International Publications Awards
Cairo University

Issue IV-A

May 2009

Dear colleagues,

We are pleased to introduce this new issue of the international publications of Cairo University. It is a further step of our university, and the distinct contribution, reflecting the scientific ability of staff members, which conforms to international quality standards.

This is the fourth issue of the international publications of Cairo University staff members during the year 2008.

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

As part of our future plan, we aspire to build on our current success; as the weightier challenge is still to come. So in order to keep our rank in its high level we are compelled to continue on publishing high quality research.

We would like to assure you that the administration will spare no effort to support and reinforce these goals. We congratulate all colleagues who were granted the awards for their international publications of the year 2008 and wish them all the best for their future endeavors.

We are also pleased to inform you that this policy will continue to be in effect for the year 2009.

Prof. Hussein M. Khaled

Vice-President for post-graduate studies and research
Cairo University

Prof. Hossam Kamel

President
Cairo University

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(تم التنازل عن قيمة المكافأة تشجيعاً لشباب الباحثين)

National Cancer Institute

Dep. **:** Medical Oncology

Name **:** **Hossam Mohamed Kamel**

Title **:** Hematopoietic SCT in Egypt

Authors **:** H. K. Mahmoud

Published In **:** Bone Marrow Transplantation (2008) 42, S76-S80

ISSN 0268-3369 ***Impact Factor*** 3

Abstract :

Hematopoietic SCT is now an established treatment modality with definitive indications for many hematological disorders. However, this line of treatment requires tremendous resources, and it becomes increasingly difficult for transplanters practicing in the develping world to reconcile the difference between what is possible and what is available. On the basis of 18 years of experience and more than 1300 transplants, this article will focus on special issues, which we think are important for hematopoietic SCT practices in developing countries, taking the program in Egypt as an example that may be applicable to other countries in the developing world. The SCT program in Egypt started in 1989 on a narrow scale. In 1997 the transplant rate increased dramatically with the opening of the SCT unit at the Nasser Institute. Our team is registered in the Center for International Blood and Marrow Transplant Research. The total number of transplants performed till June 2007 is 1362, 80% of the cases are allogeneic and 20% autologous. There are seven other centers in Egypt performing mainly autologous transplants.

Keywords :

Rate; Donor; Aplastic anemia; β-thalassemia; Toxicity; Cost.

National Cancer Institute

Dep. **:** Medical Oncology

Name **:** **Hussein Mostafa Khaled**

Title **:** Genetic profile of Egyptian hepatocellular-carcinoma associated with hepatitis C virus Genotype 4 by 15 K cDNA microarray: Preliminary study.

Authors**:** Zekri AR, Hafez MM, Bahnassy AA, Hassan ZK, Mansour T, Kamal MM, Khaled HM.

Published In **:** BMC Res Notes. 2008 Oct 29;1:106.

ISSN ***Impact Factor***

Abstract :

Background: Hepatocellular carcinoma (HCC) is a preventable diseaserather than a curable one, since there is no well-documented effective treatment modality until now, making the molecular study of this disease mandatory.FINDINGS: We studied gene expression profile of 17 Egyptian HCC patientsassociated with HCV genotype-4 infection by c-DNA microarray. Out of the 15,660studied genes, 446 were differentially expressed; 180 of them were up regulatedand 134 were down regulated. Seventeen genes out of the 180 up-regulated genes are involved in 28 different pathways. Protein phosphatase 3 (PPP3R1) is involved in 10 different pathways followed by fibroblast growth factor receptor 1 (FGFR1,(Cas-Br-M ecotropic retroviral transforming sequence b (CBLB), spleen tyrosine kinase (SYK) involved in three pathways; bone morphogenetic protein 8a (BMP8A,(laminin alpha 3 (LAMA3), cell division cycle 23 (CDC23) involved in 2 pathways and NOTCH4 which regulate Notch signaling pathway. On the other hand, 25 out of the 134 down-regulated genes are involved in 20 different pathways. Integrin alpha V alpha polypeptide antigen CD51 (ITGVA) is involved in 4 pathways followed by lymphotoxin alpha (TNF superfamily, member-1)- (LTA) involved in 3 pathways and alpha-2-macroglobulin (A2M), phosphorylase kinase alpha 2-liver (PHKA2) and MAGI1 membrane associated guanylate kinase 1 (MAGI1) involved in 2 pathways. In addition, 22 genes showed significantly differential expression between HCC cases with cirrhosis and without cirrhosis. Confirmation analysis was performed on subsets of these genes by RT-PCR, including some up-regulated genes such as CDK4, Bax, NOTCH4 and some down-regulated genes such as ISGF3G, TNF, and VISA.Conclusion: This is the first preliminary study on gene expression profile in Egyptian HCC patients associated with HCV-Genotype-4 using the cDNA microarray. The identified genes could provide a new gate for prognostic and diagnostic markers for HCC associated with HCV. They could also be used to identify candidate genes for molecular target therapy.

National Cancer Institute

Dep. **:** Medical Oncology

Name **:** **Hussein Mostafa Khaled**

Title **:** Changing pattern of hepatocellular carcinoma (HCC) and its r
Egypt: possibilities for prevention.

***Authors*:** Lo AC, Kleer CG, Banerjee M, Omar S, Khaled H, Eissa S, Hablas A, Douglas JA, Alford SH, Merajver SD, Soliman AS.

Published In **:** Mutat Res. Rev mutat

ISSN 1383-5718 ***Impact Factor*** 4.353

Abstract :

The burden of hepatocellular carcinoma (HCC) has been increasing in Egypt with a doubling in the incidence rate in the past 10 years. This has been attributed to several biological (e.g. hepatitis B and C virus infection) and environmental factors (e.g. aflatoxin, AF). Other factors such as cigarette smoking, occupational exposure to chemicals such as pesticides, and endemic infections in the community, such as schistosomiasis, may have additional roles in the etiology or progression of the disease. Estimates of the burden of cancer caused by these factors provide an opportunity for prevention. Previously, there was strong evidence that hepatitis B virus (HBV) was the major cause of HCC in Egypt, but more recently HCV has become the predominant factor associated with the more recent epidemic of HCC. It has been well documented that Egypt has one of the highest prevalence rates of HCV infection in the world. The natural history of HCV infection and disease progression, however, are influenced by additional factors such as duration of infection, age at infection, sex, co-infection with HBV, the level of HCV viraemia and its genotype. The role of exposure to aflatoxins and development of HCC in Egypt was historically less clear. Nevertheless, recent food sampling surveys and population-based studies indicated that exposure to aflatoxins in Egypt may have been underestimated in the past. Recent results indicated that both local and imported samples were positive for aflatoxin B1 (AFB1, 17.5% and 20%, respectively), with concentrations ranging from 3 to 25 microg/kg. The level of AFB1 was dependent on the area of collection as well as the season of the year. In a population-based study, the level and frequency of aflatoxin M1 (AFM1, a major metabolite of aflatoxin B1 excreted in breast milk) was assessed as a biomarker of maternal exposure. The samples were collected from a selected group of 388 Egyptian lactating mothers during May-September 2003. Non-working status, obesity, high corn oil consumption, and the number of offspring contributed to the variability in occurrence of AFM1 in breast milk.

Prevention and intervention approaches directed to risk factors of HCC can play a critical role in its prevention. In the case of HCV infection a prevention programme can be achieved by changing personal behaviors and/or cultural habits which are risk factors for HCV transmission, such as injection with contaminated syringes, blood transfusion, surgical operations, venous catheterization, use of common syringes, dental treatment and circumcision at home. Prevention of exposure to aflatoxins can be achieved either at community (via good agriculture practices) or individual levels (treatment or dietary interventions). In conclusion, due to the alarming increase in the incidence of HCC in Egypt, there is a need to further investigate the contribution of these emerging risk factors to the development of HCC in Egypt. This may enable us to determine the susceptibility to HCC among high-risk groups and to provide these individuals with effective measures for early prevention or intervention.

National Cancer Institute

Dep. **:** Medical Oncology

Name **:** **Hussein Mostafa Khaled**

Title **:** Primary chemotherapy with low-dose prolonged infusion gem cisplatin in patients with bladder cancer: a Phase II trial.

Authors**:** Khaled H, Emara ME, Gaafar RM, Mansour O, Abdel Warith A, Zaghloul MS, El Malt O.

Published In **:** Urol Oncol. 2008 Mar-Apr;26(2):133-6. Epub 2008 Jan 14.

ISSN 1078-1439 ***Impact Factor*** 2. 561

Abstract :

Background: Gemcitabine is an active agent in the treatment of bladder cancer. The enzyme deoxycytidine kinase catalyzes the phosphorylation of gemcitabine into the active gemcitabine triphosphate. After an infusion during 30 minutes, this enzyme will be saturated, therefore, accumulation of higher intracellular concentrations of the active gemcitabine triphosphate could be achieved by prolonging the infusion time of gemcitabine.

Patients and Methods: Based on previously published Phase I trials, the efficacy and safety of a combination of cisplatin and gemcitabine given as prolonged infusion were tried in a Phase II study of 57 untreated patients with stage III/IV bladder cancer, which is the most common malignant tumor among Egyptian males. Patients received gemcitabine (250 mg/m(2) during 6-hour infusion) on days 1 and 8, and cisplatin (70 mg/m(2)) on day 2 every 21-day cycle.

Results: The 41 males and 16 females had a median age of 55 years (range 37-77). A total of 37 patients had transitional cell, 15 had squamous cell, 2 had adenocarcinoma, and 3 had undifferentiated cell carcinoma. The median number of cycles given to these 57 patients was 4 (range 1-6). Of 54 evaluable patients, 5 (9.4%) had complete remission, and 27 (50%) partial remission, for an overall response rate of 59.4%. These results are comparable to those of a previous Phase II study of the same combination but with gemcitabine given in the standard dose and schedule. Responses were observed at all disease sites. Both hematologic and nonhematologic toxicity were treatable and not severe.

Conclusions: Prolonged infusion of gemcitabine and cisplatin is an effective treatment for advanced bilharzial-related bladder cancer. Toxicity, especially myelosuppression, is surprisingly mild. This combination deserves to be tried in other different disease categories.

National Cancer Institute

Dep. **:** Medical Oncology

Name **:** **Hussein Mostafa Khaled**

Title **:** The changing patterns of bladder cancer in Egypt over the pas

Authors**:** Felix AS, Soliman AS, Khaled H, Zaghloul MS, Banerjee M, El-Baradie M, El-Kalawy M, Abd-Elsayed AA, Ismail K, Hablas A, Seifeldin IA, Ramadan M, Wilson ML.

Published In **:** Cancer Causes Control. 2008 May;19(4):421-9. Epub 2008 Jan 10

ISSN 0957-5243 ***Impact Factor*** 3.279

Abstract :

Objective: To evaluate temporal changes in histopathological types of bladder cancer and to assess associated changes in demographic, epidemiologic, and lifestyle risk factors.

Methods: We abstracted data from all available medical records from the National Cancer Institute of Cairo University (NCI-Cairo). Six calendar years representing 5-year periods between 1980 and 2005 were evaluated. Information on demographics, schistosomal infection, clinical symptoms of bladder cancer, and tumor pathology was abstracted.

Results: During this 26-year period, important changes in the frequency of histopathological types of bladder cancer occurred. We found a statistically significant association between time period of diagnosis and histopathological type. Patients diagnosed in 2005 had a sixfold higher odds associated with transitional cell carcinoma compared to those patients diagnosed in 1980 (odds ratio (OR) 6.00 (95% CI 4.00-8.97)).

Conclusions: These data strongly suggest that the histopathological profile of bladder cancer in Egypt has changed significantly over the past 26 years. Historically, squamous cell carcinoma was the predominant form of bladder cancer in Egypt; however transitional cell carcinoma has become the most frequent type. These results corroborate findings from a few small-scale hospital-based studies which conclude that the etiology of bladder cancer in Egypt has changed significantly over the past 26 years.

National Cancer Institute

Dep. **:** Medical Oncology

Name **:** **Hussein Mostafa Khaled**

Title **:** Molecular epidemiologic features of inflammatory breast canc comparison between Egyptian and US patients.

Authors**:** Lo AC, Kleer CG, Banerjee M, Omar S, Khaled H, Eissa S, Hablas A, Douglas JA, Alford SH, Merajver SD, Soliman AS.

Published In **:** Breast Cancer Res Treat. 2008 Nov;112(1):141-7. Epub 2007 Dec 4.

ISSN 0167-6806 ***Impact Factor*** 4.453

Abstract :

Background: Inflammatory breast cancer (IBC) is a lethal form of breast cancer with unknown etiology. A higher frequency of IBC and a more aggressive IBC phenotype was reported in Egypt than in the United States. This difference in disease frequency and presentation might be related to molecular epidemiologic factors.

Methods: We used tumor blocks and demographic, epidemiologic, and clinical data of 48 IBC patients from Egypt and 12 patients from the United States. We counted tumor emboli in tumors before and after immunohistochemical staining with lymphatic vessel endothelial receptor-1 (LYVE-1), and measured the expression of RhoC GTPase protein in the two groups. RESULTS: Erythema, edema, and peau d'orange were found in 77% of the Egyptian patients as compared with 29% found in the US patients (P=0.02). The number of tumor emboli was significantly higher in tumors from Egypt (mean+/-SD, 14.1+/-14.0) than in the tumors from the United States (5.0+/-4.0, P=0.01). The number of tumor emboli in LYVE-1 positive vessels was higher in tumors from Egypt (3.5+/-2.8) than tumors from the United States (1.6+/-0.5, P=0.15). We detected a high level of RhoC in 87% of the tumors from Egypt and 14% of the tumors from the United States (P=0.0003).

Conclusion: Patients from Egypt have a more aggressive form of IBC than those in the United States. Our analysis of IBC patients shows that distinct molecular phenotypes can be found when these two study populations are compared. Future studies should explore the epidemiologic and environmental exposures and the genetic factors that might lead to the different clinical and molecular features of IBC in patients from these two countries.

Basic Sciences

Faculty of Science

Faculty of Science

Dep. **:** Astronomy and Meteorology

Name **:** **Ashraf Owis**

Title **:** Radially Accelerated Optimal Feedback Orbits in Central Gravity Field With Linear Drag

Authors**:** Ashraf Owis, Francesco Topputo and Franco Bernelli-Zazzera

Published In **:** Celest Mech Dyn Astr

ISSN 0923-2958 ***Impact Factor*** 0.844

Abstract :

The solution of a feedback optimal control problem arising in orbital mechanics is addressed in this paper. The dynamics is that of a massless body moving in a central gravitational force field subject also to a drag and a radial modulated force. The drag is linearly proportional to the velocity and inversely proportional to the square of the distance from the center of attraction. The problem is tackled by exploiting the properties of a suitably devised linearizing map that transforms the nonlinear dynamics into an inhomogeneous linear system of differential equations supplemented by a quadratic objective function. The generating functionmethod is then applied to this newsystem, and the solution is back transformed in the old variables. The proposed technique, in contrast to the classical optimal control problem, allows us to derive analytic closed-loop solutions without solving any two-point boundary value problem. Applications are discussed.

Keywords:

Orbital transfers; Feedback optimal control; Generating function; Linear drag.

Faculty of Science

Dep. **:** Astronomy and Meteorology

Name **:** **Ashraf Owis**

Title **:** Analytical Solution of Optimal Feedback Control for Radially Accelerated Orbits

Authors**:** Francesco Topputo, Ashraf H. Owis and Franco Bernelli-Zazzera

Published In **:** Guidance, Control, And Dynamics

ISSN ***Impact Factor***

Abstract :

The optimal feedback control problem with modulated inverse-square-distance radial thrust is studied in this paper. The problem is tackled by applying a generating-function method devised for linear systems. Instead of deriving open-loop solutions arising, from the two-point boundary-value problem in which the classical optimal control is stated, this technique allows us to obtain analytical closed-loop control law. The idea behind this work consists of applying globally diffeomophic linearizing transformation that rearranges the original nonlinear dynamic system into a linear system of ordinary differential equations written in new variables. The generating function Technique is the applied to this new dynamic system, the optimal feedback control problem is solved, and the variables are transformed back to the original. Thus, we avoid the problem of expanding the vector field and truncating the higher-order terms, because no remainders are lost in the approach undertaken. Practical examples are used to show the usefulness of the derived solution for the modulated inverse-square-distance radially accelerated orbits.

Keywords:

Radially accelerated; Feedback optimal control; Generating function.

Faculty of Science

Dep. **:** Astronomy and Meteorology

Name **:** **Ahmed A. Hady**

Title **:** Space science education in Egypt and the 2006 solar eclipse

Authors**:** A. A. Hady

Published In **:** Advances in Space Research

ISSN 0273 - 1177 ***Impact Factor*** 0.774

Abstract :

The space science research has been started in Egypt since 1910 by measuring the solar constant as indication of solar radiation at Helwan Observatory. The solar sunspot studies and its influence on the Nile flooding was erected and operated at Helwan as a first solar station in Egypt during 1957. Zeiss-Coude' refractor was installed in 1964. Astronomy and space science educations started in Egypt at the university level since 1936 at Department of Astronomy and Meteorology of Cairo University. Undergraduate and graduate education in Egypt will be discussed in this work. The total solar eclipse observations on 25th February, 1952 in Khartoum have been done by on Egyptian–French group by using the Worthington Camera. Several international groups observed the total solar eclipse on 29 March 2006, in El-Saloum (Egypt). A coordinated effort partly undertaken in the frame of the French–Egyptian scientific cooperation permitted joined simultaneous eclipse observations of the solar corona. Several Ground base instrumental set-up has been prepared. Spaceborne quasi-simultaneous EIT and Lasco observations of SoHO have been used as well as TRACE observations in Lyman-alpha of HI. W-L images taken with and without a radial filter are processed to show the magnetic structure of the corona. Polarization analysis is performed to study the F-corona in the outer corona. Several filters have been obtained to show the distribution of the emission measures of the inner and middle corona. Spectra were obtained over several emission lines.

Keywords:

Total solar eclipse; Inner and middle corona; Space science educations in Egypt.

Faculty of Science

Dep. **:** Astronomy and Meteorology

Name **:** **Ahmed .A. Hady**

Title **:** Education in Egypt and Egyptian Response to Eclipses

Authors**:** Ahmed .A. Hady

Published In **:** Iau- Sym

ISSN ***Impact Factor***

Abstract :

Since 1939 astronomy and space science courses have been offered at the unit varsity level in Egypt at the Department of Astronomy education in Egypt at the undergraduate and gradunte levels the astrophysics research groups at Cairo University and Helwan Observatory are interested in the fields of solar physics, binary stars, celestial mechanics, interstellar matter, and galaxies. the paper will also discuss the Egyptian response to tow total solar eclipses February 25. 1952 and March 29, 2006. the results of observations and photos will he discussed .

Keywords:

Solar eclipse; Middle Corona; Education in Egypt

Faculty of Science

Dep. **:** Astronomy and Meteorology

Name **:** **El-Sayed M. Robaa**

Title **:** On the estimation of UV-B radiation over Egypt

Authors**:** S. M. Robaa

Published In **:** Hungarian Meterological Service

ISSN 0324 - 6329 ***Impact Factor***

Abstract :

In this study, four empirical formulae have been established and deduced to estimate UV-B radiation using sunshine duration, *n*, in cold and hot seasons at four stations that measure global and UV-B solar radiation in Egypt. Another empirical formula has been also deduced to estimate UV-B radiation in cold and hot seasons, at any locations in Egypt. The monthly mean UV-B values have been estimated at each station applying its own formula (UVB) and also applying Egypt's formula (UVB_{eg}). The estimated UVB and UVB_{eg} values were compared with the corresponding measured values at each station. The agreement between measured and estimated values is remarkable. The percentage errors of UVB at each station, (e1), were always found lower than the corresponding errors of UVB_{eg}, (e2). It was found that the maximum possible error of estimated values does not exceed 8.0%. The annual mean values of e1 ranged from – 0.6 to +3.1, while the annual mean values of e2 ranged from –5.7 to +6.8. It is seen that the Egypt's formula gives precise estimations for UV-B radiation, and it is recommended for use at any locations in Egypt. The UV-B radiation values have been estimated applying the Egypt's formula at forty selected stations to study the general distribution of UV-B over Egypt. The results revealed that the UV-B radiation depends on the latitude over Egypt. The maximum value of UV-B occurs in June in the southern part of Egypt and ranges from 0.080 to 0.088 MJ m^{-2}, while the minimum value occurs in January in the northern part of Egypt and ranges from 0.020 to 0.044 m^{-2}.

Keywords:

Global Solar Radiation; UV-B Radiation; Sunshine Duration Estimation; Egypt.

Faculty of Science

Dep. **:** Astronomy and Meteorology

Name **:** **El-Sayed M. Robaa**

Title **:** Evaluation of sunshine duration from cloud data in Egypt

Authors**:** S.M. Robaa

Published In **:** Energy

ISSN 0360 - 5442 ***Impact Factor*** 1.172

Abstract :

In this study, three empirical formulae have been deduced to estimate relative sunshine duration, n/N, using readily available observed data of cloud amount, C, in Egypt. The monthly mean values of n/N and C recorded at 34 stations during the period (1990–2005) have been used in the present study. The three deduced formulae have been verified for any locality in Egypt which lies above (zone 1) and below latitude 301 (zone 2) and for the whole country of Egypt. The agreement between measured and estimated values of the three deduced formulae were remarkable. It was found that the maximum possible error of estimated values, e (%), of the three deduced empirical formulae have not exceeded ±77.27% with mean percentage error (MPE) values range from -0.62% to +0.81%; meanwhile the values of statistical tests of main bias error (MBE) and root mean square error (RMSE) are very close to zero. It has been concluded that Egypt's deduced formula gives precise estimations for n/N and was recommended for use at any location in Egypt. The sunshine distribution and its percentage frequency over Egypt were also studied. The results revealed that latitudinal dependent of n/N. Egypt has minimum value of n/N (0.48) during January at the northern part of the country and maximum value (0.92) during June at the southern part.

Keywords:

Global Solar Radiation; Sunshine Duration Cloud; Egypt.

Faculty of Science

Dep. **:** Astronomy and Meteorology

Name **:** **El-Sayed M. Robaa**

Title **:** The relationship between the mean surface air temperature in Egypt and NAO index and ENSO

Authors**:** Y. Y. Hafez and S. M. Robaa

Published In **:** The Open Atmospheric Science

ISSN 1874 - 2823 ***Impact Factor***

Abstract :

The relationship between the NAO index and ENSO and the mean surface air temperature over Egypt has been investigated. The NCEP/NCAR reanalysis data of the monthly mean surface air temperature over Egypt for the period (1948-2005) have been used in this study. The corresponding monthly mean values of NAO index, SOI, and El-Nino3 have been also used. Monte Carlo methodology as a leaner correlation analysis has been used to obtain the correlation coefficient between the mean surface air temperature over Egypt and NAO, SOI, and El-Nino3 through the period (1948- 2005). The results show that surface air temperature in Egypt is significantly correlated with the climatic index NAO and ENSO only for a south western part of Egypt. There is a significant negative correlation (-0.6) between surface air temperature over south west part of Egypt in winter season and NAO index. The relationship between EL-Nino3 and surface air temperature has contradicted the relationship with SOI. Whereas, a significant positive correlation (+0.6) between surface air temperature over south west part of Egypt and EL-Nino3 in autumn season. Surface air temperature correlated with SOI by a significant negative correlation (-0.5) duridurng the same season over south west of Egypt. It is concluded that the surface air temperature is significantly correlated with NAO index and ENSO over the south west part of Egypt.

Keywords:

Surface air Temperature NAO Index El nino3; Sol; ENSO.

Faculty of Science

Dep. **:** Astronomy and Meteorology

Name **:** **El-Sayed M. Robaa**

Title **:** Modelling net radiation for the rural area of Bahtim, Egypt

Authors**:** S. M. Robaa

Published In **:** Meteorology

ISSN 1748 - 2992 ***Impact Factor***

Abstract :

Net radiation (R_n) is usually not measured at any standard weather stations in Egypt. With the objective of proposing a solution for this problem, this study has evaluated the ability of five different models to estimate hourly R_n by conducting a field experiment at the rural area of Bahtim, Egypt to measure Rn and other meteorological variables over natural prairie grass for a one-year period (1998). Five models for estimating hourly R_n based on different combinations of incoming solar radiation (G), air temperature (T), cloud cover (C) and cloud height (H), were evaluated. Correlating measured and estimated R_n, it was observed that all models performed well in terms of estimating hourly R_n. However, when cloud data was used the models overestimated positive R_n and underestimated negative R_n. When only G and T were used to estimate hourly R_n, the model underestimated positive R_n and no tendency was observed for negative R_n. The five models were compared on the basis of many statistical error tests. According to these statistical test results, model 2 showed the best estimation of the net radiation and therefore is recommended for predicting R_n at any location in Egypt. The seasonal and monthly mean of hourly variations of measured R_n as well as the frequency distribution of daily totals of R_n have been calculated and investigated. The results revealed that Bahtim has annual mean values of Rn equal to 98.88 Wm^{-2} with a seasonal variation from a minimum value 57.04) Wm^{-2}) in winter to a maximum value (154.40 Wm^{-2}) in summer. There is no day in the year that has a values of Rn greater than 180 Wm^{-2} while 53.3 % and 46.7 % of the year days have values of R_n within the range from 0 to120 and from 120 to 180 Wm^{-2} respectively. All winter days have Rn values lower than 120 Wm^{-2} while all summer days have values greater than this value.

Keywords:

Net Solar Radiation; Globel; Net Radiation Modelling Net Radiation; Model Comparison Bahtin; Egypt.

Faculty of Science

Dep. **:** Astronomy and Meteorology

Name **:** **El-Sayed M. Robaa**

Title **:** Study the teleconnection between the variations of total ozone values over egypt and the global climatic indices: NAO and SOI

Authors**:** S. M. Robaa and Y. Y. Hafez

Published In **:** Meteorology

ISSN 1748 - 2992 ***Impact Factor***

Abstract :

Teleconnection between the variations of satellite observations of the total ozone column data retrieved from Total Ozone Mapping Spectrometer (TOMS) and climatic indices of the North Atlantic Oscillation Index (NAO) and the Southern Oscillation Index (SOI) has been investigated and discussed over Egypt during the period (1978-2004). The seasonal, and annual mean of ozone variabilities have been also discussed and correlated with the NAO and SOI. The results revealed decreasing amounts of ozone amounts from year to year over Egypt during the study period. The trend of ozone (variable over season) has been found to be -0.5380, -0.4396, -0.1496, -0.3645, for winter, spring, summer and autumn seasons respectively and -0.2931 for annually. The correlation coefficients between ozone values and the NAO and SOI have been to be found very small and do not exceed 0.2157 during the study period. Therefore, it could be concluded that the ozone values are stable over Egypt and significantly independent from global climatic changes and the climatic indices of the NAO and SOI.

Keywords:

Toms Nimbus 7 Meteor 3 Earth Prob NAO Sol; Ozone Satellite Observation.

Faculty of Science

Dep. **:** Astronomy and Meteorology

Name **:** **Magdy M. Abdel Wahab**

Title **:** Aerosol characteristics over urban Cairo: Seasonal variations as retrieved from Sun photometer measurements

Authors**:** M. El-Metwally, S. C. Alfaro, M. Abdel Wahab, and B. Chatenet

Published In **:** Geophysical Research

ISSN 0148-0227 ***Impact Factor*** 2.953

Abstract :

[1] During the Cairo Aerosol Characterization Experiment an automated Sun photometer belonging to the NASA Aerosol Robotic Network has been implemented for the first time in the megacity of Cairo, Egypt. The inversion of the measurements performed by this instrument several times a day and over a duration of more than 1 year (from the end of October 2004 to the end of January 2006) provides a way of determining the temporal variability of aerosol characteristics such as size distribution, complex refractive index, single-scattering albedo, and asymmetry parameter. The analysis of the results reveals that Cairo's aerosol is a mixture of three individual components produced by different mechanisms: ''background pollution'' aerosol produced by local urban activities, ''pollution-like'' aerosol resulting from biomass burning in the Nile delta, and ''dust-like'' aerosol released by wind erosion in the Sahara. It is also shown that the variations in the overall aerosol properties are in fact due to changes in the proportions of this mixture. In particular, short-duration dust storms and biomass-burning episodes explain the largest observed aerosol optical depths (AOD) (AOD > 0.7) through the extreme enhancements of concentrations in dust-like aerosols characterized by low Angstrom's exponent values ($\alpha < 0.5$) and in ''biomass-burning'' aerosols ($1.0 < \alpha < 1.5$). When averaged over longer (monthly and yearly) time periods, the effects of these high-frequency modifications are smoothed. In particular, an average ''mixed aerosol'' type is defined for the whole duration of the measurements period. The low single-scattering albedo (SSA) of this average aerosol and its marked spectral dependence clearly indicate that, at least on a yearly basis, the aerosol is dominated by its two light absorbing pollution components (background pollution and pollution-like) and to such an extent that it compares well with values obtained in other polluted megacities (e.g., Mexico City). This general dominance of the absorbing components can be challenged at shorter timescales. Indeed, the occurrence of several dust storms in springtime, and particularly in April, causes a significant increase in SSA and a parallel decrease in

spectral dependence during this month. Conversely, the October biomass-burning events are not able to cause such important deviations from the yearly averaged mixed aerosol model that its optical properties can no longer be used for this month.

Faculty of Science

Dep. **:** Astronomy and Meteorology

Name **:** **Magdy M. Abdel Wahab**

Title **:** Significant formation of water-insoluble secondary Organic aerosols in semi-arid urban environment

Authors**:** Olivier Favez, Jean Sciare, Héléne Cachier, Stéphane C. Alfaro, and Magdy M. Abdelwahab

Published In **:** Geophysical Research Letters

ISSN 0094-8276 ***Impact Factor*** 2.744

Abstract :

[1]Diurnal variations of submicron elemental carbon (EC), water-soluble organic carbon (WSOC) and water-insoluble organic carbon (WIOC) were investigated at an urban background site in Cairo (Egypt) from 23 March to 14 April 2005. Well-marked diurnal patterns, with minima during the traffic-influenced morning period (6:00–9:00) and maxima during the intense photochemical period (12:00–15:00), were observed for the WSOC/EC ratio and, more surprisingly, for the WIOC/EC ratio. Such diurnal variations suggest significant formation of both water-soluble and water in soluble secondary organic aerosols during the afternoon. Applying the EC-tracer method, freshly-formed secondary organic carbon (fresh SOC) was found to possibly account for more than 50% of OC concentrations measured during the 12:00–15:00 period, and this fresh SOC was calculated to be mainly (~60%) composed of water-insoluble species. The latter (unexpected) result could be due to low ambient relative humidity as well as to the importance of anthropogenic volatile organic compounds in Cairo.

Faculty of Science

Dep. **:** Astronomy and Meteorology

Name **:** **Magdy M. Abdel Wahab**

Title **:** Origin of black carbon concentration peaks in Cairo (Egypt)

Authors**:** K.F. Mahmoud, S.C. Alfaro, O. Favez, M.M. Abdel Wahab, J. Sciare

Published In **:** Atmospheric Research

ISSN 0169 - 8095 ***Impact Factor*** 1.786

Abstract :

The concentration in black carbon (BC) has been monitored in the megacity of Cairo (Egypt) during the autumn 2004 and spring 2005 intensive observation periods of the Cairo Aerosol CHaracterization Experiment (CACHE). As expected for a species released by human activities, hourly mean of this concentration is found to be large at all times. It is also significantly larger in autumn than in spring (9.9±6.6 and 6.9±4.8 μgC/m^3, respectively) and quite variable at shorter (diurnal) time scales. Indeed, sharp concentration peaks larger than 25 μgC/m^3 are frequently detected during both observation periods. In order to apportion the roles played by emission intensity and meteorological conditions in the development of these peaks, a simple model is developed that allows derivation of the hourly mean BC emissions by the part of town located upwind of the measurement site. The analysis of the time dependence of these emissions indicates that traffic is by far the major source of BC in Cairo during daytime and this even in autumn when biomass burning takes place in the Nile delta. It is only between 03:00 and 05:00 in the night, at a time when traffic emissions are quite reduced, that the influence of this particular source on BC concentration can become significant. This study also indicates that BC emissions by motorized traffic remain important from the morning rush hour until late in the night. During the day, and particularly in spring, the dilution effect resulting from the development of the planetary boundary layer prevents BC concentrations from becoming very large. This is no longer the case just before sunrise and after sunset, when the combination of dense traffic and low boundary layer is responsible for the observed sharp increase in BC concentration.

Keywords :

Greater Cairo (Egypt); Megacity air pollution; Black cloud; Biomass burning; Black carbon; CACHE.

Faculty of Science

Dep. **:** Astronomy and Meteorology

Name **:** **Magdy M. Abdel Wahab**

Title **:** Seasonal and spatial variation of atmospheric particulate matter in a developing megacity, the Greater Cairo, Egypt

***Authors*:** A. S. Zakey And M. M. Abdel- Wahab

Published In **:** Atmosfera

ISSN 0187-6236 ***Impact Factor*** 0.688

Abstract :

As an example of a developing megacity the Greater Cairo (GC) area in Egypt has been evaluated with respect to atmospheric particulate matter (PM) and lead (Pb). Particulate matter was collected during 2001 2002in the two size fractions PM2S and PM_{lO} at 17 sites representing different activities (industrial, urban, residential and background condition). The PM concentrations were generally high, with yearly average $PM_{2.5}$ and PM_{lO} values of 85 ± 12 and 170 ± 25 ug/m^{-3}, respectively. On an annual scale, the high PM levels were due to many sources that included traffic, waste burning and wind blown dust particles emitted from the desert outside GC and the Moqattam hill inside GC. On a seasonal scale, the PM concentrations were highest in the industrial sector during spring, the dusty season, due to the combined effect of dust storm events and anthropogenic emissions over Gc. The lowest seasonal concentrations were recorded in the summer season at the background sites. There was a marked increase in PM levels during the period October to December due to burning of waste from harvested rice in the agriculture area in the Nile Delta (north of Cairo). The highest $PM_{2.5}/PM_{lO}$ ratio was recorded in the urban sector (0.59) while the lowest ratio was recorded in the residential sector (0.32). The $PM_{2.5}$ and PM_{lO} samples were also analyzed for Pb in order to address the influence of different emission sources. The monthly average concentrations ofPb in both $PM_{2.5}$ ($Pb_{2.5}$) and PM_{lO} (Pb_{lO}) varied between 0.4 and 1.8 ± ug m^{-3} at the non industrial sites. The concentrations were significantly higher in the industrial areas, where concentration up to a maximum of 16 ± g m^{-3} could be observed. Both the high lead and PM concentrations measured are contributing to local environmental pollution. GC is subjected to high concentrations of particulates most of the year. There is no annual limit for PMlO concentrations in the Egyptian law of environment, but comparing to the 24 hour average, PMlO is representing health risks on the long-term that will give both regionally and globally environmental effects. High volume samplers measuring PMlO as daily average shows that the air quality limit value has been exceeded at sites

Heliopolis (35), Maadi (6) and 6th October (13) during 60.47, 79.07, and 62.96% of the measuring period of 2001, and at Shoubra El-Kheima (20), El-Qolaly Sq (1), and Abbasiya (36) during 100.0, 91.7, and 89.8% of the measuring period of2002. Thus, the evaluation of the data presented in this paper will serve as a basis for future regional and global modelling and source apportionment .

Keywords:

Megacity; Lead, air quality; Air pollution; Dust storm; PM_{IO}; PM2S.

Faculty of Science

Dep. **:** Astronomy and Meteorology

Name **:** **Magdy M. Abdel Wahab**

Title **:** Seasonality of major aerosol species and their transformations in Cairo megacity

Authors**:** Olivier Faveza, Héléne Cachiera, Jean Sciarea, Stéphane C. Alfarob, Tarek M. El-Arabyc and Maha A. H

Published In **:** Atmospheric Environment

ISSN 1352 - 2310 ***Impact Factor*** 2.549

Abstract :

Bulk aerosols sampled on a weekly basis at two Cairo (Egypt) urban sites from January 2003 to May 2006 were analysed for their chemical composition of major aerosol species (elemental carbon, water soluble/insoluble organic carbon, nitrate, sulphate, ammonium, chloride, sodium and calcium). Data subsequently obtained constitute one of the longest and more detailed dataset related to Cairo aerosols, and offer the opportunity to investigate seasonal trends. Dust aerosols (derived from calcium measurements) displayed maximum concentrations in spring and winter, due to frequent dust storms, but also high background concentration levels (~50 μg m^{-3}) all year long. Within these particles, about 40% on average of Ca^{2+} was found to be associated with SO_4^{2-}, NO_3^- and/or Cl^-, pointing out ''dust anthropization'' processes and their subsequent climatic impact on a regional scale. Seasonal variations of non-dust aerosols, equally distributed between carbonaceous aerosols and ions, were also observed, with concentrations of the order of 100 μg m^{-3} in autumn and winter, and of 60 μg m^{-3} in spring and summer. High concentration levels of non-sea-salt chloride (up to 15 μg m^{-3} on a monthly basis), likely of industrial origin, were observed in autumn and winter. During the autumn ''Black Cloud'' event, biomass burning aerosols originating from rice straw burning in the Nile Delta have shown to account for 12%, 35% and 50% of Cairo EC, WIOC and WSOC mass concentrations, respectively. Finally, relatively low WSOC/OC ratios (~1/3) were obtained all the year long, calling for more investigation on the water-solubility of organic aerosols originating from the burning of agricultural waste, and on that of secondary organic aerosols formed in dry urban atmospheres.

Keywords:

Aerosol chemical composition; Dust material; Biomass burning; Water soluble organic carbon; Greater Cairo.

Faculty of Science

Dep. **:** Astronomy and Meteorology

Name **:** **Hayman Zein El Abdeen Metwally**

Title **:** Escape of the atmosphere of rotating planet

Authors**:** Mostafa Kamal Mahmoud Ahmad and Hayman Zein El Abdeen Metwally

Published In **:** The Open Astronomy

ISSN 1874 - 3811 ***Impact Factor***

Abstract :

The problem of escape of a planetary atmosphere is reviewed . Formulae are derived for the rates of loss of mass and angular momentum from a unit area and from the whole planetary surface . The resulting formulae are applied to find the residence times of H, O, N_2 , O_2 and CO_2 in Martian atmosphere. All constituents are so stable while hydrogen is never stable and cannot be retained to any extent.

Keywords:

Escape of a planetary atmosphere; Loss of mass-residence times.

Faculty of Science

Dep. **:** Astronomy and Meteorology

Name **:** **Yehia Y. Hafez**

Title **:** The Teleconnection Between The Global Mean Surface Air Temperature And Precipitation Over Europe

Authors**:** Y.Y. Hafez

Published In **:** The International Journal of Meteorology

ISSN 1748 - 2992 ***Impact Factor***

Abstract :

The teleconnetion between the GMST (GMST) and Prediction Center Merged Analysis of Precipitation (CMAP) data over Europe has been investigated. For the purpose of the present study a 2.5 x 2.5 degree latitude/longitude gridded monthly data for surface temperature and precipitation over Europe through the period (1979-2005) has been used. The statistical annual and seasonal correlations between the temperature and precipitation over Europe have been studied. The results revealed that significant annual and seasonal correlations existed between the surface temperature and precipitation over Europe. It is clear that the significant correlations vary from region to region over Europe. In general, the time lags or time leads of the annual and seasonal surface temperature has a distinct significant correlation rather than that without time delay between surface temperature and precipitation. These results revealed that there is a feedback mechanism between the GMST and CMAP over Europe.

Keywords:

GMST (GMST); Climate Merged Analysis of Precipitation (CMAP); Europe, temperature, precipitation.

Faculty of Science

Dep. **:** Astronomy and Meteorology

Name **:** **Yehia Y. Hafez**

Title **:** The Role Played By Blocking over the Northern Hemisphere in Hurricane Katrina

Authors**:** Y.Y. Hafez

Published In **:** American Science

ISSN 1545-1003 ***Impact Factor***

Abstract :

In 2005, there were 28 tropical Atlantic storms and hurricanes according to the Saffir-Simpson scale. Among these, there were three large hurricanes with surface winds of more than 150 knots: Katrina, Rita, and Wilma. This paper investigates the role played by a blocking system over the northern hemisphere in hurricane Katrina. The 6-hour and daily NCEP/NCAR reanalysis data composites for meteorological elements (surface pressure, surface wind, precipitation rate, and geopotential height at 500 mb level) over the northern hemisphere for August 2005 were used in this study. In addition, satellite images for hurricane Katrina and its damage have been used. These datasets have been analyzed using the methodology of anomalies. The results reveal that a diffluent block persisted over Siberia and was associated with a strong westerly air current aloft over North America from 22 to 31 August 2005. In addition, a strong westerly air current aloft existed over the North Atlantic region. Splitting of westerlies into two branches occurred over the North Atlantic; the first branch went towards the north while the second extended to the south towards the tropical Atlantic region.

