ossama Abdulghani, M.^a

Restless leg syndrome in a sample of Egyptian patients with multiple sclerosis

(2015) *Egyptian Journal of Neurology, Psychiatry and Neurosurgery*, 52 (1), pp. 55-61.

^a Department of Neurology, Ain Shams University, Egypt

^b Department of Neurology, Helwan University, Egypt

Abstract

Background: Restless leg syndrome (RLS) has been described to be common in multiple sclerosis (MS). However, the relationship between RLS and sleep quality, fatigue and clinical disability in MS patients has not been fully investigated. Objective: To study the frequency of RLS in a sample of Egyptian patients with MS and if it correlates with magnetic resonance imaging (MRI) findings. Methods: We studied fifty patients with MS compared to thirty healthy volunteers who matched patients group for age and sex as a control group. The patient group was subjected to full clinical and neurological assessment, including the diagnosis of RLS, neurological impairment was evaluated by multiple sclerosis severity scale (MSS), fatigue Descriptive Scale (FDS) for assessment of fatigue, quality of sleep by the Pittsburgh Sleep Quality Index (PSQI), Epworth sleepiness scale (ESS), and MRI of the brain and spinal cord were done. Results: Our results showed that RLS frequency among our sample was 20%, which is higher than control group (6.66%), and revealed that there is affection of sleep quality among RLS positive patients in comparison to RLS negative patients in which their PSQI and ESS are higher among RLS positive group. Regarding MRI lesion, there was no statistically significant difference between MS patients with RLS and those without. Conclusion: RLS is significantly associated with MS and can lead to sleep disturbance in MS patients. In clinical practice, the routine screening of patients for insomnia and symptoms of RLS is encouraged. © 2015, Egyptian Society of Neurology, Psychiatry, and Neurosurgery. All rights reserved.

Author Keywords

Epworth sleepiness scale; MS; PSQI; Restless leg syndrome

Document Type: Article

Source: Scopus

El-Dars, F.M.S.E.^a, Elngar, M.A.G.^b, Abdel-Rahim, S.T.^c, El-Hussiny, N.A.^d, Shalabi, M.E.H.^d

Erratum to: Kinetic of nickel (II) removal from aqueous solution using different particle size of water-cooled blast furnace slag [Desalination and Water Treatment(2015), DOI: 10.1080/19443994.2014.883578] (2015) *Desalination and Water Treatment*, 54 (3), p. 3.

DOI: 10.1080/19443994.2014.904071

^a Faculty of Science, Chemical Department, Helwan University, Ain Helwan, Helwan, Cairo, Egypt

^b Chemical Department, El-Tabbin Building Institute, Helwan, Cairo, Egypt

^c Faculty of Science, Chemistry Department, Ain Shams University, Cairo, Egypt

^d Agglomeration Department, Central Metallurgical Research and Development Institute (CMRDI), El-Tabbin, Helwan, Cairo, Egypt

Document Type: Erratum

Source: Scopus

Almajwal, A.M.^a, Elsadek, M.F.^b

Lipid-Lowering and hepatoprotective effects of vitis vinifera dried seeds on Paracetamol-Induced hepatotoxicity in rats

(2015) *Nutrition Research and Practice*, 9 (1), pp. 37-42.

DOI: 10.4162/nrp.2015.9.1.37

^a Department of Community Health Sciences, College of Applied Medical Sciences, King Saud University, Saudi Arabia

^b Nutrition and Food Science Department, Helwan University, P.O. Box 11795, Cairo, Egypt

Abstract

BACKGROUND/OBJECTIVES: Red grape seeds as functional food are a good source of important bioactive components such as phenolics and antioxidants, which decrease oxidative stress that contributes to the pathogenesis of hepatotoxicity. The current study was conducted in order to evaluate the protective effect of red grape dried seeds (RGDS) on antioxidant properties lipid metabolism, and liver and kidney functions of rats with paracetamol (750 mg/kg) induced hepatotoxicity. **MATERIALS/METHODS:** RGDS was added to the basal diet at 5, 10, and 20%. Thirty five adult male rats were assigned to five groups (n = 7) for a six-week feeding period; group (1) normal control, group (2) induced control, groups (3, 4, and 5) fed a diet with RGDS at different levels, 5, 10, and 20%, respectively. At the end of the feeding period, animals' blood and tissues were collected for estimation of serum lipid profile, serum liver, and kidney biomarkers. The protection was measured by detecting lipid peroxidation (LPO), glutathione (GSH), superoxide dismutase (SOD), Catalase (CAT) (in liver tissues), and liver histological examination. **RESULTS:** The results showed a significant (P < 0.05) decrease in levels of serum cholesterol, triglycerides, low density lipoprotein (LDL-C), and very low density lipoprotein (VLDL-C), with a significant increase in level of high density lipoprotein

(HDL-C) for RGDS groups compared to induced control. Rats administered a diet containing RGDS levels produced significant ($P < 0.05$) hepatoprotection by decreasing the activities of liver enzymes, kidney parameters, and lipid peroxidation, while levels of GSH, SOD, and CAT were increased significantly to near the normal levels.

CONCLUSION: The RGDS 20% group was more effective than others against hepatotoxicity of paracetamol, which may be attributed to RGDS total phenols and antioxidant contents, which were 1.438 mg and 1.231 mg, respectively.
© 2015 The Korean Nutrition Society and the Korean Society of Community Nutrition

Author Keywords

Grape seeds; Hepatotoxicity; Lipid profiles; Paracetamol; Rats

Document Type: Article

Source: Scopus

Sonbol, F.I.^a, Khalil, M.A.E.F.^{b c}, Mohamed, A.B.^d, Ali, S.S.^b

Correlation between antibiotic resistance and virulence of *Pseudomonas aeruginosa* clinical isolates
(2015) *Turkish Journal of Medical Sciences*, 45 (3), pp. 568-577.

DOI: 10.3906/sag-1406-58

^a Department of Microbiology, Tanta University, Tanta, Egypt

^b Department of Botany, Tanta University, Tanta, Egypt

^c Department of Biology, Taif University, Taif, Saudi Arabia

^d Department of Botany and Microbiology, Helwan University, Helwan, Egypt

Abstract

Background/aim: Virulent *Pseudomonas aeruginosa* is frequently life-threatening and often challenging to treat, and the emergence of multidrug-resistant isolates presents a critical problem for patients. The aim of the study was concerned with molecular analysis of the virulence factors and antimicrobial resistance profile of multidrug-resistant *P. aeruginosa* (MDRPA). **Materials and methods:** Out of 44 MDRPA isolates, 12 isolates representing different resistance profiles and sources of samples were selected for further molecular studies. Polymerase chain reaction (PCR) approaches were applied to identify the genes implicated in antimicrobial resistance or virulence factors in the selected MDRPA isolates. **Results:** Multidrug-resistance (*psstS*), β -lactamase (*IMP7*, *IMP10*, *IMP13*, and *IMP25*), and extended spectrum β -lactamase (*blaOXA50*) genes were detected in all of the selected MDRPA isolates. However, only 4 (33%) MDRPA isolates were positive for the presence of the extended spectrum β -lactamase (*blaOXA2*) gene. Furthermore, the hemolytic phospholipase C precursor gene (*plcH*) was detected in all PCR products of the tested MDRPA isolates while the exotoxin A (*toxA*) gene was absent. Other virulence genes were detected with variable percentage in tested isolates. **Conclusion:** The statistical analysis revealed a significantly positive correlation ($r = 0.779$, $P = 0.002$) between virulence factors and antimicrobial resistance marker profiles of the tested MDRPA isolates.
© TÜBİTAK.

Author Keywords

Antibiotic; Genes; Multidrug-resistant *Pseudomonas aeruginosa*; Polymerase chain reaction; Virulence factors

Document Type: Article

Source: Scopus

Barakat, I.A.H.^{a b}, Danfour, M.A.^c, Galewan, F.A.M.^c, Dkhil, M.A.^{a d}

Effect of various concentrations of caffeine, pentoxifylline, and kallikrein on hyperactivation of Frozen bovine semen

(2015) *BioMed Research International*, 2015, art. no. 948575, .

DOI: 10.1155/2015/948575

^a Zoology Department, College of Science, King Saud University, P.O. Box 2455, Riyadh, Saudi Arabia

^b Cell Biology Department, National Research Centre, 33 Bohouth Street, Dokki, Giza, Egypt

^c Physiology Department, Faculty of Medicine, Misurata University, Misurata, Libyan Arab Jamahiriya

^d Zoology Department, Faculty of Science, Helwan University, Cairo, Egypt

Abstract

Caffeine, pentoxifylline, and kallikrein are substances that affect the efficiency of sperms in the fertilization process; however, they have not been adequately studied. The present study aimed to examine the influence of caffeine, kallikrein, and pentoxifylline on sperm motility in bovine as well as investigate their optimum concentrations for increasing the movement of sperms in bovine. Frozen bovine sperms were thawed in universal IVF medium supplemented with 1, 5, and 10 mM caffeine or pentoxifylline or 1, 4, and 8 U/mL kallikrein and were then incubated for 30 min. Treated semen parameters were analyzed using a computer assisted semen analyzer (CASA). Data

analysis showed that the mean values concerning progression and motility of sperm increased in caffeine and pentoxifylline treatments when compared with the kallikrein group. The obtained results revealed that kallikrein is not necessary for the improvement of bovine sperm motility. Additionally, our results revealed that 5 mM from caffeine was the best concentration added to the medium, followed by 1 or 5 mM from pentoxifylline. Therefore, it is concluded from the present study that caffeine has hyperactivation efficacy at 5 mM concentration compared to other treatments. © 2015 Ibrahim A. H. Barakat et al.

Document Type: Article

Source: Scopus

Ellabban, O.^{a b}, Abu-Rub, H.^c, Ge, B.^{d e}

A quasi-Z-source direct matrix converter feeding a vector controlled induction motor drive

(2015) *IEEE Journal of Emerging and Selected Topics in Power Electronics*, 3 (2), art. no. 6756981, pp. 339-348.

DOI: 10.1109/JESTPE.2014.2309979

^a Department of Power and Electrical Machines, Faculty of Engineering, Helwan University, Cairo, Egypt

^b Electrical and Computer Engineering Department, Texas A and M University, Doha, Qatar

^c Electrical Engineering Department, Texas A and M University, Doha, Qatar

^d School of Electrical Engineering, Beijing Jiaotong University, Beijing, China

^e Department of Electrical and Computer Engineering, Michigan State University, East Lansing, MI, United States

Abstract

This paper proposes a novel four-quadrant vector controlled induction motor (IM) adjustable speed drive (ASD) system based on a recently proposed matrix converter topology called quasi-Z-source direct matrix converter (QZSDMC). The QZSDMC is formed by cascading the quasi-Z-source impedance network and the conventional direct matrix converter (DMC). The QZSDMC can provide buck-boost operation with voltage transfer ratio controlled by controlling the shoot-through duty ratio and bidirectional operation capability. The control strategy, which is based on the indirect field oriented control algorithm, is able to control the motor speed from zero to the rated value under full load condition during motoring and regenerating operation modes. The operating principle of the proposed system is presented in detail. The simulation and the real-time implementation results, using dSPACE 1103 ControlDesk, validate the high performance of the proposed four-quadrants IM-ASD based on QZSDMC system. The proposed four-quadrant vector controlled IM-ASD system based on the QZSDMC topology overcomes the voltage gain limitation of the traditional DMC and achieves buck and boost condition in four-quadrant modes with reduced number of switches, therefore achieving low cost, high efficiency, and reliability, compared with back-to-back converter. © 2014 IEEE.

Author Keywords

Direct matrix converter (DMC); indirect field oriented control (IFOC); induction motor (IM); quasi-Z-source converter (QZSC); quasi-Z-source DMC (QZSDMC); Z-source converter (ZSC)

Document Type: Article

Source: Scopus

Abdulkader, S.N., Atia, A., Mostafa, M.-S.M.

Brain computer interfacing: Applications and challenges

(2015) *Egyptian Informatics Journal*, 16 (2), pp. 213-230.

DOI: 10.1016/j.eij.2015.06.002

HCI-LAB, Department of Computer Science, Faculty of Computers and Information, Helwan University, Cairo, Egypt

Abstract

Brain computer interface technology represents a highly growing field of research with application systems. Its contributions in medical fields range from prevention to neuronal rehabilitation for serious injuries. Mind reading and remote communication have their unique fingerprint in numerous fields such as educational, self-regulation, production, marketing, security as well as games and entertainment. It creates a mutual understanding between users and the surrounding systems. This paper shows the application areas that could benefit from brain waves in facilitating or achieving their goals. We also discuss major usability and technical challenges that face brain signals utilization in various components of BCI system. Different solutions that aim to limit and decrease their effects have also been reviewed. © 2015 Production and hosting by Elsevier B.V.

Author Keywords

BCI applications; BCI challenges; Brain Computer Interfaces; Brain monitoring; Brain signal acquisition; Mind commands

Document Type: Review

Source: Scopus

Ahmed, A.H.^{a b}, Habtoor, A.^a

Heterogeneously depleted Precambrian lithosphere deduced from mantle peridotites and associated chromitite deposits of Al'Ays ophiolite, Northwestern Arabian Shield, Saudi Arabia

(2015) *Ore Geology Reviews*, 67, pp. 279-296.

DOI: 10.1016/j.oregeorev.2014.12.018

^a Faculty of Earth Sciences, King Abdulaziz University, Jeddah, Saudi Arabia

^b Geology Department, Faculty of Science, Helwan University, Cairo, Egypt

Abstract

The mantle section of Al'Ays ophiolite consists of heterogeneously depleted harzburgites, dunites and large-sized chromitite pods. Two chromitite-bearing sites (Site1 and Site2), about 10km apart horizontally from one another, were examined for their upper mantle rocks. Cr-spinels from the two sites have different chemistry; Cr-rich in Site1 and Al-rich in Site2. The average Cr-ratio=(Cr/(Cr+Al) atomic ratio) of Cr-spinels in harzburgites, dunites and chromitites is remarkably high 0.78, 0.77 and 0.87, respectively, in Site1, compared with those of Site2 which have intermediate ratio averages 0.5, 0.56 and 0.6, respectively. The platinum-group elements (PGE) in chromitites also show contrasting patterns from Site1 to Site2; having elevated IPGE (Os, Ir, Ru) and strongly depleted in PPGE (Rh, Pt, Pd) with steep negative slopes in the former, and gentle negative slopes in the latter. The oxygen fugacity ($\delta \log f_{O_2}$) values deduced from harzburgites and dunites of Site1 show a wide variation under reducing conditions, mostly below the FMQ buffer. The Site2 harzburgites and dunites, on the other hand are mostly above the FMQ buffer. Two magmatic stages are suggested for the lithospheric evolution of Al'Ays ophiolite in response to a switch of tectonic setting. The first stage produced a peridotites-chromitites suite with Al-rich Cr-spinels, possibly beneath a mid-ocean ridge setting, or most likely in back-arc rift of a supra-subduction zone setting. The second stage involved higher degrees of partial melting, produced a peridotites-chromitites suite with Cr-rich Cr-spinels, possibly in a fore-arc setting. The coexistence of compositionally different mantle suites with different melting histories in a restricted area of an ophiolite complex may be attributable to a mechanically juxtaposed by mantle convection during recycling. The mantle harzburgites and dunites are apt to be compositionally modified during recycling process; being highly depleted (Site1 case) than their original composition (Site2 case). © 2014 Elsevier B.V.

Author Keywords

Al'Ays ophiolite; Chromitite; Highly depleted peridotites; Mantle heterogeneity; Recycling; Saudi Arabia

Document Type: Article

Source: Scopus

Ghonime, M.^a, Emar, M.^a, Shawky, R.^a, Soliman, H.^b, El-Domany, R.^a, Abdelaziz, A.^c

Immunomodulation of RAW 264.7 murine macrophage functions and antioxidant activities of 11 plant extracts

(2015) *Immunological Investigations*, 44 (3), pp. 237-252.

DOI: 10.3109/08820139.2014.988720

^a Department of Microbiology and Immunology, Faculty of Pharmacy, Helwan University, Ein Helwan, Helwan, Egypt

^b Department of Pharmacognosy, Faculty of Pharmacy, Helwan University, Ein Helwan, Helwan, South Cairo, Egypt

^c Department of Microbiology and Immunology, Faculty of Pharmacy, Tanta University, Tanta, Gharbia, Egypt

Abstract

A group of 11 medicinal plants, including *Lavandula pubescens*, *Trigonella foenugricium*, *Salsola schweinfurthii*, *Calligonum comosum*, *Silene succulenta*, *Silene villosa*, *Bogonvillea glabra*, *Cakile maritime*, *Gomphrena celosoides*, *Mirabilis jalapa*, and *Silene nocturna* growing in Egypt, were extracted and examined for their immunomodulatory and antioxidant activities. RAW 264.7 cells were recruited to investigate the immunomodulatory effect through multiple parameters analysis. First, the proliferation index of macrophages cells was evaluated revealing that *Trigonella foenugricium*, *Silene succulenta* and *Silene villosa* have a significant cytotoxic effect on RAW cells. Interestingly, we observed enhancement of macrophages phagocytic function of by all extracts except *Cakile maritime*, *Gomphrena celosoides* and *Silene nocturna*. Afterwards, macrophages were challenged by incubation with LPS and the effect of various extracts on inflammatory responses was investigated; the generation of NO from activated macrophage was substantially suppressed by 7 extracts namely, *Trigonella foenugricium*, *Calligonum comosum*, *Silene succulenta*, *Bougainvillea glabra*, *Mirabilis jalapa*, *Gomphrena celosoides* and *Silene nocturna*. TNF- α was decreased by percentage range from 3.8 to 85.8% and *Trigonella foenugricium* extract showed the highest inhibition of TNF- α release. All extracts except *Trigonella foenugricium*, *Salsola schweinfurthii*, *Silene succulenta* and *Mirabilis jalapa* significantly inhibited COX-2 production from stimulated macrophage. Moreover, evaluating the potential antioxidant activity of these extracts showed that *Trigonella foenugricium*, *Salsola schweinfurthii*, *Calligonum comosum*, *Bogonvillea glabra* and *Mirabilis jalapa* exhibited some antioxidant activities. Taken together, our results suggest that

some of these extracts may have a considerable antiinflammatory and antioxidant effects and may be a potential therapeutic choice in the treatment of inflammatory diseases. © 2015 Informa Healthcare USA, Inc.

Author Keywords

Antioxidant; COX-2; Cytotoxicity; Immunomodulatory; NO; Phagocytosis; RAW 264.7; TNF- α

Document Type: Article

Source: Scopus

Abdel-Salam, A.M.^{a b}, Chowdhury, K.^a, El-Bakry, A.A.^{a b}

Effect of sugar types, culture age, concentrations of 2,4-D and sucrose on somatic embryogenesis of *Cymbopogon schoenanthus* subsp. *Proximus*

(2015) *Plant Tissue Culture and Biotechnology*, 25 (1), pp. 51-62.

DOI: 10.3329/ptcb.v25i1.24125

^a Department of Biology, Claflin University, Orangeburg, SC, United States

^b Department of Botany, Helwan University, Ain Helwan, Cairo, Egypt

Abstract

The effect of sugar types, age of culture, and concentrations of 2,4-D and sucrose on somatic embryogenesis was investigated in *Cymbopogon schoenanthus* subsp. *proximus*. Six different sugar types: sucrose, fructose, maltose, glucose, galactose and lactose at 3% concentration were used for each of three 2,4-D concentration treatments (1.0, 2.0, 4.0 mg/l). ANOVA showed a significant difference at the 1% level for culture age, sugar types and interactions between 2,4-D and sugar types when mean embryo numbers of individual sugars across the four culture ages are compared. Maltose gave highest mean value, followed by sucrose and the lowest mean number was recorded with galactose. Cultures induced by galactose although low in embryo induction gave the highest mean number of shoots across the different media and culture age. Effect of different concentrations of sucrose and BA on production of number of immature somatic embryos, mature germinating somatic embryos and shoots was examined by culturing 2.5 month-old seed-derived callus onto MS medium containing 4 different sucrose concentrations (1.0, 2.0, 3.0, 4.0%) in combination with different BA concentrations (0.0, 0.025, 0.05, 0.1 mg/l). ANOVA showed significant differences at 1% level for culture age, and interactions between culture age and sucrose concentrations. Mean number of shoots on 1% sucrose for 7 months old culture was 9.4 significantly higher than number produced on all of sucrose concentrations. The efficient regeneration system will be useful for the future production of high yielding genotypes and for the conservation of the species germplasm. © 2015 Cold Spring Harbor Laboratory Press. All rights reserved.

Author Keywords

Cymbopogon schoenanthus subsp. *Proximus*; Somatic embryogenesis; Sucrose; Sugar types

Document Type: Article

Source: Scopus

Galal, T.M.^a, Shehata, H.S.^b

Impact of nutrients and heavy metals capture by weeds on the growth and production of rice (*Oryza sativa* L.) irrigated with different water sources

(2015) *Ecological Indicators*, 54, art. no. 232, pp. 108-115.

DOI: 10.1016/j.ecolind.2015.02.024

^a Botany and Microbiology Department, Faculty of Science, Helwan University, Cairo, Egypt

^b Botany Department, Faculty of Science, Zagazig University, Zagazig, Egypt

Abstract

Abstract The present study aims at evaluating the impact of nutrients and heavy metals capture by weeds on the nutrient absorption and productivity of rice irrigated with different water sources. Plants were sampled from five farms; three irrigated with water from canals, receiving wastes discharge, and two with groundwater. The production of rice was higher in farms irrigated from canals than ground water, while the biomass of *Echinochloa crus-galli* and *Convolvulus arvensis* had a reverse trend. Moreover, *Cyperus deformis* produced large biomass, in contrast with *Eclipta alba*, in farms irrigated with canals water. Rice accumulated the lowest amounts of N, P, K, Ca and Mg as well as lower concentrations of heavy metals. *C. arvensis* accumulated the highest concentrations of N, P and Sr and lower concentrations of the remaining heavy metals, while *C. deformis* accumulated moderate nutrients, but higher heavy metals concentrations. Rice had bioaccumulation factors (BAF) less than unity for all heavy metals except Pb. However, *C. deformis* had higher BFA for most heavy metals with the highest values of Pb and Zn, *C. arvensis* had the highest of Sr and *E. crus-galli* had the highest of Cd. The CCA indicated that most soil variables have a least effect on *Oryza sativa*, *E. crus-galli* and *E. alba*. In conclusion, weeds can cause harm to rice with the following order: *C. arvensis* > *E. crus-galli* > *E. alba* > *C. deformis*. © 2015 Elsevier Ltd. All rights reserved.

Author Keywords

Bioaccumulation; Competition; Crops; Irrigation; Rice plant; Weeds

Document Type: Article

Source: Scopus

Mahmoud, O.E., Roman, M.R., Nasry, J.F.

Linear and Nonlinear stabilizing control of Quadrotor UAV

(2015) *ICET 2014 - 2nd International Conference on Engineering and Technology*, art. no. 7016810, .

DOI: 10.1109/ICEngTechnol.2014.7016810

Mechanical Power Dept., Faculty of Engineering-mataria, Helwan University, Cairo, Egypt

Abstract

Quadrotor Unmanned Aerial Vehicles (UAVs) are commonly used for complex tasks such as, surveillance, search and rescue in hazard locations for its small size, lightness and robustness. However, the stability of UAVs represents a big challenge due to its high Nonlinear, multivariable, strongly coupled nature. The present work investigates two commonly-used control strategies namely, PD-control with low pass filter and Nonlinear feedback linearization control. The parameters of each controller are optimized to set the time-domain performance within specific constrains. The performances of the two control strategies are simulated and the results are validated on real experiments. The results indicate that Nonlinear control can substantially expand the region of controllable flight angles compared to linear control. It can stabilize the quadrotor system in case of multi angle disturbances. PD-controller with low passes filter shows poor performance when it synchronously controls more than one angle at the same time. © 2014 IEEE.

Author Keywords

Feedback-Linearization; Nonlinear Control; Optimization; PD classical control

Document Type: Conference Paper

Source: Scopus

Eissa, M.M.^a, Elmesalawy, M.M.^b, Hadhoud, M.M.A.^c

Wide Area Monitoring System based on the third generation Universal Mobile Telecommunication System (UMTS) for event identification

(2015) *International Journal of Electrical Power and Energy Systems*, 69, pp. 34-47. Cited 1 time.

DOI: 10.1016/j.ijepes.2014.12.077

^a Department of Electrical Engineering, Faculty of Engineering, Helwan University, Cairo, Egypt

^b Department of Electronics and Communications, Faculty of Engineering, Helwan University, Cairo, Egypt

^c Department of Biomedical Engineering, Faculty of Engineering, Helwan University, Cairo, Egypt

Abstract

Smart grids are one of the most essential infrastructure components in the world today. Power systems have been becoming more and more complex, as a result of a considerable variety of new components being added, such as High Voltage Direct Current (HVDC) and power electronic devices, and numerous recent technologies continually being put into application, such as distributed generation. In recent years, wide-area voltage and frequency measurements are used to identify different events that occur in power systems. One of the most important events is the generator trip identification. This event could be easily identified as a sudden drop in both the system voltage level and frequency. On the other hand, high-speed, reliable and scalable data communication infrastructure is crucial in both construction and operation of wide-area voltage and frequency measurements. Universal Mobile Telecommunication System (UMTS), the 3G standard for mobile communication networks, was developed to provide high speed data transmission with reliable service performance for mobile users. Therefore, UMTS is considered a promising solution for providing a communication infrastructure for WAMS. 3G based EWAMS (Egyptian Wide Area Monitoring System) is designed and implemented in Egypt through deployment a number of Frequency Disturbance Recorders (FDRs) devices on a live 220 kV/500 kV Egyptian grid to identify the location of tripped generator in the power system. WAMS systems are used for both off-line studies and real-time applications. An important feature of these systems is their ability to provide continuous dynamic measurements that are precisely time synchronized across the power system. With real-time WAMS, the continuous measurements feed out as a data stream which can be applied to on-line applications such as monitoring and control. This paper focuses on developing an efficient and reliable wide area voltage and frequency measurements through UMTS mobile communication technology in addition to the analysis these measurements using Principal Component Analysis (PCA) in order to determine a specific signature and properties for each tripped generator in the power system network. © 2014 Elsevier Ltd. All rights reserved.

Author Keywords

EWAMS; HSPA; Interconnected power systems; Minimum distance classification (MDC); UMTS; Wide area measurement

Document Type: Article

Source: Scopus

Ali, T.A.^a, Soliman, M.H.^b, Mohamed, G.G.^c, Farag, A.B.^b, Samah, M.K.^c

Development of a new modified screen-printed and carbon paste electrodes for selective determination of cetyltrimethylammonium bromide in different water samples

(2015) *International Journal of Electrochemical Science*, 10 (4), pp. 3192-3206. Cited 1 time.

^a Egyptian Petroleum Research Institute (EPRI), Cairo, Egypt

^b Chemistry Department, Faculty of Science, Helwan University, Cairo, Egypt

^c Chemistry Department, Faculty of Science, Cairo University, Giza, Egypt

Abstract

Cetyltrimethylammonium bromide (CTAB)-selective electrodes of the types carbon paste (CPE) and screen-printed sensors (SPE) based on incorporation of zeolite ionophore have been constructed. The influences of paste composition, temperature, pH of the test solution, and foreign ions on the electrodes performance were investigated. The electrodes showed Nernstian behavior with linear concentration range of 4.61×10^{-7} - 1.0×10^{-2} and 1.26×10^{-7} - 1.0×10^{-2} mol L⁻¹, slope of 57.56 ± 1.25 and 58.92 ± 0.27 mV decade⁻¹ and lower limit of detection of 4.61×10^{-7} and 1.26×10^{-7} mol L⁻¹ for modified CPE and SPE sensors, respectively. The electrodes display good selectivity for CTAB with respect to a number of common foreign inorganic and organic species. The response is not affected by pH variation between 2.0 - 8.5 and 2.0 - 9.0 for modified CPE and SPE, respectively. The sensors were successfully used for determination of CTAB both in pure solution and in different spiked real water samples. The frequently used CTAB of analytical and technical grade as well as different water samples has been successfully titrated and the results obtained agreed with those obtained with standard two phase titration method. The sensitivity of the proposed method is comparable with the official method and ability of field measurements. © 2015 The Authors.

Author Keywords

Cetyltrimethylammonium bromide; Different water samples; Modified carbon paste; Modified screen-printed; Selectivity coefficient; Zeolite ionophore

Document Type: Article

Source: Scopus

Rayan, D.A.^a, Elbashar, Y.H.^b, El Basaty, A.B.^c, Rashad, M.M.^a

Infrared spectroscopy of cupric oxide doped barium phosphate glass

(2015) *Research Journal of Pharmaceutical, Biological and Chemical Sciences*, 6 (3), pp. 1026-1030. Cited 2 times.

^a Central Metallurgical Research and Development Institute (CMRDI), P.O. Box: 87, Helwan, Cairo, Egypt

^b Department of Physics, Faculty of Science, Aswan University, Aswan, Egypt

^c Physics Department, Faculty of Industrial Education, Helwan University, Cairo, Egypt

Abstract

CuO powders were doped with barium phosphate glass with a series of $x\text{CuO}-(20-x)\text{BaO}-30\text{ZnO}-10\text{NaO}-40\text{P}_2\text{O}_5$ in molar ratio with ($x = 2, 4, 6, 8, 10$ and 12) were prepared by conventional quenching melts technique. FTIR transmission spectra have been carried out. The most active peaks were observed in the region from 450 cm^{-1} to 1700 cm^{-1} . FT-IR spectra were analyzed to determine and differentiate the various vibrational modes by applying a deconvolution method to the FT-IR spectra. The density has been measured by the conventional Archimedes method, molar volume were calculated and found the density and molar volume are trend in the same direction by increases the CuO contents.

Author Keywords

Absorption filter; Bandpass; Fourier transform infrared spectra (FT-IR)

Document Type: Article

Source: Scopus

Atta, A.M.^{a b}, El-Mahdy, G.A.^{a c}, Al-Lohedan, H.A.^a, Tawfeek, A.M.^d, Sayed, S.R.^d

Corrosion performance of nanostructured clay hybrid film based on crosslinked 3-(acrylamidopropyl)

trimethylammonium chloride-co- acrylamide on mild steel in acidic medium

(2015) *International Journal of Electrochemical Science*, 10 (3), pp. 2377-2390. Cited 1 time.

^a Department of Chemistry, Surfactant Research Chair, College of Science, King Saud University, Riyadh, Saudi Arabia

^b Petroleum application department, Egyptian petroleum research institute, Nasr city 11727, Cairo, Egypt

^c Chemistry department, Faculty of Science, Helwan University, Helwan, Egypt

^d College of Science, King Saud University, Riyadh, Saudi Arabia

Abstract

The present work describes the exfoliation of clay through crosslinking with 3-(acrylamidopropyl) trimethylammonium chloride-co- acrylamide (APTAC/AM) which made the polymer end-tethered on Na-MMT. However, the way in which APTAC/AM interacts with the surface of MMT has not yet been studied. APTAC/AM widened the gap between clay layers and facilitates comonomers penetrate into clay. The exfoliated structure of extracted nanocomposite was confirmed by Fourier transform infrared (FTIR), X-ray powder diffraction XRD, thermogravimetric analyses (TGA) and transmission electron microscopy (TEM). Results of FT-IR, TGA and XRD analyses showed that APTAC/AM interacted with clay, but to various extents. The inhibition effect of APTAC/AM-MMT on the corrosion of steel in 1.0 M HCl solution was studied by potentiodynamic polarization curves and electrochemical impedance spectroscopy (EIS) methods. All electrochemical measurements indicate that APTAC/AM-MMT functioned as a good inhibitor in 1M hydrochloric solution and inhibition efficiency increased with APTAC/AM-MMT concentration. Polarization curves indicate that APTAC/AM-MMT acts as mixed-type inhibitor. EIS spectra exhibit one capacitive loop. The charge transfer resistance (R_{ct}) increases with APTAC/AM-MMT concentration, while double layer capacitance (C_{dl}) decreases. © 2015 The Authors.

Author Keywords

3-(acrylamidopropyl) trimethylammonium chloride-co- acrylamide; Acid corrosion inhibition; Clay hybrid film; EIS; Nanocomposite; Polarization; Steel

Document Type: Article

Source: Scopus

Waly, M.^a, El-Mezayen, H.A.^b, Mohyee, M.^a

Potential role of curcumin and garlic acid against diazinon and propoxur hepatotoxicity

(2015) *International Journal of Pharmaceutical Sciences Review and Research*, 33 (2), art. no. 10, pp. 50-57.

^a Chemistry department, Damietta University, Egypt

^b Chemistry department, Helwan University, Egypt

Abstract

Diazinon, an organophosphorus insecticide and propoxur, a carbamate insecticide have been used in agriculture and public health for several years. The aim of the present study was to evaluate the oxidative stress caused by the two insecticides and biochemical changes in adult male Wistar rats and to evaluate the protective effect of curcumin and garlic. Diazinon (10 mg/kg per day in corn oil), propoxur (10 mg/kg per day in corn oil) alone or with curcumin (100 mg/kg per day in corn oil) and/or garlic (20 mg/kg per day in distilled water) were given to rats (n=11) orally through gavage for four weeks. Biochemical parameters in serum [total protein, albumin, triglyceride (TG), cholesterol, uric acid, urea, creatinine, γ -glutamyl transpeptidase (γ -GT), glutamic pyruvic transaminase (GPT), glutamic oxaloacetic transaminase (GOT), lactate dehydrogenase (LDH), catalase (CAT) and total antioxidant capacity (TAC)], superoxide dismutase (SOD) and glutathion reduced (GSH) were determined in liver homogenate and malondialdehyde (MAD) was determined in RBCs. All ultrastructural changes were investigated at the end of 4th week. Results obtained showed that albumin, total protein, GOT, GPT, LDH, creatinine, urea, GSH and SOD were statistically high significance ($p < 0.001$), γ -GT, uric acid, CAT, TAC and cholesterol were statistically significance ($p < 0.01$) when diazinon or propoxur-treated groups compared to control group. On the other hand, GOT, GPT, LDH, GSH and SOD were statistically high significance ($p < 0.001$), albumin, total protein, γ -GT, urea, CAT and TAC were statistically significance ($p < 0.01$) when curcumin and/or garlic + diazinon or propoxur-treated groups compared to diazinon or propoxur-treated groups. We conclude that curcumin and garlic decreases diazinon and propoxur oxidative toxic effects and hepatotoxicity. © 2015, Global Research Online. All rights reserved.

Author Keywords

Curcumin; Diazinon; Garlic acid; Hepatotoxicity; Propoxur

Document Type: Article

Source: Scopus

Khattab, H.A.H.^{a b}, El-Shitany, N.A.^{c d}, Abdallah, I.Z.A.^b, Yousef, F.M.^a, Alkreathy, H.M.^e

Antihyperglycemic Potential of Grewia asiatica Fruit Extract against Streptozotocin-Induced Hyperglycemia in Rats: Anti-Inflammatory and Antioxidant Mechanisms

(2015) *Oxidative Medicine and Cellular Longevity*, 2015, art. no. 549743, .

DOI: 10.1155/2015/549743

^a Department of Food and Nutrition, Faculty of Home Economics, King Abdulaziz University, Jeddah, Saudi Arabia

^b Nutrition and Food Science Department, Faculty of Home Economics, Helwan University, Egypt

^c Department of Pharmacology and Toxicology, Faculty of Pharmacy, King Abdulaziz University, Jeddah, Saudi Arabia

^d Department of Pharmacology and Toxicology, Faculty of Pharmacy, Tanta University, Tanta, Egypt

^e Department of Pharmacology, Faculty of Medicine, King Abdulaziz University, Jeddah, Saudi Arabia

Abstract

Diabetes mellitus is regarded as a serious chronic disease that carries a high risk for considerable complications. In folk medicine, the edible *Grewia asiatica* fruit is used in a number of pathological conditions. This study aimed to investigate the possible curative effect of *G. asiatica* fruit ethanolic extract against streptozotocin- (STZ-) induced hyperglycemia in rats. Furthermore, mechanism of antihyperglycemic action is investigated. Hyperglycemic rats are either treated with 100 or 200 mg/kg/day *G. asiatica* fruits extract. Serum glucose, liver glycogen, malondialdehyde (MDA), reduced glutathione (GSH), superoxide dismutase (SOD), interleukin- (IL-) 1 β , and tumor necrosis factor- (TNF-) α are measured. *G. asiatica* fruits extract reduces blood glucose and pancreatic MDA levels. It increases liver glycogen and pancreatic GSH contents and SOD enzyme activity. Furthermore, *Grewia asiatica* fruits extract decreases serum IL-1 β and TNF- α . The treatment also protects against STZ-induced pathological changes in the pancreas. The results of this study indicated that *G. asiatica* fruit extract exerts antihyperglycemic activity against STZ-induced hyperglycemia. The improvement in the pancreatic β -cells and antioxidant and anti-inflammatory effects of *G. asiatica* fruit extract may explain the antihyperglycemic effect. © 2015 Hala A. H. Khattab et al.

Document Type: Article

Source: Scopus

Garbie, I.H.^{a b}

Integrating sustainability assessments in manufacturing enterprises: A framework approach

(2015) *International Journal of Industrial and Systems Engineering*, 20 (3), pp. 343-368.

DOI: 10.1504/IJISE.2015.069922

^a Department of Mechanical and Industrial Engineering, Sultan Qaboos University, P.O. Box 33, Al-Khoud, Muscat, Oman

^b Department of Mechanical Engineering at Helwan, Helwan University, P.O. Box 11792, Helwan, Cairo, Egypt

Abstract

This paper assesses the linking between the three dimensions of sustainability in the manufacturing enterprises through a proposed framework approach. The major challenge in manufacturing enterprises regarding sustainability is modelling and measuring the integrating performance metrics between sustainability dimensions. The main objectives addressed in this paper are how to model a new assessment framework for measuring integrating sustainability. The dimensions of sustainability are: economic, social and environmental. They are modelled, estimated and linked into new concepts so called "economic-social, social-environmental, and environmental-economic sustainability". The proposed framework is illustrated through a hypothetical example to investigate which integrating sustainability is more significant or influence in the sustainability regarding manufacturing enterprise. The results show that social-environmental sustainability is the highest and sustainability dimensions and their associated aspects and indicators need more attention from academic and industrialists. Copyright © 2015 Inderscience Enterprises Ltd.