The splitting of the main air current over the North Atlantic caused an unusually strong northeast and easterly wind in the tropical Atlantic region. These unusual winds caused by the blocking system in the northern hemisphere circulated, accelerated, and controlled the track of hurricane Katrina from 23 to 31 August 2005. Analysis of the 10-day mean anomaly of the geopotential height at 500 mb for the northern hemisphere for August 2005 revealed that there was an outstanding positive anomaly of more than +200 m over North America simultaneously with positive anomalies of more than +150 m over Siberia during the last 10 days of August 2005). [The Journal of American Science. 2008; 4(2):10-25]..

Keywords:

Hurricane; Geopotential Height; Zonal; Meridonal; Blocking.

Faculty of Science

Dep. **:** Astronomy and Meteorology

Name **:** **Yehia Y. Hafez**

Title **:** The Relationship between the Mean Surface Air Temperature in Egypt and NAO Index and ENSO

Authors**:** Y.Y. Hafez and S.M. Robaa

Published In **:** The Open Atmospheric Science

ISSN 1874 - 2823 ***Impact Factor***

Abstract :

The relationship between the NAO index and ENSO and the mean surface air temperature over Egypt has been investigated. The NCEP/NCAR reanalysis data of the monthly mean surface air temperature over Egypt for the period (1948-2005) have been used in this study. The corresponding monthly mean values of NAO index, SOI, and El-Nino3 have been also used. Monte Carlo methodology as a leaner correlation analysis has been used to obtain the correlation coefficient between the mean surface air temperature over Egypt and NAO, SOI, and El-Nino3 through the period (1948-2005). The results show that surface air temperature in Egypt is significantly correlated with the climatic index NAO and ENSO only for a south western part of Egypt. There is a significant negative correlation (-0.6) between surface air temperature over south west part of Egypt in winter season and NAO index. The relationship between EL-Nino3 and surface air temperature has contradicted the relationship with SOI. Whereas, a significant positive correlation (+0.6) between surface air temperature over south west part of Egypt and EL-Nino3 in autumn season. Surface air temperature correlated with SOI by a significant negative correlation (-0.5) during the same season over south west of Egypt. It is concluded that the surface air temperature is significantly correlated with NAO index and ENSO over the south west part of Egypt.

Keywords:

Surface air temperature; NAO index; EL-Nino3; SOI; ENSO.

Faculty of Science

Dep. **:** Biophysics

Name **:** **Mohammad Sabri Yousef**

Title **:** X-Ray Beam Stabilization at BL-17A, the Protein Microcrystallography Beamline of the Photon Factory

Authors**:** Noriyuki Igarashi, Kazuyuki Ikuta, Toshinobu Miyoshi, Naohiro Matsugaki, Yusuke Yamada, Mohammad S Yousef and Soichi Wakatsuki

Published In **:** Synchrotron radiation

ISSN 0909 - 0495 ***Impact Factor*** 2.98

Abstract :

BL-17A is a new structural biology beamline at the Photon Factory, Japan. The highbrilliance beam, derived from the new short-gap undulator (SGU#17), allows for unique protein crystallographic experiments such as data collection from microcrystals and structural determination using softer X-rays. However, microcrystal experiments require robust beam stability during data collection and minor fluctuations could not be ignored. Initially, significant beam instability was observed at BL-17A. The causes of the beam instability were investigated and its various sources identified. Subsequently, several effective countermeasures have been implemented, and the fluctuation of the beam intensity successfully suppressed to within 1%. Here the instability reduction techniques used at BL-17A are presented.

Keywords:

protein microcrystallography; Photon Factory; beamline development; X-ray beam stabilization .

Faculty of Science

Dep. **:** Biophysics

Name **:** **Mohammad Sabri Yousef**

Title **:** Miranda cargo-binding domain forms an elongated coiled-coil homodimer in solution: Implications for asymmetric cell division in Drosophila

***Authors*:** Mohammad S. Yousef, Hironari Kamikubo, Mikio, Kataoka, Ryiuchi Kato and Soichi Wakatsuki

Published In **:** Protein Science

ISSN 0961 - 8368 ***Impact Factor*** 3.135

Abstract :

Miranda is a multidomain adaptor protein involved in neuroblast asymmetric division in Drosophila melanogaster. The central domain of Miranda is necessary for cargo binding of the neural transcription factor Prospero, the Prospero-mRNA carrier Staufen, and the tumor suppressor Brat. Here, we report the first solution structure of Miranda central "cargo-binding" domain (residues 460–660) using small-angle X-ray scattering. Ab initio modeling of the scattering data yields an elongated "rod-like" molecule with a maximum linear dimension (Dmax) of 22 nm. Moreover, circular dichroism and cross-linking experiments indicate that the cargo-binding domain is predominantly helical and forms a parallel coiled-coil homodimer in solution. Based on the results, we modeled the fulllength Miranda protein as a double-headed, double-tailed homodimer with a long central coiled-coil region. We discuss the cargo-binding capacity of the central domain and propose a structure-based mechanism for cargo release and timely degradation of Miranda in developing neuroblasts.

Keywords:

Miranda; Drosophila ; Asymmetric cell division; Coiled coil; SAXS .

Faculty of Science

Dep. **:** Botany

Name **:** **Zeinab k. Ibrahim**

Title **:** Functional Bioactive Compounds and Biological Activities of Spirulina platensis Lipids

Authors**:** Mohamed Fawzy Ramadan, Mohsen Mohamed Selim Asker and Zeinab K. Ibrahim

Published In **:** Czech J. Food Sci

ISSN 1212 - 1800 ***Impact Factor*** 0.442

Abstract :

The compositions and concentrations of lipid classes, fatty acids, tocopherols were determined in the lipids from blue-green microalga Spirulina platensis. Total lipids (TL) recovered using chloroform: methanol (2:1, v/v) were found to be 163.5 g/kg (on dry weight basis). The level of neutral lipids was the highest, followed by glycolipids and phospholipids, respectively. Among TL and lipid classes, palmitic, γ-linolenic and linoleic acids were the dominating fatty acids. Compared to the neutral lipids, the polar fractions were generally characterised by higher percentages of saturated fatty acids. The recovered lipids were characterised by high percentage of tocopherols, wherein α-tocopherol constitutes about 73% of total tocopherols present, the rest being γ-tocopherol. Spirulina platensis lipids exhibited a strong radical scavenging activity towards stable DPPH free radicals, whereas 27% of DPPH radicals were quenched after 2 h incubation. TL and lipid classes inhibited the growth of different microorganisms except gramnegative bacteria. At high concentrations, the tested lipids appeared more effective against a. niger (28.3 ± 1.53 mm). The information obtained in the present investigation is useful for lipid characterisation and further chemical and nutritional investigations of Spirulina platensis.

Keywords:

Spirulina platensis; Blue-green microalga; Lipids; Fatty acids; Tocopherols; Antiradical action; Antimicrobial activity .

Faculty of Science

Dep. **:** Botany

Name **:** **Tarek A. A. Moussa**

Title **:** Isolation and Identification of Novel Disaccharide of ?-L-Rhamnose from Penicillium chrysogenum.

Authors**:** Tarek A. A. Moussa and Dalia M. I. Ali

Published In **:** World Applied Sciences

ISSN 1818 - 4952 ***Impact Factor***

Abstract :

The dry biomass and protein content in culture filtrate of Penicillium chrysogenum, increase with increasing the time of incubation. On the contrary, carbohydrate content of the culture filtrate was decreased with increasing the incubation time. The amount of exodisaccharide (EDS) after 5 and 10 days of cultivation periods was 0.6 and 2.5 g/l, respectively. The yield (g of biomass/g of reducing sugars) was obtained after 5 days (0.7 g/g) and 10 days (1.44 g/g), also the maximum EDS/biomass (g/g) ratio after 10days was 0.17 g/g which is 2.13 times higher than in case after 5 days (0.08 g/g). The ^{1}HNMR spectrum is well representation of protons from gycosidic groups of carbohydrates. The signal at 5.261 and 1.244 ppm were assigned to the anomeric and methyl protons at position-6, respectively, of ∝-L-rhamnopyranosyl residues; also the signals at 3.895, 3.759 and 3.508 ppm were assigned to H_2, H_5 and H_4, respectively, of *a*-L-rhamnopyranosyl residues. FT-IR spectrum is consistent with those of typical carbohydrates. The m/z is at 289 with base peak 161 with relative abundance 100%. The EDS is thermally stable at all temperatures tested the temperature was increased by 100°C.

Keywords:

Penicillium chrysogenum; Exodisaccharide; ^{1}HNMR; FT-IR; MS; TGA .

Faculty of Science

Dep. **:** Botany

Name **:** **Faten Abdel-Hamid El-Daly**

Title **:** Biochemical Influence of Cyanophos Insecticide on Radish Plant I. Changes in Some Enzymatic Activities Exposed to Various Concentrations During the Growth Period

Authors**:** Faten A. El-Daly and Mary S. Khali

Published In **:** Australian Journal of Basic and Applied Sciences

ISSN 1991 - 8178 ***Impact Factor***

Abstract :

A field experiment was conducted to investigate the effect of post spraying the insecticide "cyanophos", 0-(4-cyanophenyl) 0,0-dimethyl phosphorothioate" with different concentrations (0.0, 0.025, 0.037 and 0.05% v/v) on some enzymatic activities of radish plant at three different intervals through the test period. The enzymes are glutamic pyruvic transaminase (GPT), glutamic oxaloacetic acid transaminase (GOT), alkaline phosphatase, acid phosphatase and nitrate reductase. The results revealed different responses of the different enzymes depending on the concentration, the frequency and the time of spraying. The obtained data demonstrated that after 3 days of spraying. GPT and GOT decreased after 1st spray with the tested concentrations, this investigation was converted after 3rd spray st rd and the effect was decreased after 12 days. The effect of insecticide on alkaline phosphatase was insignificant after 1st spray but the enzyme activity was enhanced after 2nd and 3rd spraying. It was st nd rd found that after 12 days of the second spray, the enzyme activity enhanced mostly by 0.037 and 0.05% concentrations. Regarding the acid phosphatase, the activity was enhanced by application of the moderate concentration (0.037%) after each spray. After 12 days the treated plants showed insignificant effect of the acid phosphatase.

For the nitrate reductase, the results showed that the cyanophos has insignificant effect on its activity regardless of the intervals except after 3rd spray after rd 12 days whereas the enzyme activity increased gradually with the tested concentrations.

Keywords :

Organophosphorus insecticides; Radish plant; Trnsaminases, Phosphatases; Reductase enzymes .

Faculty of Science

Dep. **:** Botany

Name **:** **Faten Abdel-Hamid El-Daly**

Title **:** Biochemical Influence of Cyanophos Insecticide on Radish Plant II. Effect on Some Metabolic Aspects During the Growth Period

Authors**:** Faten A. El-Daly and Mary S. Khalil

Published In **:** Research Journal of Agriculture and Biological Sciences

ISSN ***Impact Factor***

Abstract :

In a field experiment, effect of the organophosphorus insecticide cyanophos on the photosynthetic pigments and the metabolism of carbohydrate and nitrogen were declared in the leaves of radish plant (Raphanus sativus L.). Three sprays with different concentrations (0.0, 0.025, 0.037 and 0.05% v/v) were applied at age intervals of 12, 24 and 36 days, respectively. Data were recorded after 3 and 12 days after each spray. The results revealed that there was a slight significant effect on the total pigments. The spray by insecticide attenuated most prominently the chlorophyll a/b ratio. For the carbohydrate components, after 3 days there was reduction in the monosaccharide specially with high concentrations of insecticide, the contrast after 12 days of spray, the monosaccharides content was enhanced by all the test concentrations used except the high concentration 0.05%. For the sucrose, there was fluctuations in its amount, better accumulation was after 1st and 3rd spray regardless of the intervals. The total soluble st rd sugar was highly accumulated by low concentration 0.025%. The increased of the insoluble sugar occur after 3 days, was converted after frequency of spraying after 12 days, by all concentrations used.

The same trend was observed with the total carbohydrate. Regarding of the nitrogen fractions, the amino acid and the peptide amounts remarkably dropped with the high insecticide concentrations 0.037 and 0.05% and/or frequency of spraying after 3 and 12 days. For the total soluble nitrogen there was initial increase at 0.025% and 0.037% then decrease after 12 day, of the 2nd and 3rd spray. The insoluble and nd rd the total nitrogen, were increased in all treated plants compared to the control.

Keywords:

Insecticide; Photosynthetic pigments; Carbohydrate metabolism; Nitrogen metabolism; Radish plant.

Faculty of Science

Dep. **:** Botany

Name **:** **Faten Abdel-Hamid El-Daly**

Title **:** Initial screening for the effect of two natural oils and Vitavax-200 on growth criteria and some metabolic aspects of Zea mays plants

Authors**:** Faten A. El-Daly and Hanaa E. Ahmed

Published In **:** Food, Agriculture & Environment

ISSN 1459 - 0255 ***Impact Factor*** 0.232

Abstract :

Changes in some physiological aspects in Zea mays plant (Monohybrid 10) treated with two natural oils, Melaleuca alternifolia (TTO) and lemon oil, and synthetic fungicide Vitavax-200 during the early stages of growth were studied. Significant differences were obtained in growth criteria between the plants treated with natural oils and the synthetic fungicide Vitavax-200 in comparison with control. There was increase in the percentage of germination and the length of the shoot in all treatments. The fresh weight of the shoot increased by all treatments in comparison with the control. The length of the main root increased by fungicide Vitavax-200 and 0.5% lemon oil. There was obvious increment in the dry weight of the root between treated and untreated plants. The photosynthetic pigments increased by all the treatments over the control. Chl a, Chl b and carotenoids increased by all treatments in comparison to control; 0.25% lemon oil was highly effective in increasing chl a content. Sugar fractions differed as a response to the natural oil treatment and the fungicide from that of control. The results of HPLC analysis showed the appearance of certain sugar fractions such as maltose, xylose, arabinose and mannose.

TTO of both concentrations significantly increased the total amount of nitrogen of Zea mays plants, while fungicide Vitavax-200 decreased it. The accumulation of the metal ions K^{+}, Mg^{2+} and Mn^{2+} increased by the treatment with Vitavax-200.

Keywords:

Natural oils; Vitavax-200; Zea mays; growth criteria; metal content; sugar.

Faculty of Science

Dep. **:** Botany

Name **:** **Mona Mohammed El-husseiny Eleiwa**

Title **:** Response of Groundnut (Arachis hypogaea L.) Plants to Foliar Feeding with some Organic Manure Extracts Under Different Levels of NPK Fertilizers.

Authors**:** Ibrahim, S.A. and Mona M.E Eleiwa

Published In **:** Agricultural Sciences

ISSN 1817 - 3047 ***Impact Factor***

Abstract :

Two field trails were carried out during two successive summer seasons in the experimental farm of Ismaellia Agriculture research station to study the effect of foliar feeding with organic manure extracts (Chicken, Biogas and Pigeon) and NPK rates (low rate 30:30:25 and high rate 60:60:50 kg/fed. respectively) on groundnut yield and its components as well as some chemical and biochemical constituents (macro and micro nutrients, oil and protein content of seeds). The results could be summarized as follows : Increasing NPK rate from half the recommended rate (30:30:25) to the recommended rate (60:60:50) significantly increased all the studied parameters i.e wt. of 100 seeds (g) , wt. of pods (kg/fed.), yield of straw and seeds (Kg/Fed), Shelling %, uptake of macro (N, P and K) and micronutrients (Fe, Mn and Zn) by straw and seeds as well as oil and protein content in the seeds of groundnut.

Foliar feeding with organic manure extracts (Chicken, Biogas and Pigeon) significantly increased all the mentioned parameters as compared with control treatment (sprayed with tap water). Pigeon manure extract showed the highest values of yield and its components, macronutrients (N, P and k), oil and protein content in seeds, followed by Chicken and Biogas manures in decreasing order. On the other hand, Biogas manure gave the highest values of micronutrient (Fe, Mn and Zn) uptake by straw and seeds followed by Pigeon and chicken manures in decreasing order .

The interactions between NPK rates and foliar feeding with the organic manure extracts showed significant effects on all the studied parameters. The highest values of yield and its components , as well as uptake of macronutrients (N, p and K) by straw and seeds and the content of oil and protein of the seeds were obtained when the higher (recommended) rate of NPK was used and the plants were sprayed with Pigeon manure extract, while the highest values of micronutrients (Fe, Mn and Zn) uptake by straw and seeds were found when the lower (half the recommended rate) NPK rate was used and the plants sprayed with Biogas manure extract. All the studied parameters of groundnut

plants had the same trend during the two growing seasons.

Keywords:

Foliar feeding; Ground nut; Macro and Micronutrients; Organic manure; Oil and Protein% .

Faculty of Science

Dep. **:** Botany

Name **:** **Mona Mohammed El-husseiny Eleiwa**

Title **:** Effect of the Growth Regulator Uniconazole and Salt Stress on Growth ,Yield and Nutrients Content of Ammi majus L. Plant

Authors**:** Hala,Kandil and Mona,M.E.Eleiwa

Published In **:** Australian Basic and Applied Sciences

ISSN 1991 - 8178 ***Impact Factor***

Abstract :

Foliar feeding; Ground nut; Macro and Micronutrients; Organic manure; Oil and Protein% A pot experiment was conducted to study the effect of salinity levels of irrigation water (0,2500,7500 and 10000 ppm Nacl)and the growth regulator uniconazole (0, 20 and 30 ppm) on vegetative growth , fruting character, cumarin and nutrients content of Ammi majus L.plant. Ammi majus L.plant may ranked at the top of group of plants considered to have medium salt tolerance, where dry weight/plant ,No.of branches/plant, plant height, No.of umbels/plant, No.of umbellules/umbel and fruits production/plant were not affected by salinity levels of irrigation water up to 5000 ppm Nacl. The concentration of 7500 ppm Nacl markedly depressed them.The concentration and the content of xanthotoxin of Ammi majus L. plant were significantly decreased by increasing Nacl concentration of the irrigation water up to the highest level of 10000 ppm.Gradually and significant decreases of N, P and K concentratons and highly significant increases in Na and Ca concentrations in Ammi majus L.plant were occurred as a result of increasing salinity levels up to 10000 ppm Nacl in the irrigation water .The changes in Na concentration in Ammi majus L.plant due to the chloride salinity levels showed completely an opposite trend tothat of K concentration.Increasing uniconazole concentration from 0 to 30 ppm significantly increased , plant height , No. of branches /plant, dry weight/plant/, fruits and total umbels/plant, concentration and total content of xanthotoxin, macro (N, P, K, Na, and Ca) as well as micronutrients (Fe, Zn, Mn, and Cu) of Ammi majus L. plant.

the highest values of the previous parameters were found by using the concentration of 30 ppm ion interaction between salinity levels and uniconazole application significantly affected all the growth and fruiting characters (except No. of umbels/ plant. and No. of umbellules/umbel). The highest values of growth and fruiting parameters were found under saline concentration of 2500 ppm and 30 ppm uniconazole . The highest concentration and total content of xanthotoxine (mg /plant) were attained under

irrigation with tap water and 30 ppm uniconazole. The highest values of all nutrients concentration were found using 30 ppm uniconazole but differed under salinity levels i.e N , K and Cu were found under irrigation with tap water Sodium , Fe and Mn were found under salinity level of 10000 ppm NaCl . Calcium and Zn were found under salinity of 7500 ppm NaCl.

Keywords:

Uniconazole;Stress,Salinity; Nutrient Content; Xanthotoxin; Ammi majus L .

Faculty of Science

Dep. **:** Chemistry

Name **:** **Ahmad Mahmoud Farag**

Title **:** A convenient access to new pyrido[4,3-d]pyrimidine, thiazolo[3,4-c]pyrimidine and pyrimido[4,5-d]pyridazine derivatives

Authors**:** Nabila A. Kheder, Yahia N. Mabkhot, and Ahmad Mahmoud Farag

Published In **:** Arkivoc

ISSN 1557 - 7012 ***Impact Factor*** 1.253

Abstract :

Several new pyrido[4,3-d]pyrimidine, pyrimido[4,5-d]pyridazine and thiazolo[3,4-c]pyrimidine derivatives were prepared from the versatile, readily accessible ethyl 6-methyl-2-oxo-4-phenyl-1,2,3,4 tetrahydropyrimidine-5-carboxylate. Bromination of the latter compound afforded the corresponding 6-bromomethylpyrimidine derivative. Treatment of the latter with malononitrile or ethyl cyanoacetate afforded the corresponding hexahydrocyclopenta[d]pyrimidine derivatives **4a,b.** Reaction of the bromomethylpyrimidine with potassium cyanide followed by treatment with arenediazonium salt afforded the corresponding hydrazone **6** which reacts with hydrazine derivatives to afford the corresponding pyrido[4,3-d]pyrimidine derivatives **8a,b.** It reacts also with thiourea, thiosemicarbazide and phenylhydrazine to afford ethyl 3-imino-5-oxo-7-phenyl-3,5,6,7-tetrahydro-1-H-thiazolo[4,3-c]pyrimidine-8-carboxylate (**10a**), ethyl 3-hydrazono-5-oxo-7-phenyl-3,5,6,7-tetrahydro-1-H-thiazolo[3,4-c]pyrimidine-8 carboxylate (**10b**) and 4,6-diphenyl-3,4,7,8-tetrahydropyrimido[4,5-d]pyridazine-2,5-(1H,6H)-dione (**12**), respectively. The antimicrobial activity of selected examples of the synthesized compounds was tested and showed moderate activity.

Keywords:

1,2,3,4-Tetrahydropyrimidine; Hexahydrocyclopenta[d]pyrimidine; Pyrido [4,3-d] pyrimidine; Thiazolo[3,4-c]pyrimidine; Pyrimido[4,5-d]pyridazine.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Ahmad Sami A. S. Shawali**

Title **:** Site Selective synthesis and Tautomerism of arylazo derivatives of pyrazolo[3,4-d]pyrimido[1,6-b][1,2,4] triazine

***Authors*:** Ahmad S. Shawali, Sherif M. Sherif, Thoraya A. Farghaly, Manal A. A. Darwish

Published In **:** Afinidad

ISSN 0001 - 9704 ***Impact Factor*** 0.177

Abstract :

A simple synthetic strategy is described for synthesis of the hitherto unreported 5-arylazo-1,3- diphenyl-6-sub5ti· tuted- 1H-pyrazolo[3,4-d] pyrimido[1,6-b] [1,2,4] triazines 5a-n. The spectral data indicated that the studied com- pounds exist predominantly in the hydrazone tautomeric form **SA**. The site-selectivity and mechanism of the studied reactions are discussed .

Keywords:

Hydrazonoyl halides; Azo-hydrazone tautomerism; Heterocycles.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Ahmad Sami A. S. Shawali**

Title **:** Site selectivity in diazonium coupling of ethyl (3-phenyl-7H-[1,2,4]triazolo[1,3,4]thiadiazin-6-yl)acetate and tautomeric structure of the coupling products in ground and excited states

Authors**:** Ahmad S Shawali, Elham S. S. Darwish, Farag M. A. Altalbawy and Manal A. A. Darwish

Published In **:** Asian J. of Spectroscopy

ISSN 0971 - 9237 ***Impact Factor***

Abstract :

A series of new ethyl (arylhydrazono)-(3-phenyl- 7H-[1,2,4] triazolo(3,4-b) (1,3,4)thiadiazines·6-yl)acetates **4** were synthesized and their electronic absorption spectra were investigated in different organic solvents of varying polarities and their acid dissociation constants in both ground and excited states were determined spectrophotometrlcally The tautomeric structures of such products were elucidated by their spectral analyses and correlation of their acid dissociation constants with Hammett equation. The results indicated that the studied compounds **4** exist predominantly in the hydrazone tautomeric form **4B** in both ground and excited states .

Faculty of Science

Dep. **:** Chemistry

Name **:** **Ahmad Sami A. S. Shawali**

Title **:** Reactions of Hydrazonoyl halides with heterocyclic thiones. Convenient methodology for heteroannulation, synthesis of spiroheteoctcles an hterocyclic ring transformation

Authors**:** Ahmad S Shawali and Thoraya A Farghaly

Published In **:** Arkivoc

ISSN 1551 - 7012 ***Impact Factor*** 1.253

Abstract :

This review summarizes research results concerning the reactions of hydrazonoyl halides with heterocyclic thiones reported by us and other research groups from 1991 to mid 2007. It outlines the utility of such reactions in various aspects of heterocyclic chemistry.

Keywords :

Nitrilimines; 1,3-dipolar cycloaddition; Azolethiones; Azinethiones.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Ahmad Sami A. S. Shawali**

Title **:** A convenient synthesis of novel series of 4-cyclohexyl-2-substituted [1,2,4]triazolo[1,5-*a*]quinazolin-5(4H)-ones. Novel isomers of H_1 antihistaminic active agents.

Authors**:** Ahmad S. Shawali, Hamdi M. Hassaneen and Nabil Kh. Shurrab

Published In **:** Heterocycles

ISSN 0385 - 5414 ***Impact Factor*** 1.066

Abstract :

Literature survey reveals that several qumazohncs and condensed quinazoline derivatives exhibit excellent antihistaminic acuvity, [1-3] For example, l-substituted-4-cyclohexyl [l.2,4] triazoIo[4,3-*a*]-quinazolin-5(4H)-ones having alkyl/alicyclic amine substitution at position I were reponed recently to protect guina-pigs from histamine induced broncospasm significantly.[4] In view of this finding, It was interesting to explore the antihistaminic activity of the isomers of such compounds namely the title compounds, A literarure survey reveals, however, that the target title compounds have not been reported hitherto and that the only method for synthesis of such ring system depends on the reaction of 2-hydrazinobenzoic acid with .*N*-cyanoimidates.[5] Thus, to achieve Our objective, it was necessary to develop a new convenient and general method for synthesis of the title compounds prior exploring their biological acuvity. In continuation of our ongoing studies dealing with the chemistry of nitrilimines and therr precursors,[6-10] we wish to report herein the synthesis of the title compounds *via* a novel innovative route (Scheme I). This route involves 1.5-electrocyclization of *N*-(4-oxo-3-cyclohexylquinazolin-2-yl) nitrilimines 4 (Scheme 1), generated in situ by oxidation of the respective hydrazones 3 and subjecting the resulting1,2,4- triazolo[4.3-*a*] quinazolines 5 to Dimroth rearrangement to give the title compounds 6.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Ahmad Sami A. S. Shawali**

Title **:** One pot Synthesis of novel 1,2,3,4,5a,8,8b-octaaza-acenaphthylenes

***Authors*:** Ahmad S. Shawali, Mosselhi A. N. Mosselhi, Magda A Abdallah, and Mahmoud S. Elewa

Published In **:** J. Chem. Research

ISSN 0308 - 2342 ***Impact Factor*** 0.148

Abstract :

Reaction of 4-amino.4H-l.2.4-triazole-3.5-dithiol **1a** with hydrazonoyl halides **2** in ethanol In the presence of sodium ethoxide under reflux led to the formation of the title compounds **5**. The latter products can also obtained by reaction of 4-amino-3,5-di(methylthio)·4*H*-l,2.4-triazole **1b** with hydrazonoyl halides **2** in ethanol in the presence of sodium ethoxide by stirring over night at room temperature. The structures of the products were evidenced by spectral. elemental as well as X-ray diffraction analyses. The mechanism of the studied reactions was also discussed .

Keywords:

Hydrazonoyl; Heterocycles; S-triozoles; Heterocyclic thiols.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Ahmad Sami A. S. Shawali**

Title **:** Synthesis of Acyclo C-Nucleosides of H1-antihistaminic 4-substituted [1,2,4]triazolo[4,3-a]quinazolin-5(4H)-ones

Authors**:** Ahmad S. Shawali, Hamdi M. Hassaneen and Nabil Kh. Shurrab

Published In **:** J. Chem. Research

ISSN 0308 - 2342 ***Impact Factor*** 0.148

Abstract :

Two series of aldose N·(3·substituted·4·oxo·3.4·dihydroquinazolin·2· yl) hydrazones were prepared by the reaction 0f each of the aldoses with the appropriate 2-hydrazino-3-substituted-quinazolin-4(3H)-ones. Oxidative cyclisation of these aldose hydrazones with ferric chloride in ethanol yielded the title acyclo C-nucleosides .

Keywords :

Aldoses;C·nucleosides; 1.5-electrocyclisation; Nitrilimines.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Ahmad Sami A. S. Shawali**

Title **:** Synthesis and tautomeric structure of 3,6-bis(arylazo) pyrazolo[1,5-a]pyrimidine-5,7(4H,6H)-diones

Authors**:** Ahmad S. Shawali, Mosselhi A. N. Mosselhi, Thoraya A. Farghaly, Mohamed R. Shehata and Nagla M. Tawfik

Published In **:** J. Chem. Research

ISSN 0308 - 2342 ***Impact Factor*** 0.148

Abstract :

Two series of 3.6·bis(arylazo)pyrazolo[l.5·alpyrimidine-5.7-diones were prepared. and their acid dissociation constant pK_as were determined and correlated with the Hammett equation. The results of these correlations, together with the spectroscopic data, indicated that the title compounds exist predominantly in the 3·arylazo·6· arylhydrazonopyrazolo (1,S-alpyrimidine-5.7-dione tautomeric form, both in the solid and solution phases.

Keywords:

Azo-hydrezone tautomerism; Fused pyrazoles; Pyrimidines; Hammett equation.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Ahmad Sami A. S. Shawali**

Title **:** Site Selectivity in Reaction of Hydrazonoyl Halides with 2-(Aroylmethyl)-6-methyl-pyrimidin-4(3H)-ones

Authors**:** Ahmad S. Shawali and Thoraya A. Farghaly

Published In **:** J. Chem. Research

ISSN 0308 - 2342 ***Impact Factor*** 0.148

Abstract :

Reaction of hydrazonoyl halides 1 with 2-(aroylmethyl)-6-methylpyrimidin-4(3H)-ones 3 proved to be site selective and gave 2-(3-acetyl-1,5-diarylpyrazol-4-yl)-6-methylpyrimidin-4(3H)-ones 5 via dehydrative cyclisation of the hydrazone intermediates 4. The structures of both 4 and 5 were elucidated by spectral data and alternative synthesis.

The mechanism of the reaction was discussed.

Keywords :

Site selectivity; Hydrazonoyl halides; 2-(aroylmethyl)-6-methylpyrimidin-4(3H)-ones

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Faculty of Science

Dep. **:** Chemistry

Name **:** **Ahmad Sami A. S. Shawali**

Title **:** A New convenient synthesis of 2,4-disubstituted 1,2,4-triazolo[1,5-a]quinazolin-5(4H)-ones

Authors**:** Ahmad S. Shawali,; Hamdi M. Hassaneen; Nabil Kh. Shurrab

Published In **:** J. Heterocycl. Chem

ISSN 0022 - 152X ***Impact Factor*** 0.813

Abstract :

A novel series of 2,4-disubstituted-1,2,4-triazolo[1,5-a]quinazolin-5(4H)-ones were prepared by Dimroth rearrangement of their respective isomers namely 1,4-disubstituted-[1,2,4]triazolo[4,3-a]-quinazolin-5(4H)-ones. The latter were prepared via new synthetic strategy based on 1,5-elecrocyclization of the respective N-(4-oxo-3-cyclohexylquinazolin-2-yl) nitrilimines.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Ahmad Sami A. S. Shawali**

Title **:** Site selectivity in reactions of hydrazonoyl halides with Ketene-N,S-acetals

Authors**:** Ahmad S. Shawali,; Abdelwahed R. Sayed; Mohie M. Zayed

Published In **:** J. Sulfur Chem

ISSN 1741 - 5993 ***Impact Factor***

Abstract :

Ketene-N,S-acetal 7 reacts with hydrazonoyl chloride 1 to afford 1,2,4-triazoles 9. The formation of 9 indicates that 7 behaves mostly as N-nucleophile rather than 1,3-dipolarophile.

Keywords:

Ketene-N,S-acetrals; Hydrazonoyl halides; Nucleophilicity; Nitrilimines; Dipolarophilicity .

Faculty of Science

Dep. **:** Chemistry

Name **:** **Ahmad Sami A. S. Shawali**

Title **:** Synthesis and tautomeric structure of 3,7-bis(arylazo)-6-methyl-2-phenyl-1H-imidazo[1,2-b]pyrazoles in ground and excited states

Authors**:** Ahmad S. Shawali, Mosselhi A. N. Mosselhi, Farag M. A. Altalbawy, Thoraya A Farghaly, Nagla M. Tawfik

Published In **:** Tetrahedron

ISSN 0040 - 4020 ***Impact Factor*** 2.869

Abstract :

Three series of 3,7-bis(arylazo)-6-methyl-2-phenyl-1H-imidazo-[1,2 b]pyrazoles were prepared starting from N-aryl 2-oxo-2-phenylethanehydrazonoyl bromides and 5-amino-4-arylazo-3-methyl pyrazoles. The acid dissociation constants pK and pK* in both the ground and excited states, respectively, were determined and correlated with the Hammett equation. The results of such correlations together with the spectroscopic data indicated that the title compounds exist predominantly in the 1H-bis(arylazo) form in both ground and excited states.

Keywords:

Azo compounds; Imidazoles; Pyrazoles; Azapentalenes .

Faculty of Science

Dep. **:** Chemistry

Name **:** **Ahmad Sami A. S. Shawali**

Title **:** A new strategy for the synthesis of pyrazolo[4,3-e][1,2,4] triazolo[4,3-c]pyrimidines and pyrazolo[4,3-e][1,2,4] triazolo[1,5-c]pyrimidines.

Authors**:** Ahmad S. Shawali,; Hamdi M. Hassaneen; Nabil Kh. Shurrab

Published In **:** Tetrahedron

ISSN 0040 - 4020 ***Impact Factor*** 2.869

Abstract :

A series of pyrazolo [4.3-e] [1,2,4] triazolo [4.3-c] Pyrimidines were Prepared via oxidative cyclization of aldehyde N- (1.3-diphenylpyrazolo [3.4-d]pyrimidin – 4-yl) hydrazones. Dimroth rearrangement of such a serjes ylelded pyrazolo [4.3-e] [1,2,4] triazolo [1.5-c]pyrimidines.

Keywords :

Hydrazones Nitrilimines Dimrath rearrangement; 1*H*-Pyrazolo [4.3-e] pyrimidines Heterocycles.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Ahmad Mahmoud Farag**

Title **:** Separation of rare earth elements from sulfate leach liquor by heterocyclic nitrogen compound

Authors**:** Ghada M. Mahmoud, Nabil T. El Hazek, Ahmad Mahmoud Farag, Omneya M. El Hussaini

Published In **:** Rare Earths

ISSN 1002 - 0721 ***Impact Factor***

Abstract :

Separation of rare earth elements by solvent extraction has actually been widely used in various fields from analytical chemistry to hydrometallurgy. A representative ore sample obtained from Kadabora Batholiths-Eastern Desert of Egypt, containing the multiple oxides rare earth minerals: Samarskite, Fergusonite, Betafite, and Pyrochlore, was subjected to sulfuric acid leaching. Different sets of equilibrium loading experiments were carried out on a bench scale for the extraction of rare earths (cerium and yttrium) from the sulfate leach liquor using 8,9-dihydro[1,2,4]triazolo[1,5-a]quinazolin-6(7H)-one {TQ} dissolved in methylene chloride. Stripping was carried out by 20% sodium hydroxide. A rare earth cake was produced by oxalic acid precipitation. Its purity reached 87.3%.

Keywords:

Triazolopyrimidine; Extraction; Stripping; Precipitation; Rare earths.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Ihsan M. Kenawi**

Title **:** BSSE Effects on the Static Dipole Polarizability and First Dipole Hyperpolarizability of Diclofenac Sodium

Authors**:** Ihsan M. Kenawi Aladin H. Kamel Rifaat H. Hilal

Published In **:** Molecular Structure

ISSN 0166 - 1280 ***Impact Factor*** 1.112

Abstract :

To avoid the problem of basis set completeness and superposition error effects, various basis sets (including polarized and diffuse functions) have been implemented, at the Hartree-Fock and Density Functional levels of theory, to calculate the molecular static dipole polarizability and first dipole hyperpolarizability for the ground state of diclofenac sodium. Sophisticated ab initio methods did not favour the results. Comparison with the experimentally obtained value of the total molecular polarizability of diclofenac sodium indicated that the Hartree-Fock level of theory using the medium basis set 6-31G (d) extended with a p and d polarized functions was best suited for the description of such an electrical property. The total molecular static dipole polarizability was 429m^3 as compared to the experimental value of 419m^3. The corresponding mean and anisotropy of the molecular dipole polarizability converged at 176.76 and 76.19 au, respectively. The intrinsic dipole moment was found to be 6.5571 D. The hyperpolarizability was studied theoretically applying the same selected basis sets and levels of theory as those chosen to calculate the polarizability. The mean hyperpolarizability, β, was found to be of almost the same value when using the medium basis set 6-31G (d) and the corresponding mildly extended basis set 6-31G(p, 2d) at the HF level of theory. The incorporation of electron correlation effects, as in the DFT methods yielded exceedingly larger β values, increasing up to 1153 au. These high values are, probably, attributed to the charge-transfer existing between the phenyl rings within the molecular skeleton. The electronic charge distribution of the dic molecule is displayed by the NBO analysis of atomic charges calculated at the B3LYP/6-31G(d) level of theory.

Keywords:

Relative permittivity; Converged Polarizability; Hyperpolarizability tensors, Diclofenac sodium; Hartree-Fock theory; Density functional theory; Dipole moment.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Aboubakr M. Abdullah**

Title **:** A Simple in situ characterization technique for the onset of the chemical degradation of PEM fuel cells' fluorinated membranes

Authors**:** Aboubakr M. Abdullah, Takeyoshi Okajima, Fusao Kitamura and Takeo Ohsaka

Published In **:** Electrochemistry Communications

ISSN 1388 - 2481 ***Impact Factor*** 4.186

Abstract :

The onset of the chemical degradation of the fluorinated PEM fuel cells' membranes is characterized using an in situ novel technique. It is based upon measuring the pH of the water drained out from the cathode and the anode compartments using a flow pH meter connected to these outlets. It was found that the acidity of water increases significantly as the load increases if the cell operates at low temperaturelow relative humidity (RH) condition after it was working at high temperature-high RH condition previously. Degradation rates were calculated from the pH measurements .

Keywords :

PEM PEMFC Degradation Membrane Characterization pH.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Ahmed A Soliman**

Title **:** Solvent effect on the spectral properties of Neutral Red

Authors**:** Muhammad A Rauf, Ahmed A Soliman, and Muhammad Khattab

Published In **:** Chemistry Central

ISSN 1752 - 153X ***Impact Factor***

Abstract :

The study was aimed at investigating the effect of various solvents on the absorption spectra of Neutral Red, a dye belonging to the quinone-imine class of dyes. The solvents chosen for the study were water, ethanol, acetonitrile, acetone, propan-1-ol, chloroform, nitrobenzene, ethylene glycol, acetic acid, DMSO and DMF. The results have shown that the absorption maxima of dyes are dependent on solvent polarity. In non-hydrogen-bond donating solvents, solvation of dye molecules probably occurs via dipole-dipole interactions, whereas in hydrogen-bond donating solvents the phenomenon is more hydrogen bonding in nature. To estimate the contribution of the different variables on the wave number of the Neutral Red dye, regression analyses using the ECW model were compared with the π^* scale model. This showed that the unified scale for estimating the solvent effect on the absorption of the Neutral Red dye is more adopted and more applicable than the π^* scale model.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Ahmed A Soliman**

Title **:** Kinetic and characterization studies of iron(II) and iron (III) complex formation reactions with hydrazinopyridine

Authors**:** A Ahmed A. Soliman, Mohamed M. Khattab And Wolfgang Linert

Published In **:** Coordination Chemistry

ISSN 0095 - 8972 ***Impact Factor*** 0.867

Abstract :

Reactions of iron(II) and iron(III) with hydrazinopyridine have been investigated. The metal-to-ligand ratio of the two complexes was determined to be 1 : 3 and the stability constants of $[Fe(hypz)3]^{2+}$ and $[Fe(hypz)3]^{3+}$ were evaluated as $2.51X10^{2}$ L^{3} mol^{-3} and $1.94X$ $10^{3}L^{3}$ mol^{-3}, respectively. The complex formation reactions were studied kinetically as a function of [hzpy] at various temperatures (15–37°C) at fixed pH (7.5) using stopped-flow techniques. Kinetic results suggest that the binding of hzpy with Fe(II) or Fe(III) takes place in two consecutive steps: a slow and [hzpy] dependent rate-determining step followed by [hzpy] independent ring closure. The activation parameters for both steps in the two systems have been calculated. The low $\Delta H6\neq_1$ (57±1, 46±2 kJ mol^{-1}) as well as $\Delta H6\neq_2$ (21±0.1, 21±0.1 kJ mol^{-1}) for the first and second steps, respectively, and the large negative values of $\Delta S6\neq_1$ (-81±4,_110±5 JK^{-1} mol^{-1}) as well as $\Delta S6\neq_2$ (_197±3, _197±3JK^{-1} mol^{-1}) for the first and second steps for both Fe(II) and Fe(III) systems, respectively, indicate associative modes of activation for both ligand substitution processes.$[Fe(hypz)_3](PF_6)_2$ and $[Fe(hypz)_3](PF_6)_3$ were isolated as solids and characterized using CHN, IR, magnetic and UV-Visible measurements.