Author Keywords

Manufacturing enterprises; Sustainability and sustainable development

Document Type: Conference Paper

Source: Scopus

El Morsy, E.M.^a, Kamel, R.^a, Ahmed, M.A.E.^b

Attenuating effects of coenzyme Q10 and amlodipine in ulcerative colitis model in rats

(2015) *Immunopharmacology and Immunotoxicology*, 37 (3), pp. 244-251.

DOI: 10.3109/08923973.2015.1021357

^a Department of Pharmacology and Toxicology, Faculty of Pharmacy, Helwan University, Cairo, Egypt

^b Department of Pharmacology and Toxicology, Faculty of Pharmacy, Misr University for Science and Technology (MUST), Giza, Egypt

Abstract

Context: Ulcerative colitis is a chronic inflammatory bowel disease. Recent studies reported a pivotal role of elevated intracellular calcium in this disorder. Coenzyme Q10 (CoQ10) and amlodipine are known to maintain cellular energy, decrease intracellular calcium concentration in addition to their antioxidant and anti-inflammatory properties.

Objective: The aim of this study was to evaluate the possible protective effects of CoQ10, amlodipine and their combination on ulcerative colitis. Materials and methods: Colitis was induced in rats by intracolonic injection of 3% acetic acid. CoQ10 (10mg/kg), amlodipine (3mg/kg) and their combination were administered for 8 consecutive days before induction of colitis. Results: Our results showed that administration of CoQ10, amlodipine and their combination decreased colon tissue malondialdehyde (MDA), tumor necrosis factor- α (TNF- α), interleukin-1 β (IL-1 β), prostaglandin E2 (PGE2), myeloperoxidase (MPO) and heat shock protein (HSP70) levels induced by intracolonic injection of acetic acid and restored many of the colon structure in histological examination. On the other hand, they increased superoxide dismutase (SOD) activity, adenosine-5'-triphosphate (ATP) and interleukin-10 (IL-10) colonic contents. Discussion and conclusion: Administration of either CoQ10 or amlodipine was found to protect against acetic acid-induced colitis. Moreover, their combination was more effective than individual administration of either of them. The protective effect of CoQ10 and amlodipine may be in part via their antioxidant, anti-inflammatory and energy restoration properties. © 2015 Informa Healthcare USA, Inc.

Author Keywords

Amlodipine; CoQ10; Inflammation; Oxidative stress; Ulcerative colitis

Document Type: Article

Source: Scopus

Merchan, L.M.^a, Hassan, H.E.^{c,h}, Terrin, M.L.^b, Waites, K.B.^d, Kaufman, D.A.^e, Ambalavanan, N.^d, Donohue, P.^f, Dulkerian, S.J.^a, Schelonka, R.^g, Magder, L.S.^b, Shukla, S.^c, Eddington, N.D.^c, Viscardi, R.M.^a

Pharmacokinetics, microbial response, and pulmonary outcomes of multidose intravenous azithromycin in preterm infants at risk for *Ureaplasma* respiratory colonization

(2015) *Antimicrobial Agents and Chemotherapy*, 59 (1), pp. 570-578.

DOI: 10.1128/AAC.03951-14

^a Department of Pediatrics, University of Maryland, Baltimore School of Medicine, Baltimore, MD, United States

^b Epidemiology and Preventive Medicine, University of Maryland, Baltimore School of Medicine, Baltimore, MD, United States

^c University of Maryland, School of Pharmacy, Baltimore, MD, United States

^d Department of Pathology and Pediatrics, University of Alabama, Birmingham School of Medicine, Birmingham, AL, United States

^e Department of Pediatrics, University of Virginia, School of Medicine, Charlottesville, VA, United States

^f Department of Pediatrics, Johns Hopkins University, School of Medicine, Baltimore, MD, United States

^g Department of Pediatrics, Oregon Health and Science University, Portland, OR, United States

^h Department of Pharmaceutics and Industrial Pharmacy, Faculty of Pharmacy, Helwan University, Cairo, Egypt

Abstract

The study objectives were to refine the population pharmacokinetics (PK) model, determine microbial clearance, and assess short-term pulmonary outcomes of multiple-dose azithromycin treatment in preterm infants at risk for *Ureaplasma* respiratory colonization. Fifteen subjects (7 of whom were *Ureaplasma* positive) received intravenous azithromycin at 20 mg/kg of body weight every 24 h for 3 doses. Azithromycin concentrations were determined in plasma samples obtained up to 168 h post-first dose by using a validated liquid chromatography-tandem mass spectrometry method. Respiratory samples were obtained predose and at three time points post-last dose for *Ureaplasma* culture, PCR, antibiotic susceptibility testing, and cytokine concentration determinations. Pharmacokinetic data from these 15 subjects as well as 25 additional subjects (who received either a single 10-mg/kg dose [n = 12] or a single 20-mg/kg dose [n = 13]) were analyzed by using a nonlinear mixed-effect population modeling (NONMEM) approach. Pulmonary outcomes were assessed at 36 weeks post-menstrual age and 6 months adjusted age. A 2-compartment model with all PK parameters allometrically scaled on body weight best described the azithromycin pharmacokinetics in preterm neonates. The population pharmacokinetics parameter estimates for clearance, central volume of distribution, intercompartmental clearance, and peripheral volume of distribution were 0.15 liters/h • kg^{0.75}, 1.88 liters • kg, 1.79 liters/h • kg^{0.75}, and 13 liters • kg, respectively. The estimated area under the concentration-time curve over 24 h (AUC₂₄)/MIC₉₀ value was 4 h. All posttreatment cultures were negative, and there were no drug-related adverse events. One *Ureaplasma*-positive infant died at 4 months of age, but no survivors were hospitalized for respiratory etiologies during the first 6 months (adjusted age). Thus, a 3-day course of 20 mg/kg/day intravenous azithromycin shows preliminary efficacy in eradicating *Ureaplasma* spp. from the preterm respiratory tract. Copyright © 2015 American Society for Microbiology. All Rights Reserved.

Document Type: Article
Source: Scopus

Hassanein, A.S., Khalifa, A.M., El-Wakad, M.T.

Estimation of Eulerian strain from tagged MRI using Optical flow

(2015) *Proceedings of the 7th Cairo International Biomedical Engineering Conference, CIBEC 2014*, art. no. 7020916, pp. 63-66.

DOI: 10.1109/CIBEC.2014.7020916

Biomedical Engineering Department, Helwan University, Cairo, Egypt

Abstract

Cardiac magnetic resonance imaging (MRI) is considered as noninvasive imaging modalities provide information on myocardial function, viability, and morphology. One of the most common MRI techniques is tagging MRI, based on this technique the deformation of the myocardium can be evaluated and some of cardiac functions can be examined. The strain of cardiac muscle one of the parameters estimated based on the estimated deformation, this estimated strain help in the examination of myocardium viability. This paper presents a mathematical model that simulates the real cardiac motion during myocardial tagging. Using this model and real data, we estimate the circumferential strain using strain tensor with Band-pass Optical flow (BPOF) technique and compare it with the estimated strain of Harmonic Phase (HARP as a golden standard technique. The results exhibit that the stain can be estimated using BPOF method with the same level of accuracy compared to HARP method, however, BPPOF provides more reliable results than HARP, with no tracking errors, at the myocardial boundaries. © 2014 IEEE.

Author Keywords

cardiac motion analysis; optical flow; tagging CMR

Document Type: Conference Paper
Source: Scopus

Elsayed, K.^{a b}

Optimization of the cyclone separator geometry for minimum pressure drop using Co-Kriging

(2015) *Powder Technology*, 269, pp. 409-424. Cited 2 times.

DOI: 10.1016/j.powtec.2014.09.038

^a Vrije Universiteit Brussel, Department of Mechanical Engineering, Research Group Fluid Mechanics and Thermodynamics, Pleinlaan 2, Brussels, Belgium

^b Mechanical Power Engineering Department, Faculty of Engineering at El-Mattaria, Helwan University, Masaken El-Helmia P.O., Cairo, Egypt

Abstract

The pressure drop is an essential performance index to evaluate and design gas cyclone. In order to accurately predict the complex non-linear relationships between pressure drop and geometrical dimensions, a multi-fidelity surrogate, Co-Kriging is developed and employed to model the pressure drop for cyclone separators using CFD simulations dataset and Muschelknautz model. Only the inlet section dimensions, the vortex finder diameter and the cone height are significant. The Co-Kriging model is more accurate than the ordinary Kriging model. This accuracy can be further enhanced if the optimal Latin hypercube replaced the random sampling plan. In this study, five approaches are proposed and tested for sampling update for the Co-Kriging which was not covered in the literature. These approaches succeeded to enhance the model accuracy by adding few points from both the low-fidelity and high-fidelity simulations. The Co-Kriging model has been used to get a new optimized cyclone for minimum pressure drop using the genetic algorithms optimization technique. A CFD comparison between the new design and the standard Stairmand design has been performed. CFD results show that the new cyclone design is very close to the Stairmand high efficiency design in the geometrical parameter ratio (except the cone height), and superior for low pressure drop. The new cyclone design results in 22% of the pressure drop obtained by the Stairmand design at the same volume flow rate. © 2014 Elsevier B.V.

Author Keywords

Co-Kriging; Cyclone separator; Kriging; Sampling update; Screening; Surrogate based optimization

Document Type: Article
Source: Scopus

Mohareb, R.M.^a, Zaki, M.Y.^b, Abbas, N.S.^{c d}

Synthesis, anti-inflammatory and anti-ulcer evaluations of thiazole, thiophene, pyridine and pyran derivatives derived from androstenedione

(2015) *Steroids*, 98, pp. 80-91.

DOI: 10.1016/j.steroids.2015.03.001

^a Department of Chemistry, Faculty of Science, Cairo University, Giza, Egypt

^b National Organization for Drug Control and Research (NODCAR), P.O. 29, Cairo, Egypt

^c Department of Chemistry, Faculty of Science, Taibah University, Saudi Arabia

^d Department of Chemistry, Faculty of Science, Helwan University, Cairo, Egypt

Abstract

The reaction of androstenedione with bromine gave the 16-bromo derivative 2. The latter reacted with either cyanothioacetamide or thiourea to give the 2-cyanomethylthiazole derivative 4 and the 2-aminothiazole derivative 13. Compound 4 and 13 were used underwent some condensation, coupling and heterocyclization reactions to give thiophene, pyridine and pyran derivatives. The anti-inflammatory and anti-ulcer evaluations of the newly synthesized products were evaluated and the results showed that 23f showed the maximum antiulcer activity. In addition, toxicity of the most active compounds was studied against shrimp larvae and showed that compounds 2, 23c and 23f showed non-toxicity against the tested organisms. © 2015 Elsevier Inc. All rights reserved.

Author Keywords

Androstenedione; Anti-inflammatory; Anti-ulcer; Pyran; Thiazole; Thiophene

Document Type: Article

Source: Scopus

Mansour, M.^a, Imam, H.^{b f}, Elsayed, K.A.^{c e}, Elbaz, A.M.^{d g}, Abbass, W.^b

Quantitative mixture fraction measurements in combustion system via laser induced breakdown spectroscopy

(2015) *Optics and Laser Technology*, 65, pp. 43-49.

DOI: 10.1016/j.optlastec.2014.07.005

^a Mechanical Power Engineering Department, Faculty of Engineering, Cairo University, Giza, Egypt

^b National Institute of Laser Enhanced Sciences, Cairo University, Giza, Egypt

^c Cairo University, Physics Department, Faculty of Science, Cairo 12211, Egypt

^d Mechanical Power Engineering Department, Faculty of Engineering, Helwan University, Helwan, Egypt

^e College of Engineering, University of Dammam, Dammam, Saudi Arabia

^f College of Science, University of Dammam, Dammam, Saudi Arabia

^g Clean Combustion Research Center (CCRC), King Abdullah University for Science and Technology (KAUST), Thuwal, Saudi Arabia

Abstract

Laser induced breakdown spectroscopy (LIBS) technique has been applied to quantitative mixture fraction measurements in flames. The measured spectra of different mixtures of natural gas and air are used to obtain the calibration parameters for local elemental mass fraction measurements and hence calculate the mixture fraction. The results are compared with the mixture fraction calculations based on the ratios of the spectral lines of H/N elements, H/O elements and C/(N+O) and they show good agreement within the reaction zone of the flames. Some deviations are observed outside the reaction zone. The ability of LIBS technique as a tool for quantitative mixture fraction as well as elemental fraction measurements in reacting and non-reacting of turbulent flames is feasible. © 2014 Elsevier Ltd. All rights reserved.

Author Keywords

Laser spectroscopy; LIBS technique; Mixture fraction

Document Type: Article

Source: Scopus

Abdelhafez, O.M.^a, Ali, H.I.^{b c}, Amin, K.M.^d, Abdalla, M.M.^e, Ahmed, E.Y.^a

Design, synthesis and anticancer activity of furochromone and benzofuran derivatives targeting VEGFR-2 tyrosine kinase

(2015) *RSC Advances*, 5 (32), pp. 25312-25324.

DOI: 10.1039/c4ra16228e

^a Chemistry of Natural Products Dept, National Research Center, Dokki, Egypt

^b Pharmaceutical Sciences Dept, Irma Lerma Rangel College of Pharmacy, Texas AandM Health Science CenterTX, United States

^c Pharmaceutical Chemistry Dept, Faculty of Pharmacy, Helwan University, Egypt

^d Pharmaceutical Chemistry Dept, Faculty of Pharmacy, Cairo University, Egypt

^e Research Unit, Mapco Pharmaceutical Industries, Balteim, Egypt

Abstract

In continuation of our work concerning the relation between the anticancer and anti-vascular endothelial growth factor receptor (anti-VEGFR-2) activity of some synthesized compounds, we hereby designed and prepared three new series of furochromone and benzofuran derivatives (carbonitriles, sulfonyl hydrazides and imides). The prepared compounds were evaluated for their in vitro VEGFR-2 inhibitory activity, their cytotoxicity on fifteen human cancer cell lines and their in vivo antiproliferative activity. The highest anti-VEGFR-2 activity was demonstrated by 6-acetyl-4-methoxy-7-methyl-5H-furo[3,2-g]chromen-5-one (3), which exhibited the same IC50 value as the reference drug sorafenib ($2.00 \times 10^{-3} \mu\text{M}$). On the other hand, most of the synthesized compounds showed potent cytotoxicity against most of the tested cell lines, in particular, the carbonitrile series (4a,b and 5a,d) which exhibited the best activity with IC50 values ranging from 3.56×10^{-13} to $4.89 \times 10^{-7} \mu\text{M}$. Moreover, the imide series (15-17) showed the most significant in vivo antiproliferative activity. An in silico GOLD molecular docking study has been done to explore the binding mode of interaction of the furochromone and benzofuran derivatives to VEGFR-2 kinase, and to reveal the correlation between IC50 (μM) of the enzymatic inhibition of VEGFR-2 kinase and the GoldScore fitness for further therapeutic application. This journal is © The Royal Society of Chemistry.

Document Type: Article

Source: Scopus

Kandil, A.^a, El-Sheikh, S.A.^b, Yakout, M.M.^b, Hazza, S.A.^c

Proximity structures and ideals

(2015) *Matematicki Vesnik*, 67 (2), pp. 130-142.

^a Department of Mathematics, Helwan University, Cairo, Egypt

^b Department of Mathematics, Ain Shams University, Cairo, Egypt

^c Department of Mathematics, Taiz University, Taiz, Yemen

Abstract

In this paper, we present a new approach to proximity structures based on the recognition of many of the entities important in the theory of ideals. So, we give a characterization of the basic proximity using ideals. Also, we introduce the concept of g-proximities and we show that for different choice of "g" one can obtain many of the known types of generalized proximities. Also, characterizations of some types of these proximities-(g0; h0)-are obtained. © 2015 Društvo Matematicara Srbije. All rights reserved.

Author Keywords

Basic proximity; G-proximities; Ideals; Nearness; Proximity space; Topological space

Document Type: Article

Source: Scopus

EL-Mahdy, G.A.^{a b}, Abdel-Reheem, M.^{c d}, Abdel-Latif, S.A.^b, Zikry, A.A.F.^b

Electrochemical behavior of zirconium in succinic acid solution

(2015) *International Journal of Electrochemical Science*, 10 (6), pp. 4888-4898.

^a Department of Chemistry, College of Science, King Saud University, Riyadh, Saudi Arabia

^b Chemistry department, Faculty of Science, Helwan University, Ain- Helwan, Cairo, Egypt

^c Research Center, College of Science, King Saud University, Riyadh, Saudi Arabia

^d Biochemistry Department, Faculty of Agriculture, Ain Shams University, Cairo, Egypt

Abstract

The influence of succinic acid concentrations on the electrochemical behavior of ZrO_2 has been investigated using open circuit potential (OCP), electrochemical impedance spectroscopy (EIS) and galvanostatic techniques. The anodic oxidation of zirconium leads to a significant improvement in the corrosion resistance of zirconium in succinic acid solution. OCP gradually increases towards noble values in 0.01 M succinic acid, while it decreases slowly to less noble values in 0.1 M succinic acid during the initial stage of monitoring and eventually attains a steady state. The film stability dependent upon the succinic acid concentration as evident from a shift in OCP

values to less noble values with increasing concentration. The results of polarization indicates that the passive layers increase in thickness with decreasing acid concentration and become less susceptible to corrosion and thus providing more protection of the underlying zirconium metal. © 2015 The Authors.

Author Keywords

EIS; Galvanostatic; OCP; Polarization; Succinic acid; Zirconium

Document Type: Article

Source: Scopus

Morsi, K.^a, Daoush, W.M.^b

Al-TiH₂ composite 'particles' as foaming precursors for metallic foams

(2015) *Scripta Materialia*, 105, pp. 6-9.

DOI: 10.1016/j.scriptamat.2015.04.013

^a Department of Mechanical Engineering, San Diego State University, 5500 Campanile Dr., San Diego, CA, United States

^b Department of Production Technology, Faculty of Industrial Education, Helwan University, 30 El Sawah Street, 11511-11668 Cairo, Egypt

Abstract

This paper describes the production of metallic foam precursors in 'particle' form as opposed to the typical consolidated bulk compacts. Mechanical milling was used to produce coarse composite particles of aluminum and titanium di-hydride as foaming precursors. The effect of foaming temperature on the resulting products is discussed. The porosity content in the particles was found to increase with an increase in temperature. The refined TiH₂ particle size due to mechanical milling leads to limited pore sizes in foamed particles. © 2015 Acta Materialia Inc. All rights reserved.

Author Keywords

Aluminum; Mechanical milling; Metallic foams; Porous materials; Titanium di-hydride

Document Type: Article

Source: Scopus

Elgindi, M.R.^a, Singab, A.N.^b, El-Taher, E.M.M.^c, Kassem, M.E.S.^d

A comprehensive review of phoenix (Arecaceae)

(2015) *Research Journal of Pharmaceutical, Biological and Chemical Sciences*, 6 (3), pp. 966-974.

^a Department of Pharmacognosy, Faculty of Pharmacy, Egyptian Russian University, Helwan University, Cairo, Egypt

^b Department of Pharmacognosy, Faculty of Pharmacy, Ain Shams University, Cairo, Egypt

^c Department of Pharmacognosy, Faculty of Pharmacy, Egyptian Russian University, Cairo, Egypt

^d Department of Phytochemistry and Plant Systematics, National Research Centre, Cairo, Egypt

Abstract

The objective of this study is to reach the literature reviews for Phoenix. Genus Phoenix is composed of 17 species naturally distributed in the world. It has been used for the treatment of various infectious diseases, atherosclerosis, diabetes, hypertension and cancer. The fruits of some species are rich sources of carbohydrates, dietary fibers, certain essential vitamins and minerals. This review presents a comprehensive analysis of the phytochemistry and validated pharmacological properties of the genus phoenix.

Author Keywords

Antioxidant; Flavonoids; Hepatoprotective; Phoenix

Document Type: Article

Source: Scopus

Athar, T.^a, Abdelaal, M.^{b c}, Khatoon, Z.^d, Kumar, A.^d, Razzaq, A.^a, Khan, A.A.^e, Fouad, H.^{f g}, Ansari, S.A.^d, Ansari, Z.A.^d

Green synthesis of NiSnO₃ nanopowder and its application as a hydroquinone electrochemical sensor

(2015) *Sensors and Materials*, 27 (7), pp. 563-573.

DOI: 10.18494/SAM.2015.1091

^a CSIR-Indian Institute of Chemical Technology, Hyderabad, Andhra Pradesh, India

^b Prince Sultan University, College of Engineering Riyadh, Saudi Arabia

^c Academy of Civil Aviation, 6Th of October Airport, Egypt

^d Center for Interdisciplinary Research in Basic Sciences, Jamia Millia Islamia New Delhi, India

^e Salar-E-Millat Research Centre, Central Laboratory for Stem Cell Research and Regenerative Medicine, Deccan Medical Sciences, Hyderabad, Telangana, India

^f Department of Applied Medical Science, Riyadh Community College, King Saud University Riyadh, Saudi Arabia

^g Biomedical Engineering Department, Faculty of Engineering, Helwan University, P.O. Box, 11792, Helwan, Egypt

Abstract

Green synthesis of NiSnO₃ nanopowder was carried out via chemie douce using nickel and tin chlorides as precursors by stirring and refluxing at 80 °C. The dried dark green bimetallic oxide nanoparticle was then used for preparing the sensing electrode in the form of a screen-printed electrode (SPE). The synthesized nanoparticles were analyzed for elemental, structural, and morphological characteristics using various analytical techniques. The Fourier transform infrared (FTIR) spectrum indicated the formation of a strong Sn-O-Ni framework, while X-ray diffraction (XRD) confirmed the formation of a bimetallic oxide nanopowder of NiSnO₃. The synthesized nanoparticles were studied for hydroquinone (HQ) sensing characteristics to develop a sensitive and reproducible electrochemical sensor from 1 to 9 mM concentrations in buffer. The developed sensor exhibited a sensitivity of 6.03 μA/mM (46.38 μA/mMcm⁻²). The charge transfer studies indicated a reversible and diffusion-controlled process. To the best of our knowledge, such a material, i.e., NiSnO₃, has not be used for HQ sensors and is being reported for the first time. © MYU K.K.

Author Keywords

Bimetallic oxide; Electrochemical sensor; Green synthesis; Hydroquinone; Perovskite material

Document Type: Article

Source: Scopus

Elgemeie, G.H.^a, Ahmed, K.A.^b, Ahmed, E.A.^a, Helal, M.H.^a, Masoud, D.M.^a

Microwave assisted one-pot synthesis of pyrazoloquinazolinone derivatives and their application on printing of synthetic fabrics

(2015) *Pigment and Resin Technology*, 44 (3), pp. 165-171.

DOI: 10.1108/PRT-04-2014-0030

^a Chemistry Department, Faculty of Science, Helwan University, Cairo, Egypt

^b Dyeing Printing and Textile Auxiliaries Department, National Research Center, Textile Industries Division, Cairo, Egypt

Abstract

Purpose - The purpose of this paper is to synthesize some novel 2-amino-6,6-dimethyl-9-phenyl-3-(phenyldiazenyl)-6,7-dihydropyrazolo- [5,1-b]quinazolin-8(5H)-one derivatives by multi-component one-pot reaction using a microwave as a new tool for green chemistry. **Design/methodology/approach** - An equimolar from arylazopyrazole, 5,5-dimethyl-1,3-cyclohexanedione (dimedone) and benzaldehyde derivatives was dissolved in Dimethylformamide (DMF) to be irradiated in a microwave for 15 minutes; after completion of the reaction, as indicated by Thin layer chromatograph (TLC), the reaction mixture was poured into ice water, filtered and then crystallized with an appropriate solvent. **Findings** - The structure of the synthesized dyes was established and confirmed for the reaction products on the basis of their elemental analysis and spectral data (MS, IR and 1H-NMR). These prepared dyes were used to print polyester and polyamide fabrics using synthetic thickener in the printing paste for the silk screen technique. The synthesized dyes are superior in terms of yield, purity, color strength and fastness properties and will lead to valuable achievements for commercial production. **Originality/value** - An efficient method for synthesis of pyrazoloquinazolinone dyes was designed. The novel procedure features short reaction time, moderate yields and simple workup. The authors studied its application in printing polyester and polyamide fabrics.

Author Keywords

Chemical properties; Chemical reactions; Dyes

Document Type: Article

Source: Scopus

Atta, A.M.^{a b}, El-Mahdy, G.A.^{a c}, Al-Lohedan, H.A.^a, El-Saeed, A.M.^b

Preparation and application of crosslinked poly(sodium acrylate)-coated magnetite nanoparticles as corrosion inhibitors for carbon steel alloy

(2015) *Molecules*, 20 (1), pp. 1244-1261.

DOI: 10.3390/molecules20011244

^a Department of Chemistry, College of Science, King Saud University, P.O. Box 2455, Riyadh, Saudi Arabia

^b Petroleum Application Department, Egyptian Petroleum Research Institute, Cairo, Egypt

^c Chemistry Department, Faculty of Science, Helwan University, Helwa, Cairo, Egypt

Abstract

This work presents a new method to prepare poly(sodium acrylate) magnetite composite nanoparticles. Core/shell type magnetite nanocomposites were synthesized using sodium acrylate as monomer and N,N-methylenebisacrylamide (MBA) as crosslinker. Microemulsion polymerization was used for constructing core/shell structures with magnetite nanoparticles as core and poly(sodium acrylate) as shell. Fourier transform infrared spectroscopy (FTIR) was employed to characterize the nanocomposite chemical structure. Transmittance electron microscopy (TEM) was used to examine the morphology of the modified poly(sodium acrylate) magnetite composite nanoparticles. These particles will be evaluated for effective anticorrosion behavior as a hydrophobic surface on stainless steel. The composite nanoparticles have been designed by dispersing nanocomposites which act as a corrosion inhibitor. The inhibition effect of AA-Na/magnetite composites on steel corrosion in 1 M HCl solution was investigated using potentiodynamic polarization curves and electrochemical impedance spectroscopy (EIS). Polarization measurements indicated that the studied inhibitor acts as mixed type corrosion inhibitor. EIS spectra exhibit one capacitive loop. The different techniques confirmed that the inhibition efficiency reaches 99% at 50 ppm concentration. This study has led to a better understanding of active anticorrosive magnetite nanoparticles with embedded nanocomposites and the factors influencing their anticorrosion performance. © 2015 by the authors; licensee MDPI, Basel, Switzerland.

Author Keywords

Core-shell; Corrosion inhibitors; Hydrophilic; Hydrophobic; Magnetite; Microemulsion; Nanoparticles; Oleic; Poly(sodium acrylate) composite

Document Type: Article

Source: Scopus

Yousef, A.^{a b c}, El-Halwany, M.M.^d, Barakat, N.A.M.^{a e}, Kim, H.Y.^a

One pot synthesis of Cu-doped TiO₂ carbon nanofibers for dehydrogenation of ammonia borane

(2015) *Ceramics International*, 41 (4), pp. 6137-6140. Cited 2 times.

DOI: 10.1016/j.ceramint.2015.01.058

^a Organic Materials and Fiber Engineering Department, Chonbuk National University, Jeonju, South Korea

^b Faculty of Engineering, Helwan University, Cairo, Egypt

^c Chemical Engineering Department, Jazan University, Jazan, Saudi Arabia

^d Engineering Mathematics and Physics Department, Faculty of Engineering, Mansoura University, El-Mansoura, Egypt

^e Chemical Engineering Department, Faculty of Engineering, Minia University, El-Minia, Egypt

Abstract

Copper nanoparticles doped on titania carbon nanofibers (Cu NPs-doped TiO₂ CNFs) were fabricated by electrospinning of a sol-gel consisting of titanium isopropoxide (TIP), polyvinylpyrrolidone (PVP) and copper(II) acetate tetrahydrate followed by sintered at 750 °C in Ar atmosphere. The photocatalytic activities of nanofibers were examined by dehydrogenation of ammonia borane (AB) under sunlight radiation. Typically, after 120 min, the obtained hydrogen equivalent was 1.95 for Cu-doped TiO₂ CNFs. Interestingly, synthesized nanofibers were shelled by thin layer from graphite which improves the chemical resistivity. © 2015 Elsevier Ltd and Techna Group S.r.l.

Author Keywords

Ammonia borane; Copper titania carbon nanofibers; Electrospinning; Solar light

Document Type: Article

Source: Scopus

Atta, A.M.^{a b}, El-Ghazawy, R.A.^b, Morsy, F.A.^c, Hebshy, A.M.S.^c, Elmorsy, A.^c

Adsorption of Polymeric Additives Based on Vinyl Acetate Copolymers as Wax Dispersant and Its Relevance to Polymer Crystallization Mechanisms

(2015) *Journal of Chemistry*, 2015, art. no. 683109, .

DOI: 10.1155/2015/683109

^a Chemistry Department, College of Science, King Saud University, Riyadh, Saudi Arabia

^b Petroleum Application Department, Egyptian Petroleum Research Institute, Nasr City, Cairo, Egypt

^c Chemistry Department, Faculty of Science, Helwan University, Helwan, Egypt

Abstract

The present work has main target to study the effect of additives molecular weight and composition on the flow characteristics of wax crude oil at low temperature below pour point temperature. In this respect, maleic anhydride ester-co-vinyl acetate copolymers with varied monomers feed ratios and different alkyl ester lengths, namely, dodecyl, stearyl, and behenyl alkyl chains, were prepared. These polymeric materials were characterized by FTIR, ¹HNMR, and GPC. The performance of these additives as pour point depressants and flow improver for Egyptian waxy crude oil was evaluated through measurements of pour point and rheological parameters (viscosity and yield stress). It was observed that stearyl maleate-vinyl acetate copolymer with 1: 2 feed ratio shows the best efficiency as pour point depressant even at low concentration while octadecyl maleate-vinyl acetate copolymers with 2: 1 feed ratio are effective as flow improver. © 2015 Ayman M. Atta et al.

Document Type: Article

Source: Scopus

Al-Ahmari, A.^a, Nasr, E.A.^{a b}, Moiduddin, K.^a, Alkindi, M.^d, Kamrani, A.^c

Patient specific mandibular implant for maxillofacial surgery using additive manufacturing

(2015) *IEOM 2015 - 5th International Conference on Industrial Engineering and Operations Management, Proceeding*, art. no. 7093788, .

DOI: 10.1109/IEOM.2015.7093788

^a College of Engineering, Industrial Engineering Department, King Saud University, Riyadh, Saudi Arabia

^b Mechanical Engineering Department, Helwan University, Cairo, Egypt

^c Cullen College of Engineering, Industrial Engineering Department, University of Houston, Houston, TX, United States

^d College of Dentistry, Maxillofacial Surgery and Diagnostic Sciences Department, King Saud University, Riyadh, Saudi Arabia

Abstract

The reconstruction of mandible bone defects by the intraoperative planning of design implant results in the aesthetic and cosmetic deviation leading to increase surgical time and implant revision. The maxillofacial surgery can be improved using advanced manufacturing technique such as additive manufacturing technology with the medical modeling software to design patient specific implant which can custom fit the patient's jaw precisely and accurately. The commercial produced mandible reconstruction implants are of standard size and shape which needs manual bending before surgery, using trial and error method to custom fit the patient's jaw. Even a slight mismatch between the bone-plate interface results in the implant loosening and failure. With the integration of computer aided design (CAD), additive manufacturing, and advanced imaging systems (CT or MRI), the patient CT scan images are analyzed and processed using medical modeling software into a 3D format to produce a customized or patient specific design implant via additive manufacturing technique, such as fused deposition modeling and Electron beam melting technology. The produced customized implant fits accurately onto the patient's jaw, thus reducing the implant revision and surgery time. The customized mandible implant design and its fabrication using Additive manufacturing is an effective method in the mandible reconstruction surgery. In this study, a digital design route for patient specific mandible implant is proposed. © 2015 IEEE.

Author Keywords

Additive Manufacturing; CT-Scan; Electron Beam Melting; Mandible; Titanium

Document Type: Conference Paper

Source: Scopus

Garbie, I.^{a b}

Investigation of Sustainability index in Omani manufacturing firms: Evidence from industrial company

(2015) *IEOM 2015 - 5th International Conference on Industrial Engineering and Operations Management, Proceeding*, art. no. 7093828, .

DOI: 10.1109/IEOM.2015.7093828

^a Department of Mechanical and Industrial Engineering, Sultan Qaboos University, Muscat, Oman

^b Department of Mechanical Engineering, Helwan University, Cairo, Egypt

Abstract

Sustainability index (SI) is always emphasizing on the life of people to satisfy their basic needs and enjoy a better quality of living without compromising future generations. Sustainability or sustainable development is based on and used to balance between the three pillars/dimensions: economy, society and environment. The SD means making decisions that recognize the longer term impacts of actions on economy, society, and environment. In this paper, one case study will be analyzed and evaluated regarding sustainability through the three dimensions/pillars of sustainable development based on presented approach published by [1]. This approach is validated by using a real life case study. The results show how the framework is helpful for manufacturing firms to evaluate the sustainability index. © 2015 IEEE.

Author Keywords

manufacturing enterprises; Sustainability; sustainable development

Document Type: Conference Paper

Source: Scopus

Yehia, H.M.^a, Hassanein, W.A.^b, Ibraheim, S.M.^c

Studies on molecular characterizations of the outer membrane proteins, lipids profile, and exopolysaccharides of antibiotic resistant strain *Pseudomonas aeruginosa*

(2015) *BioMed Research International*, 2015, art. no. 651464, .

DOI: 10.1155/2015/651464

^a Food Science and Nutrition Department, College of Food and Agriculture Sciences, King Saud University, Saudi Arabia

^b Food Science and Nutrition, Faculty of Home Economics, Helwan University, Egypt

^c Department of Botany (Microbiology), Faculty of Science, Zagazig University, Zagazig, Egypt

Abstract

Susceptibility of the tested *Pseudomonas aeruginosa* strain to two different antibiotics, tetracycline (TE) and ciprofloxacin (CIP), was carried out using liquid dilution method. Minimum inhibitory concentrations of TE and CIP were 9.0 and 6.0 mg/100 mL, respectively. Some metabolic changes due to both, the mode of action of TE and CIP on *P. aeruginosa* and its resistance to high concentrations of antibiotics (sub-MIC) were detected. The total cellular protein contents decreased after antibiotic treatment, while outer membrane protein (OMP) contents were approximately constant for both treated and untreated cells. Sodium dodecyl sulphate polyacrylamide gel electrophoresis (SDS-PAGE) analysis of the OMPs for untreated and TE and CIP treated cells indicated that the molecular changes were achieved as; lost in, induction and stability of some protein bands as a result of antibiotics treatment. Five bands (with mol. wt. 71.75, 54.8, 31.72, 28.63, and 20.33 KDa) were stable in both treated and untreated tested strains, while two bands (with mol. wt. 194.8 and 118.3 KDa) were induced and the lost of only one band (with mol. wt. 142.5 KDa) after antibiotics treatment. On the other hand, total lipids and phospholipids increased in antibiotic treated cells, while neutral lipids decreased. Also, there was observable stability in the number of fatty acids in untreated and treated cells (11 fatty acids). The unsaturation index was decreased to 56% and 17.6% in both TE and CIP treatments, respectively. The produced amount of EPSs in untreated cultures of *P. aeruginosa* was relatively higher than in treated cultures with sub-MICs of TE and CIP antibiotics. It was also observed that the amounts of exopolysaccharides (EPSs) increased by increasing the incubation period up to five days of incubation in case of untreated and antibiotic treated cultures. © 2015 Hany M. Yehia et al.

Document Type: Article

Source: Scopus

Omran, A.M.^a, Woo, K.D.^b, Kang, D.S.^b, Abdel-Gaber, G.T.^c, Fouad, H.^{d e}, Abdo, H.S.^{g h}, Khalil, K.A.^{f g}

Fabrication and evaluation of porous Ti-HA bio-nanomaterial by leaching process

(2015) *Arabian Journal of Chemistry*, 8 (3), pp. 372-379.

DOI: 10.1016/j.arabjc.2014.11.052

^a Mining and Metallurgical Depart., Faculty of Engineering, Al-Azhar University, Qena, Egypt

^b Division of Advanced Materials Engineering and RCIT, Chonbuk National University, South Korea

^c Faculty of Engineering, South Valley University, Qena, Egypt

^d Riyadh Community College, King Saud University, P.O. Box 28095, Riyadh, Saudi Arabia

^e Biomedical Engineering Department, Faculty of Engineering, Helwan University, P.O. Box 11792, Helwan, Egypt

^f Mechanical Engineering Department, King Saud University, P.O. Box 800, Riyadh, Saudi Arabia

^g Faculty of Energy Engineering, Aswan University, Aswan, Egypt

^h Center of Excellence for Research in Engineering Materials (CEREM), Advanced Manufacturing Institute, King Saud University, P.O. Box 800, Al-Riyadh, Saudi Arabia

Abstract

A porous surface of Ti-HA composite was successfully fabricated by pulsed current activated sintering (PCAS), followed by leaching using diluted H_3PO_4 . The Ti and HA powders were mixed at different contents of the HA, Ti-5, 10, 30 and 40wt% HA powders. The mixed powders were pressed in a coated graphite die using pulsed current activated sintering (PCAS) under pressure of 60MPa at temperature of 1000°C for 5min. The sintered Ti-HA specimens were immersed in the eight kinds of leaching solutions at room temperature for 24h. The leached specimen's surfaces were characterized using XRD, SEM, EDX and Rockwell hardness. The XRD patterns after sintering show that many phases were detected at the sintered specimen surfaces such as; Ti_2O , CaO, $CaTiO_3$, Ti_xP_y in addition to the remaining Ti and HA. Furthermore, the high concentration H_3PO_4 leaching solution is more efficient than the low concentration. Also the produced porous surfaces of Ti-HA materials containing more than 30% HA have a low relative density and hardness than the commercial Ti-6Al-4V ELI alloy. In a word, the presence of porous surface coated by HA will promote the nucleation of the biological apatite created with the human tissue and increase the bonding between them. So, the produced porous materials are considered so easy for the muscle cells to permeate after transplanted with high coherence. © 2014 The Authors.

Author Keywords

Biomaterial; Leaching solution; PCAS; Porosity; Powder metallurgy; Ti-HA composite

Document Type: Article

Source: Scopus

Abdel-Baki, A.-A.S.^{a b}, Al-Quraishy, S.^a, Rocha, S.^{c d}, Dkhil, M.A.^{a e}, Casal, G.^{c f}, Azevedo, C.^{a c d}

Ultrastructure and phylogeny of *Glugea nagelia* sp. n. (Microsporidia: Glugeidae), infecting the intestinal wall of the yellowfin hind, *Cephalopholis hemistiktos* (Actinopterygii: Serranidae), from the Red Sea

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DOI: 10.14411/fp.2015.007

^a Zoology Department, College of Science, King Saud University, Riyadh, Saudi Arabia

^b Zoology Department, Faculty of Science, Beni-Suef University, Egypt

^c Laboratory of Animal Pathology, Interdisciplinary Centre of Marine and Environmental Research, University of Porto, Porto, Portugal

^d Laboratory of Cell Biology, Institute of Biomedical Sciences, University of Porto, Porto, Portugal

^e Department of Zoology and Entomology, Faculty of Science, Helwan University, Cairo, Egypt

^f Department of Sciences, High Institute of Health Sciences-North, Gandra, Portugal

Abstract

A new microsporidian species of the genus *Glugea* Thélohan, 1891 parasitising the marine teleost fish *Cephalopholis hemistiktos* Rüppell, collected from the Red Sea in Saudi Arabia, is described on the basis of microscopic and molecular procedures. Spherical and whitish xenoma were observed adhering to the intestinal wall. The numerous spores contained within these xenoma, were ovoid to pyriform and measured 4.3-6.0 µm (5.1 µm) in length and 1.8-2.9 µm (2.2 µm) in width. The spore's wall was composed of two thick layers, which were thinner in the area contacting the anchoring disk. The latter appeared at the spore's anterior pole, in an eccentric position to the longitudinal axis. A lamellar polaroplast surrounded the uncoiled portion of the polar filament projected to the basal region of the spore, giving rise to 26-29 turns with winding from the base to the anterior zone of the spore. The posterior vacuole, located at the spore's posterior pole, and surrounded by the polar filament coils, was irregular and composed of light material. Molecular analysis of the rRNA genes, including the ITS region, was performed using maximum parsimony, neighbour-joining and maximum likelihood methods. The ultrastructural features observed, combined with the phylogenetic data analysed, suggest this parasite to be a new species of the genus *Glugea*. This is the first species of this genus to be reported from Saudi Arabia and is herein named *Glugea nagelia* sp. n. © Institute of Parasitology, Biology Centre CAS.

Author Keywords

Fine structure; Fish parasite; Microsporidian; rRNA genes

Document Type: Article

Source: Scopus

Metered, H.^{a b}, Elsawaf, A.^{a b}, Vampola, T.^c, Sika, Z.^c

Vibration Control of MR-Damped Vehicle Suspension System Using PID Controller Tuned by Particle Swarm Optimization

(2015) *SAE International Journal of Passenger Cars - Mechanical Systems*, 8 (2), pp. 426-435. Cited 1 time.

DOI: 10.4271/2015-01-0622

^a Czech Tech. Univ Prague, Czech Republic

^b Helwan Univ, Egypt

^c Czech Technical University, Czech Republic

Abstract

Proportional integral derivative (PID) control technique is the most common control algorithm applied in various engineering applications. Also, particle swarm optimization (PSO) is extensively applied in various optimization problems. This paper introduces an investigation into the use of a PSO algorithm to tune the PID controller for a semi-active vehicle suspension system incorporating magnetorheological (MR) damper to improve the ride comfort and vehicle stability. The proposed suspension system consists of a system controller that determine the desired damping force using a PID controller tuned using PSO, and a continuous state damper controller that estimate the command voltage that is required to track the desired damping force. The PSO technique is applied to solve the nonlinear optimization problem to find the PID controller gains by identifying the optimal problem solution through cooperation and competition among the individuals of a swarm. A mathematical model of a two degree-of-freedom MR-damped vehicle suspension system is derived and simulated using Matlab/Simulink software. The proposed PSO PID controlled suspension is compared to both the conventional PID controller and the passive suspension systems. System performance criteria are evaluated in both time and frequency domains, in order to quantify the success of the proposed suspension system. The simulated results reflect that the proposed PSO PID controller of the MR-damped vehicle suspension offers a significant improvement in ride comfort and vehicle stability. Copyright © 2015 SAE International.

Document Type: Article

Source: Scopus

Mustafa, I.H.I.^{a b}

Two-Parameter Continuation and Bifurcation Strategies for Oscillatory Behavior Elimination from a *Zymomonas mobilis* Fermentation System

(2015) *Chemical Engineering and Technology*, 38 (8), pp. 1362-1370.

DOI: 10.1002/ceat.201400452

^a Biomedical Engineering Department, Helwan University, Cairo, Egypt

^b Department of Chemical Engineering, University of WaterlooON, Canada

Abstract

Two-parameter continuation and bifurcation analysis strategies were applied to deal with the oscillatory phenomena of a *Zymomonas mobilis* ethanol fermentation system. A structured verified non-linear mathematical model considering the physiological limitations of microorganisms for a single continuous fermenter for ethanol production using *Z.mobilis* was built to identify the Hopf bifurcation (HB) points, which indicate the oscillatory behavior, using the inlet substrate concentration and the dilution rate as bifurcation parameters. The path of the HB points can be determined with different controlling operating parameters. It was found that with the addition of a small amount of cells or ethanol to the feed stream or by increasing the dilution rate, the oscillations could be eliminated and steady-state behavior was attained. Using a two-parameter continuation strategy, the *Z.mobilis* fermentation system could operate at steady state without oscillatory behavior. Two-parameter continuation and bifurcation analysis strategies were applied to control the oscillatory behavior of a *Z.mobilis* ethanol fermentation system. A mathematical model was built to identify the Hopf bifurcation points indicating the oscillatory behavior. The oscillations could be eliminated by adding small amounts of cells or ethanol to the feed stream or by increasing the dilution rate. © 2015 WILEY-VCH Verlag GmbH & Co. KGaA, Weinheim.

Author Keywords

Bio-ethanol; Hopf bifurcation; Two-parameter continuation; *Zymomonas mobilis*

Document Type: Article

Source: Scopus

Anwar, M.M.^a, El-Haggar, R.S.^b, Zagahary, W.A.^c

Salmeterol Xinafoate

(2015) *Profiles of drug substances, excipients, and related methodology*, 40, pp. 321-369.

DOI: 10.1016/bs.podrm.2015.02.002

^a Therapeutical Chemistry Department, National Research Centre, Dokki, Cairo, Egypt

^b Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Helwan University, Cairo, Egypt; Department of Medicinal Chemistry, Pharmacy Program, Batterjee Medical College, Jeddah, Saudi Arabia

^c Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Helwan University, Cairo, Egypt; Department of Pharmaceutical Chemistry, College of Pharmacy, King Saud University, Riyadh, Saudi Arabia. Electronic address: wafaa.zaghary@pharm.helwan.edu.eg

Abstract

Salmeterol xinafoate is a potent and a long-acting β 2-adrenoceptor agonist. It is prescribed for the treatment of severe persistent asthma and chronic obstructive pulmonary disease. Different methods were used to prepare (R)-(-)-salmeterol such as: mixing a sample of 4-benzyloxy-3-hydroxymethyl- ω -bromoacetophenone with sodium lauryl sulfate and the mixture was added to the microbial culture of *Rhodotorula rubra*, treatment of p-hydroxyacetophenone with Eschenmoser's salt and carbonate exchange resin followed by a sequence of supported reagents and scavenging agents or via Rh-catalyzed asymmetric transfer hydrogenation. The enantioselective synthesis of (S)-salmeterol was achieved via asymmetric reduction of the azidoketone 4 by *Pichia angusta* yeast. Physical characteristics of salmeterol xinafoate were confirmed via: X-ray powder diffraction pattern, thermal analysis and UV, vibrational, nuclear magnetic resonance, and mass spectroscopical data. Initial improvement in asthma control may occur within 30 min following oral inhalation of salmeterol in fixed combination with fluticasone propionate. Clinically important improvements are maintained for up to 12 h in most patients. It is extensively metabolized in the liver by hydroxylation, thus increased plasma concentrations may occur in patients with hepatic impairment. © 2015 Elsevier Inc. All rights reserved.

Author Keywords

Asthma; Blood–brain barrier; Bronchodilator; Hepatic metabolism; Inhaled sympathomimetics; Salmeterol xinafoate

Document Type: Review

Source: Scopus

Deif, M.A.^a, Eldosoky, M.A.A.^b, Gomma, H.W.^c, El-Garhy, A.M.^c, Ell-Azab, A.S.^d

Adaptive Neuro-Fuzzy Inference System Controller Technique for Lower Urinary Tract System Disorders (2015) *Journal of Clinical Engineering*, 40 (3), pp. 135-143.

DOI: 10.1097/JCE.000000000000105

^a Department of Biomedical Engineering, Helwan University, Helwan, Faculty of Engineering, 1 El Sherif street, Cairo, Egypt

^b Department of Biomedical Engineering, Helwan University, Egypt

^c Department of Electronics, Communications and Computers, Helwan University, Egypt

^d Section of Female Urology and NeuroUrology, Urology Department, Assiut University, Assiut, Egypt

Abstract

This article presents an intelligent controller system using hybrid approach of adaptive neuro-fuzzy inference system (LUTS) for control detrusor pressure and urethral pressure by correction disorders that occurs in the LUTS. Six types of LUTS disorders are used to test the adaptive network-based fuzzy inference system controller, which are an absence of bladder contraction caused by the nervous signal disorder, absence of bladder contraction caused by bladder muscle disorder, absence of urethra contraction caused by nervous signal disorder, obstructed urine flow disorder, irregular urine flow disorder, and intermittent urine flow disorder. Simulations were run in MATLAB 7, and the results of our work have demonstrated a very low transient response and a nonoscillating steady-state response with excellent stabilization. Copyright © 2015 Wolters Kluwer Health, Inc. All rights reserved.

Document Type: Article

Source: Scopus

Elsied, M.^{a b}, Oukaour, A.^a, Gualous, H.^a, Hassan, R.^b

Energy management and optimization in microgrid system based on green energy (2015) *Energy*, 84, pp. 139-151.

DOI: 10.1016/j.energy.2015.02.108

^a University of Caen Basse Normandie, LUSAC Laboratory, Caen, France

^b Helwan University, Department of Electrical Power and Machines, Cairo, Egypt

Abstract

Current research activities witness a special focus on the integration of DERs (distributed energy resources) and ESSs (energy storage systems) in MG (micro-grid) applications. In this paper, the coordination between MG and main grid for the required variable load demands is accomplished using EMS (Energy Management System). For this purpose, an advanced EMS in a typical MG working in grid connected mode is introduced. The developed EMS is able to determine the optimal operating strategies that minimize the energy costs, pollutant emissions, and hence

maximizing the output of the available renewable energy resources. The established EMS is formulated as a nonlinear optimization model with different equality and inequality constraints for proper solution based on the AIMMS (Advanced Integrated Multidimensional Modeling Software). The performance of AIMMS is compared with other commonly used algorithm such as GA (genetic algorithms) to clarify the efficient and robustness of AIMMS solver. © 2015 Elsevier Ltd.

Author Keywords

Distributed energy resources; Energy management system; Energy storage systems; Main grid; Micro-grid

Document Type: Article

Source: Scopus

Mohamed, M.S.^a, El-Hameed, R.H.A.^a, Sayed, A.I.^a, Soror, S.H.^{b c}

Novel antiviral compounds against gastroenteric viral infections

(2015) *Archiv der Pharmazie*, 348 (3), pp. 194-205.

DOI: 10.1002/ardp.201400387

^a Pharmaceutical Organic Chemistry Department, Faculty of Pharmacy, Helwan University, Helwan, Egypt

^b Biochemistry and Molecular Biology Department, Faculty of Pharmacy, Helwan University, Egypt

^c Center for Scientific Excellence Helwan Structural Biology Research (HSBR), Cairo, Egypt

Abstract

Viral gastroenteritis is a serious viral infection which affects a large number of individuals around the world, most of them being children. The infection may occur due to different viruses, for example, coxsackievirus, adenovirus, and rotavirus. There is no available cure for such infections, and the treatment mainly depends on hospitalization and administration of nutritional supports. A new antiviral agent against gastroenteritis viral infection will be a breakthrough in healthcare. Pyrrole and pyrrolopyrimidine derivatives are well known for their biological activity as antibacterial, antifungal, and anticancer agents. These compounds also proved to possess antiviral activity. Here, we synthesized novel pyrrole and pyrrolopyrimidine compounds and examined their antiviral activity. We synthesized several new pyrrole, pyrrolo[2,3-d]pyrimidine, and pyrrolo[3,2-e][1,2,4]triazolo[1,5-c]pyrimidine derivatives. The characterization of all synthesized compounds was based on microanalysis and spectral data. Moreover, we determined the non-toxic doses of these compounds on BGM, Hep-2, and MA-104 cells. We tested all the synthesized compounds for their antiviral activities against coxsackievirus B4, adenovirus type 7, and rotavirus Wa strain. Several compounds exhibited significant activities as antiviral agents. © 2015 Wiley-VCH Verlag GmbH & Co. KGaA.

Author Keywords

Adenovirus; Coxsackievirus b4; Direct antiviral agents; Pyrrole; Pyrrolo[2,3- D]pyrimidine; Pyrrolo[3,2-e][1,2,4]triazolo[1,5-c]pyrimidine; Rotavirus; Viral gastroenteritis

Document Type: Article

Source: Scopus

Hassenein, A.S., Khalifa, A.M., Al-Atabany, W., El-Wakad, M.T.

Evaluation of optical flow tracking techniques in cardiac magnetic resonance: Numerical study

(2015) *Sensor Letters*, 13 (1), pp. 102-108.

DOI: 10.1166/sl.2015.3409

Department of Biomedical Engineering, Helwan University, Cairo, Egypt

Abstract

Left Ventricular contractility can be evaluated using tagging Magnetic Resonance Imaging (MRI) sequence. In this technique, a pattern of spatially varying magnetism is applied at the end diastole. Analyzing the deformation of tag pattern during the cardiac cycle has wide applications for cardiac deformation analysis. Noninvasive myocardial tagging in MRI has shown great potential in measuring and studying the motion of the heart. This paper presents a mathematical model that simulates the real cardiac motion during myocardial tagging. We synthesized both the Spatial Modulation of Magnetization (SPAMM) and complementary Spatial Modulation of Magnetization (CSPAMM) tag patterns with arbitrary spatial frequency. Using this model, we tested the performance and limitations of different Optical Flow (OF) motion tracking techniques and compare them with the performance of Harmonic Phase (HARP) analysis as a golden standard technique. The results exhibited that the OF tracking accuracy differs from point to another with a noticeable over estimation at the end of systole and realized that OF is performing better than HARP at the heart borders. Copyright © 2015 American Scientific Publishers

Author Keywords

Cardiac motion analysis; Optical flow; Tagging CMR

Document Type: Article

Source: Scopus

Elgendy, E., Mostafa, A., Fatouh, M.

Performance enhancement of a desiccant evaporative cooling system using direct/indirect evaporative cooler (2015) *International Journal of Refrigeration*, 51, pp. 77-87.

DOI: 10.1016/j.ijrefrig.2014.12.009

Mechanical Power Engineering Department, Faculty of Engineering at El-Mattaria, Helwan University, P.O., Cairo, Egypt

Abstract

In this paper, three novel desiccant evaporative cooling system configurations are proposed, simulated and compared with the conventional system under a wide range of ambient air temperature (30: 40 °C) and humidity ratio (0.01: 0.02 kgv kga⁻¹). In configuration-I, a direct/indirect evaporative cooling is inserted before the rotating heat exchanger. However, it is inserted after the rotating heat exchanger for system configuration-II. In configuration-III, an extra direct/indirect evaporative cooling is added in an opposite manner. Validation results confirm that, simulation and experimental results are in a good agreement with average errors of 2.23 and 3.87% for ambient air temperature and humidity ratio, respectively. Energetic analysis revealed that configuration-I has the highest cooling capacity while configuration-III has the highest thermal COP and air handling COP. Exergetic efficiency of config-III is higher than the conventional system with 54% as average value over the range of ambient air humidity. © 2014 Elsevier Ltd and IIR.

Author Keywords

Air conditioning; Desiccant evaporative cooler; Desiccant wheel; Exergy; Hot and humid climate

Document Type: Article

Source: Scopus

Khalil, M.A.E.F.^{a d}, Sonbol, F.I.^b, Mohamed, A.F.B.^c, Ali, S.S.^a

Comparative study of virulence factors among ESβL-producing and nonproducing Pseudomonas aeruginosa clinical isolates

(2015) *Turkish Journal of Medical Sciences*, 45 (1), pp. 60-69. Cited 1 time.

DOI: 10.3906/sag-1311-102

^a Department of Botany, Tanta University, Tanta, Egypt

^b Department of Microbiology, Tanta University, Tanta, Egypt

^c Department of Botany, Helwan University, Helwan, Egypt

^d Department of Biology, Taif University, Taif, Saudi Arabia

Abstract

Background/aim: β-Lactamase production is considered one of the most important resistance mechanisms among virulent *Pseudomonas aeruginosa* isolates. The aim of this study was to compare the production and antimicrobial resistance patterns of some virulence factors in extended spectrum β-lactamase (ESβL)-producing and nonproducing *P. aeruginosa* clinical isolates.

Materials and methods: Out of 183 different clinical specimens, 104 *Pseudomonas aeruginosa* isolates were recovered. The isolates were screened for ESβL production using the double disk diffusion test and phenotypic confirmatory disk diffusion test. All isolates were tested for susceptibility to 25 antimicrobials, as well as for expression of various virulence factors including pigment, hemolysin, gelatinase, protease, lipase, rhamnolipids, biofilm, and cell surface hydrophobicity. The results of ESβL producers and nonproducers were statistically compared.

Results: All isolates showed a high frequency of multiple resistance to at least 14 and up to 25 of the tested antimicrobials. Nevertheless, most virulence factors were produced at higher rates in ESβL-producing than in ESβL-nonproducing *Pseudomonas aeruginosa* isolates.

Conclusion: The results of this study suggest a correlation between ESβL phenotype and the production of some factors that are reported to be involved in the virulence of *P. aeruginosa*. © TÜBİTAK.

Author Keywords

Double disk diffusion test; Extended spectrum β-lactamase; Phenotypic confirmatory disk diffusion test; *Pseudomonas aeruginosa*; Virulence factor

Document Type: Article

Source: Scopus

Mawad, R.^{a d}, Shaltout, M.^b, Ewaida, M.^c, Yousef, M.^d, Yousef, S.^e

Filaments disappearances in relation to solar flares during the solar cycle 23

(2015) *Advances in Space Research*, 55 (2), pp. 696-704.

DOI: 10.1016/j.asr.2014.11.003

^a Astronomy and Meteorology Department, Faculty of Science, Al-Azhar University, Egypt

^b National Research Institute of Astronomy and Geophysics, Helwan, Egypt

^c Physics Department, Faculty of Science, Menofia University, Egypt

^d Space Weather Monitoring Center, Physics Department, Helwan University, Egypt

^e Astronomy Department, Cairo University, Faculty of Science, Egypt

Abstract

We studied the association between the filament disappearances and solar flares during 1996-2010; we listed 639 associated filament disappearances with solar flares under temporal and spatial condition, those particular 639 filament disappearance were associated with 1676 solar flares during the period 1996-2010. The best angular distance between filament disappearances and associated solar flares ranged between 30° and 60°. The number of the associated events increased with increasing solar activity and decreased with quiet sun. The location of filament disappearances ranges between latitude $\pm 50^\circ$ and longitude $\pm 70^\circ$. We found that longer filament disappearances have activity and ability of contemporary association with flares more than shorter filament disappearance, filament disappearance powers the associated flares more than non-associated flares events. The associated flares have higher solar flux, longer duration, and higher importance compared to non-associated flares with filament disappearance. In addition the associated filament disappearance with flares have two types depending on their duration, short-lived (<9 h), and long-lived (>9 h). © 2014 COSPAR.

Author Keywords

Filament Filament disappearance Solar flare

Document Type: Article

Source: Scopus

Mowaka, S.^{a b}, Mohamed, D.^{a c}

Novel contribution to the simultaneous analysis of certain hypoglycemic drugs in the presence of their impurities and degradation products utilizing UPLC-MS/MS

(2015) *RSC Advances*, 5 (74), pp. 60467-60481.

DOI: 10.1039/c5ra11448a

^a Analytical Chemistry Department, Faculty of Pharmacy, Helwan University, Cairo, Ein Helwan, Egypt

^b Department of Analytical Chemistry, Faculty of Pharmacy, British University in Egypt, El-Sherouk City, Egypt

^c Pharmaceutical Analytical Chemistry Department, Faculty of Pharmacy, October University for Modern Sciences and Arts, 6 October City, Egypt

Abstract

A novel ultra-performance liquid chromatography coupled to tandem mass spectrometry (UPLC-MS/MS) method was established for simultaneous determination of three hypoglycemic drugs namely; sitagliptin (STG), vildagliptin (VLG) and metformin (MET) in the presence of their degradation products and STG related impurities. Chromatographic separation was accomplished on a Hypersil gold 50 mm × 2.1 mm (1.9 μm) column, using acetonitrile and 0.2% formic acid aqueous solution as the mobile phase with a gradient elution. Electrospray ionization (ESI) source was operated in the positive ion mode. The selected reaction monitoring (SRM) mode on a triple quadrupole mass spectrometer was used to quantify the drugs utilizing the transitions of 408.12 → 235.24 (m/z), 304.33 → 154.32 (m/z), 130.12 → 71.32 (m/z) and 255.75 → 166.15 (m/z), for STG, VLG, MET and diphenhydramine (IS), respectively. The method has displayed a lower limit of detection of 1.50 ng mL⁻¹, 1.50 ng mL⁻¹ and 3.00 ng mL⁻¹ for STG, VLG and MET, respectively. The drugs were subjected to forced degradation where it was concluded that STG, VLG and MET were highly susceptible for alkaline stress conditions. In addition, the study of the degradation kinetics of the drugs has proved that the degradation follows a pseudo-first-order reaction. The proposed method was effectively applied for the analysis of laboratory prepared mixtures as well as combined pharmaceutical formulations. No significant difference was found regarding accuracy and precision upon statistical comparison of the obtained results with those of the reported method. Validation was conducted in compliance with the ICH guidelines proving the method to be selective, linear, precise and accurate. The simplicity and sensitivity of this method allows its use in the quality control of the cited drugs. © The Royal Society of Chemistry 2015.

Document Type: Article

Source: Scopus

Shalaby, O., Emam, M.A.A., Shaaban, S., El-Demerdash, S.
A comparative theoretical study of three dozers` productivity
(2015) *Agricultural Engineering International: CIGR Journal*, 17 (1), pp. 68-77.

Automotive and Tractor Engineering Dept, Helwan University, Egypt

Abstract

Selection of earth moving equipment selected for a specific construction project is critical to the success of this type of work. As a step forward for enhancing the information related to such issue this research aims at clarifying the effect of some dozers` design parameters on their productivity. In this regard, three tracked dozers of high reputation brands are selected and some of their performance and design parameters are retrieved from manufacturers` published manuals. The major design parameters we believe are much influencing the have been chosen in the study are; the dozer weight, the dozer blade type, and blade capacity. The selected bulldozers` are having approximately same power to weight ratio. Empirical equations for calculating the productivity for each brand have also been developed by using data-fit program. Finally, it has been concluded that the blade capacity stands as the most significant parameter as the dozer productivity increases by 60% in average whenever the blade capacity increases by 25%. © 2015, Int. Comm. of Agricultural and Biosystems Engineering. All rights reserved.

Author Keywords

Dozer design parameters productivity; Dozing distance; Earth moving equipment productivity; Track type dozer

Document Type: Article

Source: Scopus

Fatahala, S.S.^a, Shalaby, E.A.^b, Kassab, S.E.^c, Mohamed, M.S.^a

A promising anti-cancer and anti-oxidant agents based on the pyrrole and fused pyrrole: Synthesis, docking studies and biological evaluation
(2015) *Anti-Cancer Agents in Medicinal Chemistry*, 15 (4), pp. 517-526.

^a Pharmaceutical Organic Chemistry Department, Helwan University, Ain-Helwan, Helwan, Cairo, Egypt

^b Biochemistry Department, Cairo University, Cairo, Giza, Egypt

^c Pharmaceutical Chemistry Department, Damanhour University, Damanhour, Egypt

Abstract

A series of N-aryl derivatives of pyrrole and its related derivatives of fused form (namely; tetrahydroindole and dihydroindenopyrroles) were prepared in fair to good yields. The newly synthesized compounds were confirmed using IR, ¹H NMR, Mass spectral and elemental analysis. Tetrahydrobenzo[b] pyrroles la-d, 1,4-dihydroindeno[1,2-b]pyrroles IIa,b and pyrroles IIIa-c,e were evaluated for anticancer activity, coinciding with the antioxidant activity; using Di-Phenyl Picryl Hydrazyl (DPPH) tests. The cytotoxicity of the tested compounds (at a concentration of 100 and 200 µg /mL) was performed against HepG-2 and EACC cell lines. Compounds Ib, d and IIa showed promising antioxidant activity beside their anticancer activity. Docking studies were employed to justify the promising anticancer activity of Ib,d and IIa. Protein kinase (PKase)-PDB entry 1FCQ was chosen as target enzyme for this purpose using the MOLSOFT ICM 3.4-8C program. The docking results of the tested compounds went aligned with the respective anticancer assay results. © 2015 Bentham Science Publishers.

Author Keywords

Anticancer; Antioxidant; Docking; Pyrrole; Structure-activity-relationship; Synthesis

Document Type: Article

Source: Scopus

Zekri, A.-R.^a, El-Din Youssef, A.S.^a, Bakr, Y.M.^a, Gabr, R.M.^a, El-Din El-Rouby, M.N.^a, Hammad, I.^b, El-Monaem Ahmed, E.A.^b, El-Haleem Marzouk, H.A.^c, Nabil, M.M.^c, El-Hafez Hamed, H.A.^c, Aly, Y.H.A.^c, Zachariah, K.S.^c, Esmat, G.^c

Serum biomarkers for early detection of hepatocellular carcinoma associated with HCV infection in Egyptian patients
(2015) *Asian Pacific Journal of Cancer Prevention*, 16 (3), pp. 1281-1287. Cited 1 time.

DOI: 10.7314/APJCP.2015.16.3.1281

^a Virology and Immunology Unit, Cancer Biology Department, National Cancer Institute, Cairo, Egypt

^b Botany and Microbiology Department, Faculty of Science, Helwan University, Cairo, Egypt

^c Department of Endemic Medicine and Hepatology, Faculty of Medicine, Cairo University, Cairo, Egypt

Abstract

Background: Early detection of hepatocellular carcinoma using serological markers with better sensitivity and specificity than alpha fetoprotein (AFP) is needed. Aims: The aim of this study was to evaluate the diagnostic value of serum sICAM-1, β -catenin, IL-8, proteasome and sTNFR-II in early detection of HCC. Materials and Methods: Serum levels of IL-8, sICAM-1, sTNFR-II, proteasome and β -catenin were measured by ELISA assay in 479 serum samples from 192 patients with HCC, 96 patients with liver cirrhosis (LC), 96 patients with chronic hepatitis C (CHC) and 95 healthy controls. Results: Serum levels of proteasome, sICAM-1, β -catenin and α FP were significantly elevated in HCC group compared to other groups (P-value <0.001), where serum level of IL-8 was significantly elevated in the LC and HCC groups compared to CHC and control groups (P-value <0.001), while no significant difference was noticed in patients with HCC and LC (P-value=0.09). Serum level of sTNFRII was significantly elevated in patients with LC compared to HCC, CHC and control groups (P-value <0.001); also it was significantly higher in HCC compared to CHC and control groups (P-value <0.001). ROC curve analysis of the studied markers between HCC and other groups revealed that the serum level of proteasome had sensitivity of 75.9% and specificity of 73.4% at a cut-off value of 0.32 μ g/ml with AUC 0.803 sICAM-1 at cut off value of 778ng/ml, the sensitivity was 75.8% and the specificity was 71.8% with AUC 0.776. β -catenin had sensitivity and specificity of 70% and 68.6% respectively at a cut off value of 8.75ng/ml with an AUC of 0.729. sTNFR-II showed sensitivity of 86.3% and specificity of 51.8% at a cut off value of 6239.5pg/ml with an AUC of 0.722. IL-8 had sensitivity of 70.4% and specificity of 52.3% at a cut off value of 51.5pg/ml with AUC 0.631. Conclusions: Our data supported the role of proteasome, sICAM-1, sTNFR-II and β -catenin in early detection of HCC. Also, using this panel of serological markers in combination with α FP may offer improved diagnostic performance over α FP alone in the early detection of HCC.

Author Keywords

Hepatocellular carcinoma; IL-8; Proteasome; sICAM-1; STNFR-II; α FP; β -catenin

Document Type: Article

Source: Scopus

Gad, S., Metered, H., Bassuiny, A., Abdel Ghany, A.M.

Ride comfort enhancement of heavy vehicles using magnetorheological seat suspension

(2015) *International Journal of Heavy Vehicle Systems*, 22 (2), pp. 93-113.

DOI: 10.1504/IJHVS.2015.070448

Helwan University, Cairo, Egypt

Abstract

This paper investigates the application of a controlled MR damper for a semi-active seat suspension for heavy vehicles, enabling more appropriate control algorithm. The proposed control system consists of a system controller that calculates the desired damping force using a proportional integral derivative (PID) controller tuned using genetic algorithm (GA), and a continuous state damper controller that estimates the command voltage that is required to track the desired damping force. The controlled semi-active seat suspension is compared to a passive seat suspension for predetermined base displacements. These inputs are calculated separately from the vibration of the body mass of a passive quarter-vehicle suspension. System performance criteria are evaluated in both time and frequency domains, in order to verify the effectiveness of the proposed semi-active control algorithm. The generated results show that the proposed genetic PID controller of MR seat suspension offers a considerable enhancement of the ride comfort. Copyright © 2015 Inderscience Enterprises Ltd.

Author Keywords

Continuous state controller; GA; Genetic algorithm; MR damper; PID controller; Seat suspension; Vibration control

Document Type: Article

Source: Scopus

Ansari, Z.A.^a, Umar, A.^{b c}, Fouad, H.^{d e}, Ansari, S.G.^a

Dye sensitized solar cells fabricated using Cu-Doped TiO₂ nanopowder with anthocyanin as sensitizer

(2015) *Journal of Nanoelectronics and Optoelectronics*, 10 (2), pp. 290-294.

DOI: 10.1166/jno.2015.1749

^a Centre for Interdisciplinary Research in Basic Sciences, Jamia Millia Islamia, New Delhi, India

^b Promising Centre for Sensors and Electronic Devices, Najran University, P.O. Box 1988, Najran, Saudi Arabia

^c Department of Chemistry, Faculty of Sciences and Arts, Najran University, P.O. Box 1988, Najran, Saudi Arabia

^d Department of Applied Medical Science, Community College King Saud University, Riyadh, Saudi Arabia

^e Biomedical Engineering Department, Faculty of Engineering, Helwan University, Helwan, Egypt

Abstract

In this work, the Cu-doped TiO₂ nanopowder was synthesized using hydrothermal method at 150°C. Commercial nanopowder of TiO₂ was mixed with CuO in 10 M NaOH solution and treated hydrothermally. The synthesized powder was characterized with FESEM, X-ray diffraction, UV-Vis, FTIR and Raman scattering to obtain elemental, structural and morphological information. Flower extracts of Dahlia Violet (DV), Rabbit flower (RF) and their mixed extract was used with commercial N719 dye and DSSC characteristics were studied under simulated condition. DSSCs of the synthesized powder were fabricated using conventional sandwich type technique and sealed with Surlyn® polymer film to avoid electrolyte leakage. The photocurrent-voltage characteristics were obtained using source-meter. It is interesting to note that the flower extract resulted in enhanced photoconversion efficiency over that of N719 dye. When the powder was sensitized with N719, 1.81% efficiency was achieved while mixed extract (ME) resulted in 3.88%, RF in 2.11% and DV in 1.83%. The study indicated that such extracts can be used for improved photoconversion properties. Copyright © 2015 American Scientific Publishers All rights reserved.

Author Keywords

Copper oxide; Doped titanium oxide; Dye sensitized solar cells; Photoconversion

Document Type: Article

Source: Scopus

Atta, A.M.^{a b}, El-Mahdy, G.A.^{a c}, Al-Lohedan, H.A.^a

Application of amphiphilic 2-acylamido-2-methylpropane sulfonic Acid - co-N-isopropyl acrylamide nanogels as thin film coatings

(2015) *International Journal of Electrochemical Science*, 10 (1), pp. 102-111.

^a Department of Chemistry, College of Science, King Saud University, Riyadh, Saudi Arabia

^b Egyptian Petroleum Research Institute, 1 Ahmad Elzomor St., Nasr city, Cairo, Egypt

^c Chemistry Department, Faculty of Science, Helwan University, Helwan, Egypt

Abstract

High surface active amphiphilic nanogels based on N-isopropyl Acrylamide-co- 2-acylamido-2-methylpropane sulfonic Acid (NIPAm/AMPS) prepared via free aqueous polymerization at room temperature have been prepared to apply as thin film anticorrosive coatings. The morphology and the particle size distribution of the nanogels were characterized transmission and scanning electron microscopy (TEM and SEM) and dynamic light scattering DLS in aqueous solution. The effectiveness of the synthesized compounds as corrosion inhibitors for carbon steel in 1 M HCl was investigated by various electrochemical techniques such as potentiodynamic polarization and electrochemical impedance spectroscopy (EIS). Results obtained from both potentiodynamic polarisation and EIS measurements reveal that the NIPAm/AMPS nanogel is an effective inhibitor for the corrosion of steel in 1.0 M HCl solution. Polarization data show that NIPAm/AMPS nanogel behaves as a mixed type inhibitor. The inhibition efficiencies obtained from potentiodynamic polarization and EIS methods are in good agreement. The results showed enhancement in inhibition efficiencies with increasing the inhibitor concentrations. © 2015 The Authors.

Author Keywords

Amphiphile; Coatings; Corrosion inhibitors; Nanogels; Particles; Thin film

Document Type: Article

Source: Scopus

Sayed, E.T.^a, Barakat, N.A.M.^{a b}, Abdelkareem, M.A.^a, Fouad, H.^{c d}, Nakagawa, N.^e

Yeast extract as an effective and safe mediator for the baker's-yeast-based microbial fuel cell

(2015) *Industrial and Engineering Chemistry Research*, 54 (12), pp. 3116-3122.

DOI: 10.1021/ie5042325

^a Department of Chemical Engineering, Faculty of Engineering, Minia University, Minya, Egypt

^b Department of Organic Materials and Fiber Engineering, Chonbuk National University, Jeonju, South Korea

^c Applied Medical Science Department, RCC, King Saud University, P.O. Box 800, Riyadh, Saudi Arabia

^d Biomedical Engineering Department, Faculty of Engineering, Helwan University, P.O. Box 11792, Helwan, Egypt

^e Department of Chemical and Environmental Engineering, Graduate School of Engineering, Gunma University, 1-5-1 Tenjin-cho, Kiyu, Gunma, Japan

Abstract

Although utilizing the exogenous mediators distinctly enhances the microbial fuel cell (MFC) performance, possibility

of microorganisms' toxicity, environmental aspect and cost are the main dilemmas facing wide applications. Therefore, successful applying of the yeast extract as a mediator in the baker's-yeast-based (*Saccharomyces cerevisiae*-based) MFCs would be of great interest as it will overcome all the aforementioned problems. The influence of the yeast extract addition was investigated based on the yeast cell adhesion on the surface of plain and gold-sputtered carbon paper anodes. In the case of plain carbon paper, the addition of the yeast extract considerably enhanced the performance of the yeast-based MFC, which can be attributed to the yeast extract role as growth media or as a mediator; the current and power densities increased from 94 to 190 mA/cm² and from 12.9 to 32.6 mW/cm², respectively. However, compared with the plain carbon paper, in the case of gold-sputtered anode the performance significantly increased with yeast extract addition, whereas it drastically decreased without yeast extract; the current and power densities increased from 25 to 300 mA/cm² and from 2 to 70 mW/cm², respectively. The obtained results indicated that yeast extract can be exploited as an effective mediator in the *Saccharomyces cerevisiae*-based MFCs. © 2015 American Chemical Society.

Document Type: Article

Source: Scopus

Mawad, R.^{a c}, Shaltout, M.^b, Yousef, M.^c, Yousef, S.^d, Ewaida, M.^e

Filaments disappearance in relation to coronal mass ejections during the solar cycle 23

(2015) *Advances in Space Research*, 55 (2), pp. 688-695.

DOI: 10.1016/j.asr.2014.11.002

^a Astronomy and Meteorology Department, Faculty of Science, Al-Azhar University, Egypt

^b National Research Institute of Astronomy and Geophysics, Helwan, Egypt

^c Space Weather Monitoring Center, Physics Department, Helwan University, Egypt

^d Astronomy Department, Cairo University, Faculty of Science, Egypt

^e Physics Department, Faculty of Science, Menofia University, Egypt

Abstract

We have studied the relationship between filament disappearances with CMEs during solar period 1996-2010. We used the observed disappearing filaments in H α data from Meudon given in NOAA, and coronal mass ejections data (CMEs) from SOHO/LASCO. We obtained 278 CME events (14%) contemporary filament disappearances and CME ejections (from a total of 2018 filament disappearance events and 15,874 CME events during 1996-2010). We found that the number of associated CME-filament disappearance events increased with the increase of the solar activity and significantly decreased with quiet sun. The longer filament disappearances have activity and ability to contemporary association with CMEs more than shorter filament disappearances. The filament disappearance powers the associated CMEs. CMEs which are associated with filament disappearance are ejected with higher speeds, massive, more energetic, and smaller angular width compared to non-associated CME events. In addition, the associated filament disappearance CMEs have two types depending on their duration; short-lived (<9 h), and long-lived (>9 h). © 2014 COSPAR.

Author Keywords

CME; Coronal mass ejection; Filament; Filament disappearance

Document Type: Article

Source: Scopus

Abdelhady, M.I.S.^{a b}, Kamal, A.M.^a, Othman, S.M.^c, Mubarak, M.S.^d, Hadda, T.B.^e

Total polyphenolic content, antioxidant, cytotoxic, antidiabetic activities, and polyphenolic compounds of *Sophora japonica* grown in Egypt

(2015) *Medicinal Chemistry Research*, 24 (2), pp. 482-495.