Keywords:

Fe(II) complexes; Fe(III) complexes; Hydrazinopyridine; Kinetics; Stability Constants.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Ahmed Galal**

Title **:** Electrodeposited Metals at Conducting Polymer Electrodes. II Study of the Oxidation of Methanol at Poly(3-methylthiophene) Modified with Pt-Pd Co-catalyst

Authors**:** Ahmed Galal, Nada F. Atta, Soher A. Darwish, Shimaa M. Ali

Published In **:** Topics in Catalysis

ISSN 1022 - 5528 ***Impact Factor*** 2.36

Abstract :

The electrodeposition of sub-micro/nano-size Pt–Pd co-catalyst on conducting poly(3-methylthiophene) (PMT) films and the use of the resulting hybrid material for the oxidation of methanol are reported. Several factors affecting the electrocatalytic activity for this process were studied by cyclic voltammetry (CV) and electrochemical impedance spectroscopy (EIS), namely, the polymer film thickness, and the catalyst amount/ratio. In addition, the effects of methanol concentration and the operating temperature were also investigated. Thermal gravimetric analysis (TGA) showed that the thermal stability of the polymer film increased by the incorporation of the metallic particles. Scanning electron micrographs (SEM) were obtained to identify the relative size of the metallic particles and their distribution. The size ranged between 3 (m and 500 nm. Energy dispersive X-rays analysis (EDAX) was performed to identify the composition of the metallic particles. It was found that the particle composed of Pt and Pd in ratio that is comparable to that present in the feed solution.

Keywords:

Conducting polymers; Nano-sized catalyst; Pt–Pd alloy; Methanol oxidation; CV; EIS; TGA; SEM; EDAX.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Ahmad Mahmoud Farag**

Title **:** Separation of rare earth elements from sulfate leach liquor by heterocyclic nitrogen compound

Authors**:** Ghada M. Mahmoud, Nabil T. El Hazek, Ahmad Mahmoud Farag, Omneya M. El Hussaini

Published In **:** Rare Earths

ISSN 1002 - 0721 ***Impact Factor***

Abstract :

Separation of rare earth elements by solvent extraction has actually been widely used in various fields from analytical chemistry to hydrometallurgy. A representative ore sample obtained from Kadabora Batholiths-Eastern Desert of Egypt, containing the multiple oxides rare earth minerals: Samarskite, Fergusonite, Betafite, and Pyrochlore, was subjected to sulfuric acid leaching. Different sets of equilibrium loading experiments were carried out on a bench scale for the extraction of rare earths (cerium and yttrium) from the sulfate leach liquor using 8,9-dihydro[1,2,4]triazolo[1,5-a]quinazolin-6(7H)-one {TQ} dissolved in methylene chloride. Stripping was carried out by 20% sodium hydroxide. A rare earth cake was produced by oxalic acid precipitation. Its purity reached 87.3%.

Keywords :

Triazolopyrimidine; Extraction; Stripping; Precipitation; Rare earths.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Ahmad Mahmoud Farag**

Title **:** A convenient access to new pyrido[4,3-d]pyrimidine, thiazolo[3,4-c]pyrimidine and pyrimido[4,5-d]pyridazine derivatives

Authors**:** Nabila A. Kheder, Yahia N. Mabkhot, and Ahmad Mahmoud Farag

Published In **:** Arkivoc

ISSN 1557 - 7012 ***Impact Factor*** 1.253

Abstract :

Several new pyrido[4,3-d]pyrimidine, pyrimido[4,5-d]pyridazine and thiazolo[3,4-c]pyrimidine derivatives were prepared from the versatile, readily accessible ethyl 6-methyl-2-oxo-4-phenyl-1,2,3,4 tetrahydropyrimidine-5-carboxylate. Bromination of the latter compound afforded the corresponding 6-bromomethylpyrimidine derivative. Treatment of the latter with malononitrile or ethyl cyanoacetate afforded the corresponding hexahydrocyclopenta[d]pyrimidine derivatives **4a,b.** Reaction of the bromomethylpyrimidine with potassium cyanide followed by treatment with arenediazonium salt afforded the corresponding hydrazone **6** which reacts with hydrazine derivatives to afford the corresponding pyrido[4,3-d]pyrimidine derivatives **8a,b.** It reacts also with thiourea, thiosemicarbazide and phenylhydrazine to afford ethyl 3-imino-5-oxo-7-phenyl-3,5,6,7-tetrahydro-1-H-thiazolo[4,3-c]pyrimidine-8-carboxylate (**10a**), ethyl 3-hydrazono-5-oxo-7-phenyl-3,5,6,7-tetrahydro-1-H-thiazolo[3,4-c]pyrimidine-8 carboxylate (**10b**) and 4,6-diphenyl-3,4,7,8-tetrahydropyrimido[4,5-d]pyridazine-2,5-(1H,6H)-dione (**12**), respectively. The antimicrobial activity of selected examples of the synthesized compounds was tested and showed moderate activity.

Keywords:

1,2,3,4-Tetrahydropyrimidine; Hexahydrocyclopenta[d]pyrimidine; Pyrido [4,3-d] pyrimidine; Thiazolo[3,4-c]pyrimidine; Pyrimido[4,5-d]pyridazine.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Ahmad Mahmoud Farag**

Title **:** Synthesis of Novel Pyrazolo[3,4-d]pyridazine, Pyrido [1,2a] benzimidazole, Pyrimido[1,2-a] benzimidazole and Triazolo[4,3-a]Pyrimidine Derivatives

Authors**:** Mohamed R. Shaaban, Taha M. A. Eldebss, Ahmed F. Darweesh, and Ahmad Mahmoud Farag

Published In **:** Heterocyclic Chemistry

ISSN 0022 - 152X ***Impact Factor*** 0.813

Abstract :

-4Acetyl-5-methyl-1-phenyl-1H-pyrazole reacts with dimethylformamide dimethylacetal (DMF-DMA) to afford the corresponding (E)1-(5-methyl-1-phenyl-1H pyrazol-4-yl)-3-(N,N-dimethylamino)-2-propen-1-one. The latter product undergoes regioselective 1,3-dipolar cycloaddition with nitrilimines and nitrile oxides to afford the novel 3-aroyl-4-(5-methyl-1-phenyl-1H-pyrazol-4-yl)carbonyl-1-phenylpyrazole and 3-aroyl-4-(5-methyl-1-phenyl-1H-pyrazol-4-yl)carbonyl isoxazole derivatives, respectively. It reacts also with 1H-benzimidazole-2-acetonitrile, 2-aminobenzimidazole and 3-amino-1,2,4-triazole to afford the novel pyrido[1,2-a]benzimidazole, pyrimido[1,2-a]benzimidazole and the triazolo[4,3-a]pyrimidine derivatives, respectively. The reaction of 3-aroyl-4-(5-methyl-1-phenyl-1H-pyrazol-4-yl) carbonyl-1-phenylpyrazole derivatives with hydrazine hydrate led to a new pyrazolo[3,4-d]pyridazine derivatives.

Keywords:

-4Acetyl-5-methyl-1-phenyl-1H-pyrazole; Pyrazolo[3,4-d]pyridazine; Pyrido [1,2a] benzimidazole; Pyrimido[1,2-a]benzimidazole; Triazolo[4,3- a] Pyrimidine .

Faculty of Science

Dep. **:** Chemistry

Name **:** **Ahmad Mahmoud Farag**

Title **:** Protein patterns and chemical constituents of Ailanthus altissima (Miller) Swingle and Ailanthus excelsa Roxb.

Authors**:** Gülriz Bayçu1, Ataa Said, Ahmad M. Farag and Khaled Rashed

Published In **:** IUFS Journal of Biology

ISSN ***Impact Factor***

Abstract :

There is a growing interest in correlating biochemical constituents of plants with their taxonomic properties. Generally the genus Ailanthus is noted for the presence of quassinoids, alkaloids, lipids, fatty acids, terpenoids and some proteins. In this study, we aimed to investigate the similarities and/or differences in the chemical constituents and protein patterns of different Ailanthus species. We assume that our parameters may be used as an additional tool for chemotaxonomic studies and molecular discriminations .

Keywords:

Ailanthus; Chemical constituent; Chemotaxonomy; Protein pattern .

Faculty of Science

Dep. **:** Chemistry

Name **:** **Ahmad Mahmoud Farag**

Title **:** Synthesis and analgesic/anti-inflammatory evaluation of fused heterocyclic ring systems incorporating phenylsulfonyl moiety

Authors**:** Mohamed R. Shaaban, Tamer S. Saleh, Abdelrahman S. Mayhoub, Ahmed Mansour and Ahmad Mahmoud Farag

Published In **:** Bioorganic & Medicinal Chemistry

ISSN 0968 - 0896 ***Impact Factor*** 2.662

Abstract :

A series of pyrazolo[1,5-*a*] pyrimidine, triazolo[1,5-*a*]pyrimidine, and pyrimido[1,2-*a*]benzimidazole ring systems incorporating phenylsulfonyl moiety were synthesized via the reaction of 3-(N,N-dimethylamino)-1-aryl-2-(phenylsulfonyl)prop-2-en-1-one derivatives **2a,b** with appropriate nitrogen nucleophiles.

The analgesic and anti-inflammatory activities of the newly synthesized compound were investigated in vivo. 3-Bromo-2-phenyl-6-(phenylsulfonyl)-7-(4 methylphenyl)-pyrazolo[1,5-*a*]pyrimidine (**5e**) was found to have an excellent analgesic activity in comparison with indomethacin as a reference drug, while the highest anti-inflammatory effect was observed in the case of 2-(4-bromophenyl)-6-(phenylsulfonyl)-5-(4-methyl-phenyl)pyrazolo[1,5-a] pyrimidine (**5d**). From the structure-activity relationship (SAR) point of view, the analgesic/anti-inflammatory activity of pyrazolo[1,5-*a*]pyrimidine derivatives was found to be much higher than triazolo[1,5-*a*]pyrimidine and pyrimido[1,2-*a*]benzimidazole derivatives.

Keywords :

Anti-inflammatory; Phenylsulfonylpyrazole; Pyrazolo[1,5-a] pyrimidine; Triazolo [1,5-a] pyrimidine; Pyrimido[1,2-a]benzimidazole; Structure-activity relationship (SAR).

Faculty of Science

Dep. **:** Chemistry

Name **:** **Ahmad Mahmoud Farag**

Title **:** Regioselective synthesis and antitumor screening of some novel N-phenylpyrazole derivatives

Authors**:** Ahmad Mahmoud Farag, Abdelrahman S. Mayhoub, Saber E. Barakat and Ashraf H. Bayomi

Published In **:** Bioorganic & Medicinal Chemistry

ISSN 0968 - 0896 ***Impact Factor*** 2.662

Abstract :

The versatile, hitherto unreported 4-acetyl-5-methyl-1-phenyl-3-phenylcarbamoyl-1H-pyrazole (3) was prepared via the reaction of 2-(2-phenylhydrazono)-2-chloro-N-phenylacetamide with pentan-2,4-dione in the presence of sodium ethoxide. Reaction of 3 with dimethylformamide-dimethylacetal (DMF-DMA) furnished the corresponding 4-[(E)-3-(dimethylamino)acryloyl]-5-methyl-1-phenyl-3-phenylcarbamoyl-1H pyrazole (5). The latter product underwent regioselective 1,3-dipolar cycloaddition with some nitrilimines to afford the non-isolable dihydropyrazole intermediates which then lose dimethylamine yielding the corresponding pyrazole derivatives. The preliminary screening for the antitumor activity of all newly synthesized compounds was carried out against Ehrlich Ascites Carcinoma tumor cells.

Keywords:

Phenylcarbamoyl-1H-pyrazole; 1,3-Dipolar cycloaddition; Nitrilimines; Cytotoxicity; Antitumor agent; N-Phenylpyrazoles; Regioselective synthesis; Antitumor activity; Dimethylformamide-dimethylacetal (DMF-DMA); Enaminones; Structure-activity relationship (SAR). .

Faculty of Science

Dep. **:** Chemistry

Name **:** **Ahmad Mahmoud Farag**

Title **:** Regioselective Synthesis of Diazaspiro[4.4]nona- and Tetrazaspiro[4.5] deca-2,9-diene-6-one Derivatives

Authors**:** Ahmad Mahmoud Farag, Yehya M. Elkholy and Korany A. Ali

Published In **:** Heterocyclic Chemistry

ISSN 0022 - 152X ***Impact Factor*** 0.813

Abstract :

Several 1,2-diazaspiro[4,4]nona-2,8-diene-6-one derivatives were synthesised via cycloaddition of nitrilimides to 3-aryliden-2(3H)-furanone derivatives. The formed products react with hydrazine hydrate to give the corresponding pyrazolecarbohydrazide derivatives which undergo intramolecure cyclization upon treatment with HCl/AcOH mixture to affored 1,2,7,8-tetrazaspiro[4.5]deca-2,9-diene-6-one derivatives. Molecular mechanics energy minimization techniques and related structural parameters for compound 8-(4-methylphenyl)-1,3,4-triphenyl-7-oxa-1,2-diazaspiro [4.4] nona-2,8-diene-6-one 5a are reported.

Keywords :

-1,2Diazaspiro[4,4]nona-2,8-diene-6-one; 3-Aryliden-2(3H)-furanone; 1,2,7 ,8-Tetrazaspiro[4.5]deca-2,9-diene-6-one; 1,3-Dipolar cycloaddition; Nitrilimides.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Ahmad Mahmoud Farag**

Title **:** Synthesis and Antimicrobial Evaluation of Some New Pyrimidine Derivatives

Authors**:** Nabila A. Kheder, Yahia N. Mabkhot, and Ahmad M. Farag

Published In **:** Heterocycles

ISSN 0385 - 5414 ***Impact Factor*** 1.066

Abstract :

The utility of ethyl 6-methyl-2-oxo-4-phenyl-1,2-dihydropyrimidine-5-carboxylate (1) in the synthesis of some new pyrido[1,2-f]pyrimidine, pyrazolo-[3,4-b]pyrido[1,2-f]pyrimidine, 6-(4-substituted-styryl)pyrimidine, pyrido[4,3-d]pyrimidine, pyrimido[5,4-d]pyridazine and substituted-6-(thien-2-yl)pyrimidinederivatives is reported. Antimicrobial evaluation of some selected examples from the synthesized products was carried out.

Keywords:

Pyrido[1,2-f]pyrimidine; Pyrazolo [3,4-b] pyrido[1,2-f] pyrimidine ; Pyrido [4,3-d]-pyrimidine; Pyrido[4,3-d]pyrimidine; Pyrimido[5,4-d]pyridazine.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Ahmad Mahmoud Farag**

Title **:** Synthesis and Antimicrobial Evaluation of Some Bis(thioxopyridine), Bis(pyrazolo[3,4-b]pyridine), Bis(thien[2,3-b]Pyridine), Bis(1,3,4-thiadiazole) and Bis-thiophene Derivatives

Authors**:** Nabila A. Kheder, Yahia N. Mabkhot, and Ahmad Mahmoud Farag

Published In **:** Heterocycles

ISSN 0385 - 5414 ***Impact Factor*** 1.066

Abstract :

Condensation of the N,N'-(ethane-1,2-diyl)bis(cyanoacetamide) (1) with aromatic aldehydes gave the corresponding N,N'-ethane-1,2-diyl)bis(2-cyano-3-phenylacrylamide) derivatives 2a-c. The latter products react with 2-cyano-ethanethioamide to afford 1,2-bis(3,5-dicyano-6-oxo-4-aryl-2-thioxo-1,2,3,6-tetrahy- dropyridin-1-yl)ethane 4a-c. Treatment of 1,2-bis(3,5–dicyano-6-oxo-4-phenyl-2-thio-oxo-1,2,3,6-tetrahydropyridin-1-yl)ethane (4a) or its S-methyl derivative 5 with hydrazine hydrate afforded 1,2-bis(3-amino-5-cyano-6,7-dihydro-7-methyl-6-oxo-4-phenyl-1H-pyrazolo[3,4-b]pyridin-1 yl) ethane (6). Reaction of bis (methoxyphenyl) thioxotetrahydropyridine 4b with chloroacetone gave the 1,2-bis-(2-acetyl-3-amino-6,7-dihydro-5-cyano-4-(4 methoxy-phenyl)-6-oxothieno[2,3-b]pyridine-7-yl)ethane (8). Treatment of bis(cyanoacetamide) (1) with phenyl isothiocyanate afforded N,N'-ethane-1,2-diyl)bis(2-cyano-3-mercapto-3-(phenylamino)acrylamide (10) which reacts with hydrazonoyl halides 11a,b or haloketone 14a-c to give the corresponding N,N'-(ethane-1,2-diyl)bis(2-cyano-2-(3,5-disubstituted-1,3,4-thiadiazol-2(3H)–ylide- ne) acetamide 13a,b or N,N'-(ethane-1,2-diyl)bis(4-amino-5-substituted)-2-phenyl- amino)thiophene-3-carboxamide 15a-c, respectively. Antimicrobial evaluation of selected example of the newly synthesized compounds was carried out.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Ahmad Mahmoud Farag**

Title **:** Synthesis of some novel pyrazolo[1,5-a]pyrimidine, 1,2,4-triazolo[1,5-a] pyrimidine, pyrido[2,3-d]pyrimidine, pyrazolo[5,1-c]-1,2,4-triazine and 1,2,4-triazolo[5,1-c]-1,2,4-triazine derivatives incorporating a thiazolo[3,2-a]benzimidazole moiety

Authors**:** Hatem A. Abdel-Aziz, Nehal A. Hamdy, Ahmad Mahmoud Farag and Issa M. I. Fakhr

Published In **:** Heterocyclic Chemistry

ISSN 0022 - 152X ***Impact Factor*** 0.813

Abstract :

E-3-(N,N-Dimethylamino)-1-(3- methylthiazolo[3,2-a]benzimidazol-2-yl) prop-2-en-1-one (2) was synthesized by the reaction of 1-(3-methylthiazolo [3,2-a]benzimidazol-2-yl)ethanone (1) with dimethylformamide-dimethylacetal. The reaction of 2 with 5-amino-3-phenyl-1H- pyrazole (4a) or 3-amino-1,2,4-(1H)-triazole (4b) furnished pyrazolo[1,5-a] pyrimidine and 1,2,4-triazolo[1,5-a]pyrimidine derivatives 6a and 6b, while the reaction of enaminone 2 with 6-aminopyrimidine derivatives 7a,b afforded pyrido[2,3-d]pyrimidine derivatives 9a,b, respectively. The diazonium salts 11a or 11b coupled with compound 2 to yield the pyrazolo[5,1-c]-1,2,4-triazine and 1,2,4-triazolo[5,1-c]-1,2,4-triazine derivatives 13a and 13b. Some of the newly synthesized compounds exhibited a moderate effect against some bacterial and fungal species.

Keywords:

Pyrazolo[1,5-a]pyrimidine; 1,2,4-Triazolo[1,5-a] pyrimidine; pyrido[2,3-d] pyrimidine; Ppyrido[2,3-d]pyrimidine; Pyrazolo[5,1-c]-1,2,4-triazine; 1,2,4-Triazolo[5,1-c]-1,2,4-triazine; Thiazolo[3,2-a]benzimidazole.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Ahmad Mahmoud Farag**

Title **:** Facile and Convenient Synthesis of Pyrazole, Pyridine, Pyridazine, Pyrazolo[3,4-b]pyridine, and Pyrazolo[5,1-c][1,2,4]triazine Derivatives

Authors**:** Nabila A. Kheder, Yahia N. Mabkhot, and Ahmad Mahmoud Farag

Published In **:** Synthetic Communications

ISSN 0039 - 7911 ***Impact Factor*** 0.977

Abstract :

A convenient synthesis of a series of pyrazole, pyridine, pyridinethione, pyridazine, pyrazolo[3,4-b]pyridine, imidazo[1,2-a]pyrimidine, and pyrazolo- [5,1-c][1,2,4]triazine derivatives incorporating a pyrimidine moiety, via the reactions of the versatile, readily accessible 3-oxo-N-(pyrimid-2-yl)butanamide with the appropriate reagents, is described.

Keywords:

N-(pyrimid-2-yl)butanamide; Imidazo[1,2-a]pyrimidine; Pyrazole; Pyrazolo [3,4-b]pyridine; Pyrazolo[5,1-c][1,2,4]triazine]; Pyridazine; Pyridinethione.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Ahmad Mahmoud Farag**

Title **:** Synthesis of new N-phenylpyrazole derivatives with potent antimicrobial activity

Authors**:** Ahmad Mahmoud Farag, Abdelrahman S. Mayhoub, Saber E. Barakat and Ashraf H. Bayomi

Published In **:** Bioorganic & Medicinal Chemistry

ISSN 0968 - 0896 ***Impact Factor*** 2.662

Abstract :

The versatile synthons 4-(2-bromoacetyl)-5-methyl-1-phenyl-3-phenylcarbamoyl-1H-pyrazole (3) and 4-[(E)-3-(dimethylamino)acryloyl]-5-methyl-1-phenyl-3-phenyl-carbamoyl-1H-pyrazole (2) were used as precursors for the synthesis of a series of phenylpyrazoles with different aromatic ring systems at position 4. The antimicrobiological evaluation of the newly synthesized compounds was carried out in vitro assays for antifungal and antibacterial activities. Amongst the tested compounds, 4-acetyl-5-methyl-1-phenyl-3-phenylcarbamoyl-1H-pyrazole (1), 4-[(E)-3-(dimethyl-amino)acryloyl]-5-methyl-1-phenyl-3-phenylcarbamoyl-1H-pyrazole (2), 4-(2-bromo-acetyl)-5-methyl-1-phenyl-3-phenylcarbamoyl-1H-pyrazole (3) and 4-(2-aminothiazol-4-yl)-5-methyl-1-phenyl-3-phenylcarbamoyl-1H-pyrazole (17) showed interesting antimicrobial properties. In particular, all tested compounds produced inhibitory effects against pathogenic yeast (Candida albicans) similar or superior to those of reference drug. In addition, compound 3 showed excellent activity against pathogenic mould (Aspergillus). From structure-activity relationship (SAR) point of view, the attachment of bromoacetyl moiety to pyrazole ring can be considered as a breakthrough in developing a new therapeutic antifungal agent related to phenylpyrazole system.

Keywords:

Phenylcarbamoylpyrazole; 1,2,4-Triazolo[4,3-a]pyrimidine; Pyrazolo[1,5-a]pyrimidine; Imidazo[2,1-b]benzothiazole; Enaminones; Antibacterial; Antifungal; Anticandidal; Structure-activity relationship (SAR); 2-Aminothiazole.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Ahmad Mahmoud Farag**

Title **:** Synthesis of new 3-pyridinecarboxylates of potential vasodilation properties

Authors**:** Adel S. Girgis, Nawal Mishriky, Ahmad Mahmoud Farag, Wafaa I. El-Eraky, Hanaa Farag

Published In **:** Medicinal Chemistry

ISSN 0223 - 5234 ***Impact Factor*** 2.301

Abstract :

-2(Alicyclic-amino)-4,6-diaryl-3-pyridinecarboxylates 5aed were prepared via aromatic nucleophilic substitution reaction of secondary amines (piperidine or morpholine) with 2-bromo-3-pyridinecarboxylate derivatives 3a,b. The latters were obtained through bromination of 3-aryl-4-benzoyl-2-cyanobutyrates 2a and 2b, which were obtained from the base promoted addition of ethyl cyanoacetate to 2-propen-1-ones 1a and 1b, with bromine in glacial acetic acid. Reaction of 3 with piperazine hexahydrate in 2:1 molar ratio afforded 1,4-bis[(ethyl 4,6-diaryl-3-pyridinecarboxylate)-2-yl]piperazines 6a,b. Reaction of 3 with anilines in refluxing pyridine unexpectedly gave 2-(aryl-amino)-3-pyridinecarboxylates 8aeg and 2-amino-3-pyridinecarboxylates 9a and 9b. Vasodilation activity screening for the synthesized pyridinecarboxylates using isolated thoracic aortic rings' standard method of rats shows considerable properties. Compounds 5b, 5c, 6b and 8g reveal remarkable vasodilation potency (IC50, concentrations necessary for 50% reduction of maximal norepinephrine hydrochloride induced contracture) 0.175, 0.146, 0.229 and 0.233 mM, respectively.

Keywords:

-3Pyridinecarboxylates; 2-Propen-1-ones; Aromatic nucleophilic substitution; Vasodilation .

Faculty of Science

Dep. **:** Chemistry

Name **:** **Elham Sayed Sayed Darwish**

Title **:** Arylhydrazonals as aldehyde components in Baylis – Hillman reaction : synthesis of 5-hydroxy- 2,3,4,5-tetrahydropyridazine-4-carbonitrile and 6,7,8,8a-tetrahydrocinnolin-5 (1H)-one

Authors: Ismail Abdelshafy Abdelhamid, Elham Sayed Darwish, Miead Adel Nsara, Fathy Mohamed Abdel-Gallil, and Daisy Hanna Fleitab

Published In **:** Arkivoc

ISSN 1551 - 7012 ***Impact Factor*** 1.253

Abstract :

-3Oxo-2-arylhydrazonals reacted with acrylonitrile to yield hydroxy tetrahydropyridazine derivatives and with hexenone to yield tetrahydrocinnoline

Keywords:

-3Oxo-2-arylhydrazonals; Hydroxypyridazine; Dihydropyridazine; Hexahydrocinnoline.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Elham Sayed Sayed Darwish**

Title **:** Facile Synthesis of Heterocycles via 2-Picolinium Bromide and Antimicrobial Activities of the Products

Authors**:** Elham Darwish

Published In **:** Molecules

ISSN 1420 - 3049 ***Impact Factor*** 0.94

Abstract :

The 2-picolinium *N*-ylide **4**, generated in situ from the N-acylmethyl-2-picolinium bromide 3, underwent cycloaddition to N-phenylmaleimide or carbon disulfide to give the corresponding cycloadducts **6** and **8**, respectively similar reactions of compound **3** with some electron-deficient alkenes in the presence of MnO_2 yielded the products **11** and **12**. In addition, reaction of **4** with arylidene cyanothioacetamide and malononitrile derivatives afforded the thiophene and aniline derivatives **15** and **17**, respectively. Heating of picolinium bromide **3** with triethylamine in benzene furnished 2- **(2-thienyl)indolizine (18)**. The structures of the isolated products were confirmed by elemental analysis as well as by ^{1}H- and ^{13}C-NMR, IR, and MS data. Both the stereochemistry and the regioselectivity of the studied reactions are discussed. The biological activity of the newly synthesized compounds was examined and showed promising results.

Keywords:

Dihydrothiophene; Indolizine; Aniline derivatives; Biological activity.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Elham Sayed Sayed Darwish**

Title **:** β- Enaminonitriles in heterocylic synthesis : Synthesis of new tetrahydropyridinethione, pyridopyrimidines, Pyridotriazines and dihydropyridines

***Authors*:** Ibrahim saad abdel Hafiz, Mahmoud Mohamed mahfouz ramiz, Fivian farok mahmoud and Elham sayed dar

Published In **:** J. Chem. Sci

ISSN 0253 - 4134 ***Impact Factor*** 1.21

Abstract :

The chemistry of enaminonitrile and enaminone derivatives has been explored for the synthesis of heterocyclic compounds. A tetrahydropyridinthione was prepared from the reaction of 3-aminocrotononitrile with cyanothioacetamide. This compound reacted with electrophilic reagents and isothiocyanates to yield a number of heterocyclic compounds.

Keywords:

B-Enaminonitriles; Tetrahydropyridinethione; Pyridopyrimidines; Pyridotriazines; Dihydropyridines.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Elham Sayed Sayed Darwish**

Title **:** Synthesis and Antimicrobial Activity of New Imidazo-and Pyrimido[2,1-f]theophyllines

Authors**:** Mosselhi. A.N. Mosselhi, Elham S. Darwish , and Klaus Peseke

Published In **:** Monatshefte Fur Chemie

ISSN 0026 – 9247 ***Impact Factor*** 0.92

Abstract :

Heating of 8-aminotheophylline with methyl (Z)-2-benzoylamino-3 (dimethylamino) propenoate in acetic acid afforded in a one-pot synthesis a new pyrimido[2,1-*f*] theophylline derivative. Methylation of this by using CH_3I=NaH furnished in good yield the double methylated derivative. Furthermore, glycosidation of the former with 1-α-bromo-2,3,4,6-tetra- *O*-acetyl-D-glucose gave the β-glucoside derivative. Reaction of 8-aminotheophylline with [bis(methylthio) methylene]malonitrile, ethyl[bis(methylthio)-methylene]cyanoacetate, 1,3-diphenylprop-2-en-1-one, 2-cyano-1,3-diphenylprop-2-en-1-one, 1-(4-nitrophenyl)- 3-(dimethylamino)prop-2-ennitrile, 1-phenyl-3-(dimethylamino)prop-2-en-1-one, 2-substituted 3-aryl or heteroarylprop-2-ennitrile and ethyl(arylmethylene) cyanoacetate in N,N-dimethylformamide in the presence of anhydrous potassium carbonate afforded also the corresponding new derivatives of pyrimido-[2,1-*f*]theophylline. However, 8-aminotheophylline reacted in similar manner with 3-chloropentan-2,4- dione and 2-bromo-1-phenylethanone to give the corresponding imidazo[2,1-*f*]theophyllines. Furthermore, azo-coupling of one of these with 4-methylphenyldiazonium chloride was performed. The antimicrobial activity of the products has been evaluated. The structures of all new compounds obtained were established by their spectral analyses.

Keywords:

Pyrimidines; Theophylline; Pyrimidotheophylline; Glycoside; Biological activit.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Tayseer A. Abdallah**

Title **:** A Facile Route To Pyrrolo[2,1-A]-And 1,2,3 -Triawlo[5,1-A] Dihydroisoquinolines

Authors**:** Tayseer A. Abdallah

Published In **:** Heterocycles

ISSN 0385 - 5414 ***Impact Factor*** 1.066

Abstract :

Treatment of 3,4-dihydro-6,7-dimethoxy-l-methylisoquinoline 1 with a-bromoketones **2a-c** in benzene in presence of triethylamine afforded the corresponding pyrrolo[2, I-*a*]isoquinoline **4**, Also treatment of 3,4-dihydro6,7-diethoxyisoquinoline-l-carbonitrile **10** with a-bromo ketones **2a,b,d** under the same reaction condition afforded the corresponding pyrroloisoquinoline **12**. While treatment of isoquinolinium salt **11** with p-tolyldiazonium chloride in ethanol afforded triazoloisoquinoline derivative **16** .

Faculty of Science

Dep. **:** Chemistry

Name **:** **Tayseer A. Abdallah**

Title **:** Synthesis of annulated dihydroisoquinoline heterocycles via their nitrogen ylides

Authors**:** Tayseer A. Abdallah and Kamal M. Dawood

Published In **:** Tetrahedron

ISSN 0040 - 4020 ***Impact Factor*** 2.869

Abstract :

-3,4Dihydro-6,7-dimethoxyisoquinoline-1-acetonitrile reacts with some *a*-bromoketones in dry benzene to give the corresponding isoquinolinium salts, which undergo intramolecular cyclization to give pyrrolo[2,1-*a*] isoquinolines. Cross-coupling of the latter compounds with some aryldiazonium chlorides resulted in the formation of 3-arylhydrazonopyrrolo [2,1-*a*]isoquinolines, 3-arylazopyrrolo[2,1-*a*]isoquinolines and 3-aryl-1,2,3-triazolo[5,1-*a*]isoquinolines, respectively. The structures of the products were established on the basis of their elemental and spectral analyses as well as X-ray single crystal studies.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Thoraya A. Farghaly**

Title **:** Synthesis, azo-hydrazone tautomerism and antitumor screening of N-(3-ethoxycarbonyl-4,5,6,7-tetrahydro-benzo[b]thien-2-yl)-2-arylhydrazono-3-oxobutanamide derivatives

Authors**:** Thoraya A. Farghaly and Zeinab A. Abdallah

Published In **:** Arkivoc

ISSN 1551-7012 ***Impact Factor*** 1.253

Abstract :

A series of new N-(3-ethoxycarbonyl-4,5,6,7-tetrahydrobenzo[b]thien-2-yl)-2-aryl hydrazono-3- oxobutanamide derivatives **4a-i** were synthesized and the acid dissociation constants (pK_as) for the series prepared were determined and correlated by the Hammett-type equation using the enhanced substituent constants σ_x^-. The results of such correlation together with the spectral data indicated that the studied compounds exist predominantly in the hydrazone tautomeric form. Some of these derivatives exhibit high antitumor activity.

Keywords:

Synthesis; Coupling, azo-hydrazone tautomerism; Benzo[*b*]thiophene.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Thoraya A. Farghaly**

Title **:** Synthesis and reactions of 3-[3 (dimethylamino)propenoyl]-1,7-diphenyl [1,2,4]triazolo[4,3-a]pyrimidin-5(1H)-one

Authors**:** Thoraya A. Farghaly

Published In **:** Chemical Research

ISSN 0308 - 2342 ***Impact Factor*** 0.145

Abstract :

-3Acetyl-1,7-diphenyl[1,2,4]triazolo[4,3-a]pyrimidin-5(1H)-one (1) reacts with N,N-dimethylformamide dimethylacetal (DMFDMA) yielding the enaminone 2. The latter compound reacts with active methylene compounds, hydrazine hydrate, hydroxylamine and some heterocyclic amines to afford trisubstituted pyridine, substituted pyrazole, substituted isoxazole and azolopyrimidines. The antimicrobial activities of the compounds prepared were screened.

Keywords:

Enaminone; Dimethyformamide dimethylacetal; Triazolo[4,3-a] pyrimidin-5 (1H)-one; Pyridines .

Faculty of Science

Dep. **:** Chemistry

Name **:** **Gehad G. Mohamed**

Title **:** Correlation Between Thermal and Mass Spectral Techniques for the Characterization of Allenylidene and Carbene Complexes

Authors**:** Gehad G. Mohamed, Normen Szesni, Helmut Fischer

Published In **:** Spectrochimica Acta

ISSN 1386 - 1425 ***Impact Factor*** 1.511

Abstract :

The fragmentation pathways of allenylidene and carbene complexes have been studied using FAB mass spectrometry in comparison with thermal analyses (TGA, DrTG and DTA). Both the decomposition modes are investigated and the possible fragmentation pathways are suggested. The use of mass and thermal analyses (TGA and DTA) in the analyses of allenylidene and carbene complexes allowed the characterization of the fragmentation pathways in MS. The major pathway includes successive loss of carbon monoxide followed by fragmentation of the organic part of the allenylidene or carbene molecules. This is also confirmed by thermogravimetric analysis (TGA) where the first step involves the loss of carbon monoxide followed by the organic ligand. The nature of each step; exothermic or endothermic, is also studied using DTA technique. The kinetic parameters of the thermal decomposition are also studied using the Coates-Redfern method.

Keywords:

Allenylidene and carbene complexes; Thermal analyses; Mass spectrometry .

Faculty of Science

Dep. **:** Chemistry

Name **:** **Gehad G. Mohamed**

Title **:** Disposal screen-printed carbon paste electrodes for the potentiometric titration of surfactants

***Authors*:** Elmorsy Khaled, Gehad G. Mohamed and T. Awad

Published In **:** Sensors and Actuators:B Chemical

ISSN 0925 - 4005 ***Impact Factor*** 2.934

Abstract :

A simple, reliable, rapid and reproducible method for mass production of disposable carbon paste electrodes using screen-printing technology is described. The printed disposable potentiometric strips containing both working and reference electrodes are utilized as end-point indicator electrodes for the potentiometric titration of ionic surfactants in different samples. The home-made printing carbon ink formulations and printing conditions are investigated and discussed in details. The analytical performances of the printed electrodes are compared with those for carbon paste, coated wire, coated graphite and PVC polymeric membrane electrodes. The printed electrodes show very short response time reaching 3 s with adequate shelf-life (6 months). The proposed disposable strips have been successfully used for the potentiometric titration of cationic and anionic surfactants in their analytical grade solutions, pharmaceutical preparations, detergents and water samples with sensitivity comparable with the official method and ability of field measurement.

Keywords:

Disposal screen-printed electrodes; Surfactants; Potentiometric titration; Pharmaceutical preparations; Detergents; Water samples.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Gehad G. Mohamed**

Title **:** siRNA Silencing of PVX Coat Protein Gene Affects Accumulation of Viral RNA in Potato and Tobacco Plants

***Authors*:** A.M. Soliman, N.N. Barsoum, G.G. Mohamed, A.A. Rezk, A.E. Aboul-Ata and H.M. Mazyad

Published In **:** Virology

ISSN 1816 - 4900 ***Impact Factor***

Abstract :

This study aims at determination of efficiency of micro interfering RNA (miRNA) to develop ability of virus resistance against Egyptian PVX isolate (PVX-Eg2) in both potato (Solonum tuberosum L. cv. Spunta) and tobacco (Nicotiana benthoniana). RNA constructs of sence (PVX-Eg2cpVs), antisense (PVX-Eg2cpCs) and sence/antisense were designed, cloned and sub-cloned for gene transfection using Agrobacterum inoculation technique. Two to three leaf-stage seedlings of potato (Solonum tuberosum L. cv. Spunta) and tobacco (Nicotiana benthoniana) were inoculated with the three previous constructs. The construct-treated plants were mechanically inoculated with the PVX-Eg2 isolate. Bioassay and PCR amplification have been able to evaluate transfected-plant resistance against PVX –Eg2 that is caused by siRNA of PVX-Eg2cp. PCR amplification has been able to detect PVX viral genome in all challenged plants those infiltrated with either pFGC54491 vector without insert, or with sense construct and also with antisense construct. Bioassay has confirmed same previous statement. Nine out of 10 sense/antisense-transfected potato plants werew negatively reacted with both bioassay and PCR amplification .Same negative reaction has been viewed using both bioassay and PCR for sense/antisense transfected-tobacco plants. Seven out of 10 proved they are PVX-Eg2 resistant.

Keywords:

siRNA, gene silencing, PTGS, PDR, dsRNA, potato; Nicotiana benthoniana, pFGC54491 vector; sense/antisense construct; agrobacterium; mediated transfection; transient expression; infiltration .

Faculty of Science

Dep. **:** Chemistry

Name **:** **Gehad G. Mohamed**

Title **:** Electrochemical Determination of the Antidiabetic Drug Repaglinide

Authors**:** M. A. El-Ries, Gehad G. Mohamed, and A. K. Attia

Published In **:** Yakugaku Zasshi

ISSN 1347 - 5231 ***Impact Factor***

Abstract :

The electrochemical oxidation of repaglinid has been carried out in Britton-Robinson buffer at carbon paste and glassy carbon electrodes. Repaglinide exhibits a well-defined irreversible oxidation peak over the entire pH range (2-11). Differential pulse voltammetry was used to determine repaglinide in pure form. The peak current varied linearly in the following ranges: $8.0x10^{-7}$ -$3.2x10^{-6}$ M and $4.0x10^{-7}$ -$4.0x10^{-6}$ M in case of carbon paste electrode and glassy carbon electrode, respectively. In case of carbon paste electrode the limit of detection (LOD) and quantification (LOQ) were $1.348x10^{-7}$ M and $4.494x10^{-7}$ M, respectively. For glassy carbon electrode the LOD and LOQ were $1.062X10^{-7}$ M and $3.54X\ 10^{-7}$M, Respectively. The percentage recoveries were found in the following ranges: 99.09-100.07% and 99.0-100.50% for carbon paste electrode and glassy carbon electrode, respectively. The relative standard deviations were found in the following ranges: 0.636-1.395% and 0.431-1.104% in case of carbon paste electrode and glassy carbon electrode, respectively. Differential pulse voltammetry was successfully applied for the determination of repaglinide in tablets and human serum.

Keywords:

Repaglinide; Oxidation; Differential pulse voltammetry; Pharmaceutical form; Serum.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Hekmat B. Hassib**

Title **:** Dielectric properties and AC conduction mechanism for 5,7-dihydroxy-6-formyl-2-methylbenzo-pyran-4-one bis-schiff base

***Authors*:** H. Hassib, A. Abdel Razik

Published In **:** Solid State Communications

ISSN 0038 - 1098 ***Impact Factor*** 1.535

Abstract :

The dielectric properties and the electrical conductivity of the tetradentate Schiff base, derived from the condensation of 5,7 dihydroxy-6- formyl-2-methylbenzo-pyran-4-one with ethylenediamine has been studied in the temperature range 300 K < T < 420 K and the frequency range 0.1–20 KHz. At T > 350 K, both the dielectric constant, "0, and the dielectric loss, ε$\acute{\ddot{o}}$, showed a decrease with increasing frequency and increasing temperature. The broad loss peak anomalies observed are attributed to intrinsic lattice dipoles in the hydrogen bonded Schiff base investigated. The discontinuity observed in the DC conductivity-temperature dependence behavior is correlated with structural changes in the network. The AC conductivity measurements as function of temperature exhibit a frequency dependent, temperature dependent behavior. Protonic conduction prevails at temperatures below 350 K. Decrease in the AC conductivity above 350 K is also indicative of structural changes within the hydrogen-bonded conjugated system. The frequency dependent-conductivity of the Schiff base is found to be proportional to ω^s. Analysis of the AC conductivity experimental data obtained, and the frequency exponent s with theoretical models reveals that the correlated barrier hopping (CBH) model is the appropriate mechanism for conduction in the Schiff base system. The barrier height, W_m, between charged defect states is calculated and its value is in good agreement with the theory of hopping of charged carriers over a potential barrier.

Keywords:

A. Semiconductors.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Hamdi M. Hassaneen**

Title **:** Synthesis of new derivatives of 1,3,4-thiadiazole, 1,2,4-triazolo[4,3-b]isoquinoline, 1,2,4-triazolo[4,3-]pyrimidinone and 1,2,4-triazolo[4,3-b]-1,2,4-triazine

Authors**:** Nada M. Abunada , Hamdi M. Hassaneen, and Omar A. Miqdad

Published In **:** An Indian

ISSN ***Impact Factor***

Abstract :

-3,5Diaryl-2-imino-1,3,4-thiadiazoles (**2a,b**) were synthesized from the reaction of hydrazonyl bromides (**1a,b**) and potassium thiocyanate. (**2a,b**) when were subjected to nitrous acid in acetic acid gave the corresponding nitrozoiminoderivatives (**3a,b**). (**2a,b**) were acetylated and benzoylated when reacted with acetic anhydride and benzoyl chloride and gave (**5a,b**) and (**6a,b**) respectively. (**1a,b**) reacted with 3,4-dihydro-6,7-dimethoxyisoquinoline (**7**) and 1-methyl-3,4-dihydro-6,7-dimethoxyisoquinoline (**8**) and give the corresponding 1,2,4-triazolo[4,3-b]isoquinolines (**9a,b**) and (**10a,b**) respectively. 1,2,4-triazolo[4,3-a]pyrimidinones (**15a,b-17a,b**) and 1,2,4-triazolo[4,3-b]-1,2,4-triazines (**18a,b**), (**19a,b**) were synthesized from the reaction of hydrazonyl bromides (1a,b) with compounds containing thiourea moiety (**11-13**), (**14a,b**) respectively.

Keywords:

Thiadiazole; 1,2,4-Triazolo[4,3-b]isoquinoline;1,2,4-Triazolo[4,3-a] pyrimi-dinone; 1,2,4-Triazolo[4,3-b]-1,2,4-triazine; Hydrazonyl bromides; Antimicrobial activity.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Hamdi M. Hassaneen**

Title **:** Synthesis and Biological Activity of Some New Pyrazoline and Pyrrolo[3,4-c]pyrazole-4,6-dione Derivatives: Reactio Nitrilimines with Some Dipolarophiles

Authors**:** Nada M. Abunada , Hamdi M. Hassaneen, Nadia G. Kandile and Omar A. Miqdad

Published In **:** Molecules

ISSN 1420 - 3049 ***Impact Factor*** 0.94

Abstract :

Several 1,3-diaryl-5-(cyano-, aminocarbonyl- and ethoxycarbonyl-)-2- pyrazoline, pyrrolo[3,4-c]pyrazole-4,6-dione and 1,3,4,5-tetraaryl-2-pyrazoline derivatives were prepared by the reaction of nitrilimine with different dipolarophilic reagents. The new compounds were characterized using IR, 1H-NMR, 13C-NMR and mass spectra. Biological screening of some compounds is reported.

Keywords:

Pyrazoline, pyrrolo[3,4-c]pyrazole-4,6-dione; nitrilimine; dipolarophile; biological activity.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Hamdi M. Hassaneen**

Title **:** Synthesis and Antimicrobial Activity of Some New Pyrazole,Fused Pyrazolo[3,4-d]-pyrimidine and Pyrazolo[4,3-e][1,2,4]-triazolo[1,5-c]pyrimidine Derivatives

Authors**:** Nada M. Abunada , Hamdi M. Hassaneen, Nadia G. Kandile and Omar A. Miqdad

Published In **:** Molecules

ISSN 1420 - 3049 ***Impact Factor*** 0.94

Abstract :

Hydrazonyl bromides **2a,b** reacted with active methylene compounds (dibenzoylmethane, acetylacetone, ethyl acetoacetate, phenacyl cyanide, acetoacetanilide, ethyl cyanoacetate, cyanoacetamide and malononitrile) to afford the corresponding 1,3,4,5- tetrasubstituted pyrazole derivatives **5-12a,b**. Reaction of **12a,b** with formamide, formic acid and triethyl orthoformate give the pyrazolo[3,4-d]pyrimidine, pyrazolo[3,4-d]pyrimidin-4(3H)one and 5-ethoxymethylene-aminopyrazole-4-carbo-nitrile derivatives **13-15a,b,** respectively. Compounds **15a,b** reacted with benzhydrazide and hydrazine hydrate to afford pyrazolo[4,3-e][1,2,4]triazolo[1,5-c]pyrimidine and [4-iminopyrazolo-[3,4-d]pyrimidin-5-yl]amine derivatives **16a,b** and **17a,b**. Reactions of compounds **17a,b** with triethyl orthoformate and carbon disulfide give the corresponding pyrazolo[4,3-e]-[1,2,4]triazolo[1,5-c] pyrimidine derivatives **18a,b** and **19a,b**, respectively.

Keywords:

Hydrazonyl bromides; Pyrazolo[3,4-d]pyrimidine; Pyrazolo[4,3-e][1,2,4]-triazolo[1,5-c]pyrimidine; Antimicrobial activity.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Hamdi M. Hassaneen**

Title **:** Nitrilimines in 1,3-Dipolar Cycloaddition Reactions: Synthesis of New Derivatives of Condensed 1,2,4-Triazolo- Heterocycles and Dithiatriazaspiro[4,4]non-2-enone Derivatives

Authors**:** Nada M. Abunada and Hamdi M. Hassaneen

Published In **:** Jordan Chemistry

ISSN ***Impact Factor***

Abstract :

C-Alkyl-N-arylnitrilimines **2** react with some containing thiourea moieties compounds **3-9**, and thioxothiazolidin-4-one derivatives **10, 11**. The nitrilimines 2a,b cycloadd to C=S double bond to give spiro intermediates which undergo ring cleavage to yield the 1,2,4-triazolo fused heterocycles and dithiatriaza-spiro[4,4]non-2-enone derivatives.

Keywords:

Hydrazonoyl halides; Triazolopyrimidinone; Triazolotriazinone; Triazolopteridine; Spiro[4,4]non-2-enone.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Rasha Mohamed Ibrahim Magdy El Nashar**

Title **:** Flow Injection Potentiometric Assay of Hexoprenaline in Its Pure State, Pharmaceutical Preparations, and Biological Samples

Authors**:** R.M. El Nashar

Published In **:** automated methods and management in Chemistry

ISSN 1463 - 9246 ***Impact Factor*** 0.09

Abstract :

Different hexoprenaline (Hx_2SO_4) conventional and coated wire electrodes were constructed and evaluated. Membranes were based on hexoprenalinium phosphotungstate (Hx-PTA) and hexporenalinium phosphomolybdate (Hx-PMA). The electrodes were fully characterized in terms of their composition, response time, life span, pH, and temperature and then were applied to the potentiometric determination of the hexoprenalinium ion in its pure state, pharmaceutical preparations, and biological samples, urine and plasma, under batch and flow injection conditions. The selectivity of the electrodes towards many inorganic cations, sugars, amino acids, and some other brochodilatures of close chemical composition was also tested.

Keywords:

Flow injection analysis; Ion-selective electrodes; Coated wire electrodes; Hexoprenaline.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Rasha Mohamed Ibrahim Magdy El Nashar**

Title **:** Determination of Orciprenaline Using a Flow Injection Analysis System with Sequential Potentiometric and Spectrophotometric Detection

***Authors*:** R.M. El Nashar

Published In **:** Analytical Letters

ISSN 0003 - 2719 ***Impact Factor***

Abstract :

This work describes an attempt to have a flow injection analysis (FIA) system for Orciprenaline with potentiometric and spectrophotometric detectors working sequentially. The potentiometric detection was performed using an orciprenaline ion-selective electrode made of orciprenaline ion-associate with phosphotungstic acid incorporated in a PVC matrix membrane, followed by sequential spectrophotometric detection of the same sample using the reaction of orciprenaline with phosphomolybdic acid in alkaline medium and measurement at 670 nm using a USB2000 fiber-optic spectrophotometer. The method was applied and validated for the assay of different samples that are 1.0_10^{-2}– 1.0_10^{-7}M orciprenaline, and the recovery values for Alupent® tablets, plasma and urine sample ranged from 99.39–100.93, 99.87–100.57, and 98.83–100.64 respectively for the potentiometric detector and 99.66–100.58, 99.78–100.69 and 99.12–100.92 respectively for the sequential spectrophotometric detector. It was found that using the double detection system compensated for both the unselectivity of the spectrophotometric method and the low detection limit of the potentiometric method (6.3_10^{-4} M). Although two detectors were used in the measurements, the method is still very simple to design and apply, in addition to being rapid and less expensive than other more sophisticated techniques applied in the literature and can therefore be used for other pharmaceutical compounds as well.

Keywords:

Flow injection analysis; Orciprenaline; Potentiometry; Spectrophotometry .

Faculty of Science

Dep. **:** Chemistry

Name **:** **R. H. Hilal**

Title **:** Effect of Gamma and UV Radiation on Properties of EPDM GTR/HDPE Blends

Authors**:** M. M. Abou Zeid, S. T. Rabie, A. A. Nada, A. M. Khalil, and R. H. Hilal

Published In **:** Polymer-Plastics Technology and Engineering

ISSN 0360 - 2559 ***Impact Factor*** 0.358

Abstract :

Ethylene propylene dine monomer (EPDM) was blended with both ground tire rubber (GTR) and high-density polyethylene (HDPE) prepared at different ratios and then exposed to gamma and ultraviolet radiations. The mechanical, physical, and thermal properties were investigated with respect to the kind of irradiation and blend compositions. A scanning electron microscope was also used to examine the morphology of the irradiated blends. The blend of ratios (75/25/50) exhibited the best mechanical and physicalproperties after gamma irradiation, so this blend was taken as an example to be exposed to the UV radiation. The results indicated an improvement in the mechanical and physical properties for the blends exposed to gamma irradiation, but the mechanical and physical properties examined after UV irradiation were slightly affected. Scanning electron microscope measurements indicated the improvement in the homogeneity and the compatibility after irradiation, particularly in case of gamma radiation.

Keywords:

EPDM; GTR; Gamma; HDPE; Mechanical and physical properties; Radiation; UV .

Faculty of Science

Dep. **:** Chemistry

Name **:** **Rafie H. Abu-Eittah**

Title **:** The electronic absorption spectra of pyridine azides, solvent–solute interaction

Authors**:** Rafie H. Abu-Eittaha and Mahmoud K. Khedr

Published In **:** Spectrochimica Acta Part A

ISSN 1386 - 1425 ***Impact Factor*** 1.511

Abstract :

The electronic absorption spectra of: 2-, 3-, and 4-azidopyridines have been investigated in a wide variety of polar and non-polar solvents. According to Onsager model, the studied spectra indicate that the orientation polarization of solvent dipoles affects the electronic spectrum much stronger than the induction polarization of solvent dipoles. The effect of solvent dipole moment predominates that of solvent refractive index in determining the values of band maxima of an electronic spectrum. The spectra of azidopyridines differ basically from these of pyridine or mono-substituted pyridine. Results at hand indicate that the azide group perturbs the pyridine ring in the case of 3-azidopyridine much more than it does in the case of 2-azidopyridine. This result agrees with the predictions of the resonance theory.

Although the equilibrium⇆azide tetrazole is well known, yet the observed spectra prove that such an equilibrium does not exist at the studied conditions. The spectra of the studied azidopyridines are characterized by the existence of overlapping transitions.Gaussian analysis is used to obtain nice, resolved spectra. All the observed bands correspond to ñ→ ñ* transitions, ñ→ ñ* may be overlapped with the stronger ñ→ ñ* ones.

Keywords:

Pyridine azides; Absorption spectra of pyridine azides; Solvent–solute interaction and spectra of pyridine azides .

Faculty of Science

Dep. **:** Chemistry

Name **:** **Rafie H. Abu-Eittah**

Title **:** The electronic absorption spectra of some acyl azides Molecular orbital treatment

Authors**:** Rafie H. Abu-Eittah, Adel A. Mohamed, Ahmad M. Farag, Ahmed M. Al Omar

Published In **:** Spectrochimica Acta Part A

ISSN 1386 - 1425 ***Impact Factor*** 1.511

Abstract :

The electronic absorption spectra of benzoyl azide and its derivatives: p-methyl, p-methoxy, p-chloro and p-nitrobenzoyl azide were investigated in different solvents. The observed spectra differ basically from the electronic spectra of aryl azides or alkyl azides. Four intense ñ–ñ* transitions were observed in the accessible UV region of the spectrum of each of the studied compounds. The contribution of charge transfer configurations to the observed transitions is rather weak. Shift of band maximum with solvent polarity is minute. On the other hand, band intensity is highly dependent on the solvent used. The observed transitions are delocalized rather than localized ones as in the case with aryl and alkyl azides. The attachment of the C=O group to the azide group in acyl azides has a significant effect on the electronic structure of the molecule. The arrangements as well as energies of the molecular orbitals are different in acyl azides from those in aryl azides. The first electronic transition in phenyl azide is at 276 nm, whereas that of bezoyle azide is at 251 nm. Ab initio molecular orbital calculations using both RHF/6-311G* and B3LYP/6-31+G* levels were carried out on the ground states of the studied compounds. The wave functions of the excited states were calculated using the CIS and the AM1-CI procedures.

Keywords:

Acyl azides; Spectra of acyl azides; Molecular orbital calculations of acyl azides; Specrta and molecular orbital calculations of acyl azides.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Riham Rashad Mohamed Ali**

Title **:** N-Acryloyl Benz Hydrazide as A Thermal Stabilizer for Rigid Poly (Vinyl Chloride)

***Authors*:** Riham Rashad Mohamed Ali

Published In **:** Vinyl & Additives Technology

ISSN 1083 - 560I ***Impact Factor*** 0.685

Abstract :

N-Acryloyl benzhydrazide (ABH) was examined as a Thermal stabilizer and co stabilizer for rigid poly (vinyl chloride) (PVC) in air at 180° C. Its high stabilizing efficiency was shown by its high thermal stability value (T_s) when compared with those of two common reference stabilizers used industrially, dibasic lead carbonate (DBLC) and calcium-zinc soap. Blending this organic stabilizer with the reference stabilizers in different ratios had synergistic effects on both the thermal stability and the extent of discoloration of the PVC. The Ni^{2+} Complex of ABH gave better thermal stability and lesser discoloration than the parent organic stabilizer. Also, blending that complex with DBLC In different ratios gave better stability and lower discoloration. Thermogravimetric analysis confirmed the improved stability of PVC in the presence of the ABH stabilizer.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Said Ahmed Soliman Ghozlan**

Title **:** Alkyl-substituted heteroaromatics as precursors to polycyclic heteroaromatics: recent developments

Authors**:** Mohamed Hilmy Elnagdi, Said Ahmed Soliman Ghozlan and Ismail Abdelshafy Abdelhamid

Published In **:** Arkivoc

ISSN 1551 - 7012 ***Impact Factor*** 1.253

Abstract :

Recent developments in alkylheteroaromatics are surveyed with emphasis on our group´s work aimed at developing efficient approaches to benzofused heteroaromatics.

Keywords:

Alkylpyridazinyl carbonitriles; Alkylcoumarinyl carbonitriles; Phthalazines; Azolylpyridazines; Pyridopyridazines; Microwaves as energy source .

Faculty of Science

Dep. **:** Chemistry

Name **:** **Sayed Mohamed Riyadh**

Title **:** Studies with ?-Oxoalkanonitriles: Simple Novel Synthesis of 3-[2,6-Diaryl-4- pyridyl]-3-oxopropanenitriles

Authors**:** Sayed M. Riyadh, Hamad M. Al-Matar, and Mohamed H. Elnagdi

Published In **:** Molecules

ISSN 1420 - 3049 ***Impact Factor*** 0.940

Abstract :

Heteroaromatization of ethyl 2-cyano-4-oxo-2-(2-oxo-2-arylethyl)-4-aryl-butanoates **3a,b** with ammonium acetate gave ethyl 2,6-diarylisonicotinates **4a,b**. Treatment of the latter with acetonitrile afforded novel β-oxoalkanonitriles **6a,b**. Reactions of **6a,b** with phenyl hydrazine and hydroxylamine gave the corresponding pyridyl aminopyrazoles **8a,b** and pyridyl aminoisoxazoles **10a,b**, respectively .

Keywords:

β-Oxoalkanonitriles; 3-Pyrazolylamine; 3-Isoxazolylamine; Phenacyl bromide; Ethyl cyanoacetate .

Faculty of Science

Dep. **:** Chemistry

Name **:** **Sayed M. Riyadh**

Title **:** Enamines As Precursors To Polyfunctional Heteroaromatic Compounds; A Decade Of Development

Authors**:** Sayed M. Riyadh, Ismail A. Abdelhamid, Hamad M. Al-Matar, Noha M. Hilmy, and Mohamed H. Elnagdi

Published In **:** Heterocycles

ISSN 0385 - 5414 ***Impact Factor*** 1.066

Abstract :

Recent synthesis and utilization of enamines as precursors for heterocyclic and carbocyclic compounds are reviewed. Two general synthetic routes for preparation of enamines based on condensation and addition reactions. Enamines and azaenamines can be used as building blocks for carbocyclic, five- and six-membered heterocyclic as well as fused heterocyclic compounds.

Keywords:

Azaenamines; Enaminones; Enaminonitriles; Enaminoesters; Carbocyclic and heterocyclic compounds.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Yossry Mostafa Issa**

Title **:** Electrical and Thermal Studies on some Acetylacetoneand Benzoylacetone – Arylhydrazones

Authors**:** H. B. Hassib, Y. M. Issa and W. S. Mohamed

Published In **:** Thermal Analysis and Calorimetry

ISSN 1388 - 6150 ***Impact Factor*** 1.483

Abstract :

The electrical and thermal properties of some acetylacetone- (I) and benzoylacetone- (II) arylhydrazone derivatives have been investigated. The results obtained show semiconductor behavior as evident from the positive temperature coefficient of electrical conductivity (dG/d*T*). Values of activation energy (ΔE) have been calculated in each case. The electrical conductivity increases with the introduction of either electron-donating or electron-withdrawing substituents to the phenyl ring. Differential thermal analysis curves showed sharp well-defined peaks at the melting point of the investigated compounds. The latent heats of fusion were calculated from these thermograms.

Keywords :

Arylhydrazone; DTA; Electrical conductivity; Semiconductor behavior.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Aida L. El-Ansary**

Title **:** Synthesis and characterization of tetradentate bis-Schiff base complexes of di- and tri-valent transition metals

Authors**:** Aida L. El-Ansary, Hussein M. Abdel-Fattah And Nora S. Abdel-Kader

Published In **:** Coordination Chemistry

ISSN 0095 - 8972 ***Impact Factor*** 0.867

Abstract :

The bis-Schiff bases of N_2O_2 dibasic ligands, H_2La and H_2Lb are synthesized by the condensation of ethylenediamine (a) and trimethylenediamine (b) with 6-formyl-7-hydroxy- 5-methoxy-2 methylbenzo- pyran-4-one. The ligands are characterized using elemental analysis, IR, UV–Vis, 1H-NMR and mass spectroscopy. The ionization constant pKa values are determined spectrophotometrically. The ^{1}H-NMR spectra of the ligands show the presence of phenolic coordinating groups. New complexes of H2La and H_2Lb with metal ions Cr(III), Fe(III), Co(II), Ni(II), Cu(II) and Zn(II) are synthesized. Elemental analyses, infrared, ultraviolet-visible, electron spin resonance and thermal analysis, as well as conductivity and magnetic susceptibility measurements, are used to elucidate the structures of the newly prepared metal complexes. Thermal degradation studies for some complexes show that the final product is the metal oxide. A square planar geometry is suggested for the Cu(II), Zn(II) (for H_2La and H_2Lb) and Ni(II) (for H_2La) complexes; an octahedral geometry for the Co(II), Cr(III), Fe(III) (for H_2La and H_2Lb), and Ni(II) (for H_2Lb) complexes. The coordination sites are two azomethine nitrogens and two phenolic oxygens in the tetradentate Schiff bases.

Keywords:

Bis-Schiff bases; Benzopyran-4-one; Di and trivalent transition metals; Complexes; Spectroscopy; Thermal analysis.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Abdelgawad Ali Fahmi**

Title **:** Supramolecular Hydrogen-bonded Liquid Crystals Formed from 4-(4'-Pyridylazophenyl)-4'-Substituted Benzoates and 4-Alkoxybenzoic Acids

Authors**:** Magdi M. Naoum, Abdelgawad A. Fahmi, and M. A. Alassar

Published In **:** Mol. Cryst. Liq. Cryst

ISSN 1542 - 1406 ***Impact Factor*** 0.554

Abstract :

Phase diagrams of the binary mixtures of the title compounds were constructed to investigate the effect of different polar substituents, on the pyridine-based derivatives, as well as the alkoxy-chain length, on the acids, on the extent and stability of the supramolecular liquid crystal phases induced by intramolecular hydrogen bonding. None of newly prepared pyridine-based derivatives is mesomorphic, but the hydrogen-bonded complexes are. The mixtures prepared were characterized for their mesophase behavior by differential scanning calorimetry (DSC) and polarized light microscopy (PLM). Five pyridine-based derivatives (I*a*-*e*), with molecular formula X-$C_6H_4COOC_6H_4$-N=N-C_5H_4N, were prepared that differ from each other by the substituent X. The latter varies between CH_3O, CH_3, H, Br, and NO_2. Four 4-alkoxbenzoic acids ($C_nH_{2n+1}OC_6H_4$ COOH, II10 – II18) were used; the number of carbons (*n*) of their alkoxy groups varies between 10, 12, 14, and 18. Smectic C mesopase is induced in most of the binary mixtures investigated.

Keywords:

-4Alkoxy Benzoic Acids; 4-(4'-pyridylazophenyl)-4"-substituted benzoates; Binary Mixtures; Supramoleculars LC's .

Faculty of Science

Dep. **:** Chemistry

Name **:** **Abdelgawad Ali Fahmi**

Title **:** Supramolecular Hydrogen-bonded Liquid Crystals Formed from 4-(4'-Pyridylazophenyl)-4'-Alkoxy Benzoates and 4-Substituted Benzoic Acids

Authors**:** Magdi M. Naoum, Abdelgawad A. Fahmi, and M. A. Alassar

Published In **:** Molecular Crystals ans Liquid Crystals

ISSN 1542 - 1406 ***Impact Factor*** 0.554

Abstract :

Four pyridine-based derivatives (**I**10, **I**12, **I**14, and **I**18) with molecular formula $C_nH_{2n+1}O$-$C_6H_4COOC_6H_4$-N=N-C_5H_4N, that differ from each other in the number of carbon atoms, n, were prepared and characterized for their mesophase behavior. The number of carbons in the alkoxy chain varies between 10, 12, 14, to 18 atoms, respectively. Liquid crystalline properties were studied for two series of hydrogenbonded liquid crystal complexes, consisting of the central 4-pyridylazophenyl benzoate and substituted benzoic acids. In the first series of the supramolecular complexes (group **A**), the lengths of the alkoxy chains on both of the azo pyridine and the benzoic acid components have varied between 10, 12, 14, and 18 carbons. In the second series (group **B**), the same proton-acceptors, i.e., the pyridyl azo derivatives, were used but with benzoic acids para-substituted with small compact polar groups, X. All of the newly prepared pyridine-based derivatives and their hydrogen-bonded complexes were found to be mesomorphic. The newly prepared pyridine-based derivatives and their supramolecular complexes in both groups were characterized for their mesophase behavior by differential scanning calorimetry, DSC, and polarizedpolarized light microscopy, PLM. Four 4-alkoxybenzoic acids ($C_mH_{2m+1}OC_6H_4COOH$, **II**10, **II**12, **II**14, and II18) were used in group **A** series; the number of carbons (m) of their alkoxy groups also varies between 10,12, 14, and 18, respectively. Substituents on the other group of acids ($III_{a\ \_\ f}$) in group **B** series vary, respectively, between CH_3O, CH_3, H, Br, CN, and NO_2. Smectic C mesophase is induced in most of the binary mixtures investigated.

Keywords

-40)-4pyridylazophenyl)-400-alkoxy benzoates; 4-substituted benzoic acids; Supramolecular LCs.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Abdou O. Abdelhamid**

Title **:** Synthesis of some new pyrazolo[1,5-a] pyrimidines

Authors**:** Sayed A. Ahmed, Abdou O. Abdelhamid, Ahmed H. H. El-Ghandour, Mahmoud A. Mohamed and Basant M. Mohamed

Published In **:** Chemical Research

ISSN 0308 - 2342 ***Impact Factor*** 0.145

Abstract :

Pyrazolo[1,5-a]pyrimidines were synthesised from the the reaction of β-diketone, b-keto ester, 1,2-disubstituted acrylonitrile or sodium (3-oxocycloalkylidene) methenolate. Elemental analysis, spectral data and alternative synthesis route elucidated structures of the newly synthesised compounds.

Keywords:

Pyrazolo[1,5-*a*]pyrimidines.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Abdou O. Abdelhamid**

Title **:** Reactions with Hydrazonoyl Halides 581: Synthesis of -2,3Dihydro-1,3,4-thiadiazoles and 5-Arylazothiazoles

Authors**:** Abdou O. Abdelhamid, Zeineb H. Ismail, and Anhar Abdel-Aziem

Published In **:** Phosphorus, Sulfur, and Silicon,

ISSN 1042 - 6507 ***Impact Factor*** 0.669

Abstract :

-1,3,4Thiadiazolines containing a chromone moiety and 5-{1-[4-substituted-5-phenyldiazenyl) (1,3-thiazol-2-yl]-5-phenyl-2-pyrazolin-3-yl)}-4-methoxybenzo[b]-furan-6-ol were synthetic from hydrazonoyl halide and alkyl carbodithioates and 5-[1-aminothiomethoxy)-5-phenyl-2-pyrazolin-3-yl)]-4-methoxybenzo[b]furan-6-ol, respectively. All structures of the newly synthesized compounds were elucidated by elemental analysis, spectral data, and alternative synthesis methods whenever possible.

Keywords:

-1,3,4Thiadiazolines; Chromones; Hydrazonoyl halides; Pyrazolines; Thiazoles.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Abdou O. Abdelhamid**

Title **:** Reactions With Hydrazonoyl Halides 591: Synthesis and, Antimicrobial Activity of 2,3-Dihydro-1,3,4-thiadiazole,Triazolino[4,3-a]pyrimidine, and Pyrimido[1,2-b][1,2,4,5] tetrazin-6-one Containing Benzofuran Moiety

Authors**:** Abdou O. Abdelhamid; Mahmoud A. Mohamed; Yasser H. Zaki

Published In **:** Phosphorus, Sulfur, and Silicon

ISSN 1042 - 6507 ***Impact Factor*** 0.669

Abstract :

-2,3Dihydro-1,3,4-thiadiazole, triazolino[4,3-a]pyrimidine and pyrimido [1,2-b][1,2,4,5]tetrazin-6-one containing benzofuran Moiety were synthesized fromC-benzofuran-2-yl-N-phenylhydrazonoyl bromides, and the appropriate alkyl aryli-denehydrazinecabodithioates and pyrimidine-2-thione and N-aminopyrimidine-2-thione, respectively. All structures of the newly synthesized compounds wereelucidated by elemental analysis, spectral data, and alternative synthetic methods whenever possible. Newly compounds are capable of high inhibiting the growth of bacteria (gram positive and gram negative) .

Keywords :

-2,3Dihydro-1,3,4-thiadiazole; Hydrazonoyl bromide; Pyrimido[1,2-b] [1,2,4,5] tetrazin-6-one; Triazolino[4,3-a]pyrimidine.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Abdou O. Abdelhamid**

Title **:** Reactions of Hydrazonoyl Halides 561: Synthesis and Reactions of 1-Bromo-2-(5-chloro- benzofuranyl) ethanedione-1-phenylhydrazone

Authors**:** Abdou O. Abdelhamid,1 Ahmed H El-Ghandour,2 and Ahmed A. M. El-Reedy2

Published In **:** Phosphorus, Sulfur, and Silicon

ISSN 1042 - 6507 ***Impact Factor*** 0.669

Abstract :

-2,3Dihydro-1,3,4-thiadiazoles and triazolino[4,3-a]pyrimidines containing ben- zofuran moiety were prepared from reaction of 1-bromo-2-(5-chlorobenzofuranyl) ethanedione-1-phenylhydrazone with each of potassium thiocyanate, alkyl carbod- ithioates and pyrmidine-2-thiones. All newly synthesized were confirmed by elemen- tal analysis, spectral data, and alternative route synthesis whenever possible.

Keywords:

1,3-dipolar cycloaddition; 2,3-Dihydro-1,3,4-thiadiazoles; Hydrazonoyl halides; Triazolino[4,3-a]pyrimidines.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Abdou O. Abdelhamid**

Title **:** Reactions of Hydrazonoyl Halides 57[1]: Reactions of 1-Bromo-2-(5-chlorobenzofuranyl)ethanedione-1-phenylhydrazone

Authors**:** Abdou O. Abdelhamid, Ahmed H. El-Ghandour and A hmed A. M. El-Reedy

Published In **:** the Chinese Chemical Society

ISSN 1001 - 604X ***Impact Factor*** 0.719

Abstract :

Pyrrolo[3,4- c]p yrazole-4,6-diones, pyrazoles, pyrazolo[3,4- d]pyridazines, an d p yrazolo[3,4- d]p yr - imidines were prepared via 1 -bromo -2-(5-chlorobenz ofuran-2-yl)ethanedione-1-phenylh yd razone with N- arylmalemides and activ e methylene. A ll newly syn th esized compounds were confirmed b y elemental analysis and spectral data.

Keywords:

Pyrrolo[3,4- c]pyrazoles; Pyrazolo[3,4- d]pyridazines; Pyrazolo[3,4-d]p yrimid in es; Pyrazo les; Nitrilimine.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Abdou O. Abdelhamid,**

Title **:** Utility of 2-[4-(3-Oxobenzo[f]-2H-chromen-2-yl)-1,3-thiazol-2-yl]ethanenitrile in Heterocyclic Synthesis

Authors**:** Abdou O. Abdelhamid and Hassan M. Abdelaziz

Published In **:** Heterocyclic Chem.

ISSN 0022 - 152X ***Impact Factor*** 0.813

Abstract :

Pyrazolo[4,3-d]pyrimidines, pyrazolo[4,3-d]triazolino[4,3-*a*] pyrimidines, 3-(2-thiazolyl)thiophenes, thiazolo[3,2-*a*]pyridine and pyrazolo[1,5-*a*] pyrimidines were synthesized from 2-[4-(3-oxobenzo[*f*]-2Hchromen- 2-yl)-1,3-thiazol-2-yl]ethanenitrile. The newly synthesized compounds were elucidated by elemental analysis, spectral data, chemical transformation and alternative synthesis route whenever possible.

Keywords:

Pyrazolo[4,3-d]pyrimidines; pyrazolo[4,3-d]triazolino[4,3-*a*] pyrimidines; 3-(2-thiazolyl) thiophenes; thiazolo[3,2-*a*]pyridine; pyrazolo [1,5-*a*] pyrimidines.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Abdou O. Abdelhamid**

Title **:** Reactions with Hydrazonoyl Halides 611: Synthesis of 2,3-Dihydro-1,3,4-Thiadiazoles

Authors**:** Abdou O. Abdelhamid and Mamdouh A. M. Afifi

Published In **:** Phosphorus, Sulfur, and Silicon

ISSN 1042 - 6507 ***Impact Factor*** 0.669

Abstract :

-1,2]-2Diaza-3-(2,3-dimethyl-5-oxo-1-phenyl(3-pyrazolin-4-yl)prop-2enylidene]- 3-phenyl-5- substituted 1,3,4-thiadiazolines and 2-{[4-(2,3-dimethyl-5-oxo-1- phenyl(3-pyrazolin-4-yl))(1,3-thiazol-2-yl)]cyanomethylene}-3-phenyl-5-substituted 1,3,4-thiadiazolines were synthesized from hydrazonoyl halides and 4-{-2-aza- 2 [(methylthiothioxomethyl) amino]vinyl}-2,3-dimethyl-1-phenyl-3-pyrazoin-5-one and 2-[4-(2,3-dimethyl-5-oxo-1-phenyl-3-pyrazolin-4-yl)-1,3-thiazol-2-yl]ethanenitrile, respectively. All synthesize compounds were elucidated by elemental analysis, spectra, and alternative synthesis routes, whenever possible.

Keywords:

-2,3Dihydro-1,3,4-thiadiazoles; Alkyl carbodithiates; Antipyrine; Hydrazonoyl halides; Thioamides

Faculty of Science

Dep. **:** Chemistry

Name **:** **Essam. El Shafee**

Title **:** Calorimetric and Dielectric Study on Poly (Trimethylene Terephthalate) / Polycarbonate Blends

***Authors*:** E. El Shafee , G. R. Saad and M. Zaki

Published In **:** Polym Res

ISSN 1572 - 8935 ***Impact Factor***

Abstract :

Poly (trimethylene terephthalate) (PTT)/polycarbonate (PC) blends with different compositions were prepared by melt blending. The miscibility and phase behavior of melt-quenched and cold-crystallized blends were studied using differential scanning calorimetry (DSC) and dielectric relaxation spectroscopy. The blends of all compositions display only one glass transition (T_g) in both states. The melting temperature and the crystallinity of PTT in the blend decrease with increasing PC content. The dielectric results for the melt-quenched blends, for PC content up to 60 wt.%, exhibited two merged relaxation peaks during the heating scan; the lower temperature relaxation peak represent the normal glass-transition (*a*) relaxation of the mixed amorphous phase and the higher temperature relaxation due to the new-constrained mixed amorphous phase after crystallization. Cold-crystallized blends displayed only one glass transition *a*-relaxation whose temperatures varied with composition in manner similar to that observed by DSC. The dielectric *a*- relaxation of cold crystallized blends has been analyzed. Parameters relating to relaxation broadening, dielectric relaxation strength, and activation energy were quantified and were found to be composition dependent. The PTT/PC blends could be considered as two-phase system, a crystalline PTT phase and a mixed amorphous phase consisting of a miscible mixture of the two polymers. However, the crystallinity was only detected for blends containing greater than 40 wt.% PTT.

Keywords :

Poly (trimethylene terephthalate); Polycarbonate; Blend; Miscibility; DSC; Dielectric relaxation.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Fakiha El-Taib Heakal**

Title **:** Corrosion Characterization of New Tin–Silver Binary Alloys in Nitric Acid Solutions

Authors**:** Fakiha El-Taib Heakal, Amany M. Fekry, Azza A. Ghoneim

Published In **:** Corrosion Science

ISSN 0010 - 938X ***Impact Factor*** 1.895

Abstract :

Electrochemical techniques were used to characterize the corrosion behavior of four new binary alloys *x*Sn–Ag (*x* = 26, 50, 70 and 96.5 wt%) alloys and their individual metal components in nitric acid solutions. The experimental data were collected by using open-circuit potential, potentiodynamic polarization and electrochemical impedance spectroscopy (EIS). Over the concentration range studied (0.075–4.5 M), each of the two corrosion parameters (E_{corr} and i_{corr}) shows a regular dependency on both the alloy composition and the solution concentration. In general, for all studied samples, especially pure Ag and those with lower Sn contents (26 and 50 wt%), increasing the acid concentration increases i_{corr}, meanwhile causes a shift of the corresponding E_{corr} towards more positive values. This is probably due to the increase in the effect of cathodic depolarizer as the nitric acid concentration is increased. EIS results at the free corrosion potential confirmed well this behavior, where at concentrations ≤1.5 M the thickness of the surface film increases while its resistance decreases with increasing tin wt%, indicating formation of less protective thicker film. However, at higher concentrations all samples exhibit identical behavior.

Keywords:

A.Tin–silver alloys; B. ac-Impedance; Cathodic depolarizer; CPE; Nitric acid.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Fakiha El-Taib Heakal**

Title **:** Experimental and Theoretical Study of Uracil and Adenine Inhibitors in Sn-Ag Alloy/Nitric Acid Corroding System

Authors**:** Fakiha El-Taib Heakal and Amany M. Fekry

Published In **:** Electrochemical Society

ISSN 0013 - 4651 ***Impact Factor*** 2.483

Abstract :

Two environmentally safe materials, uracil and adenine, were tested experimentally as inhibitors for the corrosion of 70Sn–Ag alloy in aggressive nitric acid solution by electrochemical techniques, as well as theoretically, by comparing some of their quantum chemical properties. Potentiodynamic measurements were used to calculate the corrosion rate in the absence and presence of the inhibitor. Results showed that uracil and adenine molecules can suppress both the cathodic and anodic processes of Sn–Ag alloy corrosion via their adsorption on the alloy surface according to the Langmuir adsorption isotherm. The apparent activation energy was found to increase with increasing inhibitor concentration, and it is always higher for adenine compared to uracil, suggesting that adenine is a more efficient inhibitor than uracil at comparable conditions. This is also corroborated by the values of the resistances for the charge transfer and the adsorbed layer, as well as some thermodynamic functions for adsorption, being all higher for adenine than uracil. The electronic properties of the two inhibitors, obtained using the incomplete neglect of differential overlap quantum chemical approach, were correlated with their experimental findings and support the conclusion that adenine is superior than uracil in inhibiting the acidic corrosion of Sn–Ag alloy.

Keywords:

Tin–silver alloys; Ac-Impedance; Uracil; Adenine; Nitric acid; HOMO; LUMO.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Fakiha El-Taib Heakal**

Title **:** Electrochemical behavior of AZ91D magnesium alloy in phosphate medium—part I. Effect of pH

Authors**:** Fakiha El-Taib Heakal, Amany M. Fekry, Mohamad Z. Fatayerji

Published In **:** Applied Electrochemistry

ISSN 0021 - 891X ***Impact Factor*** 1.417

Abstract :

The influence of pH on the corrosion behavior of Mg-based AZ91D alloy was investigated in a constant composition phosphate medium using various electrochemical techniques, complemented with surface analysis data. The studied solutions were 0.1 M H_3PO_4, NaH_2PO_4, Na_2HPO_4 and Na_3PO_4 having pH values of 1.8, 4.5, 9.1 and 11.8, respectively. Spontaneous passivation was substantiated from monitoring the continuous positive shift of the open circuit corrosion potential with both immersion time and solution pH. The impedance data indicated more improvement in the insulating properties of the corrosion products formed on the alloy surface with increase in pH. The electrolyte pH plays a determinant influence on surface film properties, as films formed in phosphate solutions with higher pH values are thicker, thus affording better protection for the alloy than those formed in acidic solutions. Good agreement was observed between the results obtained from electrochemical techniques and those from EDX and XRD examinations. The alloy is more susceptible to corrosion in acidic phosphate solutions than in the alkaline ones. Crystalline magnesium (Mg), magnesium hydride (MgH_2) and magnesium oxide (MgO) were found to be the main constituents of the surface film after holding for 2 h in the acidic phosphate medium.