DOI: 10.1007/s00044-014-1101-2

^a Department of Pharmacognosy, Faculty of Pharmacy, Helwan University, Cairo, Egypt

^b Department of Pharmacognosy, Faculty of Pharmacy, Umm Al Qura University, Makkah, Saudi Arabia

^c Department of Pharmacognosy, Faculty of Pharmacy, 6-Oktober University, 6th October city, Giza, Egypt

^d Department of Chemistry, Faculty of Science, University of Jordan, Amman, Jordan

^e Laboratoire de Chimie des Matériaux, Faculté des Sciences, Université Mohammed Premier, Oujda, Morocco

Abstract

The genus *Sophora* belongs to Fabaceae family, contains about 52 species that are widely distributed in Asia. Several phytochemical, in vivo and in vitro, experiments in addition to clinical practices have demonstrated that *Sophora* has many phyto-constituents and possesses valuable pharmacological and therapeutic properties. The total polyphenolic's content, antioxidant, cytotoxic, and antidiabetic activities of *Sophora japonica* leaves were investigated

along with their bio-guided chromatographic isolated polyphenolic constituents. Tested fractions from chromatographic separation of 80 % MeOH extract of *S. japonica* leaves revealed remarkable antioxidant(s) activity accompanied with some cytotoxic and antidiabetic activities. Moreover, six known polyphenolic constituents isolated from these fractions were identified: tamarixetin, ellagic acid 4-O- α -l-arabinofuranoside, sissotrin, rutin, gallic acid, and quercetin. Graphical Abstract: [Figure not available: see fulltext.] © 2014 Springer Science+Business Media New York.

Author Keywords

Antioxidant; Cytotoxic and antidiabetic activities; Polyphenolic constituents; *Sophora japonica*

Document Type: Article

Source: Scopus

Abdelsalam, A.^a, El-Nagdy, M.S.^b, Rashed, N.^c, Badawy, B.M.^d, Osman, W.^a, Fayed, M.^e

Emission characteristics of fast target protons in ultrarelativistic 16O-nucleus collisions

(2015) *Canadian Journal of Physics*, 93 (3), pp. 361-372.

DOI: 10.1139/cjp-2014-0148

^a Physics Department, Faculty of Science, Cairo University, Giza, Egypt

^b Physics Department, Faculty of Science, Helwan University, Helwan, Egypt

^c Physics Department, Faculty of Science, Fayoum University, Fayoum, Egypt

^d Reactor Physics Department, Nuclear Research Center, Atomic Energy Authority, Egypt

^e Faculty of Pharmacy, Ahran Canadian University, 6th October City, Giza, Egypt

Abstract

The target fragmentation in 60A and 200A GeV 16O interactions with emulsion nuclei is analyzed. The validity of the nuclear limiting fragmentation hypothesis is confirmed at ultrarelativistic energies. The emission mechanism of the fast target proton (grey particle) is investigated in terms of the multiplicity characteristics. The anisotropy ratio and asymmetry parameter, while found to be independent of the projectile size or incident energy, are dependent on the target size and system centrality. This dependence is insignificant for heavy targets and in more central regions, where constancy exists. In this species, the system of the grey particle emission cannot exhibit the optimum symmetry or asymmetry between the forward and backward hemispheres. It is seen that these target protons originate from two emission sources in the earlier stage of the target fragmentation. One them emits nucleons isotropically in the 4π space. The other is the main emission source, which emits nucleons, in the forward hemisphere only, as a result of the binary nucleon-nucleon collisions and (or) intranuclear cascade. © 2015 Published by NRC Research Press.

Document Type: Article

Source: Scopus

Awadalla, M.H.^{a b}

Processor speed control for power reduction of real-time systems

(2015) *International Journal of Electrical and Computer Engineering*, 5 (4), pp. 701-713.

^a Department of Electrical and Computer Engineering, Sultan Qaboos University (SQU), Oman

^b Department of Communication, Electronics and Computers, University of Helwan, Egypt

Abstract

Reducing energy consumption is a critical issue in the design of battery-powered real time systems to prolong battery life. With dynamic voltage scaling (DVS) processors, energy consumption can be reduced efficiently by making appropriate decisions on the processor speed/voltage during the scheduling of real time tasks. Scheduling decision is usually based on parameters which are assumed to be crisp. However, in many circumstances the values of these parameters are vague. The vagueness of parameters suggests that to develop a fuzzy logic approach to reduce energy consumption by determining the appropriate supply-voltage/speed of the processor provided that timing constraints are guaranteed. Intensive simulated experiments and qualitative comparisons with the most related literature have been conducted in the context of dependent real-time tasks. Experimental results have shown that the proposed fuzzy scheduler saves more energy and creates feasible schedules for real time tasks. It also considers tasks priorities which cause higher system utilization and lower deadline miss time. Copyright © 2015 Institute of Advanced Engineering and Science. All rights reserved.

Author Keywords

Dynamic voltage scaling; Fuzzy logic approach; Multi-speed algorithm; Processors

Document Type: Article

Source: Scopus

Ahmed, H.H.^a, Shousha, W.G.^b, Shalby, A.B.^a, El-Mezayen, H.A.^b, Ismaiel, N.N.^c, Mahmoud, N.S.^a
Implications of sex hormone receptor gene expression in the predominance of hepatocellular carcinoma in males: Role of natural products
 (2015) *Asian Pacific Journal of Cancer Prevention*, 16 (12), pp. 4949-4954.

DOI: 10.7314/APJCP.2015.16.12.4949

^a Hormones Department, Medical Research Division, National Research Centre, Dokki, Giza, Egypt

^b Chemistry Department, Faculty of Science, Helwan University, Cairo, Egypt

^c Molecular Genetics and Enzymology Department, Human Genetics and Genome Research, National Research Centre, Dokki, Giza, Egypt

Abstract

The present study was planned to investigate the role of sex hormone receptor gene expression in the pathogenesis of hepatocellular carcinoma (HCC). Adult male Wistar rats were divided into seven groups. Group (1) was negative control. Groups (2), (5), (6), and (7) were orally administered with N-nitrosodiethylamine for the induction of HCC, then group (2) was left untreated, group (5) was orally treated with curcumin, group (6) was orally treated with carvedilol, and group (7) was intraperitoneally injected with doxorubicin, whereas groups (3) and (4) were orally administered only curcumin and carvedilol, respectively. The HCC group showed significant upregulation in the androgen receptor (AR) and the estrogen receptor-alpha (ERα) gene expression levels in the liver tissue. On the contrary, HCC groups treated with either curcumin or carvedilol showed significant downregulation in AR and ERα gene expression levels in the liver tissue. In conclusion, the obtained data highlight that both AR and ERα but not estrogen receptor-beta (ERβ) gene expression may contribute to the male prevalence of HCC induced in male rats. Interestingly, both curcumin and carvedilol were found to have a promising potency in alleviating the male predominating HCC.

Author Keywords

Androgen receptor; Carvedilol; Curcumin; Estrogen receptor; Hepatocellular carcinoma; Male

Document Type: Article

Source: Scopus

Shedid, M.H.

Hydrodynamic characteristics of a butterfly valve controlling Al₂O₃/water nanofluid flow
 (2015) *International Journal of Fluid Mechanics Research*, 42 (3), pp. 227-235.

DOI: 10.1615/InterJFluidMechRes.v42.i3.40

Department of Mechanical Engineering, Faculty of Engineering at El-Mattaria, Helwan University, Cairo, Egypt

Abstract

This paper investigates computationally the reliability of the valve loss co-efficient and torque coefficient of butterfly valves when the flow is Al₂O₃/water nanofluid. The model is constructed and discretized according to five opening angles of 0, 20, 30, 55, and 75°. Three different inlet velocities of 1, 2 and 3 m/s were tested. The study was carried out numerical analysis using commercial CFD code FLUENT. The results revealed that the valve loss and torque coefficients are unreliable in design of the butterfly valves. © 2015 Begell House, Inc.

Document Type: Article

Source: Scopus

Shimeis, A.^{a b d}, Borries, C.^c, Amory-Mazaudier, C.^{d e}, Fleury, R.^f, Mahrous, A.M.^b, Hassan, A.F.^b, Nawar, S.^g
TEC variations along an East Euro-African chain during 5th April 2010 geomagnetic storm
 (2015) *Advances in Space Research*, 55 (9), pp. 2239-2247.

DOI: 10.1016/j.asr.2015.01.005

^a Department of Solar and Space Research, National Research Institute of Astronomy and Geophysics (NRIAG), Helwan, Egypt

^b Space Weather Monitoring Center (SWMC), Faculty of Science, Helwan University, Egypt

^c German Aerospace Center (DLR), Institute of Communications and Navigation, Neustrelitz, Germany

^d Laboratoire de Physique des Plasmas, UPMC Sorbonne Paris, 4 Avenue de Neptune, Saint-Maur-des-Fossés, France

^e T/ICT4D, ICTP, Strada Costiera 11, Trieste, Italy

^f Microwave Department, School: Telecom-Bretagne of Brest, France

^g Astronomy Department, National Research Institute of Astronomy and Geophysics (NRIAG), Helwan, Egypt

Abstract

In this paper, we analyzed the variations of TEC along a latitudinal East Euro-African chain, during the storm of April 5, 2010. We observed a large asymmetry between the two hemispheres. We detected the presence of a TID in the Northern hemisphere on April 5. The propagation time of the TID from high to low latitudes and the speed of the TID was determined. On April 5, 6 and 7, we observed a decrease of the TEC and changes of the NO⁺ in the Northern hemisphere. This depletion is caused by the large-scale thermospheric wind disturbances due to Joule heating dissipation in the auroral zone. © 2015 COSPAR.

Author Keywords

Coronal hole; Geomagnetic storm; Ionosphere (equatorial ionosphere; ionosphere thermosphere interaction) GPS-TEC; TID; Wind

Document Type: Article

Source: Scopus

Hamed, A.M.^a, Alsaeed, T.A.^b

Image analysis of modified hamming aperture: Application on confocal microscopy and holography
(2015) *Journal of Modern Optics*, 62 (10), pp. 801-810.

DOI: 10.1080/09500340.2015.1007102

^a Faculty of Science, Physics Department, Ain Shams University, Cairo, Egypt

^b Faculty of Engineering, Biomedical Engineering Department, Helwan University, Cairo, Egypt

Abstract

Digital truncated and obstructed Hamming apertures are used in confocal laser scanning microscope (CLSM) to improve the resolution. The resultant point spread function (RPSF) and the coherent transfer function of the defined microscope, using the modified Hamming apertures, are computed. The mammographic images are used in the CLSM to test resolution of the investigated apertures. The image is computed from the modulus square of the convolution product of the RPSF and the complex amplitude of the object. A comparison with the images obtained in case of circular uniform apertures is investigated. Another application on holography allows the recognition of the modulated Hamming apertures. © 2015 Taylor & Francis.

Author Keywords

coherent transfer function; confocal laser scanning microscope; fan Hamming apertures; obstructed; point spread function; truncated

Document Type: Article

Source: Scopus

Gaballah, N.M.^a, Zikry, A.A.F.^a, El-Hussiny, N.A.^b, Khalifa, M.G.E.-D.^c, Farag, A.E.-F.B.^a, Shalabi, M.E.-M.H.^b

Reducibility mill scale industrial waste via coke breeze at 850-950°C
(2015) *Science of Sintering*, 47 (1), pp. 95-105.

DOI: 10.2298/SOS1501103G

^a Helwan University, Egypt

^b Central Metallurgical Research and Development Institute, Cairo, Egypt

^c El-Tabbin Metallurgical Institute, Cairo, Egypt

Abstract

Mill scale is a very attractive industrial waste due to its elevated iron content (about = 69.33% Fe) besides being suitable for direct recycling to the blast furnace via sintering plant. In this paper the characteristics of raw materials and the briquettes produced from this mill scale were studied by different methods of analyses. The produced briquettes were reduced with different amounts of coke breeze at varying temperatures, and the reduction kinetics was determined. The activation energy of this reaction ≈ 61.5 kJ/mole for reduction of mill scale with coke breeze in the form of briquettes with 2% molasses where the chemical reaction interface model is applicable. © 2015 International Institute for the Science of Sintering (IISS). All rights reserved.

Author Keywords

Briquetting; Cold crushing strength -reduction kinetic; Drop damage resistance; Mill scale; Reduction by coke breeze

Document Type: Article

Source: Scopus

Abou Al-Alamein, A.M.M.^a, Kamel, M.S.^b, Abou El-Alamin, M.M.A.^c, Khaled, E.^b

Novel pioglitazone nanomaterial based screen printed sensors

(2015) *International Journal of Electrochemical Science*, 10 (3), pp. 2400-2412.

^a Analytical Chemistry Department, Faculty of Pharmacy, Cairo University, Cairo, Egypt

^b Microanalysis Laboratory, National Research Center, Dokki, Giza, Egypt

^c Analytical Chemistry Department, Faculty of Pharmacy, Helwan University, Cairo, Egypt

Abstract

Sensitive disposable potentiometric sensors for determination of pioglitazone hydrochloride (PIO) have been constructed. The fabricated screen printed electrodes (SPEs) are based on multi-walled carbon nanotubes - polyvinyl chloride (MWNT-PVC) composite and crown ether as sensing ionophore. Electrode matrices compositions were optimized referring the effect of nature and content the sensing ionophore, anionic sites, plasticizer and nanomaterial. Detailed investigation revealed that sensors incorporated with 15-crown-5 ether as sensing ionophore, sodium tetrakis (4-florophenyl) borate (NaTFPB) as anionic site and 2-fluorophenyl 2-nitrophenyl ether (f-PNPE) as membrane plasticizer showed the best electroanalytical performances. The fabricated electrodes worked satisfactorily in the PIO concentration range from 10^{-6} to 10^{-2} mol L⁻¹ with Nernstian compliance of 61.05 ± 0.5 mV decade⁻¹ and detection limit of 8×10^{-7} mol L⁻¹. Carbon nanotubes remarkably improved the potential stability and lifetime of the fabricated sensors. The sensors have been successfully applied for the potentiometric determination of PIO in pharmaceutical preparations under batch experiments and flow injection analysis (FIA) with acceptable average recoveries. The relative simple fabrication protocol of disposable sensor, high sensitivity and stability of the method represents a promising approach for drug quality control laboratories. © 2015 The Authors.

Author Keywords

Carbon nanotubes; Flow injection analysis; Pharmaceutical analysis; Pioglitazone; Screen-printed potentiometric sensor

Document Type: Article

Source: Scopus

El-Sayed, M.-I.K., Al-Kordy A. Amin, H.

Mechanism of endothelial cyto-protective and thrombo-resistance effects of sildenafil, vardenafil and tadalafil in male rabbit

(2015) *Archives of Medical Science*, 11 (1), pp. 190-198. Cited 1 time.

DOI: 10.5114/aoms.2013.33616

Department of Biochemistry and Molecular Biology, Faculty of Pharmacy, Helwan University, P.O. Box 11790, Cairo, Egypt

Abstract

Introduction: PDE5 inhibitors (PDE5inhs) have proven to be of great impact in the treatment of numerous human extra-sexual diseases and their chronic use may induce endothelial rehabilitation. This study aimed to assess the effects of PDE5inhs at chronic administration to explore the possible endothelial cyto-protective and thrombo-resistance effects. Material and methods: One hundred New Zealand white male rabbits were divided into four groups. The first group (control, C) received 1 ml saline/kg, the second group (S) received 10 mg/kg sildenafil, the third group (V) received 2 mg/kg vardenafil, and the fourth group (T) received 2 mg/kg tadalafil in saline I.P. three times weekly for 4 weeks. Blood samples were collected and plasma was isolated for determination of 2,3-dinor-6-keto-prostaglandin F-1 α (PGF1 α), 11-dehydro- TXB2 (TXB2), fibrinogen, calcium levels, prothrombin (PT), and thrombin times (TT). Results: PDE5inhs significantly increase PGF1 α , calcium levels, PT and TT (p < 0.001) when compared with baseline data or with the saline group at the end of treatment. In contrast, PDE5inhs significantly decrease TXB2 and fibrinogen levels (p < 0.001) when compared either with their baseline data or with the saline group at the end of treatment. The tadalafil group showed a lower increase in PGF1 α (p < 0.001), lower decrease in TXB2 (p < 0.001), and higher increase in calcium levels (p < 0.01, p < 0.05), lower increase in PT and TT levels (p < 0.001) when compared with sildenafil or vardenafil. Conclusions: The prolonged use of PDE5inhs has time-dependent mild to moderate endothelial cyto-protective, thrombo-resistance anti-inflammatory and antinociception effects via activation of endothelial NOS (eNOS), increase of PGI2 synthesis and decrease of fibrinogen with significant increase in PT and TT. Copyright © 2015 Termedia & Banach.

Author Keywords

Cyto-protective; Phosphodiesterase-5 inhibitors; Prostacyclin; Thrombo-resistance; Thromboxane A2

Document Type: Article

Source: Scopus

Abdelalim, A.A.^{a b}, Hammad, A.^a, Khalil, S.^{a c}

B-L heavy neutrinos and neutral gauge boson Z' at the LHC

(2014) *Physical Review D - Particles, Fields, Gravitation and Cosmology*, 90 (11), art. no. 115015, .

DOI: 10.1103/PhysRevD.90.115015

^a Centre for Fundamental Physics, Zewail City of Science and Technology, Giza, Egypt

^b Department of Physics, Faculty of Science, Helwan University, Cairo, Egypt

^c Department of Mathematics, Faculty of Science, Ain Shams University, Cairo, Egypt

Abstract

We explore possible signatures for heavy neutrinos and a neutral gauge boson, Z', in the TeV scale B-L extension of the Standard Model with inverse seesaw mechanisms at the Large Hadron Collider. We show that, due to new decay channels of Z' into heavy/inert neutrinos, the LHC stringent bounds imposed on the Z' mass can be significantly relaxed. We analyze the pair production of heavy neutrinos decaying to four leptons plus two neutrinos, four jets plus two leptons, or three leptons plus two jets and one neutrino. We show that the 4l+2ν is the most promising decay channel for probing both Z' and heavy neutrinos at the LHC. © 2014 American Physical Society.

Document Type: Article

Source: Scopus

Abdel-Razek, Y.A.^a, Masoud, M.S.^a, Hanafi, M.Y.^{a b}, El-Nagdy, M.S.^b

Study of the parameters affecting radon gas flux from the stream sediments at Seila area Southeastern desert, Egypt

(2015) *Environmental Earth Sciences*, 73 (12), pp. 8035-8044.

DOI: 10.1007/s12665-014-3958-2

^a Nuclear Materials Authority, Cairo, Egypt

^b Department of Physics, Faculty of Science, Helwan University, Cairo, Egypt

Abstract

Fifty-one locations distributed on two sites at Seila area, Southeastern desert of Egypt, were chosen to study the effect of the local controlling parameters, namely the activity concentration of 238U, density, and porosity of the stream sediments on the radon gas flux at this area. The average value of the activity concentration of 238U in the stream sediments at the first site is 41.68 Bq kg⁻¹ while it is 37.34 Bq kg⁻¹ at the second site. These values are higher than the worldwide average of 33 Bq kg⁻¹. The average value of the radon flux density from the stream sediments into the atmosphere is much lower than the worldwide value of 0.016 Bq m⁻² s⁻¹ at both sites of the studied area. It may be recommended for reliable radon measurements inside the stream sediments for any application that the porosity of these sediments should be studied to estimate the suitable hole depth. The passive measurements conclude that the radon concentrations are sensitive to the local parameters while the active measurements reflect the diurnal variations reliably. © 2014, Springer-Verlag Berlin Heidelberg.

Author Keywords

Density; Porosity; Radon gas flux; Sediments

Document Type: Article

Source: Scopus

Abdel-Gawad, H.^a, Mahdy, F.^a, Hashad, A.^a, Elgemeie, G.H.^b

Fate of 14C-ethion insecticide in the presence of deltamethrin and dimilin pesticides in cotton seeds and oils, removal of ethion residues in oils, and bioavailability of its bound residues to experimental animals

(2014) *Journal of Agricultural and Food Chemistry*, 62 (51), pp. 12287-12293.

DOI: 10.1021/jf504010h

^a Applied Organic Chemistry Department, National Research Centre, Dokki, Cairo, Egypt

^b Chemistry Department, Faculty of Science, Helwan University, Cairo, Egypt

Abstract

Ethyl-1-14C-ethion and some of its degradation products have been prepared for comparison purposes. Cotton plants were treated with 14C-ethion alone and in the presence of deltamethrin and dimilin pesticides under conditions simulating local agricultural practice. 14C-Residues in seeds were determined at harvest time; about 47.5% of 14C-

activity was associated with oil. After further extraction of seeds with ethanol, the ethanol-soluble 14C-residues accounted for 10.6% of the total seed residues, whereas the cake contained about 37.3% of the total residues as bound residues in the case of ethion only. The bound residues decreased in the presence of deltamethrin and dimilin pesticides and amounted to 8.1 and 10.4% of the total residues, respectively. About 95% of the 14C-activity in the crude oil could be eliminated by simulated commercial processes locally used for oil refining. Chromatographic analysis of crude cotton oil revealed the presence of ethion monooxon, O,O-diethyl phosphorothioate, and O,O-diethyl phosphoric acid in addition to one unknown compound in the case of ethion alone or ethion and dimilin. The same degradation products are found in the case of ethion and deltamethrin in addition to ethion dioxon, whereas ethanol extract revealed the presence of ethion dioxon and O,O-diethyl phosphoric acid as free metabolites. Acid hydrolysis of the conjugated metabolites in the ethanol extract yielded O,O-diethyl S-hydroxymethyl phosphorodithioate. The bound residues were quite readily bioavailable to the rats. After feeding rats with the cake containing ethion-bound residues, a substantial amount (60%) of 14C-residues was eliminated in the urine, whereas the 14C-residues excreted in expired air and feces were 10 and 9%, respectively. About 11% of the radioactive residues were distributed among various organs. © 2014 American Chemical Society.

Author Keywords

14C-ethion; Bioavailability; Cottonseed oil; Refining processes; Residues

Document Type: Article

Source: Scopus

Khedr, M.A.^{a b}, Shehata, T.M.^{a c}, Mohamed, M.E.^{a d}

Repositioning of 2,4-Dichlorophenoxy acetic acid as a potential anti-inflammatory agent: In Silico and Pharmaceutical Formulation study

(2014) *European Journal of Pharmaceutical Sciences*, 65, pp. 130-138. Cited 1 time.

DOI: 10.1016/j.ejps.2014.09.014

^a College of Clinical Pharmacy, King Faisal University, P.O. 380, Ahsaa, Saudi Arabia

^b Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Helwan University, EinHelwan, Cairo, Egypt

^c Department of Pharmaceutics and Industrial Pharmacy, Faculty of Pharmacy, University of Zagazig, Zagazig, Egypt

^d Department of Pharmacognosy, Faculty of Pharmacy, University of Zagazig, Zagazig, Egypt

Abstract

2,4-Dichlorophenoxy acetic acid (2,4-D) is a well-known plant auxin which is widely used in plant tissue culture experiments as well as a weed killer and a herbicide. In this study, 2,4-D was rediscovered as a new anti-inflammatory agent through an in silico molecular modeling and docking studies along with drug formulation and in vivo anti-inflammatory inspection. The molecular modeling and docking studies indicated high affinity of 2,4-D toward COX-2 enzyme in a way similar to Ibuprofen, suggesting a higher anti-inflammatory activity. Molecular docking by both MOE 2013.08 and Leadit 2.1.2 revealed excellent binding pattern compared to some of well-known non-steroidal anti-inflammatory drugs. 2,4-D was formulated in different gel bases. In vitro drug release experiments were used to examine the best 2,4-D formula for in vivo studies. In vivo carrageenan-induced hind paw edema inflammatory model in rats was used to test the in silico finding. 2,4-D showed potential in vivo anti-inflammatory activity and significantly reduced the concentration of prostaglandin E2 in hind paw tissues in a way similar to Ibuprofen. These results may open the door to introduce a new anti-inflammatory molecule; especially that 2,4-D is a well-investigated regarding its toxicity and side effect. © 2014 Elsevier B.V.

Author Keywords

2,4-Dichlorophenoxy acetic acid; Gel formulation; Molecular docking; Molecular modeling; Prostaglandin E2; Rat hind paw

Document Type: Article

Source: Scopus

William, G.E., Mohamed, M.H., Fatouh, M.

Desiccant system for water production from humid air using solar energy

(2015) *Energy*, . Article in Press.

DOI: 10.1016/j.energy.2015.06.125

Mechanical Power Engineering Dept., Faculty of Engineering at El-Mattaria, Helwan University, P.O. 11718, Cairo, Egypt

Abstract

Decentralized and remote areas suffer from fresh water shortage. A new sustainable energy technique called "Water Extraction from Atmospheric Air" is introduced as a beneficial solution for this problem. This system involves the

absorption of water vapor from ambient air during the night time. Then, simultaneous desiccant regeneration and water vapor condensation during the day time will be occurred. In this study, a trapezoidal prism solar collector with four fiberglass sides designed and constructed. This collector has multi-shelves bed (desiccant carrier) in order to maximize bed surface area inside the collector. Consequently, the absorption and evaporation surfaces are increased. The experimental work shows the effect of weather conditions in system operation for both day time and night time. The regeneration and absorption processes are discussed for each operation condition. Also, different host materials (cloth and sand) with calcium chloride solution are investigated. An illustrative comparison between different bed types is demonstrated. The results revealed that the total evaporated water for cloth and sand bed can reach 2.32 and 1.23lit/daym² at initial saturation concentration (30%) of cacl₂. However, the system efficiency is 29.3 and 17.76% for cloth and sand bed, respectively. © 2015 Elsevier Ltd.

Author Keywords

Desiccant; Experimental; Solar energy application; Water production technique

Document Type: Article in Press

Source: Scopus

Tawakkol, S.M.^a, Farouk, M.^b, Elaziz, O.A.^b, Hemdan, A.^{c e}, Shehata, M.A.^d

Comparative study between univariate spectrophotometry and multivariate calibration as analytical tools for simultaneous quantitation of Moexipril and Hydrochlorothiazide

(2014) *Spectrochimica Acta - Part A: Molecular and Biomolecular Spectroscopy*, 133, pp. 300-306. Cited 1 time.

DOI: 10.1016/j.saa.2014.05.061

^a Pharmaceutical Analytical Chemistry Department, Faculty of Pharmacy, Helwan University, Cairo, Egypt

^b Pharmaceutical Analytical Chemistry Department, Faculty of Pharmacy, Ain Shams University, Cairo, Egypt

^c Pharmaceutical Analytical Chemistry Department, Faculty of Pharmacy, Ahram Canadian University, Egypt

^d Pharmaceutical Analytical Chemistry Department, Faculty of Pharmacy, Cairo University, Cairo, Egypt

^e Ahram Canadian University, 4th Industrial Region, Egypt

Abstract

Three simple, accurate, reproducible, and selective methods have been developed and subsequently validated for the simultaneous determination of Moexipril (MOX) and Hydrochlorothiazide (HCTZ) in pharmaceutical dosage form. The first method is the new extended ratio subtraction method (EXRSM) coupled to ratio subtraction method (RSM) for determination of both drugs in commercial dosage form. The second and third methods are multivariate calibration which include Principal Component Regression (PCR) and Partial Least Squares (PLSs). A detailed validation of the methods was performed following the ICH guidelines and the standard curves were found to be linear in the range of 10-60 and 2-30 for MOX and HCTZ in EXRSM method, respectively, with well accepted mean correlation coefficient for each analyte. The intra-day and inter-day precision and accuracy results were well within the acceptable limits. © 2014 Elsevier B.V. All rights reserved.

Author Keywords

Extended ratio subtraction method; Hydrochlorothiazide; Moexipril; PCR; PLSs

Document Type: Article

Source: Scopus

Almutairi, M.S.^a, Hegazy, G.H.^b, Haiba, M.E.^{a f}, Ali, H.I.^{c d}, Khalifa, N.M.^{e f f}, Soliman, A.E.-M.M.^f

Synthesis, Docking and Biological Activities of Novel Hybrids Celecoxib and Anthraquinone Analogs as Potent Cytotoxic Agents

(2014) *International Journal of Molecular Sciences*, 15 (12), pp. 22580-22603.

DOI: 10.3390/ijms151222580

^a Pharmaceutical Chemistry Department, King Saud University, Riyadh, Saudi Arabia

^b Pharmaceutical Chemistry Department, Cairo University, Cairo, Egypt

^c Department of Pharmaceutical Sciences, Irma Lerma Rangel College of Pharmacy, Texas A and M Health Science Center, Kingsville, TX, United States

^d Pharmaceutical Chemistry Department, Helwan University, Cairo, Egypt

^e Pharmaceutical Chemistry Department, Drug Exploration and Development Chair (DEDC), College of Pharmacy, King Saud University, Riyadh, Saudi Arabia

^f Department of Therapeutical Chemistry, Pharmaceutical and Drug Industries Division, National Research Center, Dokki, Cairo, Egypt

Abstract

Herein, novel hybrid compounds of celecoxib and 2-aminoanthraquinone derivatives have been synthesized using condensation reactions of celecoxib with 2-aminoanthraquinone derivatives or 2-aminoanthraquinone with celecoxib derivatives. Celecoxib was reacted with different acid chlorides, 2-chloroethylisocyanate and bis (2-chloroethyl) amine hydrochloride. These intermediates were then reacted with 2-aminoanthraquinone. Also the same different acid chlorides and 2-chloroethylisocyanate were reacted with 2-aminoanthraquinone and the resulting intermediates were reacted with celecoxib to give isomers for the previous compounds. The antitumor activities against hepatic carcinoma tumor cell line (HEPG2) have been investigated in vitro, and all these compounds showed promising activities, especially compound 3c, 7, and 12. Flexible docking studies involving AutoDock 4.2 was investigated to identify the potential binding affinities and the mode of interaction of the hybrid compounds into two protein tyrosine kinases namely, SRC (Pp60v-src) and platelet-derived growth factor receptor, PDGFR (c-Kit). The compounds in this study have a preferential affinity for the c-Kit PDGFR PTK over the non-receptor tyrosine kinase SRC (Pp60v-src). © 2014 by the authors; licensee MDPI, Basel, Switzerland.

Author Keywords

Anthraquinone; Antitumor; Celecoxib; Docking; HEPG2; Protein kinase activities

Document Type: Article

Source: Scopus

Elgemeie, G.H., Mohamed, R.A.

Application of dimethyl N-cyanodithioiminocarbonate in synthesis of fused heterocycles and in biological chemistry

(2014) *Heterocyclic Communications*, 20 (6), pp. 313-331.

DOI: 10.1515/hc-2014-0156

Faculty of Science, Chemistry Department, Helwan University, Helwan, Cairo, Egypt

Abstract

The synthetic chemistry of dimethyl N-cyanodithioiminocarbonate is reviewed. The scope and limitation of the most important approaches are discussed. © 2014 by De Gruyter 2014.

Author Keywords

dimethyl N-cyanodithioiminocarbonate; fused heterocycles

Document Type: Review

Source: Scopus

Temirak, A.^a, Shaker, Y.M.^a, Ragab, F.A.F.^b, Ali, M.M.^c, Ali, H.I.^{d e}, El Diwani, H.I.^a

Part I. Synthesis, biological evaluation and docking studies of new 2-furylbenzimidazoles as antiangiogenic agents

(2014) *European Journal of Medicinal Chemistry*, 87, pp. 868-880.

DOI: 10.1016/j.ejmech.2014.01.063

^a Department of Chemistry of Natural and Microbial Products, Division of Pharmaceutical and Drug Industries, National Research Centre, Dokki, Cairo, Egypt

^b Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Cairo University, Egypt

^c Department of Biochemistry, Division of Genetic Engineering and Biotechnology, National Research Centre, Cairo, Egypt

^d Department of Pharmaceutical Sciences, Irma Lerma Rangel College of Pharmacy, Texas A and M Health Science CenterTX, United States

^e Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Helwan University, Cairo, Egypt

Abstract

2-(2-Furyl)-1H-benzimidazoles 3-11 were synthesized and tested for their in vitro VEGF inhibition in MCF-7 cancer cell line. Compound 5a was more potent than Tamoxifen, and compounds 3b, 5a, 5c, 6b, 7a and 10 showed promising potency. Furthermore, compounds (6b, 7a and 10) showed remarkable selective inhibition of COX-2 enzyme close to that of Celecoxib. Additionally, docking studies were performed using AutoDock 4.2 into the VEGFR2 kinase. Significant correlation exists between the biological activity (IC₅₀ and %VEGF inhibition) against MCF-7 cell line and the molecular docking results (Ki and ΔG_b) with correlation coefficients (R²) of 0.5513 and 0.4623 respectively. Accordingly, most of the synthesized 2-(2-furyl)-1H-benzimidazoles showed strong antiangiogenic activity against VEGFR2 kinase. © 2014 Elsevier Masson SAS. All rights reserved.

Author Keywords

2-(2-Furyl)-1H-benzimidazoles; Angiogenesis; Cytotoxicity; Vascular endothelial growth factor (VEGF); VEGFR2

kinase

Document Type: Article**Source:** ScopusTreiber, S.^a, Stahl, C.^a, Schütz, G.^a, Soltan, S.^{b c}, Albrecht, J.^d**Stabilization of the dissipation-free current transport in inhomogeneous MgB2 thin films**(2014) *Physica C: Superconductivity and its Applications*, 506, pp. 1-5.**DOI:** 10.1016/j.physc.2014.08.004^a Max-Planck Institute for Intelligent Systems, Heisenbergstr. 3, Stuttgart, Germany^b Max-Planck Institute for Solid State Research, Heisenbergstr. 1, Stuttgart, Germany^c Physics Department, Faculty of Science, Helwan University, Cairo, Egypt^d Research Institute for Innovative Surfaces, FINO, Aalen University, Aalen, Germany**Abstract**

In type-II superconductors at $T = 0$ the critical current density is determined by the pinning of flux lines. Considering an arbitrarily shaped energy landscape the pinning force at each pinning site is given by the derivative of the flux line energy with respect to the considered direction. At finite temperatures, in addition, thermal activation can lead to a depinning of flux lines. The governing property in this case is the depth of the corresponding pinning potential, i.e. the pinning energy. We show a detailed analysis of both pinning forces and pinning energies of MgB2 films with inhomogeneous microstructure. We show that a pronounced increase of the pinning energy is responsible for the significantly enhanced stability of the dissipation-free current transport in thin inhomogeneous MgB2 films. This is found even if the corresponding pinning forces are small. © 2014 Elsevier B.V. All rights reserved.

Author Keywords

Magnesium diboride; Magnetic properties; Pinning; Vortex physics

Document Type: Article**Source:** ScopusAbdel Fattah, M.^{a b}**New term weighting schemes with combination of multiple classifiers for sentiment analysis**(2015) *Neurocomputing*, . Article in Press.**DOI:** 10.1016/j.neucom.2015.04.051^a Department of Computer Sciences, CCSE, Taibah University, Saudi Arabia^b Department of Electronics Technology, FIE, Helwan University, Cairo, Egypt**Abstract**

The rapid growth of social media on the Web, such as forum discussions, reviews, blogs, micro-blogs, social networks and Twitter has created huge volume of opinionated data in digital forms. Therefore, last decade showed growth of sentiment analysis task to be one of the most active research areas in natural language processing. In this work, the problem of classifying documents based on overall sentiment is investigated. The main goal of this work is to present comprehensive investigation of different proposed new term weighting schemes for sentiment classification. The proposed new term weighting schemes exploit the class space density based on the class distribution in the whole documents set as well as in the class documents set. The proposed approaches provide positive discrimination on frequent and infrequent terms. We have compared our new term weighting schemes with traditional and state of art term weighting schemes. Some of our proposed terms weighting schemes outperform the traditional and state of art term weighting schemes results. © 2015 Elsevier B.V.

Author Keywords

Opinion mining; Sentiment classification; Term weighting schemes

Document Type: Article in Press**Source:** ScopusHamdy, M.S.^{a b}**One-step synthesis of M-doped TiO2 nanoparticles in TUD-1 (M-TiO2-TUD-1, M = Cr or V) and their photocatalytic performance under visible light irradiation**(2014) *Journal of Molecular Catalysis A: Chemical*, 393, pp. 39-46. Cited 5 times.

DOI: 10.1016/j.molcata.2014.05.039

^a Photocatalytic Synthesis Group (PCS), MESA Institute for Nanotechnology, University of Twente, 7500 AE Enschede, Netherlands

^b Chemistry Department, Faculty of Science, Helwan University, 11795 Ain Helwan, Cairo, Egypt

Abstract

The novel photocatalyst of M-doped TiO₂ nanoparticles in TUD-1 siliceous mesoporous material, M-TiO₂-TUD-1 (M = Cr or V), was synthesized in one-pot highly-controlled synthesis procedure. Three samples were prepared for this study; the first prepared with Si/Ti ratio of 2.5 without any dopant. In the second and the third; 2 wt. % of titanium were replaced by chromium and by vanadium, respectively. The obtained materials were characterized by means of elemental analysis, N₂ sorption measurements, x-ray powder diffraction (XRD), UV-Vis and Raman spectroscopy, scanning electron microscopy (SEM) as well as high resolution transmission electron microscopy (HR-TEM). The characterization results showed that all samples contain nanoparticles of TiO₂ (anatase phase, average size of 4-5 nm) embedded in the mesopores of the amorphous siliceous TUD-1, with a co-existence of Cr⁶⁺ or V⁵⁺ ions. The prepared materials were used to photocatalyze the decolourization of methyl orange (MO) in aqueous medium as a model compound under the illumination of visible light ($\lambda = 420$ nm). The photocatalytic performance of TiO₂-TUD-1 mesoporous material showed higher decolourization rate than the commercial TiO₂. The performance of TiO₂-TUD-1 was highly improved by doping with Cr and V. The order of the catalytic activity of the applied photocatalysts was Cr-TiO₂-TUD-1 > V-TiO₂-TUD-1 > TiO₂-TUD-1 > TiO₂ Hombikat. The effect of the support, i.e. TUD-1 versus MCM-41 was also investigated, the performance of Cr-TiO₂-TUD-1 was two times better than Cr-TiO₂-MCM-41. © 2014 Elsevier B.V.

Author Keywords

Methyl orange; Photocatalysis; TUD-1; Wastewater

Document Type: Article

Source: Scopus

Salem, A.^{a b}, Abdallah, A.A.-E.^{a c}, De Belie, F.^a, Dupre, L.^a, Melkebeek, J.^a

A comparative study of the effect of different converter topologies on the iron loss of nonoriented electrical steel

(2014) *IEEE Transactions on Magnetics*, 50 (11), art. no. 6971763, .

DOI: 10.1109/TMAG.2014.2320764

^a Department of Electrical Energy, Systems and Automation, Ghent University, Gent, Belgium

^b Electrical Power and Machines Department, Helwan University, Cairo, Egypt

^c Electrical Power and Machines Department, Cairo University, Giza, Egypt

Abstract

In this paper, a comparative study of the effect of different converter topologies on the iron loss of nonoriented electrical steel is presented. Three converter topologies are considered in this investigation; namely: two-, three-, and five-level power converters. Moreover, the effect of the carrier frequency on both the iron loss and converter loss is introduced. The experimental results show a dramatic increase of the iron loss for the two-level converter, especially for low levels of the carrier frequency. Furthermore, the increase of the iron loss is negligible for the multilevel converter topologies. Specifically, the use of the five-level converter, even at a low value of the carrier frequency, results in lower iron losses than the three-level converter at a relatively higher carrier frequency. © 1965-2012 IEEE.

Author Keywords

Iron loss; magnetic material; multilevel converters; pulsewidth modulation.

Document Type: Article

Source: Scopus

Ayoub, N.^{a c}, Musharavati, F.^a, Pokharel, S.^a, Gabbar, H.A.^b

Risk based life cycle assessment conceptual framework for energy supply systems in large buildings

(2015) *Journal of Cleaner Production*, . Article in Press.

DOI: 10.1016/j.jclepro.2015.04.075

^a Department of Mechanical and Industrial Engineering, College of Engineering, Qatar University, Doha, Qatar

^b Faculty of Energy Systems and Nuclear Science, University of Ontario Institute of Technology, Ontario, Canada

^c Faculty of Industrial Education, Helwan University, Cairo, Egypt

Abstract

This paper proposes an environmental assessment framework that integrates the conventional life cycle assessment (LCA) with risk assessment for the purpose of evaluating energy conservation systems in buildings from environmental and societal perspectives. The inclusion of the potential risks raised by the different stakeholders in this framework will help the LCA professionals to identify accurate system boundaries of their study. This research addresses some limitations of frameworks presented so far by providing process activity modeling, using Type-zero method of integrated definition language, IDEF0, as a tool to describe each phase of its application. The proposed framework considers the LCA risk-based analysis in three modules namely; (i) establish of the life cycle stages, (ii) identify risk indicators and perform risk assessment, and (iii) manage risks through applying the risk assessment results to the life cycle of building's energy system. The risk based life cycle assessment (RBLCA) framework proposed here is further explained in a case study of performing RBLCA for a hybrid energy supply system (HESS) that supplies power to a hotel building. This approach allows us to investigate unfavorable impacts and risks of using HESS as way for energy conservation. © 2015 Elsevier Ltd.

Author Keywords

Energy conservation; Hybrid energy supply systems; IDEF0; Large buildings; Risk based-LCA; Risk indicators

Document Type: Article in Press

Source: Scopus

Mustafa, L.^a, Driza, N.^a, Soltan, S.^{a b}, Le Tacon, M.^a, Habermeier, H.-U.^a, Keimer, B.^a

Structural and electronic properties of epitaxial YBa₂Cu₃O_{7-δ}-La_{0.67}Ca_{0.33}MnO₃ bilayers grown on SrTiO₃ (1 1 0) substrates

(2014) *Physica C: Superconductivity and its Applications*, 505, pp. 70-73.

DOI: 10.1016/j.physc.2014.07.007

^a Max-Planck-Institute for Solid State Research, Heisenbergstr. 1, D-70569 Stuttgart, Germany

^b Faculty of Science, Helwan University, 11795-Cairo, Egypt

Abstract

Epitaxial bilayers of the high-temperature-superconductor YBa₂Cu₃O_{7-δ} (YBCO) and the ferromagnetic metal La_{0.67}Ca_{0.33}MnO₃ (LCMO) were prepared by pulsed laser deposition on (1 1 0)-oriented SrTiO₃ substrates, such that the CuO₂ planes of YBCO are perpendicular to the YBCO-LCMO interface. X-ray diffraction and Raman scattering demonstrate complete (1 1 0) orientation of both YBCO and LCMO overlayers. The resistivity and magnetization of the bilayer films are highly anisotropic. The critical temperatures for superconductivity and ferromagnetism as well as the saturation magnetization exhibit modest reductions compared to corresponding bulk values. © 2014 Elsevier B.V. All rights reserved.

Author Keywords

Interplay superconductivity and magnetism; Oxide interfaces; Pulsed laser deposition; Raman spectroscopy; YBCO-LCMO heterostructures

Document Type: Article

Source: Scopus

Zahran, M.K.^a, Ahmed, H.B.^a, El-Rafie, M.H.^b

Facile size-regulated synthesis of silver nanoparticles using pectin

(2014) *Carbohydrate Polymers*, 111, pp. 971-978. Cited 6 times.

DOI: 10.1016/j.carbpol.2014.05.028

^a Chemistry Department, Faculty of Science, Helwan University, Ain-Helwan, Cairo 11795, Egypt

^b Textile Research Division, National Research Centre, Dokki, Cairo 12311, Egypt

Abstract

Monodispersed silver nanoparticles capped by pectin were prepared by the reaction of silver nitrate with alkali hydrolyzed pectin at 70 °C for 30 min. Spherical and size-regulated silver nanoparticles were prepared using alkali hydrolyzed pectin as a reducing and particle-stabilizing agent. This approach is facile, effective, rapid, and convenient for the large scale preparation of silver nanoparticles. UV-visible spectral analysis confirmed that the nanoparticles consisted of metallic silver. Transmission electron microscopy (TEM) was used to estimate particle size and size distribution of the produced silver nanoparticles. Transmission electron microscopy and size distribution analysis revealed the presence of spherical silver nanoparticles with a main diameter of 5-10 nm and have a narrow size distribution. The concentration of reducing sugars was monitored by using dinitrosalicylic acid. A comprehensive schematic mechanism for the formation of silver nanoparticles using pectin is proposed. © 2014 Elsevier Ltd.

Author Keywords

Pectin; Reducing sugar; Size distribution; Spherical AgNPs

Document Type: Article

Source: Scopus

Zahran, M.K.^a, Ahmed, H.B.^a, El-Rafie, M.H.^b

Alginate mediate for synthesis controllable sized AgNPs

(2014) *Carbohydrate Polymers*, 111, pp. 10-17. Cited 5 times.

DOI: 10.1016/j.carbpol.2014.03.029

^a Chemistry Department, Faculty of Science, Helwan University, Ain-Helwan, Cairo 11795, Egypt

^b Textile Research Division, National Research Centre, Dokki, Cairo 12311, Egypt

Abstract

A new method to prepare silver nanoparticles was reported. Alginate colloidal solution containing chemically synthesized silver nanoparticles (AgNPs) was investigated regarding the nanoparticles stabilization and possibilities for production of alginate based nanoparticles. The formation of AgNPs has been confirmed by UV-visible spectroscopy and monitoring of reducing sugars in the reaction was carried out. The morphology of synthesized silver nanoparticles was characterized by transmission electron microscopy (TEM). The results showed that the morphology of Ag nanoparticles is spherical and the main size is about 1-4 nm. © 2014 Elsevier Ltd.

Author Keywords

AgNPs-alginate composite; Reducing sugars; TEM

Document Type: Article

Source: Scopus

Abdelfattah, M.S.

Isolation and crystal structure of a new anthraquinone derivative from actinomycete

(2014) *Chemistry of Natural Compounds*, 50 (4), pp. 613-616.

Chemistry Department, Faculty of Science, Helwan University, Ain Helwan, Cairo, Egypt

Abstract

A new anthraquinone derivative, 1,5-dihydroxy-3,4-dimethoxy-2-methylanthraquinone (1), was isolated from *Streptomyces* sp. Eg8. The structure and absolute configuration of 1 were established by X-ray crystallographic analysis. The crystal is monoclinic, space group P21/c with $a = 7.1789(4) \text{ \AA}$, $b = 17.4365(10) \text{ \AA}$, $c = 11.1363(6) \text{ \AA}$, $\beta = 102.378(2)^\circ$, and $Z = 4$. © 2014 Springer Science+Business Media New York.

Author Keywords

Actinomycete; Anthraquinone; X-ray crystallography

Document Type: Article

Source: Scopus

Elgemeie, G.H., Mohamed, R.A.

Recent trends in synthesis of five- and six-membered heterocycles using dimethyl N-cyanodithioiminocarbonate

(2014) *Heterocyclic Communications*, 20 (5), pp. 257-269.

DOI: 10.1515/hc-2014-0090

Faculty of Science, Chemistry Department, Helwan University, Helwan, Cairo, Egypt

Abstract

New approaches to synthesis of five- and six-membered heterocyclic compounds utilizing dimethyl N-cyanodithioiminocarbonate are surveyed. The scope and limitation of the most important approaches are discussed. © 2014 by De Gruyter 2014.

Author Keywords

dimethyl N-cyanodithioiminocarbonate; heterocycles; synthesis

Document Type: Review

Source: Scopus

Abbaneo, D.^o, Abbas, M.^o, Abbrescia, M.^b, Abdelalim, A.A.^h, Akl, M.A.^m, Ahmed, W.^h, Ahmed, W.^q, Altieri, P.^b, Aly, R.^h, Ashfaq, A.^q, Aspell, P.^o, Assran, Y.^g, Awan, I.^q, Bally, S.^o, Ban, Y.^c, Banerjee, S.^s, Barria, P.^e, Benussi, L.ⁿ, Bhopatkar, V.^u, Bianco, S.ⁿ, Bos, J.^o, Bouhali, O.^m, Braibant, S.^d, Buontempo, S.^x, Cai, J.^c, Calabria, C.^b, Caputo, C.^b, Cassese, F.^x, Castaneda, A.^m, Cauwenbergh, S.^p, Cavallo, F.R.^d, Celik, A.ⁱ, Choi, M.^{ae}, Choi, K.^{ae}, Choi, S.^{ac}, Christiansen, J.^o, Cimmino, A.^p, Colafranceschi, S.^o, Colaleo, A.^b, Garcia, A.C.^o, Dabrowski, M.M.^o, De Lentdecker, G.^e, De Oliveira, R.^o, De Robertis, G.^b, Dildick, S.ⁱ^p, Dorney, B.^o, Elmetenawee, W.^h, Fabrice, G.^{aa}, Ferry, S.^o, Giacomelli, P.^d, Gilmore, J.ⁱ, Guiducci, L.^d, Gutierrez, A.^l, Hadjiiska, R.M.^{ab}, Hassan, A.^h, Hauser, J.^u, Hoepfner, K.^a, Hohlmann, M.^v, Hoorani, H.^q, Jeng, Y.G.^r, Kamon, T.ⁱ, Karchin, P.E.^l, Kim, H.^r, Krutelyov, S.ⁱ, Kumar, A.^k, Lee, J.^{ae}, Lee, J.^{ae}, Lenzi, T.^e, Litov, L.^{ab}, Loddo, F.^b, Maerschalk, T.^e, Magazzu, G.^z, Maggi, M.^b, Maghrbi, Y.^m, Magnani, A.^y, Majumdar, N.^s, Mal, P.K.^f, Mandal, K.^f, Marchioro, A.^o, Marinov, A.^o, Merlin, J.A.^o, Mohammed, N.^k, Mohanty, A.K.^w, Mohapatra, A.^v, Muhammad, S.^q, Mukhopadhyay, S.^s, Nuzzo, S.^b, Oliveri, E.^o, Pant, L.M.^w, Paolucci, P.^x, Park, I.^{ae}, Passeggio, G.^x, Pavlov, B.^{ab}, Philipps, B.^a, Phipps, M.^v, Piccolo, D.ⁿ, Postema, H.^o, Pugliese, G.^b, Baranac, A.P.^o, Radi, A.^g, Radogna, R.^b, Raffone, G.ⁿ, Ramkrishna, S.^k, Ranieri, A.^b, Riccardi, C.^y, Rodrigues, A.^o, Ropelewski, L.^o, Roychoddhury, S.^s, Ryu, M.S.^r, Ryu, G.^{ae}, Safonov, A.ⁱ, Sakharov, A.^j, Salva, S.^p, Saviano, G.ⁿ, Sharma, A.^o, Swain, S.K.^f, Talvitie, J.P.^o, Tamma, C.^b, Tatarinov, A.ⁱ, Turini, N.^z, Tuuva, T.^t, Twigger, J.^v, Tytgat, M.^p, Vai, I.^x, Van Stenis, M.^o, Venditi, R.^b, Verhagen, E.^e, Verwilligen, P.^b, Vitulo, P.^y, Yang, U.^{ad}, Yang, Y.^e, Yonamine, R.^e, Zaganidis, N.^p, Zenoni, F.^e, Zhang, A.^v

Upgrade of the CMS muon system with triple-GEM detectors

(2014) *Journal of Instrumentation*, 9 (10), art. no. C10036, .

DOI: 10.1088/1748-0221/9/10/C10036

^a III Physikalisches Institut A, RWTH Aachen University, Aachen, Germany

^b Politecnico di Bari, Universita di Bari, INFN Sezione di Bari, Bari, Italy

^c Peking University, Beijing, China

^d University and INFN Bologna, Bologna, Italy

^e Universite Libre de Bruxelles, Brussels, Belgium

^f National Institute of Science Education and Research, Bhubaneswar, India

^g Academy of Scientific Research and Technology, ENHEP, Cairo, Egypt

^h Helwan University and CTP, Cairo, Egypt

ⁱ Texas A and M University, College Station, United States

^j Kyungpook National University, Daegu, South Korea

^k University of Delhi, Delhi, India

^l Wayne State University, Detroit, United States

^m Texas A and M University at Qatar, Doha, Qatar

ⁿ Laboratori Nazionali di Frascati, INFN, Frascati, Italy

^o CERN, Geneva, Switzerland

^p Department of Physics and Astronomy, Ghent University, Ghent, Belgium

^q National Center for Physics, Quaid-i-Azam University Campus, Islamabad, Pakistan

^r Chonbuk National University, Jeonju, South Korea

^s Saha Institute of Nuclear Physics, Kolkata, India

^t Lappeenranta University of Technology, Lappeenranta, Finland

^u University of California, Los Angeles, United States

^v Florida Institute of Technology, Melbourne, United States

^w Bhabha Atomic Research Centre, Mumbai, India

^x INFN Napoli, Napoli, Italy

^y INFN Pavia, University of Pavia, Pavia, Italy

^z INFN Sezione di Pisa, Pisa, Italy

^{aa} IRFU CEA-Saclay, Saclay, France

^{ab} Sofia University, Sofia, Bulgaria

^{ac} Korea University, Seoul, South Korea

^{ad} Seoul National University, Seoul, South Korea

^{ae} University of Seoul, Seoul, South Korea

Abstract

The CMS collaboration considers upgrading the muon forward region which is particularly affected by the high-

luminosity conditions at the LHC. The proposal involves Gas Electron Multiplier (GEM) chambers, which are able to handle the extreme particle rates expected in this region along with a high spatial resolution. This allows to combine tracking and triggering capabilities, which will improve the CMS muon High Level Trigger, the muon identification and the track reconstruction. Intense R&D has been going on since 2009 and it has led to the development of several GEM prototypes and associated detector electronics. These GEM prototypes have been subjected to extensive tests in the laboratory and in test beams at the CERN Super Proton Synchrotron (SPS). This contribution will review the status of the CMS upgrade project with GEMs and its impact on the CMS performance. © CERN 2014.

Author Keywords

Electron multipliers (gas); Micropattern gaseous detectors (MSGC, GEM, THGEM, RETHGEM, MHSP, MICROPIC, MICROMEGAS, InGrid, etc)

Document Type: Conference Paper

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Colafranceschi, S.^b, Chudasama, R.^a, Pant, L.M.^a, Mohanty, A.K.^a, Sehgal, R.^a, Sehgal, S.T.^a, Thomas, R.G.^a, Sharma, A.^b, Bhandari, V.^c, Chand, S.^c, Kumar, A.^c, Kumar, S.^c, Singh, A.^c, Singh, V.^c, Aly, S.^{d,e}, Aly, R.^{d,e}, Elkafrawy, T.^e, Ibrahim, A.^e, Radi, A.^e, Sayed, A.^e, Cauwenbergh, S.^f, Cimmino, A.^f, Crucy, S.^f, Fagot, A.^f, Garcia, G.^f, Poyraz, D.^f, Salva, S.^f, Thyssen, F.^f, Tytgat, M.^f, Zaganidis, N.^f, Abbrescia, M.^g, Franco, M.^g, Iaselli, P.^g, Lacalamita, N.^g, Loddo, F.^g, Maggi, M.^g, Pugliese, G.^g, Verwillingen, P.^g, Buontempo, S.^h, Cassese, F.^h, Cavallo, N.^h, Energico, S.^h, Fienga, F.^h, Fabozzi, F.^h, Iorio, O.^h, Lista, L.^h, Passeggio, G.^h, Paolucci, P.^h, Braghieri, A.ⁱ, Freddi, A.ⁱ, Gigli, S.G.ⁱ, Montagna, P.ⁱ, Riccardi, C.ⁱ, Salvini, P.ⁱ, Vercellati, F.ⁱ, Vitulo, P.ⁱ, Aleksandrov, A.^j, Genchev, V.^j, Iaydjiev, P.^j, Rodozov, M.^j, Stoykova, S.^j, Sultanov, G.^j, Vutova, M.^j, Choi, Y.^k, Kim, D.^k, Benussi, L.^l, Bianco, S.^l, Passamonti, L.^l, Piccolo, D.^l, Pierluigi, D.^l, Raffone, G.^l, Russo, A.^l, Saviano, G.^l, Ahmad, A.^m, Ahmed, W.^m, Ali, I.^m, Asghar, M.^m, Awan, I.^m, Hoorani, H.^m, Muhammad, S.^m, Shahzad, H.^m, Shoaib, M.^m, Ban, Y.ⁿ, Cai, J.ⁿ, Li, Q.ⁿ, Liu, S.ⁿ, Qian, S.ⁿ, Wang, D.ⁿ, Xu, Z.ⁿ, Zhang, F.ⁿ, Bernardino, S.^o, Iburguen, H.^o, Pedraza, I.^o, Bagaturia, I.^p, Tsamalaidze, Z.^p, Cabrera, A.^q, Chaparro, L.^q, Gomez, J.P.^q, Gomez, B.^q

Resistive plate chambers for 2013-2014 muon upgrade in CMS at LHC

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DOI: 10.1088/1748-0221/9/10/C10033

^a BARC, Electronics Division (BARC), Trombay, Mumbai, India

^b Physics Department CERN, Geneva 23, Switzerland

^c Panjab University, Department of Physics, Chandigarh Mandir, India

^d Helwan University, Qism Helwan, Cairo Governorate, Egypt

^e Academy of Scientific Research and Technology of the Arab Republic of Egypt, 101 Sharia Kasr El-Ain, Cairo, Egypt

^f Ghent University, Department of Physics and Astronomy, Proeftuinstraat 86, Ghent, Belgium

^g Università e INFN, Sezione di Bari, Via Orabona 4, Bari, Italy

^h INFN, Sezione di Napoli, Complesso Univ. Monte S. Angelo, Via Cintia, Napoli, Italy

ⁱ Università e INFN, Sezione di Pavia, Via Bassi 6, IT-Pavia, Italy

^j Bulgarian Academy of Sciences, Inst. for Nucl. Res. and Nucl. Energy, Tzarigradsko shaussee Boulevard 72, Sofia, Bulgaria

^k Kyungpook National University, Department of Physics, 80 Daehakro, Bukgu, Daegu, South Korea

^l INFN, Laboratori Nazionali di Frascati, PO Box 13, Via Enrico Fermi 40, Frascati, Italy

^m Islamabad-NCP, Quaid-I-Azam University, Islamabad, Pakistan

ⁿ Peking University, Department of Technical Physics, Beijing, China

^o Benemerita Universidad Autónoma de Puebla, Edif. 111 A Ciudad Universitaria, Av. San Claudio y 18 sur, Col.-San-Manuel-Pue.-C.P.-Puebla, Mexico

^p Tbilisi University, 1 Ilia Chavchavadze Ave, Tbilisi, Georgia

^q Universidad de Los Andes, Apartado Aéreo 4976, Carrera 1E, no. 18A 10, CO-Bogotá, Colombia

Abstract

During 2013 and 2014 (Long Shutdown LS1) the CMS experiment is upgrading the forward region installing a fourth layer of RPC detectors in order to complete and improve the muon system performances in the view of the foreseen high luminosity run of LHC. The new two endcap disks consists of 144 double-gap RPC chambers assembled at three different production sites: CERN, Ghent (Belgium) and BARC (India). The chamber components as well as the final detectors are subjected to full series of tests established in parallel at all the production sites. All assembly and test operations have been engineered in order to standardize and improve detector production. In this work the complete chamber construction, quality control procedures and preliminary results will be detailed. © CERN 2014, published under license by IOP Publishing Ltd and Sissa Medialab srl.

Author Keywords

Gaseous detectors; Muon spectrometers; Trigger detectors

Document Type: Conference Paper

Source: Scopus

Al Meslmani, B.^a, Mahmoud, G.^{a b}, Strehlow, B.^a, Mohr, E.^a, Leichtweiß, T.^c, Bakowsky, U.^a

Development of thrombus-resistant and cell compatible crimped polyethylene terephthalate cardiovascular grafts using surface co-immobilized heparin and collagen

(2014) *Materials Science and Engineering C*, 43, pp. 538-546. Cited 3 times.

DOI: 10.1016/j.msec.2014.07.059

^a Department of Pharmaceutical Technology and Biopharmaceutics, Marburg University, Ketzerbach 63, 35037 Marburg, Germany

^b Department of Pharmaceutics and Industrial Pharmacy, Helwan University, Ain Helwan, 11795 Cairo, Egypt

^c Institute of Physical Chemistry, Justus-Liebig-University, Heinrich-Buff-Ring 58, 35392 Giessen, Germany

Abstract

Short-term patency of polyethylene terephthalate (PET) cardiovascular grafts is determined mainly by the inherent thrombogenicity and improper endothelialization following grafts implantation. The aim of the present study was to immobilize heparin to develop thrombus resistant grafts. Additionally, collagen was co-immobilized to enhance the host cell compatibility. The synthetic woven and knitted forms of crimped PET grafts were surface modified by Denier reduction to produce functional carboxyl groups. The produced groups were used as anchor sites for covalent immobilization of heparin or co-immobilization of heparin/collagen by the end-point method. The modified surface was characterized using Fourier transform infrared spectroscopy and X-ray photoelectron spectroscopy. The biological activity of immobilized molecules was investigated in vitro using direct blood coagulation test, and "platelet deposition under flow condition. Furthermore, the biocompatibility of modified grafts with host cells was assessed using L929 cell as model. All modified grafts showed significant resistance against fibrin and clot formation. The number of deposited platelets on heparin-immobilized woven and knitted grafts obviously decreased by 3 fold and 2.8 fold per unit surface area respectively, while the heparin/collagen co-immobilized grafts showed only a decrease by 1.7 and 1.8 fold compared to unmodified PET. Heparin-immobilized grafts reported no significant effect on L929 cells adhesion and growth ($P > 0.05$), conversely, collagen co-immobilization considerably increased cell adhesion almost ~ 1.3 fold and 2 fold per unit surface area for woven and knitted grafts respectively. Our results emphasize that immobilization of heparin minimized the inherent thrombogenicity of the PET grafts. The simultaneous co-immobilization of collagen supported host cell adhesion and growth required for the grafts biocompatibility. © 2014 Elsevier B.V.

Author Keywords

Blood compatibility; Collagen; Crimped cardiovascular PET grafts; Heparin; Surface immobilization; Thrombus

Document Type: Article

Source: Scopus

Rezgui, Y.^c, El-Sawah, H.^{a b}, Moselhi, O.^b

Comparative study in the use of neural networks for order of magnitude cost estimating in construction

(2015) *Journal of Information Technology in Construction*, 19, pp. 462-473.

^a Faculty of Engineering, Helwan University, Cairo, Egypt

^b Department of Building Civil and Environmental Engineering, Concordia University, Montreal, Canada

Abstract

This paper presents a study on the use of artificial neural networks (ANNs) in preliminary cost estimating. The choice and the design of the ANN model significantly affect the results obtained from the model and, hence, the accuracy of the estimated cost. The study considered Back Propagation Neural Network (BPNN), Probabilistic Neural Network (PNN) and Generalized Regression Network (GRNN) as well as regression analysis. Models were developed for order of magnitude cost estimating of low-rise structural steel buildings and short-span timber bridges. The study was conducted on actual data for 35 low-rise structural steel buildings and their respective cost was estimated using the developed regression and ANN models. These models were also applied to estimate the cost of a timber bridge extracted from the literature. The results showed that the mean absolute percentage error (MAPE) for the neural network models ranges from 16.83% to 19.35% whereas was equal to 23.72% for the regression model. Moreover, the linear regression model was more sensitive to the change of the number of the training data and that the PNN network was the most stable network among all the other estimating models as the maximum difference in MAPE percentage was only 2.46%. Whereas, the maximum difference in MAPE was 19.47%, 17.91%, and 61.45% for BPNN, GRNN and regression models respectively. © 2014 The authors.

Author Keywords

Artificial neural networks; Cost estimating; Structural steel buildings

Document Type: Article

Source: Scopus

Dkhil, M.A.^{a b}, Al-Quraishy, S.^a, Diab, M.M.S.^c, Othman, M.S.^d, Aref, A.M.^e, Moneim, A.E.A.^{b f}

The potential protective role of *Physalis peruviana* L. fruit in cadmium-induced hepatotoxicity and nephrotoxicity (2014) *Food and Chemical Toxicology*, 74, pp. 98-106. Cited 4 times.

DOI: 10.1016/j.fct.2014.09.013

^a Department of Zoology, College of Science, King Saud University, Riyadh, Saudi Arabia

^b Department of Zoology and Entomology, Faculty of Science, Helwan University, Cairo, Egypt

^c Department of Molecular Drug Evaluation, National Organization for Drug Control and Research (NODCAR), Giza, Egypt

^d Department of Biochemistry and Molecular Biology, Faculty of Biotechnology, Modern Sciences and Arts (MSA), Giza, Egypt

^e Department of Biological Science, Faculty of Dentistry, Modern Sciences and Arts University (MSA), Giza, Egypt

^f Department of Biochemistry and Molecular Biology, Asturias Institute of Biotechnology, University of Oviedo, Oviedo, Spain

Abstract

This study aimed to investigate the potential protective role of *Physalis peruviana* L. (family Solanaceae) against cadmium-induced hepatorenal toxicity in Wistar rats. Herein, cadmium chloride (CdCl₂) (6.5mg/kg bwt/day) was intraperitoneally injected for 5 days, and methanolic extract of physalis (MEPh) was pre-administered to a group of Cd-treated rats by an oral administration at a daily dose of 200mg/kg bwt for 5 days. The findings revealed that CdCl₂ injection induced significant decreases in kidney weight and kidney index. Cadmium intoxication increased the activities of liver enzymes and the bilirubin level, in addition to the levels of uric acid, urea and creatinine were increased in the serum. The pre-administration of MEPh alleviated hepatorenal toxicity in Cd-treated rats. *Physalis* was noted to play a good hepatorenal protective role, reducing lipid peroxidation, nitric oxide, and enhancing enzymatic activities and non-enzymatic antioxidant molecule, glutathione, in hepatic and renal tissues of Cd-treated rats. Moreover, physalis treatment was able to reverse the histopathological changes in liver and kidney tissues and also increased the expression of Bcl-2 protein in liver and kidney of rats. Overall, the results showed that MEPh can induce antioxidant and anti-apoptotic effects and also exerts beneficial effects for the treatment of Cd-induced hepatorenal toxicity. © 2014 Elsevier Ltd.

Author Keywords

Cadmium; Kidney; Liver; Oxidative stress; *Physalis peruviana* L; Rats

Document Type: Article

Source: Scopus

Fathy, M.^a, El-Gamel, M.^b, El-Azab, M.S.^b

Legendre-Galerkin method for the linear Fredholm integro-differential equations

(2014) *Applied Mathematics and Computation*, 243, pp. 789-800.

DOI: 10.1016/j.amc.2014.06.057

^a Department of Engineering Physics and Mathematics, Faculty of Engineering, Helwan University, Egypt

^b Department of Mathematical Sciences, Faculty of Engineering, Mansoura University, Egypt

Abstract

This paper presents a study of the performance of the Galerkin method using Legendre basis functions for solving linear Fredholm integro-differential problems. Convergence and error estimation of the method were discussed. The method is then tested on several examples. Numerical results are included and comparisons with other methods are made to confirm the efficiency and accuracy of the method. © 2014 Elsevier Inc. All rights reserved.

Author Keywords

Galerkin; Gaussian quadrature; Legendre; Numerical

Document Type: Article

Source: Scopus

Al-Quraishy, S.^a, Dkhil, M.A.^{a b}, Abdel Moneim, A.E.^{b c}

Hepatotoxicity and oxidative stress induced by Naja hajecrude venom

(2014) *Journal of Venomous Animals and Toxins Including Tropical Diseases*, 20 (1), art. no. 42, . Cited 1 time.

DOI: 10.1186/1678-9199-20-42

^a Department of Zoology, College of Science, King Saud University, Riyadh, Saudi Arabia

^b Department of Zoology and Entomology, Faculty of Science, Helwan University, Cairo, Egypt

^c Department of Biochemistry and Molecular Biology, Asturias Institute of Biotechnology, University of Oviedo, Oviedo, Spain

Abstract

Background: Snake venoms are synthesized and stored in venom glands. Most venoms are complex mixtures of several proteins, peptides, enzymes, toxins and non-protein components. In the present study, we investigated the oxidative stress and apoptosis in rat liver cells provoked by Naja hajecrude injection (LD₅₀) after four hours. **Methods:** Wistar rats were randomly divided into two groups, the control group was intraperitoneally injected with saline solution while LD₅₀-dose envenomed group was intraperitoneally injected with venom at a dose of 0.025 µg/kg of body weight. Animals were killed four hours after the injection. Lipid peroxidation, nitric oxide and glutathione levels were measured as oxidative markers in serum and liver homogenate. In addition, liver function parameters and activities of antioxidant enzymes were determined. **Results:** N. hajecrude venom (0.025 µg/kg of body weight) enhanced lipid peroxidation and nitric oxide production in both serum and liver with concomitant reduction in glutathione, catalase, glutathione reductase and glutathione-S-transferase activities. Superoxide dismutase and glutathione peroxidase activities were significantly increased in liver of envenomed rats. These findings were associated with apoptosis induction in the liver. In addition, N. hajecrude venom caused hepatic injury as indicated by histopathological changes in the liver tissue with an elevation in total bilirubin, serum alanine aminotransferase, aspartate aminotransferase, γ-glutamyl transpeptidase, and alkaline phosphatase. **Conclusions:** Based on the present results, it can be hypothesized that N. hajecrude venom is a potent inducer of toxin-mediated hepatotoxicity associated with apoptosis in the liver. © 2014 Al-Quraishy et al.

Author Keywords

Apoptosis; Hepatotoxicity; Naja hajevenom; Oxidative stress; Rats

Document Type: Article

Source: Scopus

Nasr, T.^a, Bondock, S.^{b c}, Eid, S.^d

Design, synthesis, antimicrobial evaluation and molecular docking studies of some new thiophene, pyrazole and pyridone derivatives bearing sulfisoxazole moiety

(2014) *European Journal of Medicinal Chemistry*, 84, pp. 491-504. Cited 6 times.

DOI: 10.1016/j.ejmech.2014.07.052

^a Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Helwan University, 11795 Helwan, Cairo, Egypt

^b Department of Chemistry, Faculty of Science, Mansoura University, ET-35516 Mansoura, Egypt

^c Department of Chemistry, Faculty of Science, King Khalid University, 9004 Abha, Saudi Arabia

^d BioMed X Innovation Center, Neuenheimer Feld 583, 20 Heidelberg, Germany

Abstract

Development of new antimicrobial agents is a good solution to overcome drug-resistance problems. In this context, new functionalized thiophene, acrylamide, arylhydrazone, pyrazole and pyridone derivatives bearing sulfisoxazole moiety were designed, synthesized and evaluated for their in vitro antibacterial and antifungal activities. Among the synthesized compounds, thiophene 4d and 6-thiogluco-sylpyridone 17 displayed significant antibacterial activities against *Escherichia coli* (MIC, 0.007 µg/mL vs gentamycin 1.95 µg/mL) and *Bacillus subtilis* (MIC, 0.007 µg/mL vs ampicillin 0.24 µg/mL), respectively. Whereas, the pyrazole 6 showed the highest antifungal activity against *Aspergillus fumigatus* (MIC, 0.03 µg/mL vs amphotericin B 0.12 µg/mL). In general, most of the synthesized compounds exhibited better antimicrobial activities than sulfisoxazole; this might be attributed to the synergistic effect of the sulfonamide and attached heterocyclic moieties as well as the increased lipophilic characters of the synthesized compounds. Molecular docking studies indicated that the synthesized compounds could occupy both p-amino benzoic acid (PABA) and pterin binding pockets of the dihydropteroate synthase (DHPS), suggesting that the target compounds could act by the inhibition of microbial DHPS enzyme. The results provide important information for the future design of more potent antimicrobial agents. © 2014 Elsevier Ltd. All rights reserved.

Author Keywords

Antimicrobial agents; Molecular docking; Pyridone; Sulfonamide; Thiophene

Document Type: Article

Source: Scopus

Al-Johany, A.M.^a, Al-Sadoon, M.K.^a, Abdel Moneim, A.E.^b, Bauomy, A.A.^b, Diab, M.S.M.^{b c}

Histological, molecular and biochemical detection of renal injury after Echis pyramidum snake envenomation in rats

(2015) *Saudi Journal of Biological Sciences*, . Article in Press.

DOI: 10.1016/j.sjbs.2014.10.003

^a Department of Zoology, College of Science, King Saud University, Saudi Arabia

^b Department of Zoology and Entomology, Faculty of Science, Helwan University, Cairo, Egypt

^c Molecular Drug Evaluation Department, National Organization for Drug Control and Research (NODCAR), Giza, Egypt

Abstract

Nephrotoxicity is a common sign of snake envenomation. The present work aimed to clarify the effect of intraperitoneal injection of 1/8 LD₅₀ and 1/4 LD₅₀ doses of Echis pyramidum snake venom on the renal tissue of rats after 2, 4 and 6h from envenomation. Histopathological examination showed intense dose and time dependent abnormalities, including swelling glomerulus and tubular necrosis and damage as well as signs of intertubular medullary hemorrhage at early stages of envenomation. However, at late stages of envenomation by any of the doses under investigation, no intact renal corpuscles were recorded and complete lysis in renal corpuscles with ruptured Bowman's capsules was observed. Immunohistochemistry by immunohistochemical staining was used to test the protein expression of Bax in renal tissue of rats. The result showed that the expression of Bax in renal tissue sections of envenomated rats was increased according to dose and time-dependant manner. The isolation of DNA from the renal cells of envenomated rats pointed out to the occurrence of DNA fragmentation, which is another indicator for renal tissue injury especially after 6h of 1/4 LD₅₀ of E. pyramidum envenomation. Oxidative stress biomarkers malondialdehyde and nitrite/nitrate levels, antioxidant parameters; glutathione, total antioxidant capacity and catalase were assayed in renal tissue homogenates. The venom induced significant increase in the levels of malondialdehyde and nitrite/nitrate while the levels of glutathione, total antioxidant capacity and catalase were significantly decreased, especially after 6h of envenomation. The results revealed that the E. pyramidum induced dose and time-dependant significant disturbances in the physiological parameters in the kidney. We conclude that the use of the immunohistochemical techniques, the detection of DNA integrity and oxidative stress marker estimations are more specific tools that can clarify cellular injury and could point out to the defense activity of the renal tissue at envenomation. © 2014 The Authors.

Author Keywords

DNA fragmentation; Echis pyramidum; Immunohistochemistry; Oxidative stress; Rats; Renal histopathology

Document Type: Article in Press

Source: Scopus

Wunderlich, F.^a, Al-Quraishy, S.^b, Steinbrenner, H.^c, Sies, H.^{b c}, Dkhil, M.A.^{b d}

Towards identifying novel anti-Eimeria agents: trace elements, vitamins, and plant-based natural products

(2014) *Parasitology Research*, . Article in Press. Cited 6 times.

DOI: 10.1007/s00436-014-4101-8

^a Department of Biology, Heinrich-Heine-University Düsseldorf, Düsseldorf, Germany

^b Department of Zoology, College of Science, King Saud University, P.O. Box 2455, Riyadh, 11451, Saudi Arabia

^c Institute of Biochemistry and Molecular Biology I, Heinrich-Heine-University Düsseldorf, Düsseldorf, Germany

^d Department of Zoology and Entomology, Faculty of Science, Helwan University, Helwan, Egypt

Abstract

Eimeriosis, a widespread infectious disease of livestock, is caused by coccidian protozoans of the genus Eimeria. These obligate intracellular parasites strike the digestive tract of their hosts and give rise to enormous economic losses, particularly in poultry, ruminants including cattle, and rabbit farming. Vaccination, though a rational prophylactic measure, has not yet been as successful as initially thought. Numerous broad-spectrum anti-coccidial drugs are currently in use for treatment and prophylactic control of eimeriosis. However, increasing concerns about parasite resistance, consumer health, and environmental safety of the commercial drugs warrant efforts to search for novel agents with anti-Eimeria activity. This review summarizes current approaches to prevent and treat eimeriosis such as vaccination and commercial drugs, as well as recent attempts to use dietary antioxidants as novel anti-Eimeria agents. In particular, the trace elements selenium and zinc, the vitamins A and E, and natural products extracted from garlic, barberry, pomegranate, sweet wormwood, and other plants are discussed. Several of these novel anti-Eimeria agents exhibit a protective role against oxidative stress that occurs not only in the intestine of Eimeria-infected animals, but also in their non-parasitized tissues, in particular, in the first-pass organ liver. Currently,

it appears to be promising to identify safe combinations of low-cost natural products with high anti-Eimeria efficacy for a potential use as feed supplementation in animal farming. © 2014 Springer-Verlag Berlin Heidelberg.

Author Keywords

Anti-coccidial agents; Artemisinin; Berberine; Eimeria; Eimeriosis; Garlic; Selenium

Document Type: Article in Press

Source: Scopus

Khalil, B.^{a e}, Ou, C.^{b d}, Proulx-McInnis, S.^b, St-Hilaire, A.^b, Zanacic, E.^c

Statistical Assessment of the Surface Water Quality Monitoring Network in Saskatchewan

(2014) *Water, Air, & Soil Pollution*, 225 (10), . Article in Press. Cited 1 time.