Keywords:

AZ91D alloy; Phosphate medium; AC-impedance; Potentiodynamic; pH.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Fakiha El-Taib Heakal**

Title **:** Influence of Halides on the Dissolution and Passivation Behavior Of AZ91D Magnesium Alloy in Aqueous Solutions

Authors**:** Fakiha El-Taib Heakal, Amany M. Fekry, Mohamad Z. Fatayerji

Published In **:** Electrochimica Acta

ISSN 0013 - 4686 ***Impact Factor*** 2.848

Abstract :

The electrochemical behavior of AZ91D in various aqueous sodium halide solutionswas investigated using open-circuit potential (E_{oc}), potentiodynamic polarization and ac impedance (EIS) techniques. Generally, the results reveal that during immersion a protective layer of a salt film is formed on the alloy surface whose passivation performance depends on the halide nature, its concentration and temperature. E_{oc} shifts positively with time until attaining a steady (E_{st}) value, which becomes less noble with increasing concentration or temperature of the test solution. At any given conditions, self-passivation was found to be favored in the order $F^- > I^- > Br^- > Cl^-$. This sequence is consistent with that for surface film resistance (RT) and its relative thickness ($1/C_T$). Nevertheless, in F^- medium each of the above parameters increases with $[F^-]$ up to a critical value of 0.3M then decreases. Increasing concentration above 0.3M induces large change in the microstructure of the outermost layer of the fluorinated extremely protective film and depassivation behavior predominates. In Br^- and I^- solutions, aswell as the lower Cl^- concentrations ($\leq$0.01 M), AZ91D exhibits pseudo-passive state over the polarization range from the corrosion potential (E_{corr}) to the knee point (E_{pt}) in the anodic scan, at which passivity breakdown occurs with rapid increase in the anodic current and hydrogen gas reaction. At Cl^- concentrations >0.01M the negative difference effect (NDE) occurs under cathodic polarization where E_{pt} lies negative to E_{corr}. Addition of F^- to the Cl^- solution can induce large changes in the behavior of AZ91D. Equal concentration addition (1:1) produces the highest propensity of the surface to form passivating layer that can afford better protection.

Keywords :

AZ91D alloy; Halides; ac-impedance; NDE; SEM; Thin film XRD.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Fawzy. A. Attaby**

Title **:** Synthesis, Reactions and Characterization of 2-methylthionicotino-nitrile, Pyrazolopyridine and Pyridopyrazolotriazine Derivatives

Authors**:** A. M. Abdel-Fattah, M. A. A. Elneairy, M. N. Gouda and F. A. Attaby

Published In **:** Afinidad Lxv

ISSN 0001 - 9704 ***Impact Factor*** 0.177

Abstract :

-4,6Diaryl-1H-pyrazolo[3,4-b]pyridin-3-amines 4a-c were obtained in very pure state and used as the good starting materials for the present study. Compound 4a diazotized to give the corresponding diazonium salt 11 and also, reacted with 2-bromo-1-phenylethanone to give the corresponding pyrazolo[3,4-b]pyridin-2-yl)-1-phenylethanone derivative 7 which in turn, used for the preparation of the hydrazone and formamide derivatives 8 and 10 respectively through its reaction with hydrazine hydrate and formic acid respectively. Compound 11 was used for the preparation of pyridopyrazolotriazine derivatives via its coupling with several active $-CH_2-$ containing compounds. Considering the data from IR, ^1H NMR, the mass spectra and elemental analyses the chemical structures of the newly synthesized heterocyclic compounds were elucidated.

Keywords:

Cyanoethanethioamide; 2-methylthionicotinonitrile; Pyrazolopyridine; Hydrazone; Formamide; Pyrazolopyridinylhydrazono and Pyridopyrazolotriazine.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Fawzy. A. Attaby**

Title **:** Synthesis, Characterization, and Reactions of Pyridine-3-Carbonitrile Derivatives

Authors**:** A. M. Abdel-Fattah, M. A. A. Elneairy, M. N. Gouda, and F. A. Attaby

Published In **:** Phosphorus Sulfur, and Silicon

ISSN 1042 - 6507 ***Impact Factor*** 0.669

Abstract :

2-Thioxopyridine-**3**-carbonitrile derivatives **6a-c** reacted with several halogen containing reagents **7a-d** to afford the corresponding thieno[2,3-b]pyridine derivatives 9a-l, respectively. Thieno[2,3-b]pyridines **9c, g,k** used for the preparation of their corresponding carbohydrazide derivatives **10a-c** which in turn, used as good synthons for the synthesis of N-phenylmethylenethieno[2,3-b]pyridine-2- carbohydrazides **13**a–c, pyrido[3_,2_:4,5]thieno[3,2-d]pyrimidinones **15a-c**, **16a-c** and **17** and 1,3,4-oxadiazole-2-thiols **20a-c** and **21a-c** via their reactions with benzaldehyde or benzylidenemalononitrile, triethylorthoformate and carbon disulfide followed by hydrazine hydrate respectively. Considering the data of IR, ^{1}H NMR, mass spectra, and elemental analyses elucidated the chemical structures of the newly synthesized heterocyclic compounds.

Keywords:

1,3,4-oxadiazole-2-thiols; 2-Cyanoethanethioamide; 2-thioxopyridine-3- carbonitrile; Carbohydrazides; pyridothienopyrimidinones; Thieno[2,3-b]pyridine; Thiopyranopyridines triethyl orthoformate.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Fawzy. A. Attaby**

Title **:** Synthesis and Inhibitory Activity Against Epstein-BarrVirus of Some New 1,2,3,4-Tetrahydropyrimidine -2-thiones

Authors**:** Fawzy A. Attaby, Mostafa M. Ramla, and T. Harukuni

Published In **:** Phosphorus Sulfur, and Silicon

ISSN 1042 - 6507 ***Impact Factor*** 0.669

Abstract :

1,2,3,4-Tetrahydropyrimidine-2-thiones **4a**–**n** were synthesized through the reaction of aromatic aldehydes **1a**–**n**, ethyl acetoacetate (**2**) and thiourea (**3**). The structures of all newly synthesized heterocyclic compounds elucidated by the use of IR, ^{1}H NMR, mass spectra, and elemental analyses. The inhibitory activity against the Epstein-Barr Virus early antigen (EBA-VA) of all newly synthesized heterocyclic compounds were evaluated.

Keywords:

1,2,3,4-tetrahydropyrimidinethione; Antigen; Ethylaceto-acetate; Epstein- Barr Virus; Inhibitory activity and thiourea .

Faculty of Science

Dep. **:** Chemistry

Name **:** **Fawzy. A. Attaby**

Title **:** Synthesis of Heterocycles via 2-Thioxo-1,2-dihydropyridine-3-carbonitrile Derivative

Authors**:** Azza M. Abdel-Fattah, Labeeb M. Shaif, and Fawzy A. Attaby

Published In **:** Phosphorus Sulfur, and Silicon

ISSN 1042 - 6507 ***Impact Factor*** 0.669

Abstract :

The present study aimed to investigate the synthetic potentiality and chemical reactivity of 2-thioxo-1,2-dihydropyridine-3-carbonitrile derivative **1**. This goal performed via its reaction with each of 1-chloroacetone and iodomethane to afford the corresponding 2-alkylthio derivatives **3** and **9**, respectively. Compound **3** underwent intramolecular cyclization to afford the corresponding thieno[2,3-b]pyridine derivative **4** which in turn, reacted with dimethylformamide/dimethylacetal followed by hydrazine hydrate and nitrous acid to afford the corresponding pyridothienopyrimidine and pyridothienopyridazine derivatives **6** and **8**, respectively. On the other hand, Compound **9** reacted with hydrazine hydrate to give 3-aminopyrazolo[3,4- b] pyridine derivative **10**, which diazotized with nitrous acid to give the corresponding diazonium salt **11**. Compound **11** coupled with several active $-CH_2-$ containing reagents to synthesize the corresponding pyridopyrazolo-triazines **15, 24, 29**, and **31**. The formulas of all newly synthesized heterocyclic compounds were elucidated by considering the data of IR, ^1H NMR, Mass spectral data, as well as data from elemental analyses.

Keywords:

2-Thioxohydropyridine-3-carbonitrile; pyridopyrazolotriazine; thieno[2,3- b] pyridine; thienopyridopyridazine; thienopyridopyrimidine .

Faculty of Science

Dep. **:** Chemistry

Name **:** **Kamal Mohamed Dawood**

Title **:** Facile Route to Novel 2-Pyridone, Pyrazolo[3,4-d]-1,2,3-Triazine, and Pyrazolo[3,4-d]- and [1,5-a]-pyrimidine Derivatives

Authors**:** Kamal M. Dawood, Ahmad M. Farag and Nabila A. Khedr

Published In **:** Arkivoc

ISSN 1424 - 6376 ***Impact Factor*** 1.253

Abstract :

Treatment of 2-cyano-N-(pyrid-2-yl)acetamide (**1**) with hydrazonoyl chlorides **2a-e** afforded aminopyrazoles **4a-e** which on treatment with sodium nitrite in acetic acid furnished the pyrazolo[3,4-d]-1,2,3-triazin-4-one derivatives **8a-e**. Reaction of aminopyrazoles **4c-e** with triethylorthoformate in glacial acetic acid afforded pyrazolo[3,4-d]pyrimidin-4-one derivatives **10a-c**. Compound **1** reacted with DMF-DMA in refluxing xylene affording a mixture of 3-(N,N-dimethylamino)propenenitrile**11** and N,1-di(pyridin-2-yl)pyridine-3 carboxamide**15** derivatives. When compound **11** was treated with hydrazine, phenylhydrazine or with 5-amino-3-phenyl-1H-pyrazole **16** in refluxing ethanol, the novel aminopyrazoles **13a,b** and pyrazolo[1,5-a] -pyrimidine **18** derivatives were obtained.

Keywords:

Cyanoacetamides; Hydrazonoyl chlorides; Pyrazolo[3,4-*d*]-pyrimidinones; Pyrazolo[3,4-*d*]-1,2,3-triazinones, Pyrazolo[1,5-*a*]-pyrimidines.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Kamal Mohamed Dawood**

Title **:** Fused Polyaza-heterocycles and 1,3,4-Thiadiazoles via A Tricyano Synthon

Authors**:** Kamal M. Dawood and Mohamed A. Raslan

Published In **:** J. Heterocyclic Chem

ISSN 0022 - 152X ***Impact Factor*** 0.813

Abstract :

Treatment of 2-phenylprop-1-ene-1,1,3-tricarbonitrile with some heterocyclic diazonium salts afforded the corresponding heterocyclic hydrazones. Some of the latter hydrazones were converted into fused polyaza-heterocycles upon boiling in pyridine. Reaction of 2-cyano-3-phenyl-2-pentenedinitrile with phenylisothiocyanate gave a tricyano-thiole derivative which on treatment with hydrazonoyl chlorides and 1-(benzothiazol-2-yl)-2-bromoethanone furnished 1,3,4-thiadiazole and thiazole derivatives, respectively.

Keywords:

Fused polyaza-heterocycles; 1,3,4-thiadiazoles and thiazoles.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Maher Z. Elsabee**

Title **:** Extraction and characterization of chitin and chitosan from local sources

Authors**:** Entsar S. Abdou, Khaled S.A. Nagy, Maher Z. Elsabee

Published In **:** Bioresource Technology

ISSN 0960 - 8524 ***Impact Factor*** 3.103

Abstract :

Chitin has been extracted from six different local sources in Egypt. The obtained chitin was converted into the more useful soluble chitosan by steeping into solutions of NaOH of various concentrations and for extended periods of time, then the alkali chitin was heated in an auto clave which dramatically reduced the time of deacetylation. Chitin from squid pens did not require steeping in sodium hydroxide solution and showed much higher reactivity towards deacetylation in the autoclave that even after 15 min of heating a degree of deacetylation of 90% was achieved. The obtained chitin and chitosan were characterized by spectral analysis, X-ray diffraction and thermo gravimetric analysis.

Keywords:

Chitin extraction; Local sources; Deacetylation conditions; Characterization.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Maher Z. Elsabee**

Title **:** Dielectric relaxation of monoesters based poly (styrene-co-maleic anhydride) copolymer

Authors**:** Gamal R. Saad, Rania E. Morsi, Sayed Z. Mohammady and Maher Z. Elsabee

Published In **:** Polym Res

ISSN 1022 - 9760 ***Impact Factor*** 0.842

Abstract :

A series of alkyl-grafted copolymers based on styrene-maleic anhydride (SMA) copolymers were synthesized by esterification of SMAwith several long chain normal aliphatic alcohols. The prepared copolymers were characterized by FT-IR and 1H NMR and DSC. The dielectric behavior of these copolymers was investigated in the frequency 20–105 Hz and temperature -40 to 180°C ranges.Two relaxation processes were observed, *a* and β -relaxation. The former is associatedwith the glass-rubber transition and is characterized by the Vogel–Fulcher–Tammann temperature dependence and the latter relaxation is related to the local motion of the ester side groups attached to the polymer backbone. The apparent activation energy for the β -relaxation was found to depend significantly on the alkyl chain length. The dielectric analysis of the β-relaxation process detected is discussed.

Keywords :

Styrene; Maleic anhydride copolymer; Alkyl-grafted polymers; Glass transition temperature; Dielectric behavior

Faculty of Science

Dep. **:** Chemistry

Name **:** **Maher Z. Elsabee**

Title **:** Some biophysical properties of castor oil esterified with some acid anhydrides

Authors**:** Mona A. Saied, Samia H. Mansour, Mohamed Eweis, Maher Z. El-Sabee, Azima L. G. Saad, Kamal N. Abdel

Published In **:** Eur. J. Lipid Sci. Technol.

ISSN 1438 - 7697 ***Impact Factor*** 0.911

Abstract :

A series of castor oil adducts were synthesized by esterification of castor oil with acid anhydrides: phthalic, maleic and succinic anhydrides. The chemical structure of castor oil and the prepared adducts were characterized by means of IR and ^{1}H NMR spectroscopy. The number-average and weight-average molecular weights were measured by gel permeation chromatography. The electrical properties were studied through the permittivity, dielectric loss and conductivity measurements, which are considered to be in the range of electrical insulation. The electrical conductivity, which describes the ionic mobility of the systems, was found to be in the range of 10^{-9} to 10^{-12} S/cm. This indicates that castor oil and its esters could be used for antistatic applications. The viscosity η and the activation energy E_η, obtained from the dependency of viscosity on temperature using the Arrhenius equation, were found to increase with increasing molecular weight of the system. The effect of different concentrations of castor oil and its esters on the growth activities of the sugar beet pathogens R. solani and S. rolfsii was studied through the determination of percent germination, average length of hyphal extensions, dry mass yield and the production of sclerotia.The obtained data indicate that the esterification of castor oil with anhydrides improves the antifungal activity.

Keywords:

Antimicrobial activity; Castor oil adducts; Dielectric properties; Electrical conductivity; Viscosity

Faculty of Science

Dep. **:** Chemistry

Name **:** **Maher Z. Elsabee**

Title **:** Demulsification Efficiency of Some Novel Styrene/Maleic Anhydride Ester Copolymers

Authors**:** A. M. Al-Sabagh, M. R. Noor El-Din, R. E. Morsi and M. Z. Elsabee

Published In **:** Applied Polymer Science

ISSN 0021 - 8995 ***Impact Factor*** 1.008

Abstract :

Four demulsifiers were prepared in three steps. In the first step, styrene and maleic anhydride were copolymerized. In the second step, a long-chain alcohol (dodecanol) was reacted with the prepared copolymer to form the monoesterified copolymer. In the final step, the resulting product was further esterified with poly(propylene oxide) (PPO)–poly(ethylene oxide) (PEO) block copolymers of different molecular weights (1.1, 2.5, 3.0, 5.0, and 8.0 X 10^3) and different PPO/PEO ratios. The demulsification efficiency of these demulsifiers was investigated with the bottle test (Sany glass). The effects of the molecular weight and ratio of the PPO–PEO block copolymers on the demulsification efficiency were studied. The demulsification efficiency could be enhanced from 66% by an individual demulsifier to 100% by demulsifier blends. The surface- active and thermodynamic properties of the prepared demulsifiers were measured at 25, 35, and 45°C. The kinematics of the demulsification process were photographed with a binocular microscope. The demulsification mechanism was found to occur in three stages, that is, adsorption and flocculation, coalescence, and channel formation followed by separation.

Keywords:

Block copolymers; Functionalization of polymers; Hydrophilic polymers; Surfactants.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Maher Z. Elsabee**

Title **:** Surface modification of polypropylene films by chitosan and chitosan/ pectin multilayer

***Authors*:** Maher Z. Elsabee, Entsar S. Abdou, Khaled S.A. Nagy, Mohamed Eweis

Published In **:** Carbohydrate Polymers

ISSN 0144 - 8617 ***Impact Factor*** 1.782

Abstract :

Polypropylene (PP) films were irradiated with corona discharge then dipped into acidic solutions of chitosan extracted from different sources. The films were examined as for their antifungal and antibacterial properties. Carboxymethyl chitosan and carboxymethyl chitin were found also to adhere to these corona treated PP films. The antifungal and antibacterial properties of these derivatives were also examined and found to be even superior to the chitosan itself. Chitosan forms complex compounds with pectin and this property was used to build up a stable multilayered structure on the PP film surfaces to produce a much better antimicrobial films which can be used to fabricate excellent packaging materials for post-harvest crop protection.

Keywords:

Polypropylene films; Corona discharge; Chitosan; Pectin; Multilayers; Antimicrobial properties

Faculty of Science

Dep. **:** Chemistry

Name **:** **Maher Z. Elsabee**

Title **:** Improved Antimicrobial Activity of Polypropylene and Cotton Nonwoven Fabrics by Surface Treatment and Modification with Chitosan

Authors**:** Entsar S. Abdou, Said S. Elkholy, Maher Z. Elsabee, Eweis Mohamed

Published In **:** Applied Polymer Science

ISSN 0021 - 8995 ***Impact Factor*** 1.008

Abstract :

Nonwoven polypropylene and cotton fabrics were subjected to plasma pretreatment followed by flash evaporation and radiation crosslinking acrylate polymer coating, which is based on a vacuum deposition, solvent free, process that produces high quality, uniform fabrics with various thicknesses (0.05–5.0 μm). These treated fabrics were then dipped into chitosan, carboxymethyl chitosan, and carboxymethyl chitin solution. These polysaccharides form strong complexes with the modified surface. The antimicrobial activity of these treated samples was then evaluated for their antifungal and antibacterial properties. The antifungal activity for Fusarium oxysporum f. sp. lycopersici, Verticillium albo-atrum, and Alternaria solani (A. alternata) were examined by the disc plate method. The antibacterial activities of the modified fabrics against Clavibacter michiganensis and Pseudomonas solanacearum were also examined by the viable cell counting method. The inhibition zone of the chitosan covered samples has increased by a factor of 2–3.1 over the original pretreated samples. The chitosan-modified fabrics showed a good antibacterial activity in killing almost 10^5 cells/mL within 18–23 h.

Keywords:

Nonwoven polypropylene and cotton fabrics; Surface modification; Chitosan; Antimicrobial activity.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Magdy W. Sabaa**

Title **:** Thermal Degradation Behavior of Poly(vinyl chloride) in the Presence of Poly(glycidyl methacrylate)

Authors**:** Magdy W. Sabaa, Zeinab R. Farag, Nadia A. Mohamed

Published In **:** Applied Polymer Science

ISSN 0021 - 8995 ***Impact Factor*** 1.008

Abstract :

The thermal degradation behavior of poly (vinyl chloride) (PVC) in presence of poly(glycidyl methacrylate) (PGMA) has been studied using continuous potentiometric determination of the evolved HCl gas from the degradation process from one hand and by evaluating the extent of discoloration of the degraded samples from the other. The efficiency of blending PGMA with dibasic lead carbonate (DBLC) conventional thermal stabilizer has also been investigated. A probable radical mechanism for the effect of PGMA on the thermal stabilization of PVC has been suggested based on data reported by FTIR and elemental analyses.

Keywords:

Poly vinyl chloride; Poly(glycidylmethacrylate); Thermal dehydrochlorination; Discoloration; Stabilization mechanism; Costabilizer.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Magdy W. Sabaa**

Title **:** Maleic Anhydride Grafted Rubbers for Metallic Surfaces Lamination

Authors**:** M. W. Sabaa, A. F. Younan, R. M. Mohsen, M. L. Tawfic

Published In **:** Applied Polymer Science

ISSN 0021 - 8995 ***Impact Factor*** 1.008

Abstract :

Modification of two synthetic rubbers, namely polybutadiene (BR) and bromobutyl (BIIR), were carried out to enhance their adhesion performance and their lining to steel to protect it against corrosion. Two different feasible and industrially applicable techniques were used for grafting the two rubbers under investigation individually with maleic anhydride (MAH), namely the reactive extrusion and the mechanochemical techniques. The modi- fied rubbers were characterized by FTIR-spectroscopy, chemical analysis, elemental analysis, and by measuring the surface wetting tension. These applied techniques improved the adhesion performance of the rubber towards steel surface markedly. Grafting of BR with MAH via mechanochemical technique increased the adhesion strength of BR by four to five times, whereas grafting of BIIR with MAH via reactive extrusion techniques increased the adhesion strength of the parent BIIR up to more than five times.

Keywords:

Rubber grafting; Rubber to metal bonding; Lining of steel with rubber; Bromobutyl modification; Polybutadiene rubber modification.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Waheed A. Badawy**

Title **:** Electrochemical formation and characterization of porous titania (TiO2) films on Ti

***Authors*:** S. A. Fadl-Allah, R. M. El-Sherief and W. A. Badawy

Published In **:** J. Appl. Electrochem

ISSN 0021 - 891X ***Impact Factor*** 1.417

Abstract :

Galvanostatically and potentiostatically formed surface oxide films on titanium in H_2O_2 free and H_2O_2 containing H_2SO_4 solutions were investigated. Conventional electrochemical techniques, electrochemical impedance spectroscopy (EIS) and scanning electron microscopy, were used. In the absence of H_2O_2, the impedance response indicated a stable thin oxide film which depends on the mode of anodization of the metal. However, in the presence of H_2O_2 the film characteristics were changed. A significant decrease in the corrosion resistance of the surface film was recorded.

The film characteristics were also found to be affected by the mode of oxide film growth and polarization time. The EIS results and the impedance data fitting to equivalent circuit models have shown that the oxide film consists of two layers.

The electrochemical characteristics of the anodic films formed under different conditions have been discussed.

Keywords:

Anodic oxide films; Hydrogen peroxide; Impedance; Polarization; Passive films; Sulfuric acid.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Waheed A. Badawy**

Title **:** Effect of porous silicon layer on the performance of Si/Oxide photovoltaic and photoelectrochemical cells

Authors**:** W. A. Badawy

Published In **:** J. Alloys and Compounds

ISSN 0925 - 8388 ***Impact Factor*** 1.455

Abstract :

Photovoltaic and photoelectrochemical systems were prepared by the formation of a thin porous film on silicon. The porous silicon layer was formed on the top of a clean oxide free silicon wafer surface by anodic etching in $HF/H_2O/C_2H_5OH$ mixture (2:1:1). The silicon was then covered by an oxide film (tin oxide, ITO or titanium oxide. The oxide films were prepared by the spray/pyrolysis technique which enablesdoping of the oxide film by different atoms like In, Ru or Sb during the spray process. Doping of SnO_2 or TiO_2 films with Ru atoms improves the surface characteristics of the oxide film which improves the solar conversion efficiency.

The prepared solar cells are stable against environmental attack due to the presence of the stable oxide film. It gives relatively high short circuit currents (I_{sc}) compared to our improved silicon single crystal solar cells, due to the presence of the porous silicon layer. Although the open-circuit potential (V_{oc}) was not affected by the porous silicon film, the short circuit current was found to be sensitive to this layer and its thickness. An optimum thickness of the porous film and also the oxide layer is required to optimize the solar cell efficiency. The results represent a promising system for the application of porous silicon layers in solar energy converters. The use of porous silicon instead of silicon single crystals in solar cell fabrication and the optimization of the solar conversion efficiency will lead to the reduction of the cost as an important factor and also the increase of the solar cell efficiency making use of the large area of the porous structures.

Keywords :

Porous silicon; Photovoltaics; Photoelectrochemical cells; Tin dioxide; Titanium oxide.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Waheed A. Badawy**

Title **:** Environmentally safe corrosion inhibition of Pb in aqueous solutions

Authors**:** N. H. Hilal, M. M. El-Rabiee, Gh. M. Abd El-Hafez and W. A. Badawy

Published In **:** J. Alloys and Compounds

ISSN 0925 - 8388 ***Impact Factor*** 1.455

Abstract :

The corrosion and corrosion inhibition of lead in aqueous solutions with different pHs (2, 7 and 12) were investigated. The corrosion rate was calculated in the absence and presence of the corrosion inhibitor using polarization and impedance techniques. Amino acids have been used as environmentally safe corrosion inhibitors. The inhibition efficiency of the different amino acids at a concentration of 0.025 M was calculated. Corrosion inhibition efficiency up to 87% was recorded with glutamic acid in neutral solutions. The experimental impedance data were fitted to theoretical values according to an equivalent circuit model to explain the behavior of the metal under different conditions. The corrosion inhibition process was found to depend on the adsorption of the amino acid molecules on the metal surface; and the adsorption free energy in each case was calculated. The free energy of adsorption of glutamic acid on Pb was found to be equal to – 2.9 kJ/mol, which reveals that the inhibitor is physically adsorbed on the metal surface. The results are obeying Langmuir adsorption isotherm.

Keywords:

Pb; EIS; Polarization; pH; Passivation; Amino acids.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Waheed A. Badawy**

Title **:** Corrosion control of Vanadum in aqueous solutions by amino acids

Authors**:** M. M. El-Rabiee, N. H. Hilal, Gh. M. Abd El-Hafez and W. A. Badawy

Published In **:** J. Alloys and Compounds

ISSN 0925 - 8388 ***Impact Factor*** 1.455

Abstract :

The electrochemical behavior of vanadium in amino acid free and amino acid containing aqueous solutions of different pH was studied using open-circuit potential measurements, polarization techniques and electrochemical impedance spectroscopy (EIS). The corrosion current density, i_{corr}, the corrosion potential, E_{corr} and the corrosion resistance, R_{corr}, were calculated. A group of aminoacids namely glycine, alanine, valine, histidine, glutamic and cysteine has been investigated as environmentally safe inhibitors. The effect of Cl- on the corrosion inhibition efficiency especially in acid solutions was investigated. In neutral and basic solutions, the presence of amino- acids increases the corrosion resistance of the metal. The electrochemical behavior of V before and after the corrosion inhibition process has shown that some amino acids like glutamic acid and histidine have promising corrosion inhibition efficiency at low concentration (≅ 25 mM). The inhibition efficiency (η) was found to depend on the structure of the amino acid and its concentration. The corrosion inhibition process is based on the adsorption of the amino acid molecules on the metal surface and the adsorption process follows the Freundlich isotherm. The corrosion inhibition process is based on the adsorption of the amino acid molecules on the metal surface and the adsorption process follows the Freundlich isotherm. The adsorption free energy for valine on V in acidic solutions was found to be -9.4 kJ/mol which reveals strong physical adsorption of the amino acid molecules on the vanadium surface.

Keywords:

Amino acids; Corrosion inhibition; EIS; Polarization; Vanadium.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Nadia Ahmed Mohamed**

Title **:** Thermal Degradation Behavior of Poly(vinyl chloride) in Presence of Poly(N-acryloyl-N'-cyanoacetohydrazide)

Authors**:** Nadia A. Mohamed, Zeinab R. Farag and Magdy W. Sabaa

Published In **:** Applied Polymer Science

ISSN 0021 - 8995 ***Impact Factor*** 1.008

Abstract :

The thermal degradation behavior of poly(vinyl chloride), PVC, in presence of poly(N-acryloyl-N'-cyanoacetohydrazide), PACAH, has been studied using continuous potentiometric determination of the evolved HCl gas from the degradation process from one hand and by measuring the extent of discoloration of the degraded samples from the other. The efficiency of blending PACAH with dibasic lead carbonate, DBLC, conventional thermal stabilizer has also been investigated. A probable radical mechanism for the effect of PACAH on the thermal stabilization of PVC has been proposed.

Keywords:

Poly(vinyl chloride); Poly(N-acryloyl-N'-cyanoacetohydrazide); Thermal dehydrochlorination; Discoloration; Stabilization mechanism; Costabilizer

Faculty of Science

Dep. **:** Chemistry

Name **:** **Nadia E. A. El-Gamel**

Title **:** Uranyl and transition metal chelates of tenoxicam. Crystal structures of trans,trans-[Co(II)(Hten)$_2$(dmso)$_2$], trans,trans-[Zn (II) (Hten)$_2$ (dmso)$_2$] and cis,cis-[UO_2(VI)(Hten)$_2$(H_2O)] . 2C_2H_5OH

Authors**:** Nadia E. A. El-Gamel and Daniela Gerlach

Published In **:** Coordination Chemistry

ISSN 0095-8972 ***Impact Factor*** 0.867

Abstract :

The synthesis and characterization of ternary Fe(III)- (1), Co(II)- (2), Ni(II)- (3), Cu(II)- (4), Zn(II)- (5) and UO_2(VI)- (6) chelates with the potent anti-inflammatory drug tenoxicam (H_2ten) and (dl-alanine, Hala) are reported. All complexes are octahedral except Cu(II) and Zn(II) chelates, which are tetrahedral, and U-atoms in the uranyl chelates have a pentagonalbipyramidal coordination sphere. The ternary Co(II) and Zn(II) complexes dissociate in dmso where orange and yellow crystals of trans,trans-[Co(II)(Hten)$_2$(dmso)$_2$] (8) and trans,trans-[Zn(II)(Hten)$_2$(dmso) $_2$] (9), respectively, were obtained. Crystallization of the binary uranyl chelate (7) from ethanol afforded the ethanol solvate cis,cis-[UO_2(VI)(Hten)$_2$(H_2O)](2C_2H_5OH (7a). trans,trans-[Co(II) (Hten)$_2$ (dmso)$_2$] (8) and trans,trans-[Zn(II)(Hten)$_2$(dmso)$_2$] (9) crystallize in the monoclinic space group P2$_1$/n while 7a crystallizes in the triclinic space group P-1. The kinetics of the thermal decompositions for 1, 3, 4, 6 and 7 were studied and the thermodynamic parameters E*, ΔH*, ΔS* and ΔG* evaluated.

Keywords :

Tenoxicam; dl-alanine; Metal chelates; Vibrational spectra; Thermal behavior; X-ray crystal structure.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Nadia E. A. El-Gamel**

Title **:** Guanidinium cyanurates versus guanidinium cyamelurates: Synthesis, spectroscopic investigation and structural characterization

Authors**:** Nadia E.A. El-Gamel, Joerg Wagler, Edwin Kroke

Published In **:** Molecular Structure

ISSN 0022 - 2860 ***Impact Factor*** 1.486

Abstract :

Reactions of cyameluric acid and cyanuric acid with guanidine in water yield colorless crystals of two novel salts: triguanidinium cyamelurate hydrate $[C(NH_2)_3]_3([C_6N_7O_3](3H_2O$ (1) and guanidinium dihydrogencyanurate hydrate $[C(NH_2)_3]_2([C_3N_3O_3H_2]_2(H_2O$ (2), respectively. The single crystal X-ray structures show that in the case of 2 there are two protons left at the triazine ring and two crystallographically independent cations and anions are present. In the case of triguanidinium cyamelurate 1, the heptazine ring is completely deprotonated with three crystallographically independent cations. Extensive networks of hydrogen bonds, involving all the molecular species, rule the crystal packing of both salts. Raman and FTIR spectra show the typical features expected for the heterocyclic anions and the guanidinium cation. Simultaneous thermal analysis (TG/DTA) indicates several decomposition steps resulting in 100% mass loss at ~750 °C for 1 and ~600 °C for 2.

Keywords:

s-Triazine; Tri-s-triazine (heptazine); Cyameluric acid; Cyanuric acid; Guanidinium salt

Faculty of Science

Dep. **:** Chemistry

Name **:** **Nadia E. A. El-Gamel**

Title **:** Structure elucidation of cyameluric acid by combining solid-state NMR spectroscopy, molecular modeling and direct-space methods

Authors**:** L. Seyfarth, J. Sehnert, N.E.A. El-Gamel, W. Milius, E. Kroke, J. Breu, J. Senker

Published In **:** Molecular Structure

ISSN 0022 - 2860 ***Impact Factor*** 1.486

Abstract :

We present the structure solution for solvent-free cyameluric acid which has first been synthesized more than 150 years ago. By densely intertwining the complementary methods solid-state NMR spectroscopy, molecular modeling as well as direct-space methods for the analysis of the X-ray powder diffraction data we succeeded where conventional powder diffraction analysis alone failed.

In a first step, the correct tautomer was identified by combining solid-state NMR and ab initio calculations. The quantum-chemically optimized molecule was further employed in direct-space methods for the crystal structure solution. After a subsequent Rietveld refinement the positions of the hydrogen atoms in the crystal were determined by comparing experimental and calculated NMR chemical shift parameters. In this context, the sensitivity of the anisotropy δaniso and the asymmetry parameter g of the carbonyl ^{13}C towards the hydrogen bonding environment proved to be very valuable.

Cyameluric acid crystallizes in space group $P2_12_12_1$ (Z = 4, a = 6.4701(5) A°, b = 9.9340(6) A°, c = 12.0985(7) A°) with one complete molecule in the asymmetric unit. It consists of the symmetric trioxo tautomer which is arranged in a three-dimensional hydrogen bond network where all three NH groups interact with carbonyl groups.

Keywords:

s-Heptazine derivatives; Molecular modeling; Chemical shift anisotropy; X-ray powder diffraction; Hydrogen bonding.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Nadia E. A. El-Gamel**

Title **:** Synthesis, spectroscopic characterization, and X-ray crystal structure of tris(trimethylsilyl)cyanurate

Authors**:** Nadia E.A. El-Gamel, Joerg Brand and Edwin Kroke

Published In **:** Coordination Chemistry

ISSN 0095 - 8972 ***Impact Factor*** 0.867

Abstract :

Tris(trimethylsilyl)cyanurate, $C_{12}H_{27}N_3O_3Si_3$ (1), has been synthesized and characterized by elemental analysis, IR, Raman, ^{13}C and ^{29}Si NMR, and thermogravimetric methods. The molecular and crystal structure has been determined by single crystal X-ray diffraction. This compound crystallized in space group $P6_3/m$ (176), Z = 2 with a = 11.017(2), b = 11.017(2), c = 9.676(3) A°; $\alpha = 90°, \beta = 90°, \gamma = 120°$. The geometry of the molecule is compared with tris(trimethylsilyl)cyamelurate.

Keywords:

S-triazine; Tri-s-triazine; FTIR and Raman spectra; NMR; Thermal behavior X-ray crystal structure.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Nadia Hanafy Metwally**

Title **:** A Convenient Synthesis of Some New 5-Substituted-4-Thioxo-Thiazolidinones and Fused Thiopyrano[2,3-d]thiazole Derivative

Authors**:** Nadia Hanafy Metwally

Published In **:** Phosphorus, Sulfur, and Silicon

ISSN 1042 - 6507 ***Impact Factor*** 0.669

Abstract :

The new Z-5-arylmethylene-4-thioxo-thiazolidine derivatives have been synthesized by condensation of ω-(4-formylphenoxy) acetophenone derivatives with 4-thioxothiazolidine derivatives, in good yields. The cycloaddition of the newly synthesized compounds to N-arylmaleimides, N-phenyl-1,2,4-triazole-3,5-dione, ethyl acrylate and ω-nitrostyrene has been studied. Under thermal reaction conditions [4 + 2] cycloaddition proceeds with complete site- and regioselectivity to yield the new fused thiopyrano[2,3-d]thiazole derivatives.

Keywords:

-4Thioxo-thiazolidine derivatives; 5-[(4-benzoylmethoxy) phenylmethylene]-4- thioxo-thiazolidines; ω-(4-formylphenoxy)acetophenones; Thiopyrano[2,3-d]-thiazole derivatives.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Nadia Hanafy Metwally**

Title **:** A Facile One-Pot Synthesis of Some New Spiro-thiazolidin-4-ones and Benzimidazoles of Biological Interest

Authors**:** Nadia Hanafy Metwally

Published In **:** Phosphorus, Sulfur, and Silicon

ISSN 1042 - 6507 ***Impact Factor*** 0.669

Abstract :

In *a* one-pot procedure, aromatic amines **1a–c**, 9-fluorenone (**2**) and 2-mercaptoacetic acid (**3**) were converted into fluorenespiro-thiazolidinone derivatives **4a–c**, which undergo condensation, oxidation and thiation to afford **6a–i, 7a–c,** and 4-thioxo **8a–c**, respectively. A new fluorenespiro-thiazolo-benzimidazole **10** was also obtained in one step via cyclocondensation of 1,2-phenylenediamine, 9-fluorenone and 2-mercaptoacetic acid. The obtained products seem to be interesting from the biological point of view.

Keywords:

-2Mercaptoacetic acid; 9-fluorenone; Fluorenespiro[9.2^{-}]-thiazolo[3^{-},4^{-}- *a*] benzim-idazole; Fluorenespiro[9.2^{-}]-3^{-}-aryl-thiazolidin-4-one derivatives

Faculty of Science

Dep. **:** Chemistry

Name **:** **Nadia Hanafy Metwally**

Title **:** Synthesis of some new fused thiopyrano[2,3-dlthiazoles and their derivatives

***Authors*:** Nadia Hanafy Metwally

Published In **:** Sulfur Chemistry

ISSN 1741 - 5993 ***Impact Factor***

Abstract :

A series of some new fused thiopyrano[2,3-d]thiazole derivatives have been synthesized by a Stereo-selective hetero-Diels-Alder reaction of 5-(2,4-dihydroxy-benzylidene)-4-thioxo-thiazolidine deriva-tives **3a,b** with aciylonitrile, ethyl acrylate, *N*-phenylmale-imide, ω-nitrostyrene and *N*-pheny l- 3, triazole-2,5-dione. S- Amino-9-hydroxy- dihydro- benzopyrano [3′,4′,5] thiopyrano [2,3-d] thiazol- 6- one derivatives **14a,b** have been synthesized by Michael addition of **3a,b** with malorionitrile Structures and conceivable mechanisms are discussed.

Keywords :

-4 ,2)-5Dihydroxybenzylidene)-4-thioxo-thiazolidines; Thiopyrano[2,3-d ithia-zoles; Benzopyrano 13,4':4,5lthiopyrano[2,3-dlthiazole derivatives

Faculty of Science

Dep. **:** Chemistry

Name **:** **Nadia Hanafy Metwally**

Title **:** A Novel Synthesis Of 1,4-Bis(Thiopyrano[2,3-D] Thiazolyl) Benzene Derivatives

Authors**:** Nadia Hanafy Metwally

Published In **:** Heterocycles

ISSN 0385-5414 ***Impact Factor*** 1.066

Abstract :

The novel 5-(4-formylphenyl)methylene-thiazolidine-2,4-dithione 3 and 1,4-bis[(4-thioxo-thiazolidinyl)methylene]benzene derivatives **4a,b** were synthesized by condensation of each of 4-thioxo-thiazolidin-2-one (**1a**) and thiazolidine-2,4-dithione (**1b**) with terephthalaldehyde (**2**), in good yields depending on the molar ratio of **1** to **2**. The cycloaddition of the newly synthesized compounds to N-arylmaleimides, ethyl acrylate, *ω*-nitrostyrene and malononitrile was studied. The structures of the synthesized compounds were established by elemental analyses and spectral data.

Keywords:

5-(4-formylphenyl)methylene-thiazolidine-2,4-dithione; 1,4-bis [94- thioxo-thiazolidinyl methylene benzene derivatives; 1,4-bis (thiopyrano [2,3-d] thiazolyl) benzene derivatives.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Nour Tawfik Abdel-Ghani**

Title **:** The use of low cost and environment friendly materials for the removal of heavy metals from aqueous solutions

Authors**:** Nour El-Din T. Abdel-Ghani and Ghadir A. El-Chaghaby

Published In **:** Current World Environment

ISSN 0973 - 4929 ***Impact Factor***

Abstract :

The objective of this study was to evaluate the use of rice husk and Nile rose plant for their ability to remove Cr(III), Cu(II), Zn(II) , Cd(II) and pb(II) from their mixed aqueous solution. The effects of contact time, pH, initial metal concentration and amount of adsorbent on the adsorption process at room temperature 25±2 °C were studied. Batch adsorption studies showed that an equilibrium time of 90 min. was required for the adsorption of Cr(III), Cu(II), Zn(II) , Cd(II) and pb(II) on both investigated adsorbents. The maximum metal removal was found to be pH dependent. With an increase in the concentrations of these metals, their adsorption decreased on both of the adsorbents. The experimental data were best fitted to the Temkin isotherm model. Rice husk and Nile rose plant were found to be good metal adsorbents. A case study was performed to examine the feasibility of using the investigated adsorbents for treating real electroplating wastewater.

Keywords:

Adsorption; Chromium; Copper; Zinc; Cadmium; Lead; Rice husk; Nile rose plant; Temkin isotherm; Electroplating; wastewater.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Nour Tawfik Abdel-Ghani**

Title **:** Removal Of Metal Ions From Synthetic Wastewater By Adsorption Onto Eucalyptus Camaldulenis Tree Leaves

Authors**:** N. T. Abdel-Ghani, M. M. Hefny, And G. A. El-Chaghaby

Published In **:** J. Chil. Chem. Soc

ISSN 0717 - 9707 ***Impact Factor***

Abstract :

Eucalyptus Camaldulenis tree leaves were used to study adsorption of several cations (Cu^{2+}, Zn^{2+}, Cd^{2+} and Pb^{2+}) from wastewater within various experimental conditions. The dried leaves of Eucalyptus Camaldulenis were used at different adsorbent/metal ion ratios. The influence of pH, contact time, metal concentration, and adsorbent loading weight on the removal process was investigated. Batch adsorption studies were carried out at room temperature. The adsorption efficiencies were found to be pH dependent, increasing by increasing the pH in the range from2.5 to 8.5. The equilibrium time was attained after 90-120 minutes and the maximum removal percentage was achieved at an adsorbent loading weight of 1.5 g/50ml mixed ions solution. The removal order was found to be Pb (II)> Cu (II) >Cd (II)> Zn (II).This study is one of the first reports of removal of the highly toxic Cu^{2+}, Zn^{2+}, Cd^{2+} and Pb^{2+} in mixed systems based on the adsorption by natural materials. The potential of application for the treatment of solutions containing these heavy metals in multimetal solutions is indicated.

Keywords:

Eucalyptus camaldulenis; Lead; Copper; Zinc; Cadmium; Adsorption; Wastewater; Isotherms.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Nour Tawfik Abdel-Ghani**

Title **:** Removal Of Cr (Iii) And Pb (Ii) From Solution By Adsorption Onto Casuarina Glauca Tree Leaves

Authors**:** N. T. Abdel-Ghani, R.M. El-Nashar and G.A.El-Chaghaby

Published In **:** Electronic journal of Environmental, Agricultural and food chemistry

ISSN 1579 - 4377 ***Impact Factor***

Abstract :

This paper reported the research of the removal of Cr (III) and Pb (II) from wastewater by using tree leaves. One kind of road side tree leaves was tested at room temperature. Effects of contact time and pH on the adsorption process were investigated. The isothermal studies were carried out with 1 g of leaves in 50 ml synthetic wastewater at different metal ions concentrations. The initial pH of the synthetic wastewater was about 5. The experimental results were examined using the Langmuir, Freundlich and Temkin isotherms to obtain the appropriate model. The Temkin isotherm was found to well represent the measured sorption data. The goal for this research is to develop inexpensive, highly available, effective metal ion adsorbents from nature as alternative to existing conventional adsorbents.

Keywords :

Tree leaves; Adsorption; Chromium; lead; Isotherm.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Hanaa Barakat Hassan Hussein**

Title **:** Nanostructured Ni–P–TiO2 composite coatings for electrocatalytic oxidation of small organic molecules

Authors**:** A. Abdel Aala, Hanaa. Hassanb, and M.A. Abdel Rahim

Published In **:** Electroanalytical chemsitry

ISSN 0022 - 0728 ***Impact Factor*** 2.58

Abstract :

Ni–P–TiO_2 nanocomposite coatings with various contents of TiO_2 nano-particulates were prepared by electroless technique from Ni–P plating bath containing TiO_2 powder. X-ray diffractometer (XRD) and energy dispersive X-ray (EDX) technique have been applied in order to investigate the chemical composition and phase structure of the coatings, respectively. The incorporation of TiO_2 nano-particulates was found to be improved by the addition of TiO_2 powder to the plating bath. However, it has no significant effect on the wt% of P content in the deposit. Scanning electron microscope (SEM) images showed that the morphology of Ni–P–TiO_2 nanocomposite coating is finer and smoother than that of Ni–P coating. The catalytic activity of the prepared electrodes toward electro-oxidation of small organic molecules was studied and their stability with time was investigated. The catalytic activity was found to vary with the amount of the TiO_2 embedded into the Ni deposi.

Keywords:

Nanocomposite coating; Electroless plating; Electrocatalysis; DMFC; Electrooxidation; Nickel catalyst.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Hanaa Barakat Hassan Hussein**

Title **:** Synthesis and characterization of electroless deposited Co–W–P thin films as diffusion barrier layer

Authors**:** A. Abdel Aal, H. Barakat, Z. Abdel Hamid

Published In **:** Surface and Coatings Technology

ISSN 0257 - 8972 ***Impact Factor*** 1.678

Abstract :

Selective barriers against copper diffusion deposited by electroless reaction are interesting in term of electromigration. In this article, the barrier layer of cobalt–tungsten–phosphorus (Co–W–P) alloy was electroless deposited onto copper substrates for ultra large scale integration (ULSI) applications. The Co–W–P thin film was formed directly on copper, without a palladium catalyst, from citrate plating baths with sodium hypophosphite as reducing agents. The influence of tungsten addition on the barrier properties has been studied and the optimum conditions to obtain films with the highest oxidation protection have been determined. Co–W–P layer properties such as chemical composition, surface morphology, and phase structure and corrosion behavior have been investigated. The deposited CoWP layer showed higher oxidation and corrosion resistance and soft magnetic behavior.

Keywords :

Electroless; Diffusion barriers layer; Cobalt alloys; Electronics.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Huwaida Mohamed Hassaneen**

Title **:** NMR Determination of the Structure of Azolopyrimidines Produced from Reaction of Bidentate Electrophiles and Aminoazoles .

Authors**:** Huwaida M. E. Hassaneen, Hamdi M. Hassaneen, Sherif F. M. Khiry, and Richard M. Pagni

Published In **:** Z. Naturforsch

ISSN 0932 - 0776 ***Impact Factor*** 0.77

Abstract :

A variety of aminoazoles were reacted with bidentate electrophiles producing azolopyrimidines. The regioselectivity of the nucleophilic attack could be defined from the ^{13}C chemical shift of the pyrimidine carbons and through NOE experiments.

Keywords:

Aminoazoles; NOE Experiment; Azolopyrimidines; Enaminonitrile.

Faculty of Science

Dep. **:** Entomology

Name **:** **Hanan H. Awad**

Title **:** A Semi-field Study on the Effect of Novel Hematoporphyrin Formula on the Control of Culex pipiens Larvae

Authors**:** Hanan H. Awad, Tarek A. El-Tayeb, Nahla M. Abd El-Aziz And Mahmoud H. Abdelkader

Published In **:** Agriculture & Social Sciences

ISSN 1813 - 2235 ***Impact Factor***

Abstract :

The enhancement of the insecticidal activity of hematoporphyrin HP by a novel formula HPF was studied. The efficiency of hematoporphyrin IX (HP) and hematoporphyrin formula (HPF) was tested at concentrations of $1x10^{-5}$ and $1x10^{-6}$ M on Culex pipiens field strains in a semi-field experiment. A significant increase of larval mortality was noted after 5 days of application. The concentration of $1x10^{-5}$ M of HPF gave the same results of HP at the concentration of $1x10^{-4}$ M on the larval mortality after 5 days of application. Thus, a clear synergistic effect occurred due to the incorporation of sugar and other additives to the HP. Since the efficiency of HP and HPF as larvicidal substances on Culex pipiens was evident. Their possible biochemical change on the body content of the larvae, carbohydrates, proteins, and lipids, was also tested. However, it was found that the effect of HP and HPF on the larvae content of carbohydrates, proteins, and lipids has no significant contribution to the larval mortality due to the damage of larval organelles as a result of the high oxidative stress caused by the photosensitize effect.

Keywords:

Culex; porphyrin; Control; Biochemistry.

Faculty of Science

Dep. **:** Entomology

Name **:** **AlaaEddeen M. Seufi**

Title **:** Characterization of an Egyptian Spodoptera ittoralis nucleopolyhedrovirus and a possible use of a highly conserved region from polyhedrin gene for nucleopolyhedrovirus detection

Authors**:** AlaaEddeen M. Seufi

Published In **:** Virology

ISSN 1743 - 422X ***Impact Factor***

Abstract :

An Egyptian isolate of Spodoptera littoralis nucleopolyhedrovirus (SpliNPV) was tested for its potential as biocontrol agent in comparison to Autographa californica multiple nucleopolyhedrovirus (AcMNPV). Comparative assays of SpliNPV and AcMNPV against 2nd instar larvae of Spodoptera littoralis revealed 4-fold greater susceptibility of S. littoralis to AcMNPV than to SpliNPV based on LC_{50} values for the two viruses. The LT_{50}s determined for SpliNPV and AcMNPV using LC_{50} of the virus against 2nd instar larvae were 4.2 and 5.8 days, respectively. A DNA segment of 405 bp containing highly conserved region from polyhedrin gene of SpliNPV (Polh-cr) was successfully amplified by PCR. Subsequently, this DNA segment was cloned and sequenced. Nucleotide sequence and its deduced amino acid sequence were compared to all available sequences in GenBank. Sequence alignment results revealed that Polh-cr showed significant similarities with 91 different baculovirus isolates. The percentage of homology ranged from 78% for Plusia orichalcea NPV to 99% for SpliNPV. This highly conserved region provides a candidate that could be used in easy, fast and economic prospective systems for virus detection as well as in biological control strategies.

Keywords:

Polyhedrin gene; Nucleopolyhedrovirus; SpliNPV; PCR.

Faculty of Science

Dep. **:** Entomology

Name **:** **Neveen S. Gadallah**

Title **:** Structure and sensory equipment of the ovipositor of Habrobracon hebetor (Say) (Hymenoptera: Braconidae)

Authors**:** Hany K.M. Dweck, Neveen S. Gadallah, Essam Darwish

Published In **:** Micron

ISSN 0968 - 4328 ***Impact Factor*** 1.651

Abstract :

The microsculpture of various structures of the ovipositor of Habrobracon hebetor (Say) (Hymenoptera:Braconidae) is described from scanning and transmission electron microscopy. These include: the ovipositor egg canal, valvillus, seal of the first valvulae, interlocking mechanism (olistheter) connecting the first and second valvulae, an olistheter-like interlockingmechanism connecting the two pieces of the first valvulae, annulation,microtrichia of the third valvulae, and the ovipositor sensory equipment. Better understanding of the microsculpture of these components may make their roles in stinging, oviposition, and the host selection process more clear.

Keywords:

Microsculpture; Valvillus; Seal; Olistheter; Annulation; Microtrichia.

Faculty of Science

Dep. **:** Entomology

Name **:** **Neveen S. Gadallah**

Title **:** Description of the antennal sensilla of Habrobracon Hebetor

Authors**:** Hany K. M. Dweck and Neveen S. Gadallah

Published In **:** BioControl

ISSN 1386 - 6147 ***Impact Factor*** 1.103

Abstract :

The morphology of the antennal sensilla of both male and female Habrobracon hebetor (Say) (Hymenoptera: Braconidae) is described using Scanning Electron Microscopy complemented with Transmission Electron Microscopy. Five types of innervated sensilla as well as uninnervated microtrichia were found. These types are: sensilla trichodea; s. chaetica; s. basiconica; s. coeloconica; and s. placodea. No differences in shape, basic structure, and types of antennal sensilla were found between males and females. The types of sensilla of both sexes of H. hebetor were compared with what has been described in other parasitic Hymenoptera, and their putative functions are discussed with reference to their morphology, distribution and ultrastructure.

Keywords :

Habrobracon hebetor; Antennal sensilla; SEM; TEM

Faculty of Science

Dep. **:** Geophysics

Name **:** **El-Sayed Mohamed Abdelrahman**

Title **:** A New Algorithm for Depth Determination from Total Magnetic Anomalies due to Spheres

***Authors*:** E. M. Abdelrahman, T. M. El-Araby, E. R. Abo-Ezz, K. S. Soliman, And K. S. Essa

Published In **:** Pure and Applied Geophysics

ISSN 0033 - 4553 ***Impact Factor*** 0.86

Abstract :

We have developed an automatic method to determine the depth of a buried sphere from numerical second horizontal derivative anomalies obtained from total field magnetic data. The method is based on using a relationship between the depth and a combination of observations at symmetric points with respect to the coordinate of the projection of the center of the source in the plane of the measurement points with a free parameter (graticule spacing). The problem of depth determination has been transformed into the problem of finding a solution of a nonlinear equation of $f(z) = 0$. Procedures are also formulated to determine the magnetic moment and the effective angle of magnetization. The method is applied to synthetic examples with and without random errors and tested on a field example from Senegal. In all cases, the depth solutions are in good agreement with the actual ones.

Keywords:

Magnetic interpretation; Sphere model; Second derivative method; Parametric relationship.

Faculty of Science

Dep. **:** Geophysics

Name **:** **El-Sayed Mohamed Abdelrahman**

Title **:** New Least-Squares Algorithm for Model parameters estimation using self – Potential Anomalies

***Authors*:** El-Sayed M. Abdelrahman, Khalid S. Essa , Eid R. Abo-Ezz

Published In **:** Computers & Geosciences

ISSN 0098 - 3004 ***Impact Factor*** 0.893

Abstract :

We have developed a new least-squares minimization approach to depth determination from self-potential (SP) data. By defining the anomaly value at the origin and at any two symmetrical points around the origin on the profile, the problem of depth determination from the residual SP anomaly has been transformed into finding a solution to a nonlinear equation of the form $f(z) = 0$. Procedures are also formulated to estimate the polarization angle, amplitude coefficient and the shape of the buried structure (shape factor). The method is simple and can be used as a rapid method to estimate parameters that produced SP anomaly. The method is tested on synthetic data with and without random errors and also applied to a field example from Turkey. In all cases, the model parameters obtained are in good agreement with actual ones.

Keywords:

Self-potential anomaly; Model parameters determination; Least-squares algorithm.

Faculty of Science

Dep. **:** Geophysics

Name **:** **El-Sayed Mohamed Abdelrahman**

Title **:** A Least-Squares Standard Deviation Method to Interpret Gravity data Due to Finite Vertical Cylinders and Sheets

Authors**:** El-Sayed M. Abdelrahman and Eid R. Abo-Ezz

Published In **:** Pure and Applied Geophysics

ISSN 0033 - 4553 ***Impact Factor*** 0.86

Abstract :

We have developed a least-squares approach to determine simultaneously the depth to both the top and base of a buried finite vertical cylinder (vertical line element approximation) and a 2-D vertical thin sheet from moving average residual anomaly profiles obtained from gravity data using filters of successive window lengths. The method involves using a relationship between the depth to the top, and base of the source and a combination of windowed observations. The method is based on computing the standard deviation of the depths to the top, determined from all moving average residual anomalies for each value of the depth to the base. The standard deviation may generally be considered a criterion for determining the correct depth to the top and base of the buried structure. When the correct depth to the base value is used, the standard deviation of the depths to the top is less than the standard deviation using incorrect values of the depth to the base. This method can be applied to residuals as well as to the observed gravity data. The method is applied to synthetic examples with and without random errors and tested on two field examples from the USA and Canada.

Keywords:

Gravity interpretation; Finite vertical cylinder; Finite vertical sheet; Least-squares method; Standard deviation.

Faculty of Science

Dep. **:** Geophysics

Name **:** **Mohamed H. Khalil**

Title **:** Preliminary seismic hazard assessment, shallow seismic refraction and resistivity sounding studies for future urban planning at the Gebel Umm Baraqa area, Egypt

Authors**:** Mohamed H Khalil, Sherif M Hanafy and Mohamed A Gamal

Published In **:** Geophysics and Engineering

ISSN 1742 - 2132 ***Impact Factor*** 0.762

Abstract :

Gebel Umm Baraqa Fan, west Gulf of Aqaba, Sinai, is one of the most important tourism areas in Egypt. However, it is located on the active Dead Sea-Gulf of Aqaba Levant transform fault system. Geophysical studies, including fresh water aquifer delineation, shallow seismic refraction, soil characterization and preliminary seismic hazard assessment, were conducted to help in future city planning. A total of 11 vertical electrical soundings (1000–3000 m maximum AB/2) and three bore-holes were drilled in the site for the analysis of ground water, total dissolved solids (TDS) and fresh water aquifer properties. The interpretation of the one-dimensional (1D) inversion of the resistivity data delineated the fresh water aquifer and determined its hydro-geologic parameters. Eleven shallow seismic refraction profiles (125 m in length) have been collected and interpreted using the generalized reciprocal method, and the resulting depth–velocity models were verified using an advanced finite difference (FD) technique. Shallow seismic refraction effectively delineates two subsurface layers (VP ~ 450 m s^{-1} and VP ~ 1000 m s^{-1}). A preliminary seismic hazard assessment in Umm Baraqa has produced an estimate of the probabilistic peak ground acceleration hazard in the study area. A recent and historical earthquake catalog for the time period 2200 BC to 2006 has been compiled for the area New accurate seismic source zoning is considered because such details affect the degree of hazard in the city. The estimated amount of PGA reveals values ranging from 250 to 260 cm s^{-2} in the bedrock of the Umm Baraqa area during a 100 year interval (a suitable time window for buildings). Recommendations as to suitable types of buildings, considering the amount of shaking and the aquifer properties given in this study, are expected to be helpful for the Umm Baraqa area.

Keywords:

vertical electrical soundings; One-dimensional inversion; Shallow seismic refraction; Finite difference; Preliminary seismic hazard assessment; Peak ground acceleration; Gebel Umm Baraqa; West Gulf of Aqaba; Sinai.

Faculty of Science

Dep. **:** Geophysics

Name **:** **Mohamed H. Khalil**

Title **:** Engineering Applications of Seismic Refraction Method: A Field Example at Wadi Wardan, Northeast Gulf of Suez, Sinai, Egypt

Authors**:** Mohamed H. Khalil, Sherif M. Hanafy

Published In **:** Applied Geophysics

ISSN 0926 - 9851 ***Impact Factor*** 0.938

Abstract :

Fourteen shallow seismic refraction profiles were conducted inWadiWardan, northeast Gulf of Suez, Sinai to delineate some of the shallow soil engineering characteristics for construction purposes. Both compressional (P) and shear (S) waves were acquired and interpreted using Generalized Reciprocal Method (GRM) then the resulted velocity-depth model is verified using a Finite Difference (FD) method to improve the final velocitydepth model. A number of engineering parameters such as Concentration Index, Material Index, Density Gradient, and Stress Ratios are calculated. The seismic velocity values, engineering, consolidation, and strength parameters show that the bedrock at northern and southern parts of the study area is characterized by less competent rock quality, while the central part is characterized by more competent rock quality. Hence, the central part is suggested for construction activities.

Keywords :

Seismic refraction; Finite Difference; GRM.

Faculty of Science

Dep. **:** Herbarium

Name **:** **Monier M. Abd El-Ghani**

Title **:** Numerical taxonomy of Galium (Rubiaceae) in Egypt

Authors**:** Kadry N. Abdel Khalik, Monier M. Abd El-Ghani and Ahmed El Kordy

Published In **:** Phytologia Balcanica

ISSN 1310 - 7771 ***Impact Factor***

Abstract :

On the basis of fifty morphological characters, including vegetative parts, flowers, fruits, seeds, pollen grains, and anatomical structure, a systematic study of 13 taxa belonging to genus Galium (Rubiaceae) from Egypt was conducted by means of numerical analysis. Four branches and clusters were distinguished. Representatives of these groups were clustered together according to characters with high factor loading in the principal coordinate analysis. The results showed congruence between the UPGMA clustering and principal coordinates analysis in suggesting four groups. There was some degree of similarity among the species of sect. Aparine (Kolgyda). The results indicated also that the sect. Leiogalium (G. mollugo) was a separate group, while Aparine (Kolgyda) was the most heterogeneous one.

Keywords:

Galium, numerical taxonomy, PCO, Rubiaceae, UPGMA cluster.

Faculty of Science

Dep. **:** Herbarium

Name **:** **Monier M. Abd El-Ghani**

Title **:** Anatomical Findings of the Genus GaliumL. (Rubiacaeae) in Egypt and Their Systematic Implications

Authors**:** Kadry N. Abdel Khalik, Monier M. Abd El-Ghani and Ahmed El Kordy

Published In **:** Turk J Bot

ISSN 1303 - 6106 ***Impact Factor***

Abstract :

Transverse stem sections of 11 species and 2 subspecies of the genus Galium L. from Egypt were studied by light microscopy. Epidermal cell shape, cortex, xylem, and pith were of good taxonomic value between the taxa. Four types of stem shape were discerned in the transverse sections. The shape of epidermal cells can be used to distinguish between subspecies of Galium setaceum Lam. The cortex varied in size from wide to very narrow. The pith was wide or narrow, and solid or hollow, and was useful for classifying species into groups. A key for the identification of the investigated taxa based on anatomical characters is provided.

Keywords:

Anatomy; Galium; Rubiaceae; stem; Transverse section.

Faculty of Science

Dep. **:** Herbarium

Name **:** **Monier M. Abd El-Ghani**

Title **:** Fruit and seed morphology in Galium L. (Rubiaceae) and its importance for taxonomic identification

Authors**:** Kadry N. Abdel Khalik, Monier M. Abd El-Ghani and Ahmed El Kordy

Published In **:** Acta Bot. Croat.

ISSN 0365 - 0588 ***Impact Factor***

Abstract :

Fruit (mericarp) and seed morphology of 11 species and two subspecies of Galium were examined with light microscope and scanning electron microscope. Macro-and micro-morphological characters, including fruit and seed shape, colour, size, surface, epidermal cell shape, anticlinal boundaries, outer periclinal cell wall and relief of outer cell walls, are presented. Four different types ofmericarp surface are described. Three types of anticlinal cell wall boundaries of seed are recognized and three different shapes of outer periclinal cell wall are described. The secondary sculpture of the cell wall varies from micro-papillate to micro-reticulate, and smooth to fine- or coarse-folded. The fruit and seed characteristics could be used for taxonomic identification.

Keywords:

Fruit; Seed; Morphology; Rubiaceae; Galium.

Faculty of Science

Dep. **:** Mathematics

Name **:** **Hamdy Ibrahim Abdel-Gawad**

Title **:** A Chemotherapy-Diffusion Model for the Cancer Treatment and Initial Dose Control

Authors**:** Khaled Mmohamed Saad

Published In **:** Kyungpook Math

ISSN 1225 - 6951 ***Impact Factor***

Abstract :

A one site chemotherapy agent-diffusion model is proposed which accounts for diffusion of chemotherapy agent, normal and cancer cells. It is shown that, by controlling the initial conditions, consequently an initial dose of the chemotherapy agent, the system is guaranteed to evolute towards a target equilibrium state. Or, growth of the normal cells occurs against decay of the cancer cells. Efects of diffusion of chemotherapy-agent and cells are investigated through numerical computations of the concentrations in square and triangular cancer sites.

Faculty of Science

Dep. **:** Mathematics

Name **:** **Hamdy Ibrahim Abdel-Gawad**

Title **:** A model for a finite memory transport in the Fisher equation

***Authors*:** Khaled Mmohamed Saad

Published In **:** Applied Mathematical Modelling

ISSN 0307 - 904X ***Impact Factor*** 0.572

Abstract :

A model for a finite memory effect in the Fisher equation had been presented by Cattaneo [Acad. Sci. 247 (1958) 431]. By this model the type of the governing equation is transformed from a parabolic type to a hyperbolic one. But the Cattaneo's equation does not reduce to the logistic equation in the homogeneous regime. A new model is presented which conserves the parabolic generic equation as well as the reduction property. Memory effects are visualized in the two models through numerical computations of solutions.

Keywords:

Finite memory effect; A new model; Cattaneo's model; Numerical computations; Exact solutions.

Faculty of Science

Dep. **:** Mathematics

Name **:** **Mohamed Zeidan Abd-Alla**

Title **:** Conjugacy criteria for the half-linear second order differential equation

Authors**:** M. Z. Abd-Alla and M. H. Abu-Risha

Published In **:** Rocky Mountain, Journal of Mathematics

ISSN 0035 - 7596 ***Impact Factor*** 0.267

Abstract :

In this paper, some conjugacy criteria for the half-linear second order differential equation

$$\left(|y'(t)|^{p-1}\operatorname{sgn} y'(t)\right)' + c(t)|y(t)|^{p-1}\operatorname{sgn} y(t) = 0 \ , \ p > 1$$

are obtained.

Keywords:

Half-linear; Second order differential equation; Conjugacy.

Faculty of Science

Dep. **:** Mathematics

Name **:** **Alaa E. Hamza**

Title **:** On the recursive sequence $x_{n+1}=\dfrac{A\prod_{i=l}^{k}x_{n-2i-1}}{B+C\prod_{i=l}^{k-1}x_{n-2i}}$

***Authors*:** Alaa E. Hamza, R. Khalaf-Allah

Published In **:** Computers and Mathematics with Applications

ISSN 0898 - 1221 ***Impact Factor*** 0.720

Abstract :

The aim of this work is to investigate the global stability, periodic nature, oscillation and the boundedness of solutions of the difference equation

$$x_{n+1}=\frac{A\prod_{i=l}^{k}x_{n-2i-1}}{B+C\prod_{i=l}^{k-1}x_{n-2i}},\ n=0,1,\ldots,$$

where A, B, C are nonnegative real numbers and l, k are nonnegative integers, l < k. We discuss the existence of unbounded solutions under certain conditions when l = 0.

Keywords:

Difference equation; Periodic solution; Globally asymptotically stable.

Faculty of Science

Dep. **:** Mathematics

Name **:** **Alaa E. Hamza**

Title **:** Attractivity of the recursive sequence $x_{n+1} = (\alpha - \beta x_n) F(x_{n-1}, ..., x_{n-k})$

***Authors*:** Alaa E. Hamza, S. G. Barbar

Published In **:** Mathematical and Computer Modelling

ISSN 0895 - 7177 ***Impact Factor*** 0.527

Abstract :

In this paper we investigate the global attractivity of the recursive sequence

$x_{n+1} = (\alpha - \beta x_n) F(x_{n-1}, ..., x_{n-k})$ n=0, 1, 2,….

Where α, β are non-negative. We show that the unique positive equilibrium point of the equation is a global attractor with some basin. We apply this result to the rational recursive sequence

$$x_{n+1} = \frac{\alpha - \beta x_n}{\gamma + \sum_{i=1}^{k} a_i x_{n-i} + \sum_{i=1}^{k} b_i x_{n-i}^2}, \quad n = 0,1,....$$

Where a, β, a_j, $b_i \geq$ O and $\gamma > 0$, prove that the positive equilibrium point of the equation is global attractor with a basin that depends on certain conditions posed on the coefficients.

Keywords :

Difference equations; Stability; Attractivity.

Faculty of Science

Dep. **:** Mathematics

Name **:** **Mohamed.Atef Helal**

Title **:** Tsunamis from nature to physics

***Authors*:** M.A. Helal, M.S. Mehanna

Published In **:** Chaos, Solitons and Fractals

ISSN 0960 - 0779 ***Impact Factor*** 3.025

Abstract :

Tsunamis are gravity waves that propagate near the ocean surface. They belong to the same family as common sea waves that we enjoy at the beach; however, tsunamis are distinct in their mode of generation and in their characteristic period, wavelength, and velocity. The type of tsunamis that induce widespread damage number about one or two per decade. Thus ‘‘killer tsunamis’’ although fearful, are a relatively rare phenomenon.

Faculty of Science

Dep. **:** Mathematics

Name **:** **Nasser. H. Sweilam**

Title **:** Homotopy Perturbation Method For Multi-Dimensional Nonlinear Coupled System Of Parabolic And Hyperbolic Equations

Authors**:** N. H. Sweilam1 , M. M. Khader and R. F. Al-Bar

Published In **:** Topological Methods in Nonlinear Analysis

ISSN 1230 - 3429 ***Impact Factor*** 0.5

Abstract :

In this paper, the homotopy perturbation method (HPM) proposed by J. H. He is adopted for solving multi-dimensional nonlinear coupled system of parabolic and hyperbolic equations. The numerical results of the present method are compared with the exact solution of an artificial multi-dimensional nonlinear coupled system of parabolic and hyperbolic model to show the efficiency of the method. Moreover, comparison is made between the results obtained by the present method and that obtained by the Adomian decomposition method (ADM). It is found that the present method works extremely well, very efficient, simple and convenient.

Keywords:

Coupled system of parabolic and hyperbolic equations; Homotopy perturbation method.

Faculty of Science

Dep. **:** Mathematics

Name **:** **Nasser. H. Sweilam**

Title **:** Nonlinear Focusing Manakov Systems by Variational Iteration Method and Adomian Decomposition Method

Authors**:** N. H. Sweilam , M. M. Khader and R. F. Al-Bar

Published In **:** Physics: Conference Series

ISSN 1742 - 6596 ***Impact Factor***

Abstract :

In this paper, the variational iteration method (VIM) and the Adomian decomposition method (ADM) are applied to solve numerically the focusing Manakov systems of coupled nonlinear Schrödinger equations. The accuracy of the methods are verified by ensuring that the conserved quantities remain almost constant. The results show that VIM is much easier, more convenient, more stable and efficient than ADM.

Faculty of Science

Dep. **:** Mathematics

Name **:** **Nasser. H. Sweilam**

Title **:** Homotopy Perturbation Method for Linear and Nonlinear System of Fractional Integro-Differential Equations

Authors**:** N. H. Sweilam , M. M. Khader and R. F. Al-Bar

Published In **:** Computational Mathematics and Numerical Simulation

ISSN 0973 - 581X ***Impact Factor***

Abstract :

The homotopy perturbation method (HPM) is applied for approximating the solution of linear and nonlinear system of fractional integro differential equations where the fractional derivative is consider in the Caputo sense. The numerical results of the HPM are compared with the exact solution of some integro-differential equations systems to show the efficiency of the methods. The results reveal that the proposed method works extremely well, simple and very efficient for obtaining approximate solutions of of linear and nonlinear system of fractional Integro- differential equations.

Keywords:

Nonlinear system of fractional integro-differential equations; Homotopy perturbation method.

Faculty of Science

Dep. **:** Mathematics

Name **:** **Nasser. H. Sweilam**

Title **:** Numerical Studies for one-dimensional Nonlinear Coupled System of Parabolic and Hyperbolic Equations

Authors**:** N. H. Sweilam and Al-Lawatia M

Published In **:** Computational Mathematics and Numerical Simulation

ISSN 0973 - 581X ***Impact Factor***

Abstract :

The homotopy perturbation method (HPM) proposed by Ji-Huan He, and the Adomian's decomposition method (ADM) for one-dimensional nonlinear coupled system of parabolic and hyperbolic equations are studied. The numerical results obtained by these methods have been compared with the exact solution of an artificial example to show the efficiency of the methods. The numerical results show that the He's (HPM) is preferable method because it is very effective and simple for obtaining approximate solutions of nonlinear system of partial differential equations.

Keywords:

Homotopy perturbation method; Adomians decomposition, method; Nonlinear coupled system in thermoelasticity.

Faculty of Science

Dep. **:** Mathematics

Name **:** **Nasser. H. Sweilam**

Title **:** Multi-Dimensional Nonlinear Coupled System of Parabolic and Hyperbolic Equations by Variational Iteration Method and Adomian's method

Authors**:** N. H. Sweilam

Published In **:** Computational maths,& Numerical Sim

ISSN 0973 - 581X ***Impact Factor***

Abstract :

This paper applies the variational iteration method (VIM), modified variational iteration method (MVIM) and Adomian's decomposition method (ADM) to solve numerically multi-dimensional nonlinear coupled systems of parabolic and hyperbolic partial differential equations. The numerical results obtained by these methods have been compared with the exact solution of a parabolic- hyperbolic artificial model to show the efficiency of the methods. It is found that these three methods are powerful mathematical tools for solving multi-dimensional nonlinear coupled systems of parabolic and hyperbolic equations. The relative higher accuracy is obtained by using VIM and MVIM. .

Keywords:

Nonlinear Coupled Systems; Variational iteration Method; Variational iteration Method; Adomian's decomposition method.

Faculty of Science

Dep. **:** Physics

Name **:** **S.A. Gaafar**

Title **:** γ-Irradiation effects on the thermal and optical properties of undoped and eosin doped 70/30 (wt/wt%) PVA/glycogen films

***Authors*:** F.H. Abd El-kader, S.A. Gaafar, K.H. Mahmoud, S.I. Bannan and M.F.H. Abd El-kader

Published In **:** Current Applied Physics

ISSN 1567 - 1739 ***Impact Factor*** 1.291

Abstract :

Differential scanning calorimetry (DSC), thermogravimetry analysis (TGA), UV/visible spectra and colour detection of pristine and γ- irradiated undoped and eosin-doped 70/30 (wt/wt%) PVA/glycogen has been measured. The kinetic parameters such as the activation energy, entropy, enthalpy and free energy for all investigated samples were determined using Coats–Redfern relation. The shift of T_g position towards lower temperatures with increasing γ-doses reflect that the degradation process is the predominant one. The values of absorbance and optical parameters in UV/visible range for γ-irradiated blend sample doped with eosin showed no significant variation with increasing γ-doses. This reflects that the addition of eosin to 70/30 (wt/wt%) PVA/glycogen makes it more resistant to γ-radiolysis. The calculated colour parameters such as L*, U*, V*, C*, hue and Y_e were found to be dependent on addition of eosin and γ-irradiation.

Keywords:

PVA/glycogen; γ-Irradiation; Thermal properties; Optical parameters; Colour detection.

Faculty of Science

Dep. **:** Physics

Name **:** **S.A. Gaafar**

Title **:** Effect of the composition ratio, Eosin Addition, and ? Irradaition on The dielectric. Properties of poly (vinyl Alcohol)/ Glycogen Blends.

***Authors*:** F . H. Abd El-Kader, S. A. Gaafer, K. H. Mahmoud, S. I. Bannan, M. F. H. Abd El-Kader

Published In **:** Applied polymer Science

ISSN 1097-4628 ***Impact Factor*** 1.29

Abstract :

The dielectric relaxation spectra of various poly(vinyl alcohol) (PVC)/ glycogen blends and irradiated blend samples with 70 wt %PVC content that were undoped and doped with eosin were measured in extended temperature (30-160 °C) and frequency (1 KHz to 1 MHz) ranges. Dielectric relaxation spectroscopy separates different molecular groups of a repeating unit of a polymer with respect to the rate of its orientation dynamics. In the high- temperature range (> 100 °C), the σ relaxation, which is associated with the hopping motion of ions in the disordered structure of the biopolymeric material,can be measured. The electric dipole moment and the activation energy of the glass-transition temperature relaxation process were calculated.

Keywords :

Activation energy; amorphous; barrier; biomaterials; blending.

Faculty of Science

Dep. **:** Physics

Name **:** **Ehab.H. Esmael**

Title **:** Single Folding Analysis of the Elastic Scattering of p-^{16}O

Authors**:** E.H. Esmael, M.A. Allam

Published In **:** Acta Physica Polonica B

ISSN 1509 - 5770 ***Impact Factor*** 0.664

Abstract :

The elastic scattering of p-^{16}O data at different proton incident energies have been analyzed using single-folding model. In the present calculations analytical expressions for the real part of the optical potential are derived by folding different sets of nucleon--nucleon (NN) interactions to different forms of densities of the target nucleus. The theoretical calculations of the differential cross sections as well as analyzing power gave a reasonable fit to that of the experimental data.

Faculty of Science

Dep. **:** Physics

Name **:** **Th.M. El-Sherbini**

Title **:** Laser gain by electron collisional pumping of Ar VII– V XII

Authors**:** M.E. Yahia, I.M. Azzouz, S.H. Allam, Th.M. El-Sherbini

Published In **:** Optics & Laser Technology

ISSN 0030 - 3992 ***Impact Factor*** 0.872

Abstract :

Gain coefficients have been calculated for transitions of singlet levels *n*s–*n*p of orbital $n = 4$ and $n = 5$ in magnesium-like ions with atomic numbers Z ¼ 18, 19, 20, 21, 22 and 23. Population inversions for 4p and 5p levels in these ions were also calculated, via electron collisional excitation, for electron temperature range of 93–231 eV and electron density range of $10^{16}10^{17}cm^{-3}$. Under these plasma conditions, the maximum gain that occurred for 4s– 4p transition was at electron temperature of ~231 eV and electron density of $\sim 4x10^{17}cm^{-3}$. Scaling of the maximum gain coefficients with atomic number Z and the plasma parameters is also presented.

Keywords:

Laser gain coefficients; Configuration interaction; Oscillator strength.

Faculty of Science

Dep. **:** Physics

Name **:** **Sami Allam**

Title **:** Joint Experiments on X-ray / Particle Emission from Plasmas Produced by Laser Irradiating Nano Structured Targets

Authors**:** Rafie H. Abu-Eittah, Adel A. Mohamed, Ahmad M. Farag, Ahmed M. Al Omar

Published In **:** American Institute of Physics

ISSN 0094 - 243X ***Impact Factor***

Abstract :

The 1st Joint (Host Laboratory) Experiment on laser plasma involving more than twenty scientists from eight countries has been carried out at the Laser and New Materials Laboratory, Faculty of Science, Cairo University, Egypt. It was co-ordinated by the International Atomic Energy Agency (IAEA) and supported through the IAEA and the ICTP (International Centre for Theoretical Physics, Trieste). The main experimental programme was aimed at characterising the possible enhancement of x-ray and particle emission from plasmas produced by laser incidence on nano-structured targets. Laser beams at 1.064 ?m of 250 mJ and 532 nm of 165 mJ focused at the target surface using a nanosecond laser type Quantel were used in the present study. In the present experiments nano-copper structures evaporated onto copper bulk disks and nano-gold structures evaporated onto gold ones were used. The thickness of the nano-materials on their bulk material was 1 μm. An ion collector and x-ray semiconductor diode were used to study the ion and x-ray emission, respectively. Both were positioned at the same port at 90^{o} with respect to the target surface and at 90 cm from the surface in the case of the ion collector and 55 cm in the case of the x-ray detector.

These experiments were performed at vacuum pressures of (5 - 8) x 10^{-6} mbar. Comparison of both studies in the case of nano structured targets and bulk targets were performed at different laser fluencies (1x 10^{9} – 1x10^{12} W/cm^{2}) on the target. A 20% increase of the X-ray emission for nano gold with respect to bulk gold was observed, however, the x-ray emission in the of nano copper and copper was the same.

Keywords:

Enhancement of x-rays; Partical emission; Au and Cu - nano targets.

Faculty of Science

Dep. **:** Physics

Name **:** **Sami Allam**

Title **:** The influence of tilt angle on the CMR in $Sm_{0.6}Sr_{0.4}MnO_3$

***Authors*:** I.A. Abdel-Latif, , A. Hassen, C. Zybill, M. Abdel-Hafiez, S. Allam, Th. El-Sherbini

Published In **:** Alloys and Compounds

ISSN 0925 - 8388 ***Impact Factor*** 1.455

Abstract :

In the present work, the structural and transport properties of $Sm_{0.6}Sr_{0.4}MnO_3$ polycrystalline sample were investigated. The sample was prepared using solid-state reaction technique. X-ray diffraction (XRD) showed a single-phase sample. The dc resistivity and magnetoresistance (MR) were measured, in the temperature range from 40K up to 300 K, using a cryogenic system capable of applying a magnetic field up to 5 T. A transition at Tp ~ 89K was observed. This transition is shifted towards higher temperatures under the effect of applied magnetic field. At low temperature, T~70 K, positive colossal magnetoresistance CMR values of 97% at magnetic field 2 T was observed and reached 99.7% at 5 T.

Keywords:

Structure; Tilt; Manganites; Colossal magnetoresistance.