DOI: 10.1007/s11270-014-2128-1

^a Civil Engineering Department, Helwan University, Cairo, Egypt

^b Statistical Hydrology Research Group, INRS-ETE, Quebec City, QC, Canada

^c Environmental Protection and Audit Division, Water Security Agency, Regina, SK, Canada

^d Faculty of Forestry and Environmental Management, University of New Brunswick, Fredericton, NB, Canada

^e Bioresource Engineering Department, McGill University, Ste-Anne-de-Bellevue, Quebec, H9X 3V9, Canada

Abstract

Surface water quality monitoring is one of the responsibilities of a number of provincial and federal environmental departments in Canada. In Saskatchewan, the Ministry of Environment is responsible for the province water quality monitoring network. The sampling effort was initiated 40 years ago and has been ongoing since, with varying degrees of spatial and temporal coverage. The main objective of the Saskatchewan monitoring network is the assessment of ambient water quality status. In addition, one of the main uses of the generated water quality data is the calculation of a Water Quality Index. The adequacy of the monitoring network to perform these tasks needs to be validated. The objective of this study is to provide a statistical assessment of two of the monitoring network main aspects, the water quality variables and their sampling frequency. A new rationalization approach is applied for the assessment and reselection of water quality variables. The proposed approach provides, in a systematic way, the optimal combinations of variables to continue measuring, variables that may be redundant and could be considered for discontinuance, and variables that may need to be added to the list of variables being measured. The confidence interval around the mean is used as the main criterion for the sampling frequency assessment. A design chart is provided for the sampling frequency assessment, which is easy to use, and provides an initial assessment of the number of samples required to provide a mean value with a predefined error percentage. © 2014 Springer International Publishing Switzerland.

Author Keywords

Monitoring networks; Sampling frequency; Water quality; Water quality indicators

Document Type: Article in Press

Source: Scopus

Darweesh, A.S.^a, Louka, M.L.^a, Hana, M.^b, Rashad, S.^b, El-Shinawi, M.^c, Sharaf-Eldin, A.^b, Kassim, S.K.^a

Validation of analytical breast cancer microarray analysis in medical laboratory

(2014) *Medical Oncology*, 31 (10), . Article in Press.

DOI: 10.1007/s12032-014-0201-7

^a Medical Biochemistry and Molecular Biology Department, Faculty of Medicine, Ain Shams University, Cairo, 11381, Egypt

^b IS Department, Faculty of Computers and Information, Helwan University, Helwan, Egypt

^c General Surgery Department, Faculty of Medicine, Ain Shams University, Cairo, Egypt

Abstract

A previously reported microarray data analysis by RISS algorithm on breast cancer showed over-expression of the growth factor receptor (Grb7) and it also highlighted Tweety (TTYH1) gene to be under expressed in breast cancer for the first time. Our aim was to validate the results obtained from the microarray analysis with respect to these genes. Also, the relationship between their expression and the different prognostic indicators was addressed. RNA was extracted from the breast tissue of 30 patients with primary malignant breast cancer. Control samples from the same patients were harvested at a distance of ≥ 5 cm from the tumour. Semi-quantitative RT-PCR analysis was done on all samples. There was a significant difference between the malignant and control tissues as regards Grb7 expression. It was significantly related to the presence of lymph node metastasis, stage and histological grade of the malignant tumours. There was a significant inverse relation between expression of Grb7 and expression of both oestrogen and

progesterone receptors. Grb7 was found to be significantly related to the biological classification of breast cancer. TTYH1 was not expressed in either the malignant or the control samples. The RISS by our group algorithm developed was laboratory validated for Grb7, but not for TTYH1. The newly developed software tool needs to be improved. © 2014 Springer Science+Business Media New York.

Author Keywords

Analysis; Breast; Cancer; Grb7; Microarray; Tweety

Document Type: Article in Press

Source: Scopus

Elbaz, A.M.^{a b}, Roberts, W.L.^a

Experimental characterization of methane inverse diffusion flame

(2014) *Combustion Science and Technology*, 186 (9), pp. 1249-1272.

DOI: 10.1080/00102202.2014.920835

^a Clean Combustion Research Center, King Abdullah University of Science and Technology, Jeddah, Saudi Arabia

^b Faculty of Engineering (Mataria), Helwan University, Cairo, Egypt

Abstract

This article presents 10-kHz images of OH-PLIF simultaneously with 2-D PIV measurements in an inverse methane diffusion flame. Under a constant fuel flow rate, the central air jet Re was varied, leading to air to fuel velocity ratio, V_r , to vary from 8.3 to 66.5. Starting from $V_r = 20.7$, the flame is commonly characterized by three distinct zones. The length of the lower fuel entrainment region is inversely proportional to V_r . The flames investigated resemble a string shear layer confining this zone, and converging into the second distinct region, the flame neck zone. The third region is the rest of the flame, which spreads in a jet-like manner. The inverse diffusion flames exhibit varying degrees of partial premixing, depending upon on the velocity ratio V_r , and this region of partial premixing evolves into a well-mixed reaction zone along the flame centerline. The OH distribution correlated with the changes in the mean characteristics of the flow through reduction in the local Reynolds number due to heat release. The existence of a flame suppresses or laminarizes the turbulence at early axial locations and promotes fluctuations at the flame tip for flames with $V_r < 49.8$. In addition, the flame jet width can be correlated to the OH distribution. In upstream regions of the flames, the breaks in OH are counterbalanced by flame closures and are governed by edge flame propagation. These local extinctions were found to occur at locations where large flow structures were impinging on the flame and are associated with a locally higher strain rate or correlated to the local high strain rates at the flame hole edges without this flow impinging. Another contributor to re-ignition was found to be growing flame kernels. As the flames approach global blow-off, these kernels become the main mechanism for re-ignition further downstream of the flames. At low V_r , laminarization within the early regions of the flame provides an effective shield, preventing the jet flow from penetrating through the flame. © Copyright © 2014 Taylor & Francis Group, LLC.

Author Keywords

Annular fuel jet; Inverse diffusion flame; OH-PLIF; PIV measurements

Document Type: Article

Source: Scopus

Kandil, A.^a, Tantawy, O.A.E.^b, El-Sheikh, S.A.^c, Abd El-Atif, A.M.^c

Soft semi compactness via soft ideals

(2014) *Applied Mathematics and Information Sciences*, 8 (5), pp. 2297-2306.

DOI: 10.12785/amis/080524

^a Mathematics Department, Faculty of Science, Helwan University, Helwan, Egypt

^b Mathematics Department, Faculty of Science, Zagazig University, Zagazig, Egypt

^c Mathematics Department, Faculty of Education, Ain Shams University, Cairo, Egypt

Abstract

In the present paper, we have continued to study the properties of soft topological spaces. We introduce new types of soft compactness based on the soft ideal I , in a soft topological space (X, τ, E) namely, soft I -compactness, soft semi- I -compactness, soft countably- I -compactness and soft countably semi- I -compactness. Also, several of their topological properties are investigated. The behaviour of these concepts under various types of soft functions has obtained. © 2014 NSP Natural Sciences Publishing Cor.

Author Keywords

Closed soft; Open soft; Soft closure; Soft countably semi- I -compact; Soft interior; Soft quasi H -closed; Soft S -closed; Soft semi lindel öf; Soft semi- I -compact; Soft set; Soft topological space

Document Type: Article
Source: Scopus

Sultan, T.I.^a, Emam, O.E.^a, Abohany, A.A.^b

A decomposition algorithm for solving a three level large scale linear programming problem
(2014) *Applied Mathematics and Information Sciences*, 8 (5), pp. 2217-2223.

DOI: 10.12785/amis/080515

^a Department of Information Systems, Faculty of Computer Science and Information, Helwan University, P.O. Box 11795, Egypt

^b Director of Electronic Document Management Systems, Human Resources Behalf, Telecom Egypt, Smart Village, B7, Egypt

Abstract

This paper presents a three level large scale linear programming problem in which the objective functions at every level are to be maximized. A three level programming problem can be thought as a static version of the Stackelberg strategy. An algorithm for solving a three planner model and a solution method for treating this problem are suggested. At each level we attempt to optimize its problem separately as a large scale programming problem using Dantzig and Wolfe decomposition method. Therefore, we handle the optimization process through a series of sub problems that can be solved independently. Finally, a numerical example is given to clarify the main results developed in this paper. © 2014 NSP Natural Sciences Publishing Cor.

Author Keywords

Decomposition algorithm; Large scale problems; Linear programming; Three-level programming

Document Type: Article
Source: Scopus

Saputera, W.H.^a, Mul, G.^a, Hamdy, M.S.^{a b}

Ti3+-containing titania: Synthesis tactics and photocatalytic performance
(2014) *Catalysis Today*, . Article in Press.

DOI: 10.1016/j.cattod.2014.07.049

^a Photocatalytic Synthesis Group, Faculty of Science and Technology, MESA+ Institute of Nanotechnology, University of Twente, The Netherlands

^b Chemistry Department, Faculty of Science, Helwan University, Ain Helwan, 11719 Cairo, Egypt

Abstract

Three different synthesis techniques were applied to prepare Ti3+-containing TiO₂. The first is a self-doped technique in which TiO₂ was reduced in situ at 500 °C by NO and CO gases to produce blue powder (blue titania). The second method is a calcination treatment of a physical mixture consisting of commercial TiO₂ Hombikat and Ti₂O₃ at 600 °C to produce a yellow powder (composite). The third technique is hydrogenation of different commercially available titania (Rutile, P25, and Hombikat) samples at elevated temperatures to produce yellowish white powders. The prepared samples were characterized by means of X-ray diffraction (XRD), nitrogen physisorption measurements, diffuse reflectance UV-Vis and Raman spectroscopy, electron paramagnetic resonance (EPR) spectroscopy, and scanning electron microscopy (SEM). The photocatalytic activity of the prepared materials was tested in the decolourization reaction of methyl orange (MO) under the illumination of 'black light' ($\lambda = 375$ nm). The kinetic data of the photocatalytic reactions show that reduced titania samples exhibit higher photocatalytic activity than titania. Furthermore, the highest photocatalytic activity was obtained by hydrogenation of P25 at 500 °C. Moreover, the photo-deposition of platinum nanoparticles on the prepared materials enhanced the photocatalytic performance significantly. Titania samples which were firstly platinized and then hydrogenated were much more active than samples which were hydrogenated first and then platinized. The stability of the Ti3+ containing titania samples in aqueous conditions was found to be low, and needs to be improved to allow application in practice. © 2014 Elsevier B.V. All rights reserved.

Author Keywords

Hydrogenation; Photocatalysis; Pt photo-deposition; Stability; Ti3+; TiO₂

Document Type: Article in Press
Source: Scopus

Allothman, O.Y.^{a b}, Fouad, H.^{c d}, Al-Zahrani, S.M.^a, Eshra, A.^{c e}, Al Rez, M.F.^c, Ansari, S.G.^f

Thermal, creep-recovery and viscoelastic behavior of high density polyethylene/hydroxyapatite nano particles for bone substitutes: Effects of gamma radiation

(2014) *BioMedical Engineering Online*, 13 (1), art. no. 125, .

DOI: 10.1186/1475-925X-13-125

^a Chemical Engineering Department, Faculty of Engineering, King Saud University, P. O. Box 800, Riyadh, Saudi Arabia

^b The Saudi Electronic University, P. O. Box 93499, Riyadh, Saudi Arabia

^c Applied Medical Science Department, Riyadh Community College, King Saud University, Riyadh, Saudi Arabia

^d Biomedical Engineering Department, Faculty of Engineering, Helwan University, P. O. Box 11792, Helwan, Egypt

^e Biomedical Engineering Department, Faculty of Engineering, Minia University, Minia, Egypt

^f Center for Interdisciplinary Research in Basic Sciences, Jamia Millia Islamia, New Delhi, India

Abstract

Background: High Density Polyethylene (HDPE) is one of the most often used polymers in biomedical applications. The limitations of HDPE are its visco-elastic behavior, low modulus and poor bioactivity. To improve HDPE properties, HA nanoparticles can be added to form polymer composite that can be used as alternatives to metals for bone substitutes and orthopaedic implant applications. **Method:** In our previous work (*BioMedical Engineering OnLine* 2013), different ratios of HDPE/HA nanocomposites were prepared using melt blending in a co-rotating intermeshing twin screw extruder. The accelerated aging effects on the tensile properties and torsional viscoelastic behavior (storage modulus (G') and Loss modulus (G'')) at 80°C of irradiated and non-irradiated HDPE/HA was investigated. Also the thermal behavior of HDPE/HA were studied. In this study, the effects of gamma irradiation on the tensile viscoelastic behavior (storage modulus (E') and Loss modulus (E'')) at 25°C examined for HDPE/HA nanocomposites at different frequencies using Dynamic Mechanical Analysis (DMA). The DMA was also used to analyze creep-recovery and relaxation properties of the nanocomposites. To analyze the thermal behavior of the HDPE/HA nanocomposite, Differential Scanning Calorimetry (DSC) was used. **Results:** The microscopic examination of the cryogenically fractured surface revealed a reasonable distribution of HA nanoparticles in the HDPE matrix. The DMA showed that the tensile storage and loss modulus increases with increasing the HA nanoparticles ratio and the test frequency. The creep-recovery behavior improves with increasing the HA nanoparticle content. Finally, the results indicated that the crystallinity, viscoelastic, creep recovery and relaxation behavior of HDPE nanocomposite improved due to gamma irradiation. **Conclusion:** Based on the experimental results, it is found that prepared HDPE nanocomposite properties improved due to the addition of HA nanoparticles and irradiation. So, the prepared HDPE/HA nanocomposite appears to have fairly good comprehensive properties that make it a good candidate as bone substitute. © 2014 Alothman et al.; licensee BioMed Central Ltd.

Author Keywords

Creep; DMA; Gamma radiation; HA; HDPE; Nano

Document Type: Article

Source: Scopus

Shimeis, A.^{a b}, Amory-Mazaudier, C.^{b c}, Fleury, R.^d, Mahrous, A.M.^a, Hassan, A.F.^a

Transient variations of vertical total electron content over some African stations from 2002 to 2012

(2014) *Advances in Space Research*, . Article in Press.

DOI: 10.1016/j.asr.2014.07.038

^a Space Weather Monitoring Center (SWMC), Faculty of Science, Helwan University, Egypt

^b LPP/Polytechnique/UPMC, CNRS, 4 Avenue de Neptune, 94107 Saint-Maur des fossés, France

^c ICTP, Trieste, Italy

^d Lab-STICC UMR 6285 Mines-Télécom Télécom Bretagne, CS 83818, 29288 Brest, Cedex 3, France

Abstract

This paper presents the vertical total electron content vTEC variations for three African stations, located at mid-low and equatorial latitudes, and operating since more than 10 years. The vTEC of the middle latitude GPS station in Alexandria, Egypt (31.2167°N; 29.9667°E, geographic) is compared to the vTEC of two others GPS stations: the first one in Rabat/Morocco (33.9981°N; 353.1457°E, geographic), and the second in Libreville/Gabon (0.3539°N; 9.6721°E, geographic). Our results discussed the diurnal, seasonal, and solar cycle dependences of vTEC at the local ionospheric conditions, during different phases of solar cycle in the light of the classification of Legrand and Simon. The vTEC over Alexandria exhibits the well-known equinoctial asymmetry which changes with the phases of the solar cycle; the spring vTEC is larger than that of autumn during the maximum, decreasing and minimum phases of solar cycle 23. During the increasing phase of solar cycle 24, it is the contrary. The diurnal variation of the vTEC presents multiple maxima during the equinox from 2005 to 2008 and during the summer solstice from 2006 to 2012. A nighttime vTEC enhancement and winter anomaly are also observed. During the deep solar minimum (2006-2009) the diurnal variation of the vTEC observed over Alexandria is similar to the diurnal variation observed during quiet

magnetic period at equatorial latitudes. We observed also that the amplitude of vTEC at Libreville is larger than the amplitude of vTEC observed at Alexandria and Rabat, indeed Libreville is near the southern crest of the Equatorial Ionization anomaly. Finally, the correlation coefficient between vTEC and the sunspot number Rz is high and changes with solar cycle phases. © 2014 COSPAR.

Author Keywords

Equinoctial asymmetry; Ionosphere; Solar cycle

Document Type: Article in Press

Source: Scopus

Ahmed, M.A.E.^a, El Morsy, E.M.^b, Ahmed, A.A.E.^b

Pomegranate extract protects against cerebral ischemia/reperfusion injury and preserves brain DNA integrity in rats

(2014) *Life Sciences*, 110 (2), pp. 61-69. Cited 2 times.

DOI: 10.1016/j.lfs.2014.06.023

^a Department of Pharmacology and Toxicology, Faculty of Pharmacy, Misr University for Science and Technology (MUST), 6th of October City, Giza, Egypt

^b Department of Pharmacology and Toxicology, Faculty of Pharmacy, Helwan University, Ein Helwan, Helwan, Egypt

Abstract

Aim Interruption to blood flow causes ischemia and infarction of brain tissues with consequent neuronal damage and brain dysfunction. Pomegranate extract is well tolerated, and safely consumed all over the world. Interestingly, pomegranate extract has shown remarkable antioxidant and anti-inflammatory effects in experimental models. Many investigators consider natural extracts as novel therapies for neurodegenerative disorders. Therefore, this study was carried out to investigate the protective effects of standardized pomegranate extract against cerebral ischemia/reperfusion-induced brain injury in rats. Main methods Adult male albino rats were randomly divided into sham-operated control group, ischemia/reperfusion (I/R) group, and two other groups that received standardized pomegranate extract at two dose levels (250, 500 mg/kg) for 15 days prior to ischemia/reperfusion (PMG250 + I/R, and PMG500 + I/R groups). After I/R or sham operation, all rats were sacrificed and brains were harvested for subsequent biochemical analysis. Key findings Results showed reduction in brain contents of MDA (malondialdehyde), and NO (nitric oxide), in addition to enhancement of SOD (superoxide dismutase), GPX (glutathione peroxidase), and GRD (glutathione reductase) activities in rats treated with pomegranate extract prior to cerebral I/R. Moreover, pomegranate extract decreased brain levels of NF-κB p65 (nuclear factor kappa B p65), TNF-α (tumor necrosis factor-alpha), caspase-3 and increased brain levels of IL-10 (interleukin-10), and cerebral ATP (adenosine triphosphate) production. Comet assay showed less brain DNA (deoxyribonucleic acid) damage in rats protected with pomegranate extract. Significance The present study showed, for the first time, that pre-administration of pomegranate extract to rats, can offer a significant dose-dependent neuroprotective activity against cerebral I/R brain injury and DNA damage via antioxidant, anti-inflammatory, anti-apoptotic and ATP-replenishing effects. © 2014 Elsevier Inc.

Author Keywords

ATP; Caspase-3; Cerebral ischemia/reperfusion; Comet assay; GPX; GRD; IL-10; MDA; NF-κB p65; Pomegranate extract; SOD; TNF-α

Document Type: Article

Source: Scopus

El-Sharkawi, F.^a, El Sabah, M.^b, Hassan, Z.^a, Khaled, H.^c

The biochemical value of urinary metalloproteinases 3 and 9 in diagnosis and prognosis of bladder cancer in Egypt

(2014) *Journal of Biomedical Science*, 21 (1), art. no. 72, .

DOI: 10.1186/s12929-014-0072-4

^a Department of Biochemistry and Molecular Biology, Faculty of Pharmacy, Helwan University, Cairo, Ein helwan, Egypt

^b Department of Biochemistry, Faculty of Pharmacy, Future University, Cairo, El tagamu El khames, Egypt

^c Department of Medical Oncology, National Cancer Institute, Cairo University, Cairo, Kasr el Eini, Egypt

Abstract

Background: Matrix metalloproteinases (MMPs) have long been associated with cancer-cell invasion and metastasis. Few studies are available that describe this association with bladder cancer either related or unrelated to schistosoma infection. Evaluating the urinary levels of MMP3 and MMP9 as diagnostic and prognostic biomarkers in different

stages of schistosomal and non schistosomal bladder cancer was the aim of the present study. Urine samples were collected from 70 patients with schistosomal and non schistosomal bladder cancer at early and advanced stages and also from 12 healthy volunteers as controls. Urinary levels of MMP-3 and MMP-9 was measured by ELISA technique. Sensitivity and specificity of both markers were determined. Results: Urinary levels of both MMP-3 and MMP-9 were significantly elevated in all bladder cancer patients compared with controls. MMP-3 started to elevate in early stages of schistosomal bladder cancer (0.173 ng/ml) and non-schistosomal bladder cancer patients (0.308 ng/ml) compared to control (0.016 ng/ml) and remained elevated in advanced stages (0.166, 0.235 ng/ml) of both types of bladder cancer patients. In contrast, MMP-9 showed a significant elevation in advanced stages only of both schistosomal and non schistosomal bladder cancer patients (10.33, 21.22 ng/ml) compared to control (0.409 ng/ml) and this elevation of both markers was much higher in non schistosomal bladder cancer. Both Metalloproteinases were specific for the diagnosis of the disease but MMP-3 was more sensitive and this sensitivity was evident in the early stage (84.85% for MMP3, 27.28% for MMP9). Conclusions: MMP3 may be the recommended urinary metalloproteinases as early diagnostic biomarker in the early stages of both types of bladder cancer although both MMP9 and MMP3 can be used in the diagnosis of advanced stages. Further studies are required on large number of urine samples to confirm these results. © 2014 El Sharkawi et al.; licensee BioMed Central.

Author Keywords

Bladder cancer; MMP3; MMP9; Schistosoma

Document Type: Article

Source: Scopus

Abdul-Kader, A.M.^{a b}

Surface modifications of PADC polymeric material by ion beam bombardment for high technology applications (2014) *Radiation Measurements*, 69, pp. 1-6.

DOI: 10.1016/j.radmeas.2014.07.013

^a Helwan University, Faculty of Science, Physics Department, Ain Helwan, Cairo, Egypt

^b Umm Al-Qura University, University College, Physics Department, Al-Qunfoza, Saudi Arabia

Abstract

Surface modification of Poly (allyl diglycol carbonate) (PADC) is induced by 150 keV Ag ions of different fluences. The pristine as well as bombarded samples were investigated by UV-Vis spectroscopy, Fourier transform-infrared analysis (FTIR) and micro-hardness tester. The variations of wettability and surface free energy were determined by the contact angle measurements. The obtained results showed that ion beam bombardment induced increase in the absorption spectra of the UV-Vis with increase of ion fluence as well. The direct and indirect optical band gap decreased from 4.2 to 3.6 eV for pristine sample to 3.2 and 2.5 eV for those bombarded with Ag ion beam at the highest fluence, respectively. Changes in chemical properties were observed by Fourier transform infrared spectroscopy. Increase in the wettability, surface free energy and work of adhesion with increase the ion fluence were observed. Ion bombardment inducing increasing in a micro-hardness surface due to the high carbon surface concentration and cross-linking effects in the polymeric chains. The bombarded PADC surfaces may find special applications to the field of the micro-electronic devices and printing process. © 2014 Elsevier Ltd. All rights reserved.

Author Keywords

Ion beam; Optical properties; PADC; Surface free energy; Surface hardness

Document Type: Article

Source: Scopus

Garbie, I.H.^{a b}

An analytical technique to model and assess sustainable development index in manufacturing enterprises (2014) *International Journal of Production Research*, 52 (16), pp. 4876-4915. Cited 7 times.

DOI: 10.1080/00207543.2014.893066

^a Department of Mechanical and Industrial Engineering, Sultan Qaboos University, Muscat, Oman

^b Department of Mechanical Engineering, Helwan University, Helwan, Egypt

Abstract

Sustainable development (SD) will be the driving force to Twenty-first Century as automation was to the Twentieth Century and stream was to Nineteenth Century. There are two levels of sustainability: Macro-Level (country, cities) and Micro-Level (manufacturing enterprises and its town and regional areas). In this paper, Micro-Level of sustainability will be discussed. The major challenge of manufacturing enterprises is modelling and assessing the sustainable development performance. Introducing indexes for sustainable development assessment in manufacturing enterprises is important not only to enable them to quantitatively estimate SD, but also to determine the

requirements of components for these enterprises to survive. The main objectives addressed in this paper is how to model the required components and how to introduce a new assessment framework for assessing sustainability from lowest levels, dimensions up to sustainable development level according to Micro-Level. The three pillars of sustainability (economic, social and environmental) are modelled, estimated and incorporated into a concept, the so-called general sustainable development index. Based on these concepts, the sustainable models will be analysed and presented through covering all aspects/issues of sustainability. The ultimate goal of this paper is considering the needs of manufacturing enterprise to be sustainable as well as to be globalised through introducing the concept of economic-social-environmental sustainable development and basic attitudes related to creating sustainable development value in engineering practices (economic), social (political) and environmental community. An industry-based case study is used to represent sustainability through aspects, performance metrics, indicators and pillars. © 2014 Taylor & Francis.

Author Keywords

manufacturing enterprises; social and environmental sustainability; sustainable development

Document Type: Article

Source: Scopus

Yu, M.^c, Hassan, H.E.^{a e}, Ibrahim, A.^a, Bauer, K.S.^b, Kelly, D.L.^d, Wang, J.B.^a

Simultaneous determination of l-tetrahydropalmatine and cocaine in human plasma by simple UPLC-FLD method: Application in clinical studies

(2014) *Journal of Chromatography B: Analytical Technologies in the Biomedical and Life Sciences*, 965, pp. 39-44. Cited 1 time.

DOI: 10.1016/j.jchromb.2014.06.020

^a Department of Pharmaceutical Sciences, School of Pharmacy, University of Maryland, Baltimore, MD 21201, United States

^b Department of Pharmacy Practice and Science, School of Pharmacy, University of Maryland, Baltimore, MD 21201, United States

^c Key Laboratory of Marine Drugs, Ministry of Education of China, School of Medicine and Pharmacy, Ocean University of China, Qingdao 266003, China

^d Maryland Psychiatric Research Center, University of Maryland School of Medicine, Baltimore, MD 21228, United States

^e Department of Pharmaceutics and Industrial Pharmacy, Faculty of Pharmacy, Helwan University, Cairo, Egypt

Abstract

Currently, there are no FDA approved medications for treatment of cocaine addiction underscoring the dire need to develop such a product. There is an accumulating body of evidence that l-tetrahydropalmatine (l-THP), a non-selective dopamine antagonist, can be used for the treatment of cocaine addiction. Indeed, the FDA recently approved its usage in a Phase I study in cocaine abusers and it was indispensable to develop a simple and sensitive method for the simultaneous determination of l-THP and cocaine in human plasma. We developed a UPLC-FLD method for quantitation of these molecules using an ACQUITY BEH C18 column (2.1 mm. × 50. mm, 1.7. µm) and a mobile phase that consisted of 10. mM ammonium phosphate (pH = 4.75), methanol, and acetonitrile (v:v:v, 78:16:6). Venlafaxine was used as the internal standard while hexane was used for the liquid-liquid extraction. The flow rate was 0.4. mL/min with fluorescence detection using an excitation wavelength of 230. nm and emission detection wavelength of 315. nm. This method was selective, linear and sensitive with a lower limit of quantification of 2.5. ng/mL for both cocaine and l-THP. The intra-day precision of cocaine and l-THP was <9.50% while the accuracy was <4.29%. The inter-day precision of cocaine and l-THP was <9.14%, and the accuracy was <12.49%. The recovery for cocaine and l-THP ranged from 43.95 to 50.02% and 54.65 to 58.31%, respectively. In comparison to forty reported cocaine quantitation methods this method is simple, sensitive and cost-effective and can be used for simultaneous quantitation of l-THP and cocaine. This method meets the FDA guidelines and can be used in current and future clinical studies. © 2014.

Author Keywords

Analysis; Cocaine; Fluorescence; Human plasma; L-THP; UPLC

Document Type: Article

Source: Scopus

Pawlowski, M.^a, Saraswathi, S.^a, Motawea, H.K.B.^{b c}, Chotani, M.A.^{b d}, Kloczkowski, A.^{a d}

In Silico modeling of human α2C-adrenoreceptor interaction with filamin-2

(2014) *PLoS ONE*, 9 (8), art. no. e103099, . Cited 2 times.

DOI: 10.1371/journal.pone.0103099

^a Battelle Center for Mathematical Medicine, Research Institute at Nationwide Children's Hospital, Columbus, OH, United States

^b Center for Cardiovascular and Pulmonary Research, Research Institute at Nationwide Children's Hospital, Columbus, OH, United States

^c Department of Pharmacology and Toxicology, Helwan University, Helwan, Egypt

^d Department of Pediatrics, Ohio State University, Columbus, OH, United States

Abstract

Vascular smooth muscle $\alpha 2C$ -adrenoceptors ($\alpha 2C$ -ARs) mediate vasoconstriction of small blood vessels, especially arterioles. Studies of endogenous receptors in human arteriolar smooth muscle cells (referred to as microVSM) and transiently transfected receptors in heterologous HEK293 cells show that the $\alpha 2C$ -ARs are perinuclear receptors that translocate to the cell surface under cellular stress and elicit a biological response. Recent studies in microVSM unraveled a crucial role of Rap1A-Rho-ROCK-F-actin pathways in receptor translocation, and identified protein-protein interaction of $\alpha 2C$ -ARs with the actin binding protein filamin-2 as an essential step in the process. To better understand the molecular nature and specificity of this interaction, in this study, we constructed comparative models of human $\alpha 2C$ -AR and human filamin-2 proteins. Finally, we performed in silico protein-protein docking to provide a structural platform for the investigation of human $\alpha 2C$ -AR and filamin-2 interactions. We found that electrostatic interactions seem to play a key role in this complex formation which manifests in interactions between the C-terminal arginines of $\alpha 2C$ -ARs (particularly R454 and R456) and negatively charged residues from filamin-2 region between residues 1979 and 2206. Phylogenetic and sequence analysis showed that these interactions have evolved in warm-blooded animals.

Document Type: Article

Source: Scopus

Mahmoud, O.^{a,c}, Harrison, A.^a, Perperoglou, A.^a, Gul, A.^a, Khan, Z.^a, Metodiev, M.V.^b, Lausen, B.^a

A feature selection method for classification within functional genomics experiments based on the proportional overlapping score

(2014) *BMC Bioinformatics*, 15 (1), art. no. 274, .

DOI: 10.1186/1471-2105-15-274

^a Department of Mathematical Sciences, University of Essex, Wivenhoe Park, Colchester, United Kingdom

^b School of Biological Sciences/Proteomics Unit, University of Essex, Wivenhoe Park, Colchester, United Kingdom

^c Department of Applied Statistics, Helwan University, Cairo, Egypt

Abstract

Background: Microarray technology, as well as other functional genomics experiments, allow simultaneous measurements of thousands of genes within each sample. Both the prediction accuracy and interpretability of a classifier could be enhanced by performing the classification based only on selected discriminative genes. We propose a statistical method for selecting genes based on overlapping analysis of expression data across classes. This method results in a novel measure, called proportional overlapping score (POS), of a feature's relevance to a classification task. **Results:** We apply POS, along-with four widely used gene selection methods, to several benchmark gene expression datasets. The experimental results of classification error rates computed using the Random Forest, k Nearest Neighbor and Support Vector Machine classifiers show that POS achieves a better performance. **Conclusions:** A novel gene selection method, POS, is proposed. POS analyzes the expressions overlap across classes taking into account the proportions of overlapping samples. It robustly defines a mask for each gene that allows it to minimize the effect of expression outliers. The constructed masks along-with a novel gene score are exploited to produce the selected subset of genes. © 2014 Mahmoud et al.; licensee BioMed Central Ltd.

Author Keywords

Feature selection; Gene mask; Gene ranking; Microarray classification; Minimum subset of genes; Proportional overlap score

Document Type: Article

Source: Scopus

Ivanova, M.Y.^a, Achenbach, T.M.^a, Rescorla, L.A.^b, Turner, L.V.^a, Ahmeti-Pronaj, A.^c, Au, A.^d, Maese, C.A.^e, Bellina, M.^f, Caldas, J.C.^g, Chen, Y.-C.^h, Csemy, L.ⁱ, da Rocha, M.M.^j, Decoster, J.^k, Dobrean, A.^l, Ezpeleta, L.^m, Fontaine, J.R.J.^k, Funabiki, Y.ⁿ, Guðmundsson, H.S.^o, Harder, V.S.^a, de la Cabada, M.L.^p, Leung, P.^q, Liu, J.^r, Mahr, S.^s, Malykh, S.^t, Maras, J.S.^u, Markovic, J.^v, Ndetei, D.M.^x, Oh, K.J.^w, Petot, J.-M.^y, Riad, G.^z, Sakarya, D.^{aa}, Samaniego, V.C.^{ab}, Sebre, S.^{ac}, Shahini, M.^c, Silves, E.^{ad}, Simulioniene, R.^{ae}, Sokoli, E.^{af}, Talcott, J.B.^{ag}, Vazquez, N.^{ah}, Zasepa, E.^{ai}

Syndromes of Self-Reported Psychopathology for Ages 18–59 in 29 Societies

(2015) *Journal of Psychopathology and Behavioral Assessment*, 37 (2), pp. 171-183.

DOI: 10.1007/s10862-014-9448-8

- ^a University of Vermont, 1 South Prospect Street, Burlington, VT, United States
- ^b Department of Psychology, Bryn Mawr College, 101 N. Merion Avenue, Bryn Mawr, PA, United States
- ^c Department of Child and Adolescent Psychiatry, University Clinical Center of Kosova, Prishtine, Kosovo, Serbia
- ^d Department of Applied Social Sciences, Hong Kong Polytechnic University, Hung Hom, Hong Kong, Kowloon, China
- ^e El Colegio de Chihuahua, Anillo envolvente del PRONAF y calle Partido Díaz, sin número, Colonia Progresista, Cd. Juárez, Chihuahua, Mexico
- ^f Department of Child Psychiatry, Eugenio Medea Scientific Institute, 7 Padiglione, Via Don Luigi Monza 20, Bosisio Parini, (Lecco), Italy
- ^g Departamento de Ciências Sociais e do Comportamento, Instituto Superior de Ciências da Saúde - Norte, Rua Central de Gandra, 1317, Gandra, PRD, Portugal
- ^h Department of Psychology, National Chung Cheng University, 168 University Road, Min-Hsiung, Chia-Yi, Taiwan
- ⁱ Prague Psychiatric Centre, Laboratory of Social Psychiatry, Ustavni 91, 181 03 Praha 8, Prague, Czech Republic
- ^j Institute of Human Sciences, University Paulista (Unip), Rua Francisco Bautista, 300, São Paulo, Brazil
- ^k Department of Personnel Management, Work, and Organizational Psychology, Ghent University, Henry Dunantlaan 2, Ghent, Belgium
- ^l Department of Clinical Psychology and Psychotherapy, Babes-Bolyai University, Republicii st. 37, Cluj Napoca, Romania
- ^m Departament de Psicologia Clínica i de la Salut, Edifici B, Universitat Autònoma de Barcelona, Bellaterra, Spain
- ⁿ Department of Psychiatry, Kyoto University Hospital, 54 Kawaharacho, Shogoin, Sakyo-ku, Kyoto, Japan
- ^o Faculty of Social Work, University of Iceland, Gimli v. Saemundargata, Reykjavik, Iceland
- ^p Department of Pediatrics, Texas Tech University Health Sciences Center, P. O. Box 43091, Lubbock, TX, United States
- ^q Department of Psychology, The Chinese University of Hong Kong, Room 356, Sino Building, Shatin, New Territories, Hong Kong, China
- ^r School of Nursing and Medicine, University of Pennsylvania, 418 Curie Blvd., Room 426, Claire M. Fagin Hall, Philadelphia, PA, United States
- ^s Département de Psychologie, Laboratoire EVACLIPSY, Université Paris Ouest Nanterre la Défense, Batiment C, 3e Etage, Salles C.319 & C.321, 200 Avenue de la République, Nanterre, France
- ^t Psychological Institute of Russian Academy of Education, Mokhovaya str., 9/4, Moscow, Russian Federation
- ^u Clinical Center of Vojvodina, Novi Sad, Serbia
- ^v Medical Faculty Novi Sad, Clinical Center of Vojvodina, University of Novi Sad, Hajduk Veljkova 1, Novi Sad, Serbia
- ^w Africa Mental Health Foundation, P.O. Box 48423-00100, Nairobi, Kenya
- ^x Department of Psychology, Yonsei University, 50 Yonsei-ro, Soedaemun-gu, Seoul, South Korea
- ^y Département de Psychologie, Laboratoire EVACLIPSY, Université de Paris Ouest, Batiment C, 3 Etage, Salles C.319 & C.321, 200 Avenue de la République, Nanterre, France
- ^z Helwan University, Cairo, Egypt
- ^{aa} Department of Psychiatry, Ankara University Faculty of Medicine, Ankara, Turkey
- ^{ab} Pontificia Universidad Católica Argentina, Buenos Aires, Argentina
- ^{ac} Department of Psychology, University of Latvia, Jurmalas Avenue 74/76, Riga, Latvia
- ^{ad} Instituto de Psicologia, University of São Paulo, Av. Prof. Mello Moraes 1721, Cidade Universitária, São Paulo, Brazil
- ^{ae} Department of Psychology, Klaipeda University, Herkaus Manto str. 84, Klaipeda, Lithuania
- ^{af} Department of Psychology, University of Tirana, Tirana, Albania
- ^{ag} Aston Brain Centre, School of Life and Health Sciences, Aston University, Aston Triangle, Birmingham, United Kingdom
- ^{ah} Pontificia Universidad Católica Argentina, Buenos Aires, Argentina
- ^{ai} The Maria Grzegorzewska Academy of Special Education, Room 3609, Szczesliwicka 40, Warsaw, Poland

Abstract

This study tested the multi-society generalizability of an eight-syndrome assessment model derived from factor analyses of American adults' self-ratings of 120 behavioral, emotional, and social problems. The Adult Self-Report (ASR; Achenbach and Rescorla 2003) was completed by 17,152 18–59-year-olds in 29 societies. Confirmatory factor analyses tested the fit of self-ratings in each sample to the eight-syndrome model. The primary model fit index (Root Mean Square Error of Approximation) showed good model fit for all samples, while secondary indices showed acceptable to good fit. Only 5 (0.06%) of the 8,598 estimated parameters were outside the admissible parameter space. Confidence intervals indicated that sampling fluctuations could account for the deviant parameters. Results thus supported the tested model in societies differing widely in social, political, and economic systems, languages,

ethnicities, religions, and geographical regions. Although other items, societies, and analytic methods might yield different results, the findings indicate that adults in very diverse societies were willing and able to rate themselves on the same standardized set of 120 problem items. Moreover, their self-ratings fit an eight-syndrome model previously derived from self-ratings by American adults. The support for the statistically derived syndrome model is consistent with previous findings for parent, teacher, and self-ratings of 1½–18-year-olds in many societies. The ASR and its parallel collateral-report instrument, the Adult Behavior Checklist (ABCL), may offer mental health professionals practical tools for the multi-informant assessment of clinical constructs of adult psychopathology that appear to be meaningful across diverse societies. © 2014, Springer Science+Business Media New York.