Faculty of Science

Dep. **:** Physics

Name **:** **Samir Soliman Hamza**

Title **:** Elastic Behavioer of NR/ IIR Rubber Blend Loaded with Different Copmatibilizers

Authors**:** S. S. Hamza; S. E1-sabbagh; F. Shokr

Published In **:** Polymeric Materials

ISSN 0091 - 4037 ***Impact Factor***

Abstract :

The effect of the addition of different co7npatibiiizers such as bromobutyl rubber (BIIR) and ,naleic anhydride (MA) on the elastic behavuir of natural rubber/So tyl butyl rubber (NP/fIR) blend has been studied by carrying out equilibrium stress- train measurements for these blends. Franz the stress-strain curves, Young's modulus was found to have a maximum value at around Sphr of BliP and two m,axiroa were observed at 2 and 22.5 phr of maleic aahydride. The modified Mooney-Riolin equation was used to calculate the parameters C, and C2. The Song et al. model was tested here to fit the stress-strain curves at both small and large strain, which is capable of accurately describing the mechanical behavior of these blends.

Keywords:

Bromobutyl; Compatibilisers; Znaleic anhydnde; Natural and botyl rubber; Rubber blend.

Faculty of Science

Dep. **:** Physics

Name **:** **A. Abdelsalam**

Title **:** Fragmentation Patterns Of Argon At 1a And 2a Gev In Collisions With Emulsion

Authors**:** M. S. El-Nagdy, A. Abdelsalam, E. A. Shaat, B. M. Badawy, E. M. Khashaba

Published In **:** Rom. Journ. Phys

ISSN 1221 - 146X ***Impact Factor***

Abstract :

This paper combines the results due to interactions of ^{40}Ar at two energies 1A and 1.88A GeV in emulsion targets. We discuss and identify the projectile fragments with charge $2 \leq Z \leq 18$. The identification of projectile fragments is based on two measuring methods ? -ray and gap density. The charges tend to appear in groups Z(2–8), (9–13) and $Z \geq 14$ with a positive long-range correlation. A polynomial function form describes well the δ- ray multiplicity distributions correlating the twoused ^{40}Ar beams with each other. A correlation between the average values of δ- ray and gap densities is depicted. We can correlate the values of δ- ray density per fragment and the corresponding gap densities with the fragment charge

Keywords:

Argon projectile; Projectile fragmentation; δ-ray and gap density; Charge determination.

Faculty of Science

Dep. **:** Physics

Name **:** **Fawzy H. Abd El-kader**

Title **:** Dielectric investigations and ac conductivity of polyvinyl alcohol films doped with europium and terbium chloride

Authors**:** F.H. Abd El-kader, W.H. Osman, K.H. Mahmoud, M.A.F. Basha

Published In **:** Physica B

ISSN 0921 - 4526 ***Impact Factor*** 0.761

Abstract :

Differential scanning calorimetry (DSC) was used to identify the phase transitions of polyvinyl alcohol (PVA) doped with europium chloride ($EuCl_3$) and terbium chloride ($TbCl_3$). The dielectric constant and the loss tangent behavior of the investigated samples were studied as a function of temperature in the frequency range 1–100 kHz. The detailed analysis of the results showed that dielectric dispersion consists of both dipolar and interfacial polarization. The temperature coefficient of permittivity (TCP) and the electrical dipole moment (μ) were calculated. Also, the activation energy for the glass relaxation process from the dielectric loss tangent measurements was calculated. Measurements of the ac conductivity as a function of frequency at different temperatures indicated that the correlated barrier hopping (CBH) model is the most suitable mechanism for the ac conduction behavior. The ac parameters, such as hopping distance (R, R_{min}), polaron binding energy ($^{U}_{M}$) and Coulombic barrier height ($^{U}_{h}$) were calculated.

Keywords:

Differential scanning calorimetry; Dielectric constant; Dipole moment; Hopping distance; Europium chloride Terbium chloride.

Faculty of Science

Dep. **:** Physics

Name **:** **Fawzt H. Abd El-kader**

Title **:** Transient and Steady State Currents of ?-Irradiated 70/30 (Wt/Wt.%) Polyvinyl Alcohol/Glycogen Blend Samples Undoped and Doped With Eosin

Authors**:** F.H. Abd El-kader, S.A. Gaafer, K.H. Mahmoud, S.I. Mohamed, M.F.H. Abd El-kader

Published In **:** Solid State Ionics

ISSN 0167 – 2738 ***Impact Factor*** 2.02

Abstract :

The transient currents, I–V characteristics and dc electrical conductivity of 70/30 (wt/wt.%) polyvinyl alcohol (PVA)/glycogen undoped and doped with eosin films have been studied under different conditions before and after irradiation by γ-doses in the range 5–100 kGy. The conduction mechanisms operative in the films at different temperature and γ-irradiation ranges are estimated from the behaviour of Log I versus $V^{1/2}$ plots. The results show that both temperature and γ-irradiation affects the type of electronic transport mechanism for undoped blend sample. On doping with eosin, there is only considerable influence on the type of conduction with varying temperature but γ-doses have no significant effect. The dc conductivity for blend sample doped with eosin is found to increase by 1–2 orders of magnitude compared to the undoped sample at both different temperatures and γ-doses. The values of mobility and charge carrier concentration for all samples under investigation were found to vary from (0.26–2.22)×$10^{-4}$$m^2V?^{-1}$ s^{-1} and (0.52–76.20)×10^{24} m^{-3} respectively.

Keywords:

Charge transport; Dc conductivity; Activation energy; PVA/glycogen films Mobility.

Faculty of Science

Dep. **:** Physics

Name **:** **Mohamed M. Abdel-Kader**

Title **:** High-Temperature Phase Transitions in the Improper Ferroelectric KIO_3

***Authors*:** M. M. Abdel-Kader, F. El-Kabbany, H. Naguib And W. M. Gamal

Published In **:** Phase Transition

ISSN 0141 - 1594 ***Impact Factor*** 0.865

Abstract :

The ac conductivity ($^{\sigma}$ac) and dielectric permittivity (ε) are determined in the temperature range 300K<T<520K at some selected frequencies (0.5–10 kHz) for the polycrystalline samples of KIO_3 compound. The results indicated that the compound behaves as an improper ferroelectric and undergoes a ferroelectric phase transition from a high temperature rhombohedral phase I to a low temperature monoclinic phase II at Tc=(486±1) K. A second structural phase transition was observed around 345 K. The conductivity varies with temperature range and for T> 428K intrinsic conduction prevails. Different activation energies in the different temperature regions were calculated. The frequency dependence of σ (ω) was found to follow the universal dynamic response [$\sigma(\omega) \propto (\omega)^{s(T)}$]. The thermal behaviour of the frequency exponent s(T) suggests the hopping over the barrier model rather than the quantum mechanical tunneling model for the conduction mechanism.

Keywords:

Improper ferroelectrics; Electric permittivity; Electric conductivity; Phase transition; KIO_3

Faculty of Science

Dep. **:** Physics

Name **:** **Mohamed M. Abdel-Kader**

Title **:** Proton conductivity and ferroelectric phase transition in hydrogen-bonded ferroelectric NH4IO3

Authors**:** M. M. Abdel-Kader, F. El-Kabbany, H. Naguib And W. M. Gamal

Published In **:** Phase Transition

ISSN 0141 - 1594 ***Impact Factor*** 0.865

Abstract :

We report on the ac dielectric permittivity (ε) and the electric conductivity ($^{\sigma}{}_{\omega}$), as function of the temperature 300K<T< 400K and frequency 0.5–100 kHz for polycrystalline samples of hydrogen-bonded ferroelectric ammonium iodate, NH_4IO_3. The main feature of our measured parameters is that, the compound undergoes a ferroelectric phase transition of an improper character, at (368±1)K from a high temperature paraelectric phase I ($Pm2_1b$) to a low temperature ferroelectric phase II (Pc21n). The electric conduction seems to be protonic. The frequency dependent conductivity has a linear response following the universal power law ($\sigma(_{\omega})=A(T)_{\omega}^{s(T)}$). The temperature dependence of the frequency exponent s suggests the existence of two types of conduction mechanisms.

Keywords:

Phase transition; Ammonium iodate, NH_4IO_3; Proton conductivity; Improper ferroelectric.

Faculty of Science

Dep. **:** Physics

Name **:** **Mohamed Y. H. Farag**

Title **:** Nucleus–nucleus reaction cross sections for deformed nuclei

Authors**:** M Y M Hassan1, M Y H Farag1, A Y Abul-Magd2 and T E I Nassar

Published In **:** Physica Scripta

ISSN 0031 - 8949 ***Impact Factor*** 0.946

Abstract :

Reaction cross sections are calculated using the Coulomb-modified Glauber model for deformed target nuclei. The deformed nuclear matter density of the target is expanded into multipoles of order k=0, 2, 4. The reaction cross sections for $^{12}C+^{27}Al$, $^{20}Ne+^{27}Al$, $^{12}C+^{64}Zn$, $^{12}C+^{90}Zr$, $^{40}Ar+^{238}U$ and $^{20}Ne+^{235}U$ are studied at energy range (10–1000 MeV nucleon^{-1}). The most significant effects in the intermediate energy range are the Coulomb field and in-medium effects that modified the trajectory of the incident beams. Introducing the deformation effect beside the Coulomb field and in-medium effects improves the agreement with the experimental data and two empirical parameterizations in the case of not finding experimental data. Moreover, it is shown that the enhancement of the reaction cross sections is attributed to fixed orientation in deformed nuclei.

Keywords:

PACS numbers: 24.10.Ht; 21.10.−k, 25.70.Bc; 24.10.−i, 21.30.Fe.

Faculty of Science

Dep. **:** Physics

Name **:** **Mohga F. Mostafa**

Title **:** Synthesis, structure and electric studies for $La_0.7A_0.3Mn_{0.96}$ ($InxAl_{(1\_x)}$)$_{0.04}$ O3; A = Ca and Sr perovskites

Authors**:** M.F. Mostafa, S.S. Ata-Allah and H.S. Refai

Published In **:** Solid State Chemistry

ISSN 0022 - 4596 ***Impact Factor*** 2.149

Abstract :

Two polycrystalline series of samples in the form $La_{0.7}A_{0.3}Mn_{0.96}$ ($InxAl_{(1-x)}$)$_{0.04}O_3$; A = Ca and Sr with ($0.0 \leq x \leq 1.0$) were synthesized using solid-state reaction. Rietveld analysis of the X-ray powder diffraction showed that, the Ca-series has an orthorhombic unit cell (space group Pnma) and the Sr-series is rhombohedral with (space group $R^{-}3C$). Structural parameters (refined lattice parameters, atom positions, bond distance, bond angles, valence sum, valence bond, bond lengths and bond angles) are reported and discussed as a function of In content for the two series. Resistivity measurements in zero field are carried out in the range 50–300 K for the Ca-series and in the range 300–400 K for the Sr-series. The obtained transition temperature T_p at which the metal-semiconducting (MS) occurred, is discussed as a function of the compositional parameter *x* .

Keywords:

Perovskite; Structure parameters; Bond valance; Bond angles; Bond distance; SEM; Metal–semiconductor transition.

Faculty of Science

Dep. **:** Physics

Name **:** **Mohga F. Mostafa**

Title **:** Electric and AC magnetic investigation of the manganites $La_{0.7}$ $Ca_{0.3}$ $Mn_{0.96}In_{0.04}xAl$ $(1-x)_{0.04}O3$; $(0.0 \leq x \leq 1.0)$

Authors**:** M.F. Mostafaa, S.S. Ata-Allahb, , A.A.A. Youssefa, H.S. Refaib

Published In **:** Magnetism and Magnetic Materials

ISSN 0304 - 8853 ***Impact Factor*** 1.704

Abstract :

The (Al and In) doped La–Ca manganites $La_{0.7}$ $Ca_{0.3}$ $Mn_{0.96}(InxAl_{(1-x)})_{0.04}O_3$ with $(0.0 \leq x \leq 1.0)$ were prepared. Structure investigation with X-ray diffraction demonstrates that the doped samples are single perovskite phase with orthorhombic unit cell. Lattice parameters and cell volume were found to increase with increasing In content. The effect of In doping on the IR spectra was discussed. Resistivity measurements carried out in the range 50–300 K for the present series reveal semiconducting behavior at high temperature. As temperature decreased, semiconductor-to-metal (SM) transition occurred at T_p. This transition shows a strong In content dependence. AC magnetic susceptibility as function of frequency and temperature in the range of 80–300 K for the present doped manganites is reported. Ferromagnetic-to-paramagnetic transition at T_c in the range 80–300 K is observed. The effect of applying small DC magnetic field along with the small AC field is found to affect the AC losses. The determined transition temperature is found to decrease as In content increases.

Keywords:

Perovskite manganite; SEM; Electrical resistivity; Semiconducting-to-metallic transition; AC susceptibility

Faculty of Science

Dep. **:** Science

Name **:** **Fathy Abdel-Aty Abdel-Ghaffar**

Title **:** Five new myxosporean species (Myxozoa: Myxosporea) infecting the Nile tilapia Oreochromis niloticus in Bahr Shbein, Nil Tributary, Nile Delta, Egypt

Authors**:** F. Abdel-Ghaffar, A. El-Toukhy, S. Al-Quraishy, K. Al-Rasheid, A. S. Abdel-Baki, A. Hegazy and A.-R. Bashtar

Published In **:** Parasitol. Res

ISSN 0932 - 0113 ***Impact Factor*** 1.512

Abstract :

Five new myxosporean species belonging to three different genera were described from the Nile tilapia Oreochromis niloticus in Bahr Shebin, Nile Tributary, Nile Delta, Egypt. These species are: Zschokkella nilei sp. n., Ortholinea africanus sp. n., Triangula egyptica sp. n., Myxobolus fomenai sp. n., and Myxobolus branchiophilus sp. n. Morphometry, light microscopy, and hand drawing of mature spores and plasmodia were presented for each species.

Keywords:

Myxosporea; Oreochromis niloticus; Bahr Shebin; Nile.

Faculty of Science

Dep. **:** Zoology

Name **:** **Fathy Abdel-Aty Abdel-Ghaffar**

Title **:** Light and electron microscopic study on Henneguya suprabranchiae Landsberg, 1987 (Myxozoa: Myxosporea) infecting Oreochromis niloticus, a new host record

***Authors*:** Fathy Abdel-Ghaffar & Abdel-Azeem Sh. Abdel-Baki - Elsayed M. Bayoumy and Abdel-Rahman Bashtar - Saleh

Published In **:** Parasitol. Res.

ISSN 0932 - 0113 ***Impact Factor*** 1.512

Abstract :

Out of 58 live tilapia fish, five Oreochromis niloticus were found to be naturally infected with Henneguya suprabranchiae (8.62%). Such infection was recorded only during winter season from Bahr Shebin, a tributary of the River Nile at Menoufia Governorate, Nile Delta, Egypt. Based on the structure and measurements of fresh spores, this parasite was identified as H. suprabranchiae. Spores are oval in shape and they measure 15 (13–16)×5 (4–6) ?m length by width. It has two polar capsules inside and they measure 4 (5–7)×1 (2–3) ?m length by width. Each polar capsule has spirally coiled (7–9 turns) polar filament. The plasmodia as well as all other parasitic stages were described using light and transmission electron microscopy and discussed regarding to those of other fish hosts especially those of Africa.

Keywords:

Henneguya suprabranchiae; Oreochromis niloticus; Light and electron microscopy.

Faculty of Science

Dep. **:** Zoology

Name **:** **Abdel-Rahman Mohamed El-Sayed Bashtar**

Title **:** Light and electron microscopic studies on Kudoa pagrusi sp. n. (Myxosporea: Multivalvulida) infecting the heart of sea bream Pagrus pagrus (L.) from the Red Sea

***Authors*:** S. Al Quraishy - E. Koura - A. S. Abdel-Baki - A.-R. Bashtar - N. El Deed - K. Al Rasheid - F. Abdel

Published In **:** Parasitol. Res

ISSN 0932 - 0113 ***Impact Factor*** 1.512

Abstract :

A new multivalvulid species, Kudoa pagrusi sp. n., was described from the sea bream Pagrus pagrus. The cysts were oval to ellipsoidal and restricted to the cardiac muscles. The mean spore measurements were 7.0 ?m in length and 6.4 ?m in width as well as in thickness, while the mean polar capsule measurements were 3.7 ?m in length and 1.5 ?m in width. The ultrastructural features of the present species proved that the spore have four polar capsules with four shell valves that are the main criteria for genus Kudoa.

Keywords:

Multivalvulida; Kudoa pagrusi n.sp; Pagrus pagrus; Red Sea

Faculty of Science

Dep. **:** Zoology

Name **:** **Abdel-Rahman Mohamed El-Sayed Bashtar**

Title **:** Zschokkella helmii n. sp. (Myxozoa: Myxosporea), a new parasite of marbled spinefoot Siganus rivulatus (Forsskal 1775), Red Sea, Egypt: light and transmission electron microscopy

Authors**:** F. Abdel-Ghaffar - M. A. Ali, S. Al Quraishy, R. Entzeroth, A. S. Abdel-Baki - S. Al Farraj – A and R. Bashtar

Published In **:** Parasitol. Res

ISSN 0932 - 0113 ***Impact Factor*** 1.512

Abstract :

Zschokkella helmii n. sp., a new parasite of Siganus rivulatus from the Red Sea, Egypt, was described using light and transmission electron microscopy. However, the infection was severe; single “histozoic” plasmodium was encountered in the gallbladder wall. Spores are ellipsoid with 9–11 valvar striations. Spore mean length is 10.8 ?m (10.0–11.0), while the spore mean width is 7.5 ?m (7.0–8.0). Polar capsules are nearly round with a diameter of 2.2 µm (2.0–3.0) and have five filaments. Ultrastructure of the plasmodial wall and sporogenesis of the present species followed the usual pattern valid for most studied myxosporean species.

Keywords:

Zschokkella helmii n. sp; Siganus siganus rivulatus; Red Sea; Light and electron microscopy.

Faculty of Science

Dep. **:** Zoology

Name **:** **Fathy Abdel-Aty Abdel-Ghaffar**

Title **:** Four new species of Ceratomyxa Thelohan 1892 (Myxozoa: Myxosporea: Ceratomyxidae) infecting the gallbladder of some Red Sea fishes

***Authors*:** F. Abdel-Ghaffar & M. A. Ali & S. Al Quraishy & K. Al Rasheid & S. Al Farraj & A. S. Abdel-Baki & A.-R. Bashtar

Published In **:** Parasitol Res

ISSN 0932-0113 ***Impact Factor*** 1.512

Abstract :

Four new Ceratomyxa species were described from the gallbladder of four Red Sea fishes at Suez and Hurghada, Egypt. These species are Ceratomyxa bassoni sp. n. from Plectorhinchus gaterinus (Forsskal 1775) at Suez and Hurghada, Ceratomyxa entzerothi sp. n. from Valamugil seheli (Forsskal 1775) at Suez and Hurghada, Ceratomyxa swaisi sp. n. from Saurida undosquamis (Richardson 1848) at Suez only and Ceratomyxa hurghadensis sp. n. from Fistularia commersonii Ruppell 1838 at Hurghada only. Their taxonomic affinities to other species are discussed.

Faculty of Science

Dep. **:** Chemistry

Name **:** **Abdou. O. Abdelhamid**

Title **:** Synthesis of Heterocyclic Containing Benzoxazole Moiety

Authors**:** A. O. Abdelhamid, V. B. Baghos, and M. M. A. Halim

Published In **:** Phosphorus, Sulfur, and Silicon

ISSN 1042-6507 ***Impact Factor*** 0.669

Abstract :

3-Aryl-2-benzoxazol-2-yl-2-[4-oxo-5-(phenylmethylene)(1,3-thiazolidin -2- ylidene)-ethanenitrile, 3-aminothiophenes, thiazoles and 2,3-dihydro-1,3,4-thiadiazoles were synthesized from 2-benzoxazol-2-yl-2(4-oxo-3-phenylthiadiazolidin-2- ylidene)-ethanenitrile and the appropriate of each of halo ketones and hydrazonoyl halides. The newly synthesized compounds were elucidated by elemental analysis, spectral data, and alternative synthetic route whenever possible. All these compounds expected to possess biological activity.

Keywords :

2,3-Dihydrothidiazoles 3-aminothiophenes; Hydrazonoyl halides; Thiazolidines.

Faculty of Veterinary Medicine

Faculty of Veterinary Medicine

Dep. **:** Animal Hygiene and Management

Name **:** **Zakia. A. Mohamed Ahmed**

Title **:** Multiple Environmental Stresses and Broiler Internal Organs Somatic Indices under Controlled Environment

Authors: Zakia. A. Mohamed Ahmed and Zahra H. El- Ghamdi

Published In : Poultry Science

ISSN 1682 - 8356 ***Impact Factor***

Abstract :

The current trial is designed to investigate the effect of multiple environmental stresses (Heat, ammonia exposures and stocking density) on broiler's organs somatic indices (SI) of liver, spleen and bursa fabricious under controlled environment (1-42 DO) during summer. Control birds: Bursa fabricus (Bf) index showed higher values from 1st - 3rd wks. The minimum values for spleen and Bf indices were at 5th week old. Food conversion rate (FCR) was 1.8±0.56. Indoor ambient temperature (Ta.°C) is positively correlated with liver index Heat stressed body temperature (Tb.°C) is increased and be indicative to early stress (1st 4 hours exposure to 41°C) but chronic stress enforced bird acclimation and decreased final B wt/g. Liver and spleen indices were decreased while Bf index increased.The dramatic effects of expected generated ammonia under field can be modulated by allowing recovery period for elimination, where here it accompanied with non significant increased Tb but decreased final B.wt and SI of liver and spleen except the increased Bf index. Stocking density decreased final B wt and increased Tb but not affected birds SI. Conclusively persistence of some stresses enforced birds to habituate especially when be mild, at noncritical early age (growth easily compensated), beside the controllable indoor climatic conditions in closed house during summer, all could alleviate the impact of intrinsic or extrinsic multiple stresses on broiler performance. The lymph organ (Bf) index was increased post heat and ammonia stress and not badly affected by stocking 17 bird/m².

Keywords:

Environmental stress; Somatic indices; Liver; Spleen; Ammonia stress.

Faculty of Veterinary Medicine

Dep. **:** Biochemistry and Molecular Biology

Name **:** **Mohamad Warda**

Title **:** Is human placenta proteoglycan remodeling involved in pre-eclampsia?

Authors: Mohamad Warda, Fuming Zhang, Moustafa Radwan, Zhenqing Zhang, Nari Kim, Young Nam Kim, Robert J. Linhardt and Jin Han

Published In : Glycoconj

ISSN 0282 - 0080 ***Impact Factor*** 1.602

Abstract :

Impaired placento-fetal communication is a coherent symptom of exaggerated pre-eclampsia. The impact of the cellular expression of different glycosa-minoglycans (GAGs) in this event on the placenta in pre-eclampsia is still obscure. This is the first study aimed at discovering the relationship between structural alterations of different sulfated GAGs at the molecular level and the development of pre-eclampsia in inflicted placenta. Sulfated GAGs were isolated and purified from control and pre-eclampsia placentas. The amount and the molecular weight of GAG in each tissue sample were measured. The polydispersity of the recovered GAG samples were determined by polyacry-lamide gel electrophoresis. The disaccharide composition of chondroitin sulfate, dermatan sulfate and heparan sulfate were deduced by chondroitinase and heparinase depolymerization followed by liquid chromatography–mass spectro-metry. The in vivo sulfo-modulation of GAGs in pre-eclampsia and control placenta were examined using RT-PCR to determine the transcription levels of different sulfotransferases involved in GAG biosynthesis. Marked differences in GAG sulfation patterns and mRNA level of encoding selected GAG *O*-sulfotran-sferases were observed in pre-eclampsia. These data suggest a linkage between pre-eclampsia and the observed alterations in placental GAGs and could provide new insights about the modulating role of GAGs in the development and the severity of placental pre-eclampsia.

Keywords:

Pre-eclampsia; Placenta; Proteoglycans; Glycosaminoglycans; Glycomics.

Faculty of Veterinary Medicine

Dep. **:** Clinical Pathology

Name **:** **Amira Hassan Mohamed**

Title **:** Maternal Blood and Milk Lead Concentrations Following Exposure During Pregnancy with Emphasis to its Residues in Tissues of Aborted Foeti of Goats.

Authors: Amira Hassan Mohamed

Published In : Asian Journal of Animal and Veterinary Advances

ISSN 1683 - 9919 ***Impact Factor***

Abstract :

The study was carried out on two equal (7) groups of baladi goats , the first was kept as control and the Second Received daily Oral Dose of 6.0 mg lead acetate 1 kg body weight From Early Stage of Pregnancy till abortion occurs around 14 week of Pregnancy in all Exposed animals . Blood Samples were Collected Every two Weeks from Pregnant animals for Plasma Progesterone Assay Also blood and Milk Samples were obtained Monthly for lead residue levels Tissues from aborted foeti including bone , Muscles , Kidney , liver and brain were analyzed for lead residues Results revealed a significant decling in progesterone levels from the beginning of the 6 th week of gestation until abortion occurs around the fourteen wee; of pregnancy Reproductive efficiency of animals after abortion revealed low pregnancy rate percentage and increase service interval period in addition maternal post – aborted lead levels in both Blood and Millk Showed a Significant elevation an increase in lead concentration in different organs noticed especially for femur bone , thigh muscle kidney and liver of aborted foeti .

Keywords:

Goat; Blood; Milk; Lead; Pregnancy; Aborterd foeti Tissues.

Faculty of Veterinary Medicine

Dep. **:** Clinical Pathology

Name **:** **Amira Hassan Mohamed**

Title **:** Effect of Oral Administration of Lead Acetate on Some Biochemical and Hormonal Parameters During Pregnancy in Baladi Goats.

Authors: Amal R. Abd El-Hameed, S.I.A. Shalaby, Amira H. Mohamed and H.A. Sabra

Published In : Global Veterinaria 2

ISSN 1992 - 6197 ***Impact Factor***

Abstract :

This study was carried out on 21 pregnant female Baladi goats reared at National Research Centre experimental farm. Animals were divided into three equal groups. First group kept as control, second group dosed 4.5 mg $kgG^{\bullet 1}$ b.w. lead acetate throughout pregnancy period and the third group dosed 6.0 mg $kgG^{\bullet 1}$ lead acetate /kg body wt. daily from beginning of pregnancy till abortion which occurs at the 14^{th} week of pregnancy. Blood samples were collected every two weeks for biochemical and hormonal analysis. Results revealed an increase in GGT, aminotransferases activities as well as in values of potassium, urea and creatinine. In addition, a decrease in total protein, albumin, globulin, calcium and zinc values in both exposed group animals. A decrease in plasma progesterone level in the third group during exposed period was noticed. Experimental goats didn't show any significant alteration in T_3 and T_4 hormone concentration throug-hout the experiment. It is concluded that exposure to lead even in small dose for a long period had an adverse effects on liver, kidney function and reproductive performance of animals.

Keywords:

Goats; Pregnancy; Liver; Kidney; Hormones.

Faculty of Veterinary Medicine

Dep. **:** Food Hygiene and Control

Name **:** **Fathi Abdel-Rahman Moussa El-Nawawi**

Title **:** Sensitivity and Specificity of various serological tests for the detection of Toxoplasma gondii infection in naturally infected sheep.

Authors: R. M. Shaapan, F. A. EL-Nawawi and M. A. A

Published In : Veterinary Parasitology

ISSN 0304 - 4017 ***Impact Factor*** 2.016

Abstract :

Comparative serological examination of 300 serum samples from sheep slaughtered in the main abattoir in Cairo, Egypt revealed a higher prevalence of toxoplasmosis (43.7 %) with the modified agglutination test (MAT), followed by the enzyme linked immune-sorbant assay (ELISA) (41.7 %) and the indirect fluorescent antibody test (IFAT) (37 %), while the lowest prevalence was detected with the dye test (DT) (34 %). When the data from the first three serological tests were compared with that of the DT test, which was used as a reference test for toxoplasmosis, MAT had the highest sensitivity (96 %), followed by ELISA (90.4 %) and IFAT, which demonstrated the lowest sensitivity (80.4 %). Conversely, IFAT had the highest specificity (91.4 %), followed by MAT (88.9 %) and ELISA (85.9%).

Keywords:

Toxoplasma gondii; Sheep; DT; ELISA; IFAT; MAT.

Faculty of Veterinary Medicine

Dep. **:** Food Hygiene and Control

Name **:** **Fathi Abdel-Rahman Moussa El-Nawawi**

Title **:** Sensitivity Methods for Inactivation of Toxoplasma gondii Cysts in Meat and Tissues of Experimentally Infected Sheep.

Authors: Fathi A. El-Nawawi, Mohamed A. Tawfik Rafaat M. Shaapan

Published In : Foodborne Pathogens and Disease

ISSN 1535 - 3141 ***Impact Factor*** 2.914

Abstract :

This study utilized infectivity bioassays in cats and mice to assess the efficacy of inactivation of Toxoplasma gondii cysts in experimentally infected sheep meat and tissues subjected to chilling, freezing, heating, microwave cooking, and gamma ray irradiation. Heating at 60°C or 100°C for 10 minutes, freezing at either – 10°C for 3 days or – 20°C for 2 days, or irradiation at doses of 75 or 100 k rad was sufficient to kill tissue cysts. Meanwhile, neither cooking in a microwave nor chilling at 5°C for 5 days was sufficient to kill tissue cysts.

Keywords:

Toxoplasma gondii; Infectivity bioassays in cats and mice; Experimentally infected sheep meat and tissues; Chilling; freezing; Heating; Microwave cooking; and gamma ray irradiation.

Faculty of Veterinary Medicine

Dep. **:** Internal Medicine and Animal Infectious Diseases

Name **:** **Amr Abdel-Aziz A. El-Sayed**

Title **:** Do camels (Camelus dromedarius) play an epidemiological role in the spread of Shiga Toxin producing Escherichia coli (STEC) infection?

Authors: Amr A. A. El-Sayed; Samia A. Ahmed and Waled S. Awad

Published In : Tropical Animal Health and Production

ISSN 0049 - 4747 ***Impact Factor*** 0.41

Abstract :

In the present work, faecal and serum samples from 400 camels were investigated for the presence of Shiga Toxin producing E.coli (STEC) and Anti-Shiga Toxin (Anti-Stx) antibodies, respectively. The used samples were obtained from adult male camels of five east African countries (Egypt, Somalia, Djibouti, Kenya and Sudan) between the years 2002– 2004. One E.coli isolate per camel was randomly selected to be cultured on Gassner, Chromocult and sorbit agar for the detection of O157:H7 strains. In the same time, a Stx-specific PCR screening was performed for the isolates using the shiga toxin specific primers Mk1-Mk2. Vero cells were also used for shiga toxin neutralization assay. None of the investigated isolates reacted positively with the Stx-specific primers. Also, none of the studied sera could neutralize the Stx on tissue culture. The obtained results indicate that camels do not play any significant epidemiological role in STEC infection and transmission. The possible reasons for the absence of STEC in the investigated samples are discussed in brief.

Keywords:

Camelus dromedarius; Djibouti; Egypt; Kenya; STEC; Somalia; Sudan.

Faculty of Veterinary Medicine

Dep. ***:*** Internal Medicine and Animal Infectious Diseases

Name ***:*** **Walid Sayed Ahmed Awad**

Title ***:*** Diagnosis and Treatment of Bovine, Ovine and Equine Dermatophilosis.

Authors: Awad, W.S., Nadra-Elwgoud, M.I. Abdou and El-Sayed, A.A

Published In : Applied Sciences Research

ISSN 1816 - 157X ***Impact Factor***

Abstract :

To investigate Dermatophilus congolensis infection in cattle, sheep and horses suffering from exudative dermatitis with trials for treatment. Thick scabs and skin scrapings were obtained from 17 beef cattle, 13 sheep and 8 horses. Bacteriolo-gical examination revealed D. congolensis infection with morbidity rates of 8.7%, 5.8% and 9.6%, respectively. The infection was associated with tick infestation in 76.5% of the infected cattle and with lice infestation in 23.1% of infected sheep. Treatment of bovine and ovine dermatophilosis using 2 doses of oxytetracycline /LA with one day apart revealed 85.7% and 100% cure rates, respectively, whereas using single dose of oxytetracycline /LA revealed 71.4% and 80% cure rates respectively. Topical application of povidone-iodine and parental injection of oxytetracycline revealed 100% and 66.7% cure rates, respectively for treatment of equine dermatophilosis.

Keywords :

Cattle; Sheep; Horse; D. congolensis; Dermatophilosis; Isolation and treatment.

Faculty of Veterinary Medicine

Dep. **:** Internal Medicine and Animal Infectious Diseases

Name **:** **Walid Sayed Ahmed Awad**

Title **:** Evaluation of Some Fasciola gigantica Antigens as Vaccines against Fasciolosis in Goats

Authors: Nabila S. Deghiedy, W.S. Awad, H.A. Shalaby, A.A. Ghazy and A.F. Abdel Hamid

Published In : Global Veterinaria

ISSN 1992 - 6197 ***Impact Factor***

Abstract :

Vaccine trials were conducted in goats evaluating the efficacy of three antigens of adult F. gigantica, as vaccines against fasciolosis. The antigens tested were crude worm, excretory-secretory material and glutathione S-transferase. Each antigen was emulsified in Freund's adjuvant. ELISA was used for monitoring of antibody levels in all immunized goats, before and after infection with 125F. gigantica metacercariae. All goats were slaughtered 14 weeks after challenge. The results indicated that the antibody titer was not elevated after challenge in all immunized goats. The highest reduction in eggs per gram faeces (EPG) and fluke burden was observed in goats immunized with purified GST antigen (90.7 and 66.1%, respectively). Besides, this purified antigen induced the highest effect in minimizing fluke size among the tested antigens. This protection level in goats supported the notion of variable effect of vaccination with trematode GST in various ruminant species. This was the first report of protective vaccination of goats against F. gigantica with purified GST antigen.

Keywords :

Fasciola gigantica; Vaccine; GST; Goats.

Faculty of Veterinary Medicine

Dep. **:** Microbiology

Name **:** **Jakeen Kamal Abdel-Haleem EI-Jakee**

Title **:** Pathological and Biochemical Studies in Tilapia nilotica Infected with Saprolegnia parasitica and Treated with Potassium Permanganate

Authors: Mona S. Zaki, Olfat M. Fawzi and Jakeen El-Jakee

Published In : American-Eurasian J. Agric. & Environ. Sci.

ISSN 1818 - 6769 ***Impact Factor***

Abstract :

The present study was planned to investigate the effect of Saprolegnia parasitica infection in the hematological, serum biochemical and pathological alterations of Tilapia nilotica. Forty five fish were divided into three equal groups. Fish of first group served as a control. Fish of groups (2&3) were infected by Saprolegnia parasitica. Fish of group (3) were treated after 7 days of post-infection using potassium permanganate for 10 days. Sampling was done after 1 and 7 days of post-infection (gps 1&2) and 10 days of post-treatment (gps 1&3). The results revealed a non significant changes in the hematological and the biochemical parameters after 1day of infection, but after 7 days of post- infection and 10 days of post treatment, a significant decrease in RBCs , Hb, PCV and significant increase in AST, ALT, urea, creatinine , sodium, potassium, cortisol, insulin and glucose were seen. Iron showed a significant decrease at the same period of sampling. The pathological examination revealed a massive fungal growth resembling a tuft of cotton wool threads was seen in eyes, gills, fins and in localized areas of the skin. Microscopically, the fungal hyphae and spores appeared on eyes, gills, skin and underlying muscles with marked degenerative, necrotic and inflammatory reactions. These reactions were evident, after 7 days of post- infection and the severity of the lesions were markedly decreased after 10 days of post-treatment. It could be concluded that, Saprolegnia parasitica infections induced marked tissue alterations as well as some hematological and serum biochemical changes. Although potassium permanganate treated the infected cases and allowed the regenerative processes but it does not progress the hematological and serum biochemical parameters.

Keywords:

Tilapia nilotica; Saprolegnia parasitica; Biochemical changes.

Faculty of Veterinary Medicine

Dep. **:** Microbiology

Name **:** **Jakeen Kamal Abdel-Haleem EI-Jakee**

Title **:** Bacterial Profile of the Genital Tract in Female-Buffalo During the Different Reproductive Stages

Authors: J.K. El-Jakee, W.M. Ahmed, F.R. El-Seedy and S.I. Abd El-Moez

Published In : Global Veterinaria

ISSN 1992 - 6197 ***Impact Factor***

Abstract :

Nowadays, there is a worldwide increasing interest in buffalo breeding. The current study was planed to investigate the bacteriological aspect of the genital in female buffaloes as there is no enough data in this point. Blood samples and vaginal swabs were collected from 293 heads of buffaloes raised at Lower Egypt during the different reproductive stages. Rose Bengal test was used to check all animals for brucellosis. Progesterone level was determined by ELISA to monitor ovarian activity. Bacterial flora was isolated and identified using the standard techniques. Results showed that during the prepubertal period, Undetectable plasma progesterone level), E.coli, Y. enterocolitica, Klebsiella spp., Micrococcus spp., C. bovis, S. aureus were the most important isolated bacteria from vagina. In normal cyclic animals, E. coli, E.faecalis, Y. enterocolitica, Microccocus spp., C. diversus, Bacillus spp. and? multocida were isolated with higher rate during the luteal, Serum progesterone level of 4. 62±0. 95 ng ml^{-I}) than the follicular,0.52±0.15 ng ml^{-I}) phase of the oestrous cycle. The rates of E. coli, C. diversus, C. bovis, Klebsiella spp. and S. epidermidis isolation were higher in anoestrous than normal cyclic animals.In pregnant animals, the most predominant isolate during the 3 stages of gestation, were E. coli and Micrococcus spp. After calving, the rate of bacterial isolation from the genital tract of buffalo-cows was the highest during the 1^{St} week post partum followed by animals calved from 2 to 4 weeks and it was the least in animals calved since 5-12 weeks The most predominant isolates were E. coli followed by S. aureus then S. pyogenes. It was concluded that the genital tract of female buffaloes has its own normal bacterial flora which may play an important role in its protection against infection.

Keywords:

Buffaloes; Genital tract; Bacteria; Reproductive stages; Progesterone.

Faculty of Veterinary Medicine

Dep. **:** Microbiology

Name **:** **Jakeen Kamal Abdel-Haleem EI-Jakee**

Title **:** Observations on Lactobacillus Spp. In the Genital Tract of Buffalo-Cows with Emphasis on its In Vitro Probiotic Activity

Authors: S.I. Abd El-Moez, W.M. Ahmed, J.A. El-Jakee and F.R. El-Seedy

Published In : Global Veterinaria

ISSN 1992 - 6197 ***Impact Factor***

Abstract :

Lactobacilli are among the predominant microorganisms in the vaginal tract of some homoeothermic animals. The current investigation was designed to throw line on Lactobacillus in the genital tract of buffaloes-cows. Vaginal and blood samples were collected from animals reared at Lower Egypt for a period of 2 years. Vaginal swabs were collected from buffalo-cows either showed normal ovarian activity or suffering from ovarian inactivity. Swabs were collected from each animal in either Tryptic soy broth for the routine bacteriological examination or De Man, Rogaso, Sharpe, J\1RS) for isolation of Lactobacillus. In vitro sensitivity and probiotic tests against the most predominant isolates isolated from buffalo cows, Y. enterocoliiic, C. diversus, E. coli, Micrococcus spp., E. Faecalis, S. aureus and Bacillus spp. were carried out). Results showed that Lactobacillus was isolated from the vagina of normal cyclic buffalo-cows with a high incidence, 90.91 %) as compared to in animals suffering from ovarian inactivity, 81.82%). Vaginal pH and the recovered isolates were recorded in relation to ovarian activity. Ciprofloxacin and ofloxacin are the most effective antibiotics followed by to tobramycin, gentamicin and oxytetracycline. The resistant rate of isolates to some antibiotics was recorded. In vitro use of Lactobacillus isolated from the genital tract of normal buffalo-cows as probiotic against the most predominant isolates from buffalo cows suffering from ovarian inactivity revealed that L. acidophilus is the most effective strain followed by L. casei rhamnosus. It could be concluded that Lactobacillus is one of the normal bacterial floras of the vagina of buffalo-cows, L. acidophilus and L. casei rhamnosuswere the most predominant isolates and showed high probiotic effect against the most predominant bacteria isolated from cases suffering from ovarian inactivity .

Keywords:

Buffaloes; Genital tract; Lactobacillus; Antibiotics; Probiotics.

Faculty of Veterinary Medicine

Dep. **:** Microbiology

Name **:** **Kamelia Mahmoud Osman**

Title **:** The impact of staphylococcal mastitis on the level of milk IL-6, lysozyme and nitric oxide.