Author Keywords

Adult self-report; Cross-cultural; International; Psychopathology; Syndromes

Document Type: Article

Source: Scopus

Zahran, M.K.^a, Ahmed, H.B.^a, El-Rafie, M.H.^b

Surface modification of cotton fabrics for antibacterial application by coating with AgNPs-alginate composite (2014) *Carbohydrate Polymers*, 108 (1), pp. 145-152. Cited 12 times.

DOI: 10.1016/j.carbpol.2014.03.005

^a Chemistry Department, Faculty of Science, Helwan University, Ain-Helwan, Cairo 11795, Egypt

^b Textile Research Division, National Research Centre, Dokki, Cairo 12311, Egypt

Abstract

In recent years nano-sized particles have been focused on bacteriostasis. We investigated antimicrobial activities by applying AgNPs-alginate composite on cotton fabric, using a simple one-step rapid synthetic route by reduction of silver nitrate using alkali hydrolyzed alginate solution which acts as both reducing and capping agent. FTIR spectra, color coordinates, silver content, silver release percent and SEM images of treated fabric samples confirmed the successful physical deposition of AgNPs-alginate composite on the fabric. The treated fabrics demonstrated an excellent antibacterial activity against the tested bacteria, *Escherichia coli*, *Staphylococcus aureus* and *Pseudomonas aeruginosa*. A slight decrease in the antibacterial feature of the cotton fabrics was observed after successive washings. However, an efficient antibacterial activity still remained on the fabrics. © 2014 Elsevier Ltd.

Author Keywords

AgNPs-alginate composite; Antibacterial activity; Color coordinates; Silver content; Silver release

Document Type: Article

Source: Scopus

Abdelaziz, D.H.A., Ali, S.A.

The protective effect of Phoenix dactylifera L. seeds against CCl₄-induced hepatotoxicity in rats (2014) *Journal of Ethnopharmacology*, 155 (1), pp. 736-743. Cited 1 time.

DOI: 10.1016/j.jep.2014.06.026

Department of Biochemistry and Molecular Biology, Faculty of Pharmacy, Helwan University, Cairo, Egypt

Abstract

Ethnopharmacological relevance In traditional Egyptian medicine, *Phoenix dactylifera* L. (date palm) seeds are listed in folk remedies for the management of diabetes, liver diseases and gastrointestinal disorders. The present study was conducted to investigate the protective effect of *Phoenix dactylifera* L. seeds aqueous suspension against the chemically-induced hepatic injury in rats. Methods Liver injury was achieved by exposing Wistar rats to CCl₄ (10% in olive oil; 0.5 mL/rat; IP) twice a week for 4 weeks. Along with CCl₄, aqueous suspensions of raw or roasted *Phoenix dactylifera* seeds (1.0 g/kg) were administered orally in a daily manner. Results Our results demonstrated that *Phoenix dactylifera* seeds significantly improved the CCl₄-induced alterations in liver function parameters (AST, ALT, ALP and albumin). Moreover, the CCl₄-induced oxidative stress, represented by elevated thiobarbituric acid reactive substance (TBARS), nitric oxide and oxidative DNA damage, was ameliorated by *Phoenix dactylifera* seeds treatment. In addition, *Phoenix dactylifera* seeds restored the activities of hepatic antioxidant enzymes (superoxide dismutase and glutathione S-transferase) that were declined after CCl₄ treatment. Examination of liver histopathology revealed that *Phoenix dactylifera* seeds attenuate the incidence of liver lesions (including vacuolization and fibroblast proliferation) triggered by CCl₄ intoxication. Conclusion The *Phoenix dactylifera* seeds could be a promising candidate for protection against the CCl₄-induced liver intoxication, and this hepatoprotective effect might be attributed to the antioxidant and free radical scavenging activities. © 2014 Elsevier Ireland Ltd. All rights reserved.

Author Keywords

Antioxidants; Carbon tetrachloride; Hepatoprotective; Oxidative stress; *Phoenix dactylifera* seeds

Document Type: Article
Source: Scopus

Al-Saeed, T.A.^a, El-Zaiat, S.Y.^b

Modeling of vision loss due to vitreous hemorrhage by Monte Carlo simulation
(2014) *Journal of biomedical optics*, 19 (8), p. 085009.

DOI: 10.1117/1.JBO.19.8.085009

^a Helwan University, Faculty of Engineering, Biomedical Engineering Department, 1 Sherif Street, Helwan, 11792, Cairo, Egypt

^b Ain-Shams University, Faculty of Science, Physics Department, Abbassia, 11566, Cairo, Egypt

Abstract

Vitreous hemorrhage is the leaking of blood into the vitreous humor which results from different diseases. Vitreous hemorrhage leads to vision problems ranging from mild to severe cases in which blindness occurs. Since erythrocytes are the major scatterers in blood, we are modeling light propagation in vitreous humor with erythrocytes randomly distributed in it. We consider the total medium (vitreous humor plus erythrocytes) as a turbid medium and apply Monte Carlo simulation. Then, we calculate the parameters characterizing vision loss due to vitreous hemorrhage. This work shows that the increase of the volume fraction of erythrocytes results in a decrease of the total transmittance of the vitreous body and an increase in the radius of maximum transmittance, the width of the circular strip of bright area, and the radius of the shadow area.

Document Type: Article
Source: Scopus

Abd El-Aziz, M.^{a b}

Effect of time-dependent chemical reaction on stagnation point flow and heat transfer over a stretching sheet in a nanofluid
(2014) *Physica Scripta*, 89 (8), art. no. 085205, .

DOI: 10.1088/0031-8949/89/8/085205

^a Helwan University, Faculty of Science, Mathematics Department, PO Box, 11795, Cairo, Egypt

^b King Khalid University, Faculty of Science, Mathematics Department, Abha 9004, Saudi Arabia

Abstract

The unsteady two-dimensional boundary layer stagnation-point flow of a nanofluid over a heated stretching sheet is investigated numerically. The unsteadiness in the flow, temperature and nanoparticle concentration fields is caused by the time-dependence of the stretching velocity, the free stream velocity and the surface temperature and concentration. The transport model employed includes the effects of Brownian motion, thermophoresis and time-dependent chemical reaction. The resulting non-linear governing equations with the associated boundary conditions are solved numerically using the shooting technique with the aid of similarity transformation. The velocity, temperature and nanoparticle volume fraction profiles, as well as the local Nusselt and Sherwood numbers, are analyzed due to the effect of the involved parameters of interest, namely the Brownian motion parameter N_b , thermophoresis parameter N_t , unsteadiness parameter S , velocity ratio parameter, chemical reaction parameter, Prandtl number and Lewis number Le . It is found that the mass transfer process at the solid-fluid interface is stopped for some values of Le , N_b , and N_t despite of the continuity of the heat transfer process for the same parameter values. © 2014 The Royal Swedish Academy of Sciences.

Author Keywords

chemical reaction; heat transfer; nanofluid; stagnation point flow

Document Type: Article
Source: Scopus

El-Deken, S.F.^{a b}

Extensions of homogeneous semilocal rings I
(2014) *Journal of Algebra and its Applications*, 13 (5), art. no. 1350157, .

DOI: 10.1142/S0219498813501570

^a Umm Al Qura University, P.O. Box 715, Makkah Al Mukarramah, Saudi Arabia

^b Department of Mathematics, Faculty of Science, Helwan University, Ain Helwan, 11790, Helwan, Egypt

Abstract

A ring R with Jacobson radical $J(R)$ is a homogeneous semilocal ring if $R/J(R)$ is simple artinian. In this paper, we study the transfer of the property of being homogeneous semilocal from a ring R to the formal power series ring $R[[x]]$, the skew formal power series ring $R[[x, \alpha]]$ and the Hurwitz series ring HR . The results of the paper generalize those proved for commutative local rings. We also consider finite centralizing extensions proving that if the ring of matrices $M_n(R)$ is a homogeneous semilocal ring, then so is R . More generally, if e is an idempotent of a homogeneous semilocal ring S , then eSe is homogeneous semilocal. © World Scientific Publishing Company.

Author Keywords

Formal power series; Hurwitz series; Noncommutative local and semilocal

Document Type: Article

Source: Scopus

Tawfik, A.^a, Zaki, D.F.^b, Zahran, M.K.^c

Degradation of reactive dyes wastewater supplemented with cationic polymer (Organo Pol.) in a down flow hanging sponge (DHS) system

(2014) *Journal of Industrial and Engineering Chemistry*, 20 (4), pp. 2059-2065.

DOI: 10.1016/j.jiec.2013.09.031

^a Egypt-Japan University of Science and Technology (E-Just), Environmental Engineering Department, P.O. Box 179, New Borg El Arab City, 21934 Alexandria, Egypt

^b Central Laboratory for Environmental Quality Monitoring, National Water Research Center, El-Kanater, Cairo, Egypt

^c Helwan University, Faculty of Science, Department of Chemistry, Ain-Helwan, P.O. Box 11795, Cairo, Egypt

Abstract

Decolorization of reactive dyes wastewater supplemented with 1. mg/l cationic polymer (Organo Pol.) in a down flow hanging sponge (DHS) system was investigated at different HRTs and OLRs. The results obtained revealed that, increasing the HRT from 1.7 to 5. h, significantly increased the removal efficiencies of color and COD i.e. at a HRT of 5. h, and OLR not exceeding 2.8. g. COD/l. d, the reactor achieved removal efficiencies of $66.5 \pm 7.07\%$ for COD t and $90.12 \pm 3.13\%$ for color. However, at longer HRT of 6.0. h, the decolorization process was substantially dropped, due to high salinity content in the influent. © 2013 The Korean Society of Industrial and Engineering Chemistry.

Author Keywords

Cationic polymer; DHS; HRT; Reactive dyes wastewater; Salinity

Document Type: Article

Source: Scopus

El-Rafie, M.H.^a, Ahmed, H.B.^b, Zahran, M.K.^b

Characterization of nanosilver coated cotton fabrics and evaluation of its antibacterial efficacy

(2014) *Carbohydrate Polymers*, 107 (1), pp. 174-181. Cited 13 times.

DOI: 10.1016/j.carbpol.2014.02.024

^a Textile Research Division, National Research Centre, Dokki, Cairo 12311, Egypt

^b Chemistry Department, Faculty of Science, Helwan University, Ain-Helwan, Cairo 11795, Egypt

Abstract

An ecological and viable method for coating of cotton fabrics with silver nanoparticles (AgNPs) has been carried out. Nanocoated fabrics were characterized by scanning electron microscopy, energy dispersive X-ray and infrared spectroscopy. Color coordinates and silver release were assessed and the impact of repeated washings was evaluated. Silver contents were measured using atomic absorption spectroscopy and were 109.07 and 97.85 mg/kg for the fabrics treated with 100 ppm of AgNPs in presence and absence of binder respectively. Antibacterial activities of the cotton fabrics coated by AgNPs were evaluated qualitatively and quantitatively, and the results explored that, regardless of the concentration of AgNPs used, the biocidability was always higher without washing. However, for all coated fabrics, a sufficient antibacterial action still observed after 20 washings. The results revealed that valuable antibacterial textiles which are required in different medical textile fields could be successfully produced. © 2014 Elsevier Ltd.

Author Keywords

AgNPs; Antibacterial activity; Color coordinates; Silver release

Document Type: Article**Source:** ScopusEl-Sheikh, S.M.^a, El-Sherbiny, S.^b, Barhoum, A.^b, Deng, Y.^c**Corrigendum to "Effects of cationic surfactant during the precipitation of calcium carbonate nano-particles on their size, morphology, and other characteristics" [Colloids Surf. A: Physicochem. Eng. Asp. 422 (2013) 44-49] (2014) *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, 453 (1), p. 177. Cited 1 time.****DOI:** 10.1016/j.colsurfa.2014.04.001^a Nanostructured Materials Division, Advanced Materials Department, CMRDI, P.O. Box 87, Helwan, 11421 Cairo, Egypt^b Applied Chemistry, Chemistry Department, Faculty of Science, Helwan University, Helwan, Egypt^c School of Chemical and Biomolecular Engineering, Georgia Institute of Technology, 500 10th Street N.W., Atlanta, GA 30332-0620, United States**Document Type:** Erratum**Source:** ScopusElshandidy, T.^{a d}, Fraser, I.^b, Hussainey, K.^c**What drives mandatory and voluntary risk reporting variations across Germany, UK and US?** (2014) *British Accounting Review*, . Article in Press.**DOI:** 10.1016/j.bar.2014.06.001^a The University of Bristol, UK^b The University of Stirling, UK^c The University of Plymouth, UK^d The University of Helwan, Egypt**Abstract**

This paper utilises computerised textual analysis to explore the extent to which both firm and country characteristics influence mandatory and voluntary risk reporting (MRR and VRR) variations both within and between non-financial firms across Germany, the UK and the US, over the period from 2005 to 2010. We find significant variations in MRR and VRR between firms across the three countries. Further, we find, on average, that German firms tend to disclose significantly higher (lower) levels of risk information mandatorily than UK (US) firms. German firms, on average, tend to reveal considerably higher (lower) levels of VRR than US (UK) firms. Our results document that MRR and VRR variations are significantly influenced by systematic risk, the legal system and cultural values. We also find that country and firm characteristics have higher explanatory power over the observed variations in MRR than over those in VRR. © 2014 Elsevier Ltd. All rights reserved.

Author Keywords

Automated content analysis; Firm and country characteristics; Mandatory and voluntary risk reporting variations; Repeated measures multilevel analysis

Document Type: Article in Press**Source:** ScopusKandil, A.^a, Tantawy, O.A.E.^b, El-Sheikh, S.A.^c, Abd El-Latif, A.M.^c**Supra generalized closed soft sets with respect to an soft ideal in supra soft topological spaces** (2014) *Applied Mathematics and Information Sciences*, 8 (4), pp. 1731-1740.**DOI:** 10.12785/amis/080430^a Mathematics Department, Faculty of Science, Helwan University, Helwan, Egypt^b Mathematics Department, Faculty of Science, Zagazig University, Zagazig, Egypt^c Mathematics Department, Faculty of Education, Ain Shams University, Cairo, Egypt**Abstract**

The concept of soft ideal was first introduced by Kandil et al. [13]. In 1999, Molodtsov [22] introduced the concept of soft sets as a general mathematical tool for dealing with uncertain objects. The concept of generalized closed soft sets in soft topological spaces was introduced by Kannan [15] in 2012. The notions of supra soft topological space were first introduced by Kandil et al. [14]. In this paper, we introduce the concept of supra generalized closed soft sets (supra g-closed soft for short) in a supra topological space (X, μ, E) and study their properties in detail. Also, we introduce the

concept of supra generalized closed soft sets with respect to a soft ideal (supra- $\bar{I}g$ -closed soft for short) in a supra topological space (X, μ, E) and study their properties in detail, which is the extension of the concept of supra generalized closed soft sets. © 2014 NSP Natural Sciences Publishing Cor.

Author Keywords

Closed soft; Open soft; Soft Ig -open sets and continuous soft mappings; Soft sets; Soft topological space; Supra closed soft; Supra g -closed soft; Supra g -open soft; Supra open soft; Supra soft topological space; Supra- $\bar{I}g$ -closed soft; Supra- $\bar{I}g$ -open soft sets

Document Type: Article

Source: Scopus

Kandil, A.^a, Tantawy, O.A.E.^b, El-Sheikh, S.A.^c, Abd El-Atif, A.M.^c

Soft ideal theory soft local function and generated soft topological spaces

(2014) *Applied Mathematics and Information Sciences*, 8 (4), pp. 1595-1603.

DOI: 10.12785/amis/080413

^a Mathematics Department, Faculty of Science, Helwan University, Helwan, Egypt

^b Mathematics Department, Faculty of Science, Zagazig University, Zagazig, Egypt

^c Mathematics Department, Faculty of Education, Ain Shams University, Cairo, Egypt

Abstract

The purpose of this paper is to introduce the notion of soft ideal in soft set theory. The concept of soft local function is also introduced. These concepts are discussed with a view to find new soft topologies from the original one. The basic structure, especially a basis for such generated soft topologies also studied here. Finally, the notion of compatibility of soft ideals with soft topologies is introduced and some equivalent conditions concerning this topic are established here. © 2014 NSP Natural Sciences Publishing Cor.

Author Keywords

*-soft topology; Closed soft; Compatible soft ideal; Open soft; Soft closure; Soft ideal; Soft interior; Soft local function; Soft set; Soft topological space

Document Type: Article

Source: Scopus

Ismail, S.A.^a, Kettanah, Y.A.^{b c}, Chalabi, S.N.^b, Ahmed, A.H.^{d e}, Arai, S.^f

Corrigendum to the paper titled "Petrogenesis and PGE distribution in the Al- and Cr-rich chromitites of the Qalander ophiolite, northeastern Iraq: Implications for the tectonic environment of the Iraqi Zagros Suture Zone" [Lithos, 202-203, (2014) 21-36] (DOI:10.1016/j.lithos.2014.05.013)

(2014) *Lithos*, . Article in Press.

DOI: 10.1016/j.lithos.2014.06.009

^a Department of Applied Geology, College of Science, Kirkuk University, Kirkuk, Iraq

^b Department of Geology, College of Science, Salahaddin University, Erbil, Iraq

^c Department of Earth Sciences, College of Science, Dalhousie University, Halifax, Canada

^d Faculty of Earth Sciences, King Abdulaziz University, Saudi Arabia

^e Geology Department, Faculty of Science, Helwan University, Cairo, Egypt

^f Department of Earth Sciences, Kanazawa University, Kanazawa, Japan

Document Type: Article in Press

Source: Scopus

Villemagne, B.^{a b c d e}, Flipo, M.^{a b c d e}, Blondiaux, N.^{a c d e f g h}, Crauste, C.^{a b c d e}, Malaquin, S.^{a b c d e}, Leroux, F.^{a b c d e}, Piveteau, C.^{a b c d e}, Villeret, V.^{a c i j}, Brodin, P.^{a c d f g h}, Villoutreix, B.O.^{m n}, Sperandio, O.^{m n}, Soror, S.H.^{k o}, Wohlkönig, A.^k, Wintjens, R.^{i l}, Deprez, B.^{a b c d e}, Baulard, A.R.^{a c d e f g h}, Willand, N.^{a b c d e}

Ligand efficiency driven design of new inhibitors of mycobacterium tuberculosis transcriptional repressor EthR using fragment growing, merging, and linking approaches

(2014) *Journal of Medicinal Chemistry*, 57 (11), pp. 4876-4888. Cited 6 times.

DOI: 10.1021/jm500422b

- ^a Université Lille Nord de France, F-59044 Lille, France
^b Biostructures and Drug Discovery, INSERM U761, F-59006 Lille, France
^c UDSL, F-59000 Lille, France
^d Institut Pasteur de Lille, F-59019 Lille, France
^e PRIM, F-59006 Lille, France
^f INSERM U1019, F-59019 Lille, France
^g CNRS UMR8204, F-59021 Lille, France
^h Center for Infection and Immunity of Lille, F-59019 Lille, France
ⁱ IRI, USR 3078 CNRS, F-59658 Villeneuve d'Ascq, France
^j Laboratory of Molecular Virology, IBBM, Université Libre de Bruxelles, 6041 Gosselies, Belgium
^k Structural Biology Brussels and Molecular and Cellular Interactions, VIB, Brussels, Belgium
^l Laboratoire de Chimie Générale, Institut de Pharmacie, Université Libre de Bruxelles, Brussels, Belgium
^m INSERM, UMRS 973, MTi, F- 75013 Paris, France
ⁿ Univ Paris Diderot, F-75205 Paris, France
^o Helwan Structure Biology Research, Faculty of Pharmacy, Helwan University, Cairo, Egypt

Abstract

Tuberculosis remains a major cause of mortality and morbidity, killing each year more than one million people. Although the combined use of first line antibiotics (isoniazid, rifampicin, pyrazinamide, and ethambutol) is efficient to treat most patients, the rapid emergence of multidrug resistant strains of *Mycobacterium tuberculosis* stresses the need for alternative therapies. Mycobacterial transcriptional repressor EthR is a key player in the control of second-line drugs bioactivation such as ethionamide and has been shown to impair the sensitivity of the human pathogen *Mycobacterium tuberculosis* to this antibiotic. As a way to identify new potent ligands of this protein, we have developed fragment-based approaches. In the current study, we combined surface plasmon resonance assay, X-ray crystallography, and ligand efficiency driven design for the rapid discovery and optimization of new chemotypes of EthR ligands starting from a fragment. The design, synthesis, and in vitro and ex vivo activities of these compounds will be discussed. © 2014 American Chemical Society.

Document Type: Article

Source: Scopus

Gouhar, R.S.^a, Raafat, E.^b

Synthesis of (3-(naphthalen-1-yl)oxiran-2-yl)(5,6,7,8-tetrahydronaphthalen-2-yl)methanone and reaction with some nucleophiles for anticancer evaluation

(2014) *Research on Chemical Intermediates*, 41 (8), pp. 5529-5543.

DOI: 10.1007/s11164-014-1679-5

^a Therapeutic Chemistry Department, National Research Centre, Dokki, Cairo, Egypt

^b Pharmacology and Toxicology Department, Faculty of Pharmacy, Helwan University, Cairo, Egypt

Abstract

(3-(Naphthalen-1-yl)oxiran-2-yl)(5,6,7,8-tetrahydronaphthalen-2-yl)methanone was prepared and allowed to react with different nucleophile agents such as hydrazine hydrate, phenyl hydrazine, methyl hydrazine, and hydroxylamine hydrochloride to give hydroxy pyrazole 2 and hydroxy oxazole 3. Also, oxirane 1 reacted with semicarbazide and thiosemicarbazide to give substituted pyrazole 4a,b. Also, oxirane 1 was allowed to react with carbon disulfide, glycine, substituted isothiocyanate, and thiourea to give compounds 5-8, respectively. The thiopyrimidine derivative 8 was cyclized by chloroacetic acid or ethyl bromoacetate to give thiazolidine derivative 9, which condensed with different aldehydes to give compound 10a-c. Some of these newly synthesized compounds were evaluated as anticancer agents. © 2014 Springer Science+Business Media.

Author Keywords

Anticancer agent; Caco-2; Hep-G2 cells; Oxazoles; Pyrazoles; Thiazoles; Thiopyrimidine

Document Type: Article

Source: Scopus

Lopez-Garcia, M.^a, Ho, Y.-L.D.^a, Taverne, M.P.C.^a, Chen, L.-F.^a, Murshidy, M.M.^{b c d}, Edwards, A.P.^b, Serry, M.Y.^d, Adawi, A.M.^b, Rarity, J.G.^a, Oulton, R.^a

Efficient out-coupling and beaming of Tamm optical states via surface plasmon polariton excitation

(2014) *Applied Physics Letters*, 104 (23), art. no. 231116, . Cited 2 times.

DOI: 10.1063/1.4882180

^a Department of Electrical and Electronic Engineering, University of Bristol, Faculty of Engineering, University Walk, Bristol BS8 1TR, United Kingdom

^b Department of Physics and Mathematics, University of Hull, Cottingham Road, HU6 7RX Hull, United Kingdom

^c Department of Physics, Faculty of Science, Helwan University, Helwan, Egypt

^d Yousef Jameel Science and Technology Research Center, American University in Cairo, Egypt

Abstract

We present evidence of optical Tamm states to surface plasmon polariton (SPP) coupling. We experimentally demonstrate that for a Bragg stack with a thin metal layer on the surface, hybrid Tamm-SPP modes may be excited when a grating on the air-metal interface is introduced. Out-coupling via the grating to free space propagation is shown to enhance the transmission as well as the directionality and polarization selection for the transmitted beam. We suggest that this system will be useful on those devices, where a metallic electrical contact as well as beaming and polarization control is needed. © 2014 AIP Publishing LLC.

Document Type: Article

Source: Scopus

Mostafa, A.M.^{a b}, Youssef, A.E.^{a c}

PRP: A primary replacement protocol based on early discovery of battery power failure in MANETs

(2015) *Multimedia Tools and Applications*, 74 (16), pp. 6243-6254.

DOI: 10.1007/s11042-014-2091-2

^a College of Computers and Information Sciences (CCIS), King Saud University, Riyadh, KSA, Saudi Arabia

^b Systems and Computers Department, Alazhar University, Cairo, Egypt

^c Department of Electronics, Communications and Computers Engineering, Helwan University, Cairo, Egypt

Abstract

In cooperative Mobile Ad-hoc Networks (MANETs), copies of data are replicated on different mobile devices to improve system's availability. A primary or authoritative control node is assigned to act as a coordinator for the shared data copies, when this primary fails, another node has to be elected to replace the failed one. Since mobile devices have a limited battery power, the primary may fail at any time. Moreover, current primary election protocols in MANETs employ a notable wireless communication overhead which consumes a considerable amount of battery power. In this paper, we propose a novel protocol, called Primary Replacement Protocol (PRP), to replace an exhausted primary in MANETs based on the measurement of its remaining battery power early before it dies. More specifically, PRP replaces the exhausted primary with a healthy node when its remaining battery power reaches a predefined threshold. This replacement can be accomplished with much less communication overhead. Hence, our approach has two contributions: 1) reducing the chance of primary outage by early detection of potential power failure, 2) saving the power that is consumed in traditional primary election approaches due to communication overhead. © 2014, Springer Science+Business Media New York.

Author Keywords

MANETs; Power failure awareness; Primary backup approach; Primary election; Replication

Document Type: Article

Source: Scopus

Elsayed, K.^{a b}, Lacor, C.^a

Robust parameter design optimization using Kriging, RBF and RBFNN with gradient-based and evolutionary optimization techniques

(2014) *Applied Mathematics and Computation*, 236, pp. 325-344. Cited 2 times.

DOI: 10.1016/j.amc.2014.03.082

^a Vrije Universiteit Brussel, Department of Mechanical Engineering, Research Group Fluid Mechanics and Thermodynamics, Pleinlaan 2, 1050 Brussels, Belgium

^b Mechanical Power Engineering Department, Faculty of Engineering at El-Mattaria, Helwan University, Masaken El-Helmia P.O., Cairo 11718, Egypt

Abstract

The dual response surface methodology is one of the most commonly used approaches in robust parameter design to simultaneously optimize the mean value and keep the variance minimum. The commonly used meta-model is the quadratic polynomial regression. For highly nonlinear input/output relationship, the accuracy of the fitted model is limited. Many researchers recommended to use more complicated surrogate models. In this study, three surrogate

models will replace the second order polynomial regression, namely, ordinary Kriging, radial basis function approximation (RBF) and radial basis function artificial neural network (RBFNN). The results show that the three surrogate model present superior accuracy in comparison with the quadratic polynomial regression. The mean squared error (MSE) approach is widely used to link the mean and variance in one cost function. In this study, a new approach has been proposed using multi-objective optimization. The new approach has two main advantages over the classical method. First, the conflicting nature of the two objectives can be efficiently handled. Second, the decision maker will have a set of Pareto-front design points to select from. © 2014 Elsevier Inc. All rights reserved.

Author Keywords

Dual response surface; Kriging; Multi-objective optimization genetic algorithms (MOGA); Robust parameter design (RPD); Surrogate models

Document Type: Article

Source: Scopus

Yousef, W.A.^a, Kundu, S.^b

Learning algorithms may perform worse with increasing training set size: Algorithm-data incompatibility (2014) *Computational Statistics and Data Analysis*, 74, pp. 181-197.

DOI: 10.1016/j.csda.2013.05.021

^a Human Computer Interaction Laboratory (HCILAB), Computer Science Department, Helwan University, Helwan 11795, Egypt

^b Department of Statistics, George Washington University, Washington, DC 20052, United States

Abstract

In machine learning problems a learning algorithm tries to learn the input-output dependency (relationship) of a system from a training dataset. This input-output relationship is usually deformed by a random noise. From experience, simulations, and special case theories, most practitioners believe that increasing the size of the training set improves the performance of the learning algorithm. It is shown that this phenomenon is not true in general for any pair of a learning algorithm and a data distribution. In particular, it is proven that for certain distributions and learning algorithms, increasing the training set size may result in a worse performance and increasing the training set size infinitely may result in the worst performance - even when there is no model misspecification for the input-output relationship. Simulation results and analysis of real datasets are provided to support the mathematical argument. © 2013 Elsevier B.V. All rights reserved.

Author Keywords

Convergence; Machine learning; Pattern recognition; Stable distribution; Statistical learning; Stochastic concentration

Document Type: Article

Source: Scopus

EL-Bagory, T.M.A.A.^a, Younan, M.Y.A.^b, Sallam, H.E.M.^c, Abdel-Latif, L.A.^d

Effect of load angle on limit load of polyethylene miter pipe bends (2014) *Journal of Pressure Vessel Technology, Transactions of the ASME*, 136 (3), art. no. 031202, . Cited 1 time.

DOI: 10.1115/1.4026069

^a Department of Mechanical Engineering, College of Engineering, Majmaah University, Majmaah, Riyadh 11952, Saudi Arabia

^b School of Sciences and Engineering, American University in Cairo AUC, Cairo 11835, Egypt

^c Department of Civil Engineering, Faculty of Engineering, Jazan University, Jazan 82822-6694, Saudi Arabia

^d Department of Mechanical Design, Faculty of Engineering, Helwan University, Cairo, El-Mataria 11724, Egypt

Abstract

The aim of this paper is to investigate the effect of crack depth $a/W = 0-0.4$ and load angle (30 deg, 45 deg, and 60 deg) on the limit load of miter pipe bends (MPB) under out-of-plane bending moment with a crosshead speed 500 mm/min. The geometry of cracked and un-cracked multi miter pipe bends are: bend angle, $\alpha = 90$ deg, pipe bend factor, $h = 0.844$, standard dimension ratio, $SDR = 11$, and three junctions, $m = 3$. The material of the investigated pipe is a high-density polyethylene (HDPE), which is applied in natural gas piping systems. Butt-fusion welding is used to produce the welds in the miter pipe bends. An artificial crack is produced by a special cracking device. The crack is located at the crown side of the miter pipe bend, such that the crack is collinear with the direction of the applied load. The crack depth ratio, $a/W = 0, 0.1, 0.2, 0.3, \text{ and } 0.4$ for out-of-plane bending moment "i.e., loading angle $\phi = 0$ deg". For each out-of-plane bending moment and all closing and opening load angles the limit load is obtained by the tangent intersection method (TI) from the load deflection curves produced by the specially designed and constructed

testing machine at the laboratory (Mechanical Design Department, Faculty of Engineering, Mataria, Helwan University, Cairo/Egypt). For each out-of-plane bending moment case, the experimental results reveals that increasing crack depth leads to a decrease in the stiffness and limit load of MPB. In case of combined load (out-of-plane and in-plane opening; mode) higher load angles lead to an increase in the limit load. The highest limit load value appears at a loading angle equal, $\varphi = 60$ deg. In case of combined load (out-of-plane and in-plane closing; mode) the limit load decreases upon increasing the load angle. On the other hand, higher limit load values appear at a specific loading angle equal $\varphi = 30$ deg. For combined load opening case; higher values of limit load are obtained. Contrarily, lower values are obtained in the closing case. Copyright © 2014 by ASME.

Document Type: Article

Source: Scopus

Ramadan, A.^a, Mohamed, M.H.^b, Abdien, S.M.^b, Marzouk, S.Y.^a, El Feky, A.^c, El Baz, A.R.^d

Analytical investigation and experimental validation of an inverted cup float used for wave energy conversion (2014) *Energy*, 70, pp. 539-546.

DOI: 10.1016/j.energy.2014.04.047

^a College of Engineering and Technology, Arab Academy for Science and Technology and Maritime Transport (AAST), Cairo, Egypt

^b Renewable Energy Lab., Mechanical Power Dept., Faculty of Engineering-Mattaria, Helwan University, Cairo, Egypt

^c Blue Power, 23 Abdel Kader el Marghany st., Heliopolis, Cairo, Egypt

^d Faculty of Engineering, Ain-Shams University, Cairo, Egypt

Abstract

World energy demand is increasing at an alarming rate and producing electricity from alternative or renewable energy sources is becoming necessary. There are many technologies to extract electric energy from sea waves such as: the oscillating water column, the point absorber, the overtopping system and the bottom hinged system. Many researchers are focusing on modeling the floating point absorber, which is thought to be the most cost effective technology to extract energy from sea waves. This paper is mainly work on a new design of float and the analytical analysis of its performance. This float consists of two parts; a hollow cylinder and an inverted cup fixed to its bottom. The float is initially submerged in water with sufficient submergence float. Water rises up due to the wave action and the float will follow the water motion which reduces slamming of the float. When the water level drops, the water enclosed in the inverted cup is exposed to a negative pressure which help the float down to follow the water wave motion without slamming. In this work, an analytical model is used MATLAB SOFTWARE to simulate the system of energy conversion. Moreover, a comparison for this model of the simulation results with experimental data to validate the model. © 2014 Elsevier Ltd.

Author Keywords

Numerical model; Point absorber; Wave energy; Wave energy generation

Document Type: Article

Source: Scopus

Al-Olayan, E.M.^a, El-Khadragy, M.F.^{a b}, Metwally, D.M.^{a c}, Abdel Moneim, A.E.^{b d}

Protective effects of pomegranate (*Punica granatum*) juice on testes against carbon tetrachloride intoxication in rats

(2014) *BMC Complementary and Alternative Medicine*, 14, art. no. 164, . Cited 4 times.

DOI: 10.1186/1472-6882-14-164

^a Zoology Department, Faculty of Science, King Saud University, Riyadh, Saudi Arabia

^b Zoology and Entomology Department, Faculty of Science, Helwan University, Cairo, Egypt

^c Parasitology Department, Faculty of Veterinary Medicine, Zagazig University, Zagazig, Egypt

^d Biochemistry and Molecular Biology Department, Asturias Institute of Biotechnology, University of Oviedo, 33006 Oviedo, Spain

Abstract

Background: Pomegranate fruit has been extensively used as a natural medicine in many cultures. The present study was aimed at evaluating the protective effects of pomegranate (*Punica granatum*) juice against carbon tetrachloride (CCl₄)-induced oxidative stress and testes injury in adult Wistar rats. Methods: Twenty eight Wistar albino male rats were divided equally into 4 groups for the assessment of protective potential of pomegranate juice. Rats of group I (control) received only vehicles and had free access to food and water. Rats of groups II and IV were treated with CCl₄ (2 ml/kg bwt) via the intraperitoneal route once a week for ten weeks. The pomegranate juice was supplemented via drinking water 2 weeks before and concurrent with CCl₄ treatment to group IV. Group III was supplemented with

pomegranate juice for twelve weeks. The protective effects of pomegranate on serum sex hormones, oxidative markers, activities of antioxidant enzymes and histopathology of testes were determined in CCl₄-induced reproductive toxicity in rats. Results: Pomegranate juice showed significant elevation in testosterone, luteinizing hormone (LH) and follicle stimulating hormone (FSH) those depleted by the injection of CCl₄. Activity levels of endogenous testicular antioxidant enzymes; superoxide dismutase (SOD), catalase (CAT), glutathione peroxidase (GPx), glutathione-S-transferase (GST) and glutathione reductase (GR) and glutathione (GSH) contents were increased while lipid peroxidation (LPO) and nitric oxide (NO) were decreased with pomegranate juice. Moreover, degeneration of germ and Leydig cells along with deformities in spermatogenesis induced after CCl₄ injections were restored with the treatment of pomegranate juice. Conclusion: The results clearly demonstrated that pomegranate juice augments the antioxidant defense mechanism against carbon tetrachloride-induced reproductive toxicity and provides evidence that it may have a therapeutic role in free radical mediated diseases. © 2014 Al-Olayan et al.; licensee BioMed Central Ltd.

Author Keywords

Carbon tetrachloride; Oxidative stress; Punica granatum; Rats; Testes

Document Type: Article

Source: Scopus

De Luca, E.^a, Zaccaria, G.M.^b, Hadhoud, M.^c, Rizzo, G.^d, Ponzini, R.^e, Morbiducci, U.^b, Santoro, M.M.^{a f}

ZebraBeat : A flexible platform for the analysis of the cardiac rate in zebrafish embryos

(2014) *Scientific Reports*, 4, art. no. 4898, . Cited 1 time.

DOI: 10.1038/srep04898

^a Department of Molecular Biotechnology and Health Sciences, Molecular Biotechnology Center, University of Torino, Turin, Italy

^b Department of Mechanical and Aerospace Engineering, Politecnico di Torino, Turin, Italy

^c Faculty of Engineering, Helwan University, Helwan, Egypt

^d Institute of Bioimaging and Molecular Physiology, CNR, Milan, Italy

^e Super Computing Applications and Innovation Department, CINECA, Milan, Italy

^f Vesalius Research Center, VIB, KU Leuven, Leuven, Belgium

Abstract

Heartbeat measurement is important in assessing cardiac function because variations in heart rhythm can be the cause as well as an effect of hidden pathological heart conditions. Zebrafish (*Danio rerio*) has emerged as one of the most useful model organisms for cardiac research. Indeed, the zebrafish heart is easily accessible for optical analyses without conducting invasive procedures and shows anatomical similarity to the human heart. In this study, we present a non-invasive, simple, cost-effective process to quantify the heartbeat in embryonic zebrafish. To achieve reproducibility, high throughput and flexibility (i.e., adaptability to any existing confocal microscope system and with a user-friendly interface that can be easily used by researchers), we implemented this method within a software program. We show here that this platform, called ZebraBeat, can successfully detect heart rate variations in embryonic zebrafish at various developmental stages, and it can record cardiac rate fluctuations induced by factors such as temperature and genetic- and chemical-induced alterations. Applications of this methodology may include the screening of chemical libraries affecting heart rhythm and the identification of heart rhythm variations in mutants from large-scale forward genetic screens.

Document Type: Article

Source: Scopus

Alzayed, N.S.^a, Kityk, I.V.^b, Soltan, S.^{c d}, Wojciechowski, A.^b, Fedorchuk, A.O.^e, Lakshminarayana, G.^f, Shahabuddin, M.^a

Laser stimulated kinetics effects on the phase transition of the ferromagnetic/superconducting MgB₂/(CrO₂) bilayer thin films

(2014) *Journal of Alloys and Compounds*, 594, pp. 60-64. Cited 5 times.

DOI: 10.1016/j.jallcom.2014.01.035

^a Physics and Astronomy Department, College of Science, King Saud University, P.O. Box 2455, Riyadh 11451, Saudi Arabia

^b Faculty of Electrical Engineering, Czestochowa University Technology, Armii Krajowej 17, PL-42201 Czestochowa, Poland

^c Max Planck Institute, Solid State Research, D-70569 Stuttgart, Germany

^d Physics Department, Faculty of Science, Helwan University, 11798 Helwan, Cairo, Egypt

^e Department of Inorganic and Organic Chemistry, Lviv National University of Veterinary Medicine and Biotechnologies, Pekarska St., 50, 79010 Lviv, Ukraine

^f Materials Science and Technology Division (MST-7), Los Alamos National Laboratory, Los Alamos, NM 87545, United States

Abstract

Using bicolor laser treatment by Nd:YAG 20 ns laser (1064-532 nm) and 180 ns CO₂ laser beams (10.6-5.3 μm) it was shown a possibility of critical temperature enhancement in ferromagnetic superconducting MgB₂/CrO₂ bilayer films. The role of the phonon sub-system effectively interacting with 3d Cr originating localized trapping levels is discussed. The pump-probe laser kinetics for the probing second harmonic generation at 1064 nm is explored in details to show principal role of the localized trapping levels. The relaxation of the processes after the switching off the photo inducing beams show the disappearance of the enhanced superconductivity after the 20-30 s. The temperature dependence of the resistance show nonlinear dependence versus the pumping power and different optimal fundamental to writing power density beams ratio. © 2014 Elsevier B.V. All rights reserved.

Author Keywords

Optical materials; Photoinduced properties; Thin films

Document Type: Article

Source: Scopus

Mansour, M.S.^a, Elbaz, A.M.^{b c}, Zayed, M.F.^a

Flame kernel generation and propagation in turbulent partially premixed hydrocarbon jet
(2014) *Combustion Science and Technology*, 186 (4-5), pp. 698-711.

DOI: 10.1080/00102202.2014.883850

^a Mechanical Power Engineering Department, Cairo University, Cairo, Egypt

^b Mechanical Power Engineering Department, Helwan University, Ain Helwan, Egypt

^c Mechanical Power Engineering Department, Clean Combustion Research Center, King Abdullah University of Science and Technology (KAUST), Saudi Arabia

Abstract

Flame development, propagation, stability, combustion efficiency, pollution formation, and overall system efficiency are affected by the early stage of flame generation defined as flame kernel. Studying the effects of turbulence and chemistry on the flame kernel propagation is the main aim of this work for natural gas (NG) and liquid petroleum gas (LPG). In addition the minimum ignition laser energy (MILE) has been investigated for both fuels. Moreover, the flame stability maps for both fuels are also investigated and analyzed. The flame kernels are generated using Nd:YAG pulsed laser and propagated in a partially premixed turbulent jet. The flow field is measured using 2-D PIV technique. Five cases have been selected for each fuel covering different values of Reynolds number within a range of 6100-14400, at a mean equivalence ratio of 2 and a certain level of partial premixing. The MILE increases by increasing the equivalence ratio. Near stoichiometric the energy density is independent on the jet velocity while in rich conditions it increases by increasing the jet velocity. The stability curves show four distinct regions as lifted, attached, blowout, and a fourth region either an attached flame if ignition occurs near the nozzle or lifted if ignition occurs downstream. LPG flames are more stable than NG flames. This is consistent with the higher values of the laminar flame speed of LPG. The flame kernel propagation speed is affected by both turbulence and chemistry. However, at low turbulence level chemistry effects are more pronounced while at high turbulence level the turbulence becomes dominant. LPG flame kernels propagate faster than those for NG flame. In addition, flame kernel extinguished faster in LPG fuel as compared to NG fuel. The propagation speed is likely to be consistent with the local mean equivalence ratio and its corresponding laminar flame speed. Copyright © Taylor & Francis Group, LLC.

Author Keywords

Flame kernel

Document Type: Conference Paper

Source: Scopus

Ramadan, A.^a, Mohamed, M.H.^b, Marzok, S.Y.^a, Montasser, O.A.^d, El Feky, A.^c, El Baz, A.R.^d

An artificial generation of a few specific wave conditions: New simulator design and experimental performance
(2014) *Energy*, 69, pp. 309-318.

DOI: 10.1016/j.energy.2014.03.018

^a College of Engineering and Technology, Arab Academy for Science and Technology and Maritime Transport (AAST), Cairo, Egypt

^b Faculty of Engineering-Mattaria, Helwan University, Cairo, Egypt

^c Blue Power, 23 Abdel Kader el Marghany St., Heliopolis, Cairo, Egypt

^d Faculty of Engineering, Ain-Shams University, Cairo, Egypt

Abstract

In recent years, an amplified global awareness has led to a reawakening of interest in renewable energy technology. In an effort to reduce the worldwide dependence on fossil fuels, cleaner power generation methods are being sought in the field of solar, biomass, wind and wave energy. The importance of wave energy is increased in particular in some countries like UK, Portugal, Spain and Japan. A considerable progress has already been achieved in this field but the available technical designs are not adequate to develop reliable wave energy converters. Wave energy is the most available energy associated in water seas and oceans. Simultaneously, the wave energy has consisted of two types of energies: potential and kinetic energy. Therefore, many attempts have been applied to capture these energies. In the present work, a wave generator device has been designed and manufactured to simulate and generate the heaving motion of sea waves with different specification. A PC based electro-pneumatic control system was designed and implemented to individually control wave height, these heights are 3, 8, 16, 18 and 20cm and different frequencies to generate these regular and irregular waves. © 2014 Elsevier Ltd.

Author Keywords

Artificial wave; Irregular wave; Regular wave; Wave energy; Wave energy generation

Document Type: Article

Source: Scopus

Nasr, E.S.A.^{a b}, Al-Ahmari, A.^a, Moiduddin, K.^a

CAD Issues in Additive Manufacturing

(2014) *Comprehensive Materials Processing*, 10, pp. 375-399. Cited 1 time.

DOI: 10.1016/B978-0-08-096532-1.01015-3

^a King Saud University, Riyadh, Saudi Arabia

^b Helwan University, Egypt

Abstract

The Additive Manufacturing (AM) process is a computer-controlled process that uses CAD representations to build physical parts layer by layer. Almost all computer-aided design (CAD) packages allow the creation of stereolithography (STL) files, which are translated into machine commands to drive the AM process. Unfortunately, the STL file has many weaknesses and is prone to error. Moreover, there is a need to investigate and understand the issues and errors associated with the software formats and how to control, eliminate, or minimize these errors. Failure to deal with these issues will lead to building poor parts and delayed lead time, which will result in a bad physical model. This chapter summarizes the CAD model of the AM process and explains the various software issues related to the selected CAD representation. © 2014 Elsevier Ltd All rights reserved.

Author Keywords

Additive manufacturing; AMF; CAD; Correction; Errors; Slicing; STL

Document Type: Book Chapter

Source: Scopus

Rezq, A.A.

Effects study of Nigella Sativa, its Oil and their combination with Vitamin E on oxidative stress in rats

(2014) *American Journal of Applied Sciences*, 11 (7), pp. 1079-1086.

DOI: 10.3844/ajassp.2014.1079.1086

Department of Nutrition and Food Sciences, Helwan University, Cairo, Egypt

Abstract

Antioxidants or free radical scavengers are very important in protecting the living cells against any damage induced by free radicals. The effects of Nigella Sativa Extract (NSE), Nigella Sativa Oil (NSO) and Vitamin E (Vit. E) and the combination of NSE or NSO with Vit. E on potassium bromate (KBrO₃)-induced oxidative stress in male rats were investigated. Forty nine Sprague Dawley male rats were weighing 185±5 g and 10-12 weeks old were used to achieve the present study. According to the results, oral administration of NSE or NSO alone and in combination with vitamin E exhibited weight gain and feed efficiency ratio and lowered the elevated serum levels of total cholesterol, triglycerides, AST, ALT, urea nitrogen, uric acid and creatinine. Further, they lowered malondialdehyde and increased the reduction in glutathione content and activities of antioxidant enzymes (GPx, SOD and CAT) in liver tissues. Collectively, these results indicate that dietary intake of NSE or NSO alone and in combination with Vitamin E could

be a potential therapeutic in the treatment of related diseases with oxidative stress. ©2014 Science Publication.

Author Keywords

Antioxidants; Hepato and renal functions; Nigella sativa; Oxidative stress; Rats; Vitamin E

Document Type: Article

Source: Scopus

Atta, A.M.^{a b}, El-Mahdy, G.A.^{a c}, Al-Lohedan, H.A.^a, Al-Hussain, S.A.^a

Synthesis of environmentally friendly highly dispersed magnetite nanoparticles based on rosin cationic surfactants as thin film coatings of steel

(2014) *International Journal of Molecular Sciences*, 15 (4), pp. 6974-6989. Cited 4 times.

DOI: 10.3390/ijms15046974

^a Chemistry Department, College of Science, King Saud University, P.O. Box-2455, Riyadh 11451, Saudi Arabia

^b Petroleum Application Department, Egyptian Petroleum Research Institute, Cairo 11795, Egypt

^c Chemistry Department, Helwan University, Helwan, Cairo 11727, Egypt

Abstract

This work presents a new method to prepare monodisperse magnetite nanoparticles capping with new cationic surfactants based on rosin. Core/shell type magnetite nanoparticles were synthesized using bis-N-(3-levopimaric maleic acid adduct-2-hydroxy) propyl-triethyl ammonium chloride (LPMQA) as capping agent. Fourier transform infrared spectroscopy (FTIR) was employed to characterize the nanoparticles chemical structure. Transmittance electron microscopies (TEM) and X-ray powder diffraction (XRD) were used to examine the morphology of the modified magnetite nanoparticles. The magnetite dispersed aqueous acid solution was evaluated as an effective anticorrosion behavior of a hydrophobic surface on steel. The inhibition effect of magnetite nanoparticles on steel corrosion in 1 M HCl solution was investigated using potentiodynamic polarization curves and electrochemical impedance spectroscopy (EIS). Results obtained from both potentiodynamic polarisation and EIS measurements reveal that the magnetite nanoparticle is an effective inhibitor for the corrosion of steel in 1.0 M HCl solution. Polarization data show that magnetite nanoparticles behave as a mixed type inhibitor. The inhibition efficiencies obtained from potentiodynamic polarization and EIS methods are in good agreement. © 2014 by the authors; licensee MDPI, Basel, Switzerland.

Author Keywords

Cationic surfactant; EIS; Encapsulation; Magnetite; Nanoparticles; Polarization; Rosin

Document Type: Article

Source: Scopus

Ghonime, M.G.^{a b}, Shamaa, O.R.^a, Das, S.^a, Eldomany, R.A.^b, Fernandes-Alnemri, T.^c, Alnemri, E.S.^c, Gavriliu, M.A.^a, Wewers, M.D.^a

Inflammasome priming by lipopolysaccharide is dependent upon ERK signaling and proteasome function

(2014) *Journal of Immunology*, 192 (8), pp. 3881-3888. Cited 13 times.

DOI: 10.4049/jimmunol.1301974

^a Division of Pulmonary, Allergy, Critical Care, and Sleep Medicine, Dorothy M. Davis Heart and Lung Research Institute, Ohio State University, 473 West 12th Avenue, Columbus, OH 43210, United States

^b Department of Microbiology and Immunology, Faculty of Pharmacy, Helwan University, Cairo, 11795, Egypt

^c Department of Biochemistry and Molecular Biology, Kimmel Cancer Center, Thomas Jefferson University, Philadelphia, PA 19107, United States

Abstract

Caspase-1 activation is a central event in innate immune responses to many pathogenic infections and tissue damage. The NLRP3 inflammasome, a multiprotein scaffolding complex that assembles in response to two distinct steps, priming and activation, is required for caspase-1 activation. However, the detailed mechanisms of these steps remain poorly characterized. To investigate the process of LPS-mediated NLRP3 inflammasome priming, we used constitutively present pro-IL-18 as the caspase-1-specific substrate to allow study of the early events. We analyzed human monocyte caspase-1 activity in response to LPS priming, followed by activation with ATP. Within minutes of endotoxin priming, the NLRP3 inflammasome is licensed for ATP-induced release of processed IL-18, apoptosis-associated speck-forming complex containing CARD, and active caspase-1, independent of new mRNA or protein synthesis. Moreover, extracellular signal-regulated kinase 1 (ERK1) phosphorylation is central to the priming process. ERK inhibition and small interfering RNA-mediated ERK1 knockdown profoundly impair priming. In addition, proteasome inhibition prevents ERK phosphorylation and blocks priming. Scavenging reactive oxygen species with

diphenylene iodonium also blocks both priming and ERK phosphorylation. These findings suggest that ERK1-mediated posttranslational modifications license the NLRP3 inflammasome to respond to the second signal ATP by inducing posttranslational events that are independent of new production of pro-IL-1 β and NOD-like receptor components. Copyright © 2014 by The American Association of Immunologists, Inc.

Document Type: Article

Source: Scopus

Nasr, T.^a, Bondock, S.^{b c}, Youns, M.^d

Anticancer activity of new coumarin substituted hydrazide-hydrazone derivatives

(2014) *European Journal of Medicinal Chemistry*, 76, pp. 539-548. Cited 15 times.

DOI: 10.1016/j.ejmech.2014.02.026

^a Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Helwan University, Helwan, Egypt

^b Department of Chemistry, Faculty of Science, Mansoura University, ET-35516 Mansoura, Egypt

^c Department of Chemistry, Faculty of Science, King Khalid University, 9004 Abha, Saudi Arabia

^d Department of Biochemistry and Molecular Biology, Faculty of Pharmacy, Helwan University, Egypt

Abstract

Drug resistance is a major impediment for cancer treatment, to overcome it we designed and synthesized sixteen coumarins bearing hydrazide-hydrazone moiety and evaluated them against human drug-resistant pancreatic carcinoma (Panc-1) cells and drug-sensitive (hepatic carcinoma; Hep-G2 and leukemia; CCRF) cell lines in vitro. The 6-brominated coumarin hydrazide-hydrazone derivatives (BCHHD) 7c, 8c and 10c were more potent than doxorubicin (DOX) against resistant Panc-1 cells. BCHHD 7c showed significant cytotoxicity against all tested cells (IC₅₀: 3.60-6.50 μ M) on comparison with all other coumarin hydrazide-hydrazone derivatives (CHHD), whereas BCHHD's 8c and 10c showed significant antiproliferative activity only against resistant Panc-1 cells with IC₅₀ of 2.02 μ M and 2.15 μ M, respectively. All the investigated BCHHD's were able to activate caspases 3/7 and they could induce apoptosis in resistant Panc-1 cells. Microarray analysis showed that BCHHD 7c induced the expression of apoptotic- and cell cycle arrest (G2/M)- genes in resistant Panc-1 cells. Moreover, BCHHD 7c induced the up-regulation of CDKN1A, DDIT4, GDF-15 and down-regulation of CDC2, CDC20, CDK2 genes. Based on our results, we conclude that 7c could be a potent anticancer drug to overcome drug resistance in cancer and it could be highly beneficial for patients in the clinic. © 2014 Elsevier Masson SAS. All rights reserved.

Author Keywords

Antiproliferative; Apoptosis; Caspases 3/7; Coumarin; Hydrazide-hydrazone; Microarray

Document Type: Article

Source: Scopus

Farouk, M.^a, Elaziz, O.A.^a, Tawakkol, S.M.^b, Hemdan, A.^{c e}, Shehata, M.A.^d

Comparative study between univariate spectrophotometry and multivariate calibration as analytical tools for quantitation of Benazepril alone and in combination with Amlodipine

(2014) *Spectrochimica Acta - Part A: Molecular and Biomolecular Spectroscopy*, 123, pp. 473-481. Cited 2 times.

DOI: 10.1016/j.saa.2013.12.094

^a Pharmaceutical Analytical Chemistry Department, Faculty of Pharmacy, Ain Shams University, Cairo, Egypt

^b Pharmaceutical Analytical Chemistry Department, Faculty of Pharmacy, Helwan University, Cairo, Egypt

^c Pharmaceutical Analytical Chemistry Department, Faculty of Pharmacy, Ahrm Canadian University, Egypt

^d Pharmaceutical Analytical Chemistry Department, Faculty of Pharmacy, Cairo University, Cairo, Egypt

^e Ahrm Canadian University, Egypt

Abstract

Four simple, accurate, reproducible, and selective methods have been developed and subsequently validated for the determination of Benazepril (BENZ) alone and in combination with Amlodipine (AML) in pharmaceutical dosage form. The first method is pH induced difference spectrophotometry, where BENZ can be measured in presence of AML as it showed maximum absorption at 237 nm and 241 nm in 0.1 N HCl and 0.1 N NaOH, respectively, while AML has no wavelength shift in both solvents. The second method is the new Extended Ratio Subtraction Method (EXRSM) coupled to Ratio Subtraction Method (RSM) for determination of both drugs in commercial dosage form. The third and fourth methods are multivariate calibration which include Principal Component Regression (PCR) and Partial Least Squares (PLSs). A detailed validation of the methods was performed following the ICH guidelines and the standard curves were found to be linear in the range of 2-30 μ g/mL for BENZ in difference and extended ratio subtraction spectrophotometric method, and 5-30 for AML in EXRSM method, with well accepted mean correlation coefficient for each analyte. The intra-day and inter-day precision and accuracy results were well within the acceptable limits. ©

2013 Elsevier B.V. All rights reserved.

Author Keywords

Amlodipine; Benazepril; Difference spectrophotometry; Extended Ratio Subtraction Method; PCR; PLSs

Document Type: Article

Source: Scopus

Hakeim, O.A.^a, Arafa, A.A.^a, Zahran, M.K.^b, Abdou, L.A.W.^a

UV-curable encapsulation of surface-Modified organic pigments for inkjet printing of textiles

(2014) *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, 447, pp. 172-182. Cited 1 time.

DOI: 10.1016/j.colsurfa.2014.01.075

^a Textile Research Division, National Research Centre, Dokki, Cairo, Egypt

^b Helwan University, Faculty of Science, Chemistry Department, Ain-Helwan, 11795 Cairo, Egypt

Abstract

Aqueous dispersions of nano-scale organic pigments were prepared through ball milling and ultra-sonication in presence of dispersing agents. The well dispersed pigment was encapsulated into UV-curable resin via miniemulsion technique. Effects of molecular structure of organic pigments, type of dispersing agent and time of ball milling were investigated. Results showed that C.I. Pigment Green 7 had better dispersion stability with time compared with other pigments. Ultracentrifuge sedimentation test, shelf life stability, thermal gravimetric analysis (TGA) and transmission electron microscope (TEM) provided supporting evidences for the encapsulation of C.I. Pigment Green 7 into polyester tetra acrylate/1,6-hexandiol dimethacrylate. Zeta potential results proved that UV-curable encapsulation of C.I. Pigment Green 7 intensifies the charge on the surface of the pigment and significantly increases the dispersion stability. This method of modifying organic pigments to be used as pigmented UV-curable inkjet inks was found to be durable and effective in preliminary application in inkjet printing of textiles. © 2014 Elsevier B.V.

Author Keywords

Encapsulation; Miniemulsion and inkjet printing; Nano-scale pigment; UV-curable resin

Document Type: Article

Source: Scopus

Mohamed, M.H., Shaaban, S.

Numerical optimization of axial turbine with self-pitch-controlled blades used for wave energy conversion

(2014) *International Journal of Energy Research*, 38 (5), pp. 592-601. Cited 1 time.

DOI: 10.1002/er.3064

Mechanical Power Engineering Department, Faculty of Engineering-Mattaria, Helwan University, Cairo, Egypt

Abstract

Wells turbines are among the most practical wave energy converters despite their low aerodynamic efficiency and power produced. It is proposed to improve the performance of Wells turbines by optimizing the blade pitch angle. Optimization is implemented using a fully automated optimization algorithm. Two different airfoil geometries are numerically investigated: the standard NACA 0021 and an airfoil with an optimized profile. Numerical results show that each airfoil has its own optimum blade pitch angle. The present computational fluid dynamics optimization results show that the optimum blade pitch angle for NACA 0021 is +0.3° while that of the airfoil with an optimized profile equals +0.6°. The performance of the investigated airfoils is substantially improved by setting the blades at the optimum blade pitch angle. Both the turbine efficiency and tangential force coefficient are improved, especially at low flow rate and during turbine startup. Up to 4.3% average increase in turbine efficiency is achieved by optimizing the blade pitch angle. A slight improvement of the tangential force coefficient and decrease of the axial force coefficient are also obtained. A tangible increase of the stall-free operating range is also achieved by optimizing the blade pitch angle. © 2013 John Wiley & Sons, Ltd.

Author Keywords

Blade pitch angle; CFD; Optimization; Performance; Wave power; Wells turbine

Document Type: Article

Source: Scopus

Elmesalawy, M.M.^a, Eissa, M.M.^b

New forensic ENF reference database for media recording authentication based on harmony search technique

using gis and wide area frequency measurements

(2014) *IEEE Transactions on Information Forensics and Security*, 9 (4), art. no. 6732893, pp. 633-644.

DOI: 10.1109/TIFS.2014.2304838

^a Electronics, Computer Engineering Department, Helwan University, Cairo 11792, Egypt

^b Electrical Power and Machines Engineering Department, Helwan University, Cairo 11792, Egypt

Abstract

In forensic sciences, verification of digital media recordings is an important aspect. Electrical network frequency (ENF) criterion is a promising technique for media recording authentication. The ENF reference database is recorded from a single point on the power grid based on the fact that the ENF variation is the same across all points on the grid. This fact is not valid in case of system disturbances, whereas the ENF as a reference database varies in time and space. Post-disturbance ENF recorded from a single point is mismatched with the ENF extracted from media recorded at any other point on the grid. This will lead to judicial errors in the forensic examination of recordings. A new method for establishing a robust ENF reference database using geographical information system (GIS) and wide area frequency measurements is proposed. The method is based on building the ENF reference database from a number of frequency sensors deployed over multipoint on the grid rather than single point. The minimum number of sensors required is determined according to the frequency sensitivity of the ENF extraction algorithm and the estimation accuracy of the frequency sensor. The sensors locations are decided based on partitioning the power grid to a set of geographical frequency coherent areas. A novel harmony search algorithm using GIS data and wide area frequency measurements is proposed to identify the geographical frequency coherent areas for different disturbance scenarios. Results showed that the proposed method can be used to enhance the accuracy of the ENF database matching process. © 2005-2012 IEEE.

Author Keywords

Electric network frequency (ENF) criterion; FDR; frequency coherency; GIS; harmony search (HS); vector-space model (VSM); wide area monitoring system (WAMS)

Document Type: Article

Source: Scopus

Wageeh, A.^a, El-Sabban, S.^a, Khalil, D.^{b c}

Resonance wavelength of integrated optical ring resonator with small radius of curvature

(2014) *IEEE Photonics Technology Letters*, 26 (7), art. no. 6718002, pp. 641-644.

DOI: 10.1109/LPT.2014.2301755

^a Helwan University, Cairo 11795, Egypt

^b Ain Shams University, Cairo 11566, Egypt

^c Si-Ware Systems, Cairo 11341, Egypt

Abstract

In this letter, we present a new formula for the resonance wavelength of an integrated optical ring resonator with small radius of curvature. Our formula is based on the expansion of the guide effective index as a function of the wavelength and then solving the resonance equation for the extraction of the resonance wavelength and free spectral range. The obtained results are compared with the finite difference time domain results and very good agreement is obtained. Using this new formula, we showed that the error in the resonance wavelength is reduced more than an order of magnitude from ~5.73% to be below 0.45%. © 2014 IEEE.

Author Keywords

Integrated optics; optical dispersion; optical resonators; ring resonators

Document Type: Article

Source: Scopus

Zohir, A.E.^a, Gomaa, A.G.^b

Corrigendum to "Heat transfer enhancement through sudden expansion pipe airflow using swirl generator with different angles" [Exp. Therm. Fluid Sci. 45, (2013) 146-154]

(2014) *Experimental Thermal and Fluid Science*, 54, p. 321.

DOI: 10.1016/j.expthermflusci.2014.02.003

^a Mechanical Eng. Dept., Tabbin Institute for Metallurgical Studies, Cairo, Egypt

^b Refrigeration and Air Conditioning Dept., Industrial Education College, Helwan University, Egypt

Document Type: Erratum
Source: Scopus

Zahran, F.^{a b}, Cabañas, A.^a, Cheda, J.A.R.^a, Renuncio, J.A.R.^a, Pando, C.^a

Dissolution rate enhancement of the anti-inflammatory drug diflunisal by coprecipitation with a biocompatible polymer using carbon dioxide as a supercritical fluid antisolvent
(2014) *Journal of Supercritical Fluids*, 88, pp. 56-65. Cited 4 times.

DOI: 10.1016/j.supflu.2014.01.015

^a Dpto. de Química Física i, Universidad Complutense, E-28040 Madrid, Spain

^b Chemistry Department, Faculty of Science, Helwan University, El Cairo, Egypt

Abstract

Dissolution rate enhancement of the anti-inflammatory drug diflunisal was achieved using for the first time a supercritical fluid technology. The supercritical fluid antisolvent (SAS) method was applied to precipitate diflunisal alone and to coprecipitate the drug together with the biocompatible polymer polyvinylpyrrolidone (PVP K-30 and K-10). The untreated and SAS processed diflunisal, and the coprecipitates were characterized in terms of size, morphology, crystallinity, compositions, drug-polymer interactions, and drug release. SAS processed diflunisal exhibited a polymorphic form different from that of the untreated drug. Diflunisal crystallinity disappeared in the coprecipitates. Three different drug: polymer mass ratios were studied: 75:25, 50:50, and 25:75. Microparticle size decreased and aggregation disappeared as the relative amount of polymer increased. The 25:75 coprecipitate consisted of loose spherical particles exhibiting mean particle size of 410 nm while the 75:25 coprecipitate consisted of bigger aggregated particles. The SAS method was shown to be a suitable technology to form solid dispersions of a poorly soluble drug. © 2014 Elsevier B.V.

Author Keywords

Diflunisal; dissolution rate enhancement; drug-polymer interaction; polyvinylpyrrolidone; supercritical antisolvent

Document Type: Article

Source: Scopus

Mohery, M.^a, Baz, S.^b, Kelany, A.M.^{c d}, Abdallah, A.M.^a

Environmental radiation levels in soil and sediment samples collected from floating water from a land runway resulting from heavy rains in the Jeddah region, KSA
(2014) *Radiation Physics and Chemistry*, 97, pp. 16-24. Cited 1 time.

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^a Physics Department, Faculty of Science, King Abdulaziz University, North Jeddah, Saudi Arabia

^b Physics Department, Girls Faculty of Science, King Abdulaziz University, Jeddah, Saudi Arabia

^c Physics Department, University College, Umm Al-Qura University, Makka, Saudi Arabia

^d Physics Department, Faculty of Science, Helwan University, Cairo, Egypt

Abstract

The natural radiation levels in soil and sediment samples collected from floating water from a land runway resulting from heavy rains in the Jeddah region as well as the activity in the population of its surrounding environments were studied. In the regions surrounding Jeddah, the movements of floating water may increase the concentration of radioactivity due to the movement of soil due to heavy rains. In addition, the technological development of industry, agriculture and other sources around the Jeddah region has increased environmental pollution, resulting in noticeable concentrations of radioactivity. The measured activity concentrations of ²¹⁴Pb, ²¹⁴Bi, ²²⁸Ac, ²⁰⁸Tl, ⁴⁰K, ²²⁶Ra and ²²⁸Ra in the studied area suggest that they are within the world average for soils and sediments, except those for water sample no. 4; the concentration in this sample was five times higher than the world average concentration (this water is not consumable). Herein, the radioactivity concentrations that were obtained from the analysis of soil and sediment samples that were collected from the investigated area are discussed. Additionally, the absorbed dose rate (D), radium equivalent activity (Raeq), external hazard index (Hex), annual gonadal dose equivalent (AGDE) and annual effective dose equivalent (AEDE) were evaluated. For the soil and sediment samples, the average radioactivity concentrations were determined for each site and are expressed in Becquerels per kilogram (Bq/kg) of dry weight, while for the measurement of both the ²²⁶Ra and ²²⁸Ra isotopes in the water samples, the activity concentration is expressed in picoCuries per liter (pCi/l). The obtained results were compared with other measurements from different countries. The movement of floating water around the Jeddah region increases the concentration of radioactivity due to the movement of soils with heavy rains. © 2013 Elsevier Ltd.

Author Keywords

HPGe detector; Jeddah; KSA; Natural radioactivity; Soil and sediment

Document Type: Article

Source: Scopus

El-Ghaffar, M.A.A.^a, Kantouch, F.A.^b, Mahmoud, Z.M.^b, Haggag, K.^b, Hashem, A.I.^c, Ramadan, A.A.^d
Micro-emulsion co-polymerisation of butyl acrylate with acrylic acid as binder for textile pigment printing
(2014) *Pigment and Resin Technology*, 43 (2), art. no. 17105903, pp. 84-91.

DOI: 10.1108/PRT-12-2012-0090

^a Polymers and Pigments Department, National Research Centre, Cairo, Egypt

^b Textile Research Division, National Research Centre, Cairo, Egypt

^c Chemistry Department, Faculty of Science, Ain Shams University, Cairo, Egypt

^d Faculty of Applied Arts, Helwan University, Cairo, Egypt

Abstract

Purpose - The purpose of this paper is to prepare nano size micro-emulsion co-polymer particles based on butyl acrylate (BA)/acrylic acid (AAc) with high monomer/surfactant ratio. The study involved the application of the prepared micro-emulsions co-polymers as textile pigment printing binders. **Design/methodology/approach** - The micro-emulsion co-polymerisations processes were carried out with different mixtures of BA and AAc using modified process. Sodium dodecyl sulphate (SDS) and potassium peroxy disulphate/glucose were used as emulsifier and redox initiator, respectively. The prepared emulsion co-polymer was characterized via spectroscopic measurements, FT-IR, ¹H-NMR and transmission electron microscope (TEM), in addition to thermal analysis. The prepared micro-emulsion co-polymers were applied as binders for pigment printing process onto cotton fabric, polyester and cotton/polyester blend by using flat screen technique. The optimum curing conditions were determined, colour strength and fastness properties of pigment printed areas to light, washing, perspiration and rubbing were evaluated. In addition, stiffness of the prints was studied. **Findings** - The achieved results indicated that particle size and homogeneity of the prepared micro-emulsions depend on monomers weight ratio, initiator and emulsifier concentrations. On the other hand, the prints obtained using the prepared binders with optimum conditions have satisfactory fastness, good handle and high colour yield. **Research limitations/implications** - Monomers were continuously and slowly added into the polymerising system with mild stirring to avoid disturbing the stability of the micro-emulsion. Also, emulsifier and initiator concentrations should be controlled to avoid coagulation. **Practical implications** - The research provides textile pigment printing binder with nano particle size within the range of 24-48 nm. Using the prepared nano binders in pigment printing enhances the stiffness, handle, and fastnesses properties of the prints. **Originality/value** - The prepared co-polymer binders showed high-performance physico-mechanical properties; in addition, the ultimate goal of this study is to prepare a nano size binder with high monomer/surfactant ratio using a modified micro-emulsion process. Copyright © 2014 Emerald Group Publishing Limited. All rights reserved.

Author Keywords

Emulsions; Latices; Pigments; Printing; Textile technology

Document Type: Article

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Younis, A.^a, El-Qady, G.^a, Abd Alla, M.^a, Abdel Zaher, M.^a, Khalil, A.^b, Al Ibiary, M.^b, Saraev, A.^c
AMT and CSAMT methods for hydrocarbon exploration at Nile Delta, Egypt
(2015) *Arabian Journal of Geosciences*, 8 (4), pp. 1965-1975.

DOI: 10.1007/s12517-014-1354-6

^a National Research Institute of Astronomy and Geophysics, Helwan, Egypt

^b Geology Department, Helwan University, Helwan, Egypt

^c Department of Geophysics, St. Petersburg State University, St. Petersburg, Russian Federation

Abstract

The offshore Nile Delta Basin, Egypt, has been known for a long time as a significant source of gas and oil. The study area is located on the Middle Eastern part of the Nile Delta near Mansoura City. The magnetotelluric method (MT) has emerged as a promising tool for oil exploration than any other geophysical technique. Hydrocarbon reservoirs typically exhibit higher electromagnetic resistivity than their surroundings. In this paper, the MT method was used to investigate the resistivity subsurface structure that related to hydrocarbon exploration, and the results were integrated with seismic data collected in the same area. The MT survey was performed using two frequency ranges: high (10 Hz to 100 kHz) and low (0.1 Hz to 1 kHz). Low-frequency natural MT waves were recorded using AMT only, and the measurement was then repeated using an artificial signal source for CSAMT. These surveys were carried out along three profiles having 22 sites. The recorded time-series data were transformed to the frequency domain and

processed to determine apparent resistivities and phases at each site in which the determinant average of the impedance tensor was then used for 1D and 2D inversion. A good coherence was found between the electromagnetic and seismic profiles and shows that the hydrocarbon is exiting in the Abu Madi and Qawasim channel which represent the main gas-containing layers in the Nile Delta. The depth and extension of these layers were estimated and imaged with a maximum thickness of 4,000 m at profile 1 in the northwestern part of the study area. © 2014, Saudi Society for Geosciences.

Author Keywords

Egypt; Hydrocarbon exploration; MT; Nile Delta; TEM

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Source: Scopus

Abouel-Seoud, S.A., Dyab, E.S.

Wind turbine planetary gearbox health diagnostic using time-varying meshing stiffness

(2014) *Australian Journal of Mechanical Engineering*, 12 (1), pp. 1-12.

Helwan University, Cairo, Egypt

Abstract

In wind turbine planetary gearbox, the ability to identify ring-planet-sun gears meshing stiffness from the real data of vibration responses makes it possible to determine the physical existed planet gear defects which are used for severity assessments. There are limitations for vibration based gear diagnostic methods. Vibrations are secondary effects in the sense that they are dynamic responses of a gearbox excited by meshing stiffness and other excitations. The aim of this work is to diagnose the level of defects (gear tooth crack, gear tooth spalling and gear tooth breakage) in wind turbine gearbox using gears meshing stiffness. Time-varying meshing stiffness is used, where, a technique consists of a non-linear numerical optimisation is applied. The optimisation uses a dynamic model of the gears mesh and forms an estimate of both time-varying and frequency-varying mesh stiffness that best corresponds to the given set of vibration data. Multi-hour tests were conducted and recordings were acquired using translation vibration monitoring, where the optimum meshing stiffness was computed. The optimum meshing stiffness with the recording time was highlighted suggesting critical changes in the operation of the gearbox. The results indicate that if one tooth is defected due to cracks, spalling and breakage to reach the setting maximum level, the maintenance regime will be called despite a new damage is prone in the adjacent tooth to save time and cost. © Institution of Engineers Australia, 2014.

Author Keywords

Breakage; Crack; Optimisation; Optimum meshing stiffness; Planetary gearbox; Spalling; Vibration responses

Document Type: Article

Source: Scopus

Zhang, Z.^{a b}, Soltan, S.^{c d}, Schimid, H.^e, Habermeier, H.-U.^c, Keimer, B.^c, Kaiser, U.^b

Revealing the atomic and electronic structure of a SrTiO₃/LaNiO₃/SrTiO₃ heterostructure interface

(2014) *Journal of Applied Physics*, 115 (10), art. no. 103519, .

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^a Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, Leoben, Austria

^b Electron Microscopy Group for Materials Science, University of Ulm, Ulm, Germany

^c Max-Planck Institute for Solid State Research, D-70561 Stuttgart, Germany

^d Faculty of Science, Helwan University, 11795 Cairo, Egypt

^e INM - Leibniz-Institut für Neue Materialien, 66123 Saarbrücken, Germany

Abstract

The atomic structures of SrTiO₃ (STO)/LaNiO₃ (LNO)/STO heterostructure interfaces were investigated by spherical aberration-corrected (CS) (scanning) transmission electron microscopy. Atomic displacement and lattice distortion measurements and electron energy loss spectroscopy (EELS) were used to quantitatively analyze the distortion of the interfacial octahedra and the bond length at the interfaces. Combined with high-resolution transmission electron microscopy (HRTEM) and scanning transmission electron microscopy analyses, two distinct interfacial atomic terminating layers are unambiguously determined. Ensuing quantitative HRTEM measurements revealed that the Ni-O bond length in the interfacial octahedral is elongated at the bottom interface (-NiO₂-SrO-). Atomic displacement shows structural relaxation effects when crossing the interfaces and lattice distortions across the interface is more pronounced in LNO than in STO. The Ti/O atomic ratio, La and Ti relative atomic ratio as derived by EELS quantification indicate non-stoichiometric composition at the interfaces. Distinct fine structures of Ti-L_{2,3} edge and O-K edge at the bottom and top interfaces are observed. By comparison, we are able to estimate Ti valency at both

interfaces. Combining the structural distortions and Ti valency, the polar discontinuity and charge transfer at the interfaces are discussed. © 2014 AIP Publishing LLC.

Document Type: Article

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Abdelhafez, O.M.^a, Amin, K.M.^b, Ali, H.I.^c, Abdalla, M.M.^d, Ahmed, E.Y.^a

Design, synthesis and anticancer activity of benzofuran derivatives targeting VEGFR-2 tyrosine kinase (2014) *RSC Advances*, 4 (23), pp. 11569-11579. Cited 1 time.

DOI: 10.1039/c4ra00943f

^a Chemistry of Natural Products Dept., National Research Center, Dokki, Egypt

^b Pharmaceutical Chemistry Dept., Faculty of Pharmacy, Cairo University, Egypt

^c Pharmaceutical Chemistry Dept., Faculty of Pharmacy, Helwan University, Egypt

^d Research Unit, Mapco Pharmaceutical Industries, Balteim, Egypt

Abstract

Two series of chalcone and thiopyrimidine benzofuran derivatives were designed, synthesized and evaluated in vitro for their vascular endothelial growth factor receptor (VEGFR-2) inhibitory activity, their cytotoxicity on seventeen human cancer cell lines and their in vivo antiprostata cancer activity. The highest anti-VEGFR-2 activity was demonstrated by 1-(6-hydroxy-4-methoxybenzofuran-5-yl)-3-(4-nitrophenyl)prop-2-en-1-one (6d) exhibiting an IC50 value ($1.00 \times 10^{-3} \mu\text{M}$) higher than the reference drug Sorafenib ($\text{IC}_{50} = 2.00 \times 10^{-3} \mu\text{M}$). On the other hand, most of the synthesized compounds showed potent cytotoxicity against most of the tested cell lines and were more potent than the reference drugs, in particular, bromovisnagin (4) exhibited the best activity on the majority of the cell lines with IC50 values ranging from 3.67×10^{-13} to $7.65 \times 10^{-7} \mu\text{M}$. Moreover, the synthesized compounds showed significant in vivo antiprostata cancer activity. The docking experiments were performed using the GOLD program on (VEGFR-2) kinase which introduced new information about the enzyme-inhibitor interaction and the potential therapeutic application of the benzofuran scaffold. © The Royal Society of Chemistry 2014.

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