Authors: Osman KM, Hassan HM, Ibrahim IM and Mikhail MM

Published In : Comparative Immunology, Microbiology & Infectious Diseases

ISSN 0147 - 9571 ***Impact Factor*** 0.81

Abstract :

Mammary gland secretions derived from secretory cows infected with coagulase +ve Staphylococcus spp. was examined for the expression of IL-6, production of lysozyme and NO_x. The examined cows reflected 25 cases of subclinical mastitis and 15 cases of clinically mastitic animals. The IL-6 concentration in the subclinical animals was significantly higher (30.8ng/ml) than the clinically manifested animals (18.0ng/ml) and the normal cows (5.2ng/ml). On the other hand the level of lysozyme although significantly higher than the normal cows (6.9mµg/ml) yet its level in the subclinical animals (11.2mµg/ml) was lower than that estimated in the clinical animals (15.6mµg/ml). Similarly, the level of NO_x in the normal animals was found to be 5.6muM/ml to increase to 6.2muM/ml in the subclinical mastitic animals and to significantly increase further to 11.5mµM/ml in the clinically affected cows. These results suggest the promising use of whey IL-6, lysozyme or/and NO concentration variabilities as prognostic parameters on the degree of the commencement of mastitis in cows.

Keywords:

Staphylococcal mastitis; Milk IL-6; Lysozyme; Nitric oxide.

Faculty of Veterinary Medicine

Dep. **:** Microbiology

Name **:** **Kamelia Mahmoud Osman**

Title **:** Molecular Typing of Mycoplasma Species Recovered from Bovine Mastitis

***Authors*:** Kamelia M. Osman, K.A. Abd Elrazik, E.E. Barbar, Dina Y.H. ELShafey and Amany A. Arafa

Published In : Global Veterinaria

ISSN 1992 - 6197 ***Impact Factor***

Abstract :

Mycoplasma bovine mastitis is a highly contagious disease that results in milk loss and culling of infected animals. Therefore the aim of this work was to focus on the diagnosis of masitic mycoplasma including California Mastitic Test (CMT), indirect ELISA (iELISA), Polymeras Chain Reaction (PCR) and bacteriological isolation. Beside emphathize the importance of Mycoplasma in subclinical mastitis. A total of 236 apparently normal quarter milk samples were examined for mastitis usingCMT.The incidence of subclinical mastitis was 32.62 and 26.25% in cows and buffaloes, respectively. Examination of cows and buffaloes for Mycoplasma revealed 9.09 and 0% from subclinical mastitic animals and 14.73 and 14.29%, from clinically mastitic animals, respectively. Identification of the isolated Mycoplasma revealed more than one species. The most important was M. bovigenitalium (40.74% from the total isolates), then M.arginini (37.04%), M. bovis (18.52%) and. M.bovirihinis (3.70%). Examination of 46 and 6 udder tissue samples from buffaloes and cows for Mycoplasma revealed 0 and 3.33% M. arginini, respectively. A serological study of 45 milk samples by ELISA test revealed 22.22% positive samples to M. bovis and 37.77% samples to M.bovigenitalium while examination of 10 serum samples revealed 20% as M. bovis. Application of the PCR specific to M. bovis for the total isolates recovered from mastitic milk samples revealed 18.52% as M. bovis. Finally there were significant increase in the levels of lysozyme and nitric oxide in subclinical and clinical Mycoplasma positive samples compared with negative and normal samples .

Keywords:

Mastitis; Mycoplasma; Isolation; PCR; Immunology.

Faculty of Veterinary Medicine

Dep. **:** Pathology

Name **:** **Sohair Mahmoud Sokkar**

Title **:** Abortion due to Toxoplasmosis in small ruminants

Authors: Y. F. Ahmed, S. M. Sokkar, H. M. Desouky and A. H. Soror

Published In : Global Veterinaria

ISSN 1992 - 6197 ***Impact Factor***

Abstract :

The present study was carried out on a flock of sheep and goats suffered from late abortion with incidences of 35.6 and 43,7%, respetively. Toxoplasmosis was a prime suspet. Blood samples were taken from infected dams for serological examination. Tissue samples were collected from internal organs of aborted feti for bacteriological examination, PCR and histopathological study. Serological examinations of all aborted ewes and does revealed positive reaction for Toxoplasma gondii infection. A nested PCR assay yielded a 94 bp amplification product consistent with T. gondii. Myocarditis, non suppurative encephalitis, hepatitis and diffuse interstitial pneumonia are the most predominant histopathological changes in aborted feti. There were numerous clusters of dark purple banana-shape of T. gondii within the cardiac tissue in most of examined cases. It could be concluded that demonstration of the parasite associated with the characteristic histopathological changes in aborted fetal organs and using of nested PCR on paraffin embedded tissues are of great importance in diagnosis of ovine and caprine toxoplamic abortion.

Keywords:

Toxoplasma gondi; Abortion; Sheep; Goats; Nested PCR; Histopathology.

Faculty of Veterinary Medicine

Dep. **:** Pharmacology

Name **:** **Ayman Goudah Moustafa**

Title **:** Concentration-time courses of pefloxacin in plasma and milk of she-camels (Camelus dromedaries)

Authors: Goudah, A. Shah, S.S. Shin, H.C. Shim, J. and Abd El-Aty, A. M

Published In : Berliner und Münchener tier?rztliche Wochenschrift

ISSN 0005 - 9366 ***Impact Factor*** 0.721

Abstract :

Using the microbial inhibition test, the single-dose pharmacokinetics of pefloxacin mesylate dehydrate were studied in six clinically normal lactating she-camels (Camelus dromedarius) after intravenous and intramuscular administration of 10 mg/kg body weight. Blood and milk samples were collected intermittently for a 48 h period, and the pharmacokinetic variables were calculated using compartmental and non-compartmental analytical methods. The plasma course of pefloxacin was best resolved to a two-compartment open model after IV administration and a two-compartment open model with first-order absorption after IM administration. Pefloxacin exhibits a long elimination-phase disposition half-life (t1/2β) of 4.89 ± 1.12 h after IV injection and 5.73 ± 1.42 h after IM administration. The mean volume of distribution at steady state (V_{dss}) and total body clearance (Cl_{tot}) values after IV dosing were 1.18 ± 0.45 l/kg and 0.21 ± 0.10 l/kg/h, respectively. The observed peak plasma level (C_{max}) of 3.6 ± 0.1 µg/ml was rapidly attained at 0.75 h (the time of maximum concentration T_{max}) after IM administration. The areas under the concentration versus time curves (AUC_s) were 44.18 ± 9.68 µg.h/ml and 29.42 ±6.49 µg.h/ml after IV and IM administration, respectively. The absolute bioavailability (F%) obtained after IM administration was 71.59 ± 12.45 %. Milk was penetrated quickly, with a mean peak level of 3.24 ± 0.17 µg/ml occurring at 1.0 h. The elimination half-life was significantly shorter after IV versus IM administration (4.21 ± 0.84 h versus 5.32 ± 0.67 h, respectively). Ultimately, pefloxacin could be useful for treatment of udder infections in she-camels after specific assessment of susceptible microorganisms.

Keywords:

Bioassay; Fluoroquinolone; Pefloxacin; Camel; Udder infection.

Faculty of Veterinary Medicine

Dep. **:** Pharmacology

Name **:** **Ayman Goudah Moustafa**

Title **:** Comparative pharmacokinetics of difloxacin in goat kids and lambs

Authors: A. Goudah and S.M Mouneir

Published In : Small Ruminant Research

ISSN 0921 - 4488 ***Impact Factor*** 0.966

Abstract :

The purpose of this study was to investigate the comparative pharmacokinetics of difloxacin in male goat kids and lambs. Difloxacin was administered in a crossover as a single dose of 5 mg kg^{-1} b.wt by the intravenous (i.v.) and intramuscular (i.m.) routes in kids and lamb. The concentrations of the drug in the plasma were measured using high-performance liquid chromatography (HPLC) with fluorescence detection. Following i.v. injection, the elimination half-life (t1/2β) in goat kids (3.57 ± 0.39 h) was higher than in lambs (2.63 ± 0.29 h). The apparent volume of distribution (V_{dss}) and the total body clearance (Cl_{tot}) in goat kids were 0.48 ± 0.03 l kg^{-1} and 0.12 ± 0.01 l kg^{-1} h^{-1}, respectively. The corresponding values in lambs were 0.49 ± 0.04 l kg^{-1} and 0.11 ± 0.01 l kg^{-1} h^{-1}, respectively. After i.m. administration, difloxacin reached a peak plasma concentration (C_{max}) of 4.95 ± 0.53 and 4.25 ± 0.47 ?g ml^{-1} at a post-injection time (T_{max}) of 1.85 ± 0.23 and 1.31 ± 0.2 h in goat kids and lambs, respectively. The mean bioavailability (F) in both goat kids and lambs were 97.5 ± 20.61 and 97.1 ± 21.5 %, respectively. The in vitro plasma protein binding % of difloxacin were 10.31 and 12.98 for goat kids and lambs, respectively. Using the surrogate marker C_{max}/MIC and AUC_{24}/MIC_{90} , difloxacin could be effective by the i.m. route at 5 mg kg^{-1} against isolates with MIC≤0.5 and 0.4 µg ml^{-1} for goat kids and lambs, respectively, after i.m. dosing.

Keywords:

Difloxacin; Pharmacokinetics; Goat kids; Lambs; HPLC; Bioavailability; Protein binding.

Faculty of Veterinary Medicine

Dep. **:** Pharmacology

Name **:** **Ayman Goudah Moustafa**

Title **:** Disposition kinetics of moxifloxacin in lactating ewes

Authors: A. Goudah

Published In : Veterinary Journal

ISSN 1090 - 0233 ***Impact Factor*** 1.755

Abstract :

The present study was planned to investigate the plasma disposition kinetics and the pattern of moxifloxacin elimination in milk of lactating ewes (n = 6) following a single intravenous (i.v.) bolus or intramuscular (i.m.) injections at a dosage of 5 mg/kg b.w. in all animals. A crossover study was carried out in two phases separated by 21 days. Plasma and milk samples were collected serially for 72 h and moxifloxacin concentrations were assayed using high performance liquid chromatography (HPLC) with fluorescence detection. A two-compartment open model best described the decrease of moxifloxacin concentration in the plasma after intravenous injection. The disposition of i.m. administration moxifloxacin was best described by a one-compartment model. Following i.v administration the half life of distribution $t_{½\alpha}$ was 0.22 ± 0.02 h. The half live of elimination was 1.77 ± 0.23 h. The volume of distribution at steady state (V_{dss}) was 0.84 ± 0.12 l/kg, the total body clearance (Cl_{tot}) was 0.34 ± 0.04 l/h/kg and the area under the curve (AUC) was 14.74 ± 2.16 (g.h/ml. Following i.m. administration, the mean Tmax, Cmax, t1/2el and AUC values for plasma data were 1.45±0.02 h, 2.21 ± 0.27 µg/ml, 2.68 ± 0.19 h and 14.21 ± 2.35 (g.h/ml. The i.m. bioavailability was ± 96.35 % 17.23and the In vitro protein binding percent of moxifloxacin was ranged from 32% to 37 % with an average of 34.5 %. Penetration of moxifloxacin from the blood into milk was rapid and extensive, and the moxifloxacin concentrations in milk exceeded that in plasma from one hour after administration, the kinetic values AUC_{milk}/AUC_{plasma} and $C_{max\ milk}/C_{max\ plasma}$ ratios indicated a wide penetration of moxifloxacin from the bloodstream to the mammary gland. The in vitro minimum inhibitory concentrations (MIC) of moxifloxacin for M. haemolytica were found to be 0.035 µg/ml .

Keywords:

Moxifloxacin; Pharmacokinetic; Pharmacodynamic; Ewes; HPLC.

Faculty of Veterinary Medicine

Dep. **:** Pharmacology

Name **:** **Ayman Goudah Moustafa**

Title **:** Pharmacokinetic parameters of Ceftriaxone after Single Intravenous and Intramuscular Administration in Camels (Camelus Dromedarius)

Authors: A. Goudah

Published In : Research in Veterinary Science

ISSN 0034 - 5288 ***Impact Factor*** 1.274

Abstract :

The purpose of this study was to investigate the plasma disposition kinetics of ceftriaxone in female camels (n = 5) following a single intravenous (i.v.) bolus or intramuscular (i.m.) injections at a dosage of 10 mg kg^{-1} body weight in all animals. A crossover design was carried out in two phases separated by 15 days. Jugular blood samples were collected serially for 48 h and the plasma was analysed by high-performance liquid chromatography (HPLC). Following single i.v. injections the plasma concentration time curves of ceftriaxone were best fitted to a two-compartment model. The drug was rapidly distributed with half life of distribution $t_{½\alpha}$ of 0.24 ± 0.01 h and moderately eliminated with elimination rate constant and elimination half-life of 0.27 ± 0.13 h-1 and 2.57 ± 0.52 h, respectively. The volume of distribution at steady state (V_{dss}) was 0.32 ± 0.01 l kg^{-1} and the total body clearance (Cl_{tot}) was 0.11 ± 0.01 l h^{-1} kg^{-1}, respectively. Following i.m. administration, the mean T_{max}, C_{max}, $t_{1/2el}$ and AUC values for plasma data were 1.03±0.23 h, 21.54 ± 2.61 µg ml-1, 1.76 ± 0.03 h and 85.82 ± 11.21 µg ml^{-1} h^{-1}, respectively. The i.m. bioavailability was 93.42 ± 21.4 % and the binding percentage of ceftriaxone to plasma protein was moderate, ranging from 33 to 42 % with an average of 34.5%.

Keywords:

Ceftriaxone; Pharmacokinetics; Camel; HPLC; Bioavailability; Protein binding.

Faculty of Veterinary Medicine

Dep. **:** Pharmacology

Name **:** **Ayman Goudah Moustafa**

Title **:** Characterization of the pharmacokinetic disposition of levofloxacin in stallions after intravenous and intramuscular administration

Authors: A. Goudah , K. Abo El-Sooud and A. M. Abd El-Aty

Published In : Journal of Veterinary Pharmacology and Therapeutics

ISSN 0140 - 7783 ***Impact Factor*** 1.221

Abstract :

The target of the present study was to investigate the plasma disposition kinetics of levofloxacin in stallions (n = 6) following a single intravenous (i.v.) bolus or intramuscular (i.m.) injection at a dose rate of 4 mg ?kg bwt, using a two-phase crossover design with 15 days as an interval period. Plasma samples were collected at appropriate times during a 48-h administration interval, and were analyzed using a microbiological assay method. The plasma levofloxacin disposition was best fitted to a two-compartment open model after i.v. dosing. The half-lives of distribution and elimination were 0.21 ± 0.13 and 2.58 ± 0.51 h, respectively. The volume of distribution at steady-state was 0.81 ± 0.26 L/kg, the total body clearance (Cl_{tot}) was 0.21 ± 0.18 L/h/kg, and the areas under the concentration–time curves (AUC_s) were 18.79 ± 4.57 µg.h/mL. Following i.m. administration, the mean $t_{1/2el}$ and AUC values were 2.94 ± 0.78 h and 17.21 ± 4.36 µg.h/mL. The bioavailability was high (91.76% ± 12.68%), with a peak plasma mean concentration (C_{max}) of 2.85 ± 0.89 µg /mL attained at 1.56 ± 0.71 h (T_{max}). The in vitro protein binding percentage was 27.84%. Calculation of efficacy predictors showed that levofloxacin might have a good therapeutic profile against Gram-negative and Gram-positive bacteria, with an MIC≤0.1 µg /mL.

Keywords:

Levofloxacin; Stallions; Pharmacokinetic disposition; MIC; Bioavailability.

Faculty of Veterinary Medicine

Dep. **:** Pharmacology

Name **:** **Gamal Abdel-Hakeem Mohamed Soliman**

Title **:** Design, synthesis, and docking studies of novel benzopyrone derivatives as H1- Antihistaminic agents

Authors: Nahla A. Farag, Shadia R. Mohamed and Gamal A. H. Soliman

Published In : Bioorganic & Medicinal Chemistry

ISSN 0968 - 0896 ***Impact Factor*** 2.662

Abstract :

Two new series of 2H-1-benzopyran-2-one derivatives substituted at C-6 and/or C-7 with propanolamines, and/or piperazine propanol derivatives have been synthesized and assayed for the H (1)-histamine antagonist. Twelve of the 20 newly synthesized 4-substituted benzopyrones have shown potent antihistaminic H (1) activity. In addition, molecular modeling and docking of the tested compounds into high affinity histamine binding protein (HBP) and histamine N-methyltranseferase (HNMT) active site in complex with its bound inhibitor (diphenhydramine) was performed in order to predict the affinity and orientation of these compounds at the active sites. The ICM score values show good agreement with predicted binding affinities obtained by molecular docking studies as verified by pharmacological screening. The results showed similar orientation of the target compounds at HBP, and HNMT active sites compared with reported histamine H (1) antagonist. Also, it was concluded that in order for the compounds to be active, they must bind with both active sites of HNMT enzyme (two pockets) to inhibit it. Compounds **8c, 8i,11g, 11i, and 11k**; observe the maximum activities.

Keywords:

2H-1-benzopyrane-2-one; Histamine binding protein; Histamine N-methyltransferase; Histamine H1 antagonist; Docking; Internal coordinate mechanics (ICM) .

Faculty of Veterinary Medicine

Dep. **:** Pharmacology

Name **:** **Gamal Abdel-Hakeem Mohamed Soliman**

Title **:** Anti-ulcerogenic activity of extract and some isolated flavonoids from Desmostachia bipinnata (L) Stapf

Authors: Amani S. Awaad, Nawal H. Mohamed, Derek J. Maitland and Gamal A. Soliman

Published In : Records of Natural Products

ISSN 1307 - 6167 ***Impact Factor***

Abstract :

Five main flavonoid glycosides were isolated, for the first time, from the ethanol extract of Desmostachia bipinnata (L.) Stapf (Gramineae). They were identified as kaempferol (1), Quercetin (2), quercetin-3-glucoside (3), trycin (4) and trycin-7-glucoside (5). The structure elucidation was based on UV, Electrospray ionization mass spectrometry (ESIMS), ^{1}H and ^{13}C NMR, proton- proton correlation spectroscopy (^{1}H-^{1}H Cosy), distortionless enhancement by polarization transfer (DEPT), heteronuclear single quantum coherence (HSQC), and heteronuclear multiple bond correlations spectrum (HMBC). The total extract (200 and 300 mg/kg) and two of the isolated compounds (trycin and trycin-7-glucoside.100 mg/kg each) showed a very promising antiulcerogenic activity with curative ratios; 68.31, 70.54, 77.39 and 78.93%, respectively.

Keywords:

Antiulcerogenic; Desmostachia bipinnata (L) Stapf; Quercetin-3-glucoside; Quercetin and trycin-7-glucoside.

Faculty of Veterinary Medicine

Dep. **:** Pharmacology

Name **:** **Hosney Awad El Banna**

Title **:** Comparative Pharmacokinetic of Ivermectin Alone and a Novel Formulation of Ivermectin and Rafoxanide in Calves and Sheep

Authors**:** H. A. El-Banna , A. Goudah, H. El-Zorba, S. Abd- El-Rahman

Published In **:** Parasitology Research

ISSN 0932-0113 ***Impact Factor*** 1.512

Abstract :

This study investigated the comparative serum disposition kinetics of ivermectin (IVM) after a single subcutaneous dose of 200 µg/kg b.w. of IVM alone or in combination anthelmintic consisting of ivermectin and rafoxanide (200 µg/kg of IVM and 2.5 mg/kg rafoxanide) for use in calves and sheep. The IVM concentrations in serum samples were analysed by HPLC with fluorescence detection. In sheep serum rafoxanide induced a rapid absorption of IVM when given in combined form manifested by a shorter absorption half life time of IVM by 68.49% when given in combination as compared with IVM when given alone. In addition, there is an increase in the value of AUC by 15.48 % while the value of elimination rate constant was decreased by 38.2% and significantly increased the half-life time of elimination from 2.04 day for IVM alone to 3.3 days when given in combination of rafoxanide. In calves serum the mean $T_{½eL}$ for IVM/rafoxanide was 0.131 d and for the Control formulation 0.16 d and $T_{½eb}$ was 5.78 and 4.95, respectively. While IVM C_{max} for IVM/rafoxanide was 22.4 ng/ml and for the control formulation 19.1 ng/ml. T_{max} values were 0.99 and 1.12 days, and mean AUC values was 188.9 and 165.4 ng/ml/d. The difference in C_{max}, AUC, K_{al}, K_{el} and $T_{½el}$ were Significant. However, there were no statistical difference between the T_{max} and $T_{½ab.}$ These findings cleared that combination of rafoxanide with IVM in sheep and calves increased the Absorption of IVM and Delayed its Elimination.

Keywords:

Ivermectin; Rafoxanide; Pharmacokinetics; Sheep; Calves.

Faculty of Veterinary Medicine

Dep. **:** Pharmacology

Name **:** **Khaled Abo-EL-Sooud Mahmoud**

Title **:** Pharmacokinetics and milk penetration of orbifloxacin after intravenous and intramuscular injections to dromedary lactating Camels (Camelus dromedaries

Authors**:** A. Goudah and K. Abo El-Sooud

Published In **:** Journal of Veterinary Pharmacology and Therapeutics

ISSN 0140 - 7783 ***Impact Factor*** 1.221

Abstract :

The present study was planned to investigate the plasma disposition kinetics and the pattern of orbifloxacin elimination in the milk of lactating camel (n = 6) following a single intravenous (IV) bolus or intramuscular (IM) injections at a dosage of 2.5 mg/kg in all animals. A crossover study was carried out in two phases separated by 15 days. Plasma and milk samples were collected serially for 48 h and orbifloxacin concentrations were assayed using a microbiological assay. A two-compartment open model best described the decrease of orbifloxacin concentration in the plasma after IV injection. The disposition after IM administration of orbifloxacin was best described by a one-compartment model. Following IV administration, the distribution half-life ($T_{1/2\beta}$ was 0.22 ± 0.02 h. The elimination half-life ($T_{1/2a}$) was 5.74± 1.16 h. The volume of distribution at steady state (V_{dss}) was 1.73 ± 0.31 L/kg, the total body clearance (C_{ltot}) was 0.23 ± 0.02 L/h/kg and the area under the curve (AUC) was 11.21 ± 0.96 ug.h/mL. Following IM administration, the mean T_{max}, C_{max}, $T_{1/2el}$ and AUC values for plasma data were 0.71 ± 0.12 h, 2.16 ± 0.51 µg/mL, 2.19 ± 0.26 h and 10.16 ± 1.12 µg h/mL. The IM bioavailability was 93.81 ± 14.62% and the in vitro protein binding oforbifloxacin ranged from 21–27%. Penetration of orbifloxacin from the blood into milk was rapid and extensive. The kinetic values AUC_{milk}/AUC_{plasma} and C_{max} milk/C_{max} plasma ratios indicated a wide penetration of orbifloxacin from the bloodstream to the mammary gland.

Keywords :

Orbifloxacin; Camels; Pharmacokinetic disposition; Milk; Bioavailability.

Faculty of Veterinary Medicine

Dep. **:** Pharmacology

Name **:** **A. M. Abdel-Aty**

Title **:** Development and validation of a method for the analysis of cafenstrole and its metabolite in brown rice grains and rice straw using high-performance liquid chromatography

Authors**:** Abd El-Aty AM, Lee GW, Mamun MI, Choi JH, Cho SK, Shin HC and Shim JH

Published In **:** Biomedical Chromatography

ISSN 0269- 3879 ***Impact Factor*** 1.663

Abstract :

The present work reports the extraction and clean-up procedures, as well as the chromatographic conditions developed, for the determination of cafenstrole and its metabolite (CHM-03) residues in brown rice grains and rice straw using HPLC-UV detection. The method makes use of an Apollo C(18) column and acetonitrile : water : acetic acid as a mobile phase for both cafenstrole and its metabolite in rice and rice straw. Using these conditions cafenstrole and its metabolite were resolved with a retention time (R(t)) of less than 14 min. The analytes were confirmed using positive atmospheric pressure ionization LC-MS with selected ion monitoring. The average recoveries of cafenstrole were found to be 87.0-92.5 and 87.6-88.3%. However, they ranged from 81.5 to 81.6% and from 76.1 to 78.5% for cafenstrole metabolite (CHM-03), in rice grains and rice straw, respectively, with relative standard deviations ranging from 1.4 to 6.6%. The limits of detection (LODs) of both cafenstrole and its metabolite were 0.002 and 0.02 ppm and 0.025 and 0.04 ppm, respectively. Field trials with recommended or double the recommended dose revealed that the herbicide could safely be recommended for application in rice and rice straw as no residues were detected in the harvest samples.

Keywords:

Herbicide; Metabolite; Mesidue analysis; Brown rice; Rice straw .

Faculty of Veterinary Medicine

Dep. **:** Pharmacology

Name **:** **A. M. Abdel-Aty**

Title **:** Development of Extraction Procedures for the Determination of Imidacloprid: Application to Residue Analysis and Dynamics of two Formulations in Chinese Cabbage

Authors**:** Khay S, Abd El-Aty AM, Cho SK, Choi JH, Mamun MI, Goudah A, Shin HC and Shim JH

Published In **:** Biomedical Chromatography

ISSN 0269 - 3879 ***Impact Factor*** 1.663

Abstract :

This study was undertaken to investigate whether an additional column clean-up procedure can affect the accuracy of an analytical method developed for the determination of imidacloprid residues in Chinese cabbage. Thereafter, the residue levels and the degradation rates of imidacloprid were investigated in experimental Chinese cabbage plots after treatment with two different commercial formulations: emulsifiable concentrate (EC) and wettable powder (WP). The analyte was determined using high-performance liquid chromatography-ultraviolet detection (HPLC-UVD) and confirmed by high-performance liquid chromatography-mass spectrometry (HPLC-MS) in the select ion-monitoring mode. The mean recoveries ranged from 75.34 to 98.00% and 96.95 to 100.97%, with relative standard deviations of 0.86-4.14 and 1.22-3.52%, in samples treated with and without additional column clean-up procedures, respectively. The minimum detectable amount of imidacloprid was 4 ng, while the limits of detection and quantitation were 0.2 and 0.5 ppm, respectively. The degradation of pesticide was monitored throughout a period of 13 days under greenhouse conditions Although the behaviors of the EC and WP formulations appear to be similar, the absolute residue levels obtained with EC and WP treatments differed slightly. When imidacloprid formulations were applied (as foliar treatments) according to the recommended rate, the final residues (13 days post-treatment) in Chinese cabbage were much lower than the maximum residue limit (MRL = 3.5 ppm) established by the Korean Food and Drug Administration. Taken together, our study suggests that the analysis of imidacloprid can be performed without an additional column clean-up procedure, and the decline curve and the residue levels in Chinese cabbage could change if the same active ingredient is used in different formulations.

Keywords:

Imidacloprid; Degradation Dynamic; Commercial Formulations; Residues.

Faculty of Veterinary Medicine

Dep. **:** Pharmacology

Name **:** **A. M. Abdel-Aty**

Title **:** Monitoring of fluoroquinolone residual levels in chicken eggs by microbiological assay and confirmation by liquid chromatography

Authors**:** Cho HJ, Abd El-Aty AM, Goudah A, Sung GM, Yi H, Seo DC, Kim JS, Shim JH, Jeong JY, Lee SH and Shin HC

Published In **:** Biomedical Chromatography

ISSN 0269 - 3879 ***Impact Factor*** 1.663

Abstract :

The primary objective of this study was to develop a simple, rapid, and efficient method for the simultaneous determination of four fluoroquinolone residues, ciprofloxacin (CFX), danofloxacin (DFX), enrofloxacin (EFX) and norfloxacin (NFX), in chicken eggs. The samples were first monitored by microbiological assay using Escherichia coli as the reference organism, and were then quantified using HPLC with a fluorescence detector. Egg samples were extracted by the liquid-phase extraction process, and the analytes were analyzed via an ODS column using a mixture of acetonitrile and 0.4% phosphoric acid-0.4% triethylamine (15: 85, v/v) as a mobile phase (pH=2) without purification. The calibration curves were linear (r^2>or=0.999) over a concentration range of 0.1-1.0 µg/mL. The majority of the mean recoveries at four different fortification levels, 0.1, 0.2, 0.5 and 1.0 ppm, ranged from 73.7+/-7.2% to 87.1+/-12.7%, and the repeatability (as the relative standard deviation) from three repetitive determinations of recovery was between 1.03 and 18.83%. The calculated limit of quantitation (LOQ) was 9 ppb for CFX, EFX and NFX and 0.6 ppb for DFX. Both the bioassay and HPLC methods were applied to 120 total egg samples collected from the six major cities in the Republic of Korea. The bioassay, showed that two samples were positive (i.e contained inhibiting substances). On the other hand, the results of HPLC only identified and quantified the residues of enrofloxacin (from 0.43 to 1.02 ppm) in three samples out of 120. We concluded that the bioassay can be used as a routine screening method for the presence of fluoroquinolones in chicken eggs, which can be confirmed and quantified using LC.

Keywords:

Antimicrobials; Multi-residue; Eggs; Bioassay; Liquid chromatography.

Faculty of Veterinary Medicine

Dep. **:** Pharmacology

Name **:** **A. M. Abdel-Aty**

Title **:** Determination of Volatile Organic Compounds Generated from Fresh, white and Red Panax ginseng (C. A. Meyer) using a direct Sample Injection Technique

Authors**:** Abd El-Aty AM, Kim IK, Kim MR, Lee C and Shim JH.

Published In **:** Biomedical Chromatography

ISSN 0269 - 3879 ***Impact Factor*** 1.663

Abstract :

Ginsenosides are regarded as the main active, non-volatile components of Panax ginseng (C. A. Meyer). However, throughout the long history of ginseng research, there has been virtually no report describing its volatile flavor compounds. A solvent-free procedure for the determination of volatile flavor compounds generated from fresh, white and red Panax ginseng (C. A. Meyer) using solvent-free solid injection (SFSI) coupled with gas chromatography-mass spectrometry (GC-MS) detection is described here. At no point in the SFSI technique were the extraction conditions optimized. Rather, the experimental variables including various sample preparations (fresh, oven-dried and freeze-dried), injector temperatures (100, 150, 200, 250 and 300 degrees °C), and preheating times (3, 5, 7, 10 and 15 min), were predicated on the experience of the authors. A total of 47 compounds were identified in various forms of ginseng. Among the compounds identified in the sample, fresh ginseng was characterized by a high proportion of 3-acetyl-1-(3,4-dimethoxyphenyl)-5-ethyl-4,5-dihydro-7,8-dimethoxy-4-methylene 3H-2,3-benzodiazepine (64.24%) and 23,24-dinor-3-oxolean-4,12-dien-28-oic acid (21.42%); 2-furanmethanol (20.26%) and 3-hydroxy-2-methyl-4H- pyran-4-one (17.95%) were detected as the major components in white ginseng while the main components of the red ginseng were found to be 1,2-benzenedicarboxylic acid dibutyl ester (16.27%) and 2-furanmethanol (13.82%). SFSI is a solvent-free, rapid and simple sample preparation technique based on direct vaporization.

There is no dilution or contamination with solvent or its impurities and no loss of quickly eluted components was observed in the solvent peak.

Keywords:

Aromatic medicinal plant; Volatile compounds; Direct sample injection.

Faculty of Veterinary Medicine

Dep. **:** Pharmacology

Name **:** **A. M. Abdel-Aty**

Title **:** Comparison of different extraction methods for the simultaneous determination of pesticide residues in kiwi fruit using gas chromatography–mass spectrometry

Authors**:** Cho SK, Abd El-Aty AM, Jeon HR, Shin HC and Shim JH

Published In **:** Biomedical Chromatography

ISSN 0269 - 3879 ***Impact Factor*** 1.663

Abstract :

The methods of simultaneous extraction of iprodione, chlorpyrifos-methyl, EPN and endosulfan (with its metabolites) from kiwi fruit using accelerated solvent extraction (ASE), supercritical fluid extraction (SFE), and liquid–liquid extraction (LLE) were tested and compared in terms of their of limits of detection and quantification, as well as the highest pesticide recoveries with the lowest residues in the final extracts. The analysis was performed using gas chromatography–mass spectrometry in the selected ion monitoring mode. The proposed methods featured good sensitivity, pesticide quantification limits were low enough, and the precision (expressed as relative standard deviations) ranged from 0.56 to 7.17%. The recoveries obtained from ASE, SFE and LLE were 77.5–120, 71.9–109.1 and 75.6–127.1%, respectively. The proposed methods were successfully applied for the monitoring of the selected pesticide residues in kiwi fruit samples collected from Jollanamdo area, Republic of Korea. Iprodione was detected at a level lower than the maximum residue limit (MRL) established by the Korea Food and Drug Administration (5 ppm), while EPN was detected at a level higher than the Korea Food and Drug Administration MRL (0.1 ppm) in the real samples. The proposed sample preparations led to a higher preconcentration of the pesticide fraction, and allowed the sensitive and selective determination of pesticides with varied physicochemical properties in kiwi fruit.

Keywords:

Simultaneous; Multiresidue analysis; Kiwi fruit; Gas Chromatography–Mass spectrometry; Environmentally friendly technique; Pressurized liquid extraction; liquid–liquid extraction.

Faculty of Veterinary Medicine

Dep. **:** Pharmacology

Name **:** **A. M. Abdel-Aty**

Title **:** Dissipation behavior of lufenuron, benzoylphenylurea insecticide, in/on Chinese cabbage applied by foliar spraying under greenhouse conditions

Authors**:** Khay S, Choi JH, Abd El-Aty AM, Mamun MI, Park BJ, Goudah A, Shin HC and Shim JH

Published In **:** Bull. Environ. Contam. Toxicol

ISSN 0007 - 4861 ***Impact Factor*** 0.563

Abstract :

Chinese cabbage has long been consumed as a staple food by the Koreans in various forms of fresh, salted, or fermented as kimchi. To fulfill the off-season demand for this crop, it has become a common practice to be cultivated under greenhouse conditions. Since pesticide residues in/on leafy vegetables have strongly concerned with food safety in the Korean society, the changes of lufenuron residues, in/on Chinese cabbage applied by foliar spraying under greenhouse conditions was investigated. Lufenuron 5% emulsifiable concentrate (EC) was sprayed with diluted solution of recommended and double doses to the crop. The shoots of the cabbage were harvested immediately after spraying, and sequentially the harvests were conveyed to analyze the residual amounts. The deposited level of the analyte in/on Chinese cabbage under greenhouse conditions seemed to be difficult to produce the crop with 0.2 ppm of maximum residue limit (MRL) of the Korea Food and Drug Administration (KFDA) .

Keywords:

Insecticide; Dissipation behavior; Residues; Chinese cabbage; Greenhouse .

Faculty of Veterinary Medicine

Dep. **:** Pharmacology

Name **:** **A. M. Abdel-Aty**

Title **:** Response to a combined treatment program with clomipramine, behavioral, and environmental management of compulsive tail chasing in a German Shepherd

Authors**:** Kim YM, Choi YJ, Kim SH, Abd El-Aty AM, Kim BJ, Hwang SH and Lee SM

Published In **:** Berl Munch Tierarztl Wochenschr

ISSN 0005- 9366 ***Impact Factor*** 0.721

Abstract :

A 15-month-old female German Shepherd dog showing compulsive tail chasing was treated with a treatment protocol of pharmacological therapy (using clomipramine) in conjunction with behavioral and environmental management. The responses to the treatment protocol were assessed once a week for 7 weeks in respects to behavioral conditions and the frequency of bouts and its duration. The behavior history including mother, father, and her littermates were also evaluated for the apparent diagnosis. The compulsive tail chasing of the patient dog was improved on the aspect of behavioral condition and gradually decreased in the frequency and duration of bouts. However, in the mid of treatment, the animal showed an aggressive behavior as a concurrent sign associated with compulsive tail chasing.

Keywords:

Combined treatment program; Compulsive disorder; Compulsive tail chasing; German Shepherd .

Faculty of Veterinary Medicine

Dep. **:** Pharmacology

Name **:** **A. M. Abdel-Aty**

Title **:** In vitro inhibitory potential of decursin and decursinol angelate on the catalytic activity of cytochrome P-450 1A1/2, 2D15, and 3A12 isoforms in canine hepatic microsomes

Authors**:** Abd El-Aty AM, Shah SS, Kim BM, Choi JH, Cho HJ, Hee-Yi, Chang BJ, Shin HC, Lee KB, Shimoda M, Shim

Published In **:** Archives of Pharmacal Research

ISSN 0253 - 6269 ***Impact Factor*** 1.085

Abstract :

Danggui is one of the most popular herbal medicines consumed by patients in different clinical settings in Asian countries. In this study, the two major pyranocoumarin compounds extracted from the Korean Angelica gigas root decursin (DC) and decursinol angelate (DA) were examined in vitro with regard to their abilities to inhibit hepatic CYP1A1/2, CYP2D15, and CYP3A12 catalytic activities in canine liver microsomes. The two components were capable of inhibiting CYP1A1/2, CYP2D15, and CYP3A12 catalytic activities, but the potencies varied. DC and DA selectively and noncompetitively inhibited CYP1A1/2 activity, with K_i values of 90.176 and 67.560 μM, respectively. On the other hand, they exhibited slight inhibitory effects on CYP2D15 and CYP3A12 with K_i values of 666.180 and 872.502 μM, 990.500 and 909.120 microM (1'hydroxymidazolam, MDZ1'H), and 802.800 and 853.920 μM (4-hydroxymidazolam, MDZ4H), respectively. Additionally, they showed increased inhibition after preincubation, which suggests the involvement of a mechanism-based inhibition. In sum, this in vitro data should be heeded as a signal of possible in vivo interactions. The use of human liver preparations would considerably strengthen the practical impact of the data generated from this study.

Keywords:

Decursin; Pyranocoumarins; Decursinol angelate; CYP isoforms; Canine .

Faculty of Veterinary Medicine

Dep. **:** Pharmacology

Name **:** **A. M. Abdel-Aty**

Title **:** Analytical procedure to simultaneously measure trace amounts of trenbolone acetate and beta-trenbolone residues in porcine muscle using HPLC-UVD and MS

Authors**:** Liu X, Abd El-Aty AM, Choi JH, Khay S, Mamun MI, Jeon HR, Lee SH, Chang BJ, Lee CH, Shin HC and Shim JH

Published In **:** Separation Science

ISSN 1615- 9306 ***Impact Factor*** 2.632

Abstract :

The current study was undertaken to validate the performance for the determination of both TBA and beta-trenbolone (β-TB) residues in porcine muscle at concentrations required to monitor compliance with the maximum residue limit (MRL). The method involves a one phase liquid-liquid extraction, cleanup with low-temperature fat precipitation, separation of the respective compounds by HPLC on a Capcell pak C(18) column, use of a methanol-water isocratic system as an eluent, and measurement by UV absorbance detection at 340 nm. Both compounds were confirmed using LC-MS/MS with electrospray interface (ESI) and a triple quadrupole (QqQ) analyzer. The method was found to be precise and accurate, with a linearity range of 1-10 μg/kg (r^2 >0.973). The intra- and interday precision showed good reproducibility with RSDs < or =13.25%. The LODs were 0.12 and 0.22 μg/kg, and the LOQs were 0.37 and 0.66 μg/kg, for TBA and β-TB, respectively. The applicability of the method was demonstrated by analyzing real samples collected from major cities in the Republic of Korea. No residues of the selected compounds were detected in any of the samples. The advantages of our method are that it is: selective, sensitive,requires a short time for analysis (13 min), and performs simple sample extraction and clean-up procedure with low-temperature fat precipitation as compared to the previously published methods.

Keywords:

Anabolic steroids; LC; Method performance; Pork; Trace amounts .

Faculty of Veterinary Medicine

Dep. **:** Pharmacology

Name **:** **A. M. Abdel-Aty**

Title **:** Effectiveness of pressurized liquid extraction and solvent extraction for the simultaneous quantification of 14 pesticide residues in green tea using GC

Authors**:** Cho SK, Abd El-Aty AM, Choi JH, Jeong YM, Shin HC, Chang BJ, Lee C and Shim JH

Published In **:** Separation Science

ISSN 1615 - 9306 ***Impact Factor*** 2.632

Abstract :

A simultaneous multiresidue method to determine 14 different pesticides, namely: flufenoxuron, fenitrothion, chlorfluazuron, chlorpyrifos, hexythiazox, methidathion, chlorfenapyr, tebuconazole, EPN, bifenthrin, cyhalothrin, spirodiclofen, difenoconazole, and azoxystrobin in green tea using pressurized liquid extraction (PLE) is described and compared with that of liquid-liquid extraction (LLE). For PLE, the extraction conditions were not optimized. Rather they were selected based upon previous successful investigations published by our laboratory. Analysis was performed by GC with electron capture detector (GC-ECD), and the pesticide identity of the positive samples was confirmed by GC-MS in a selected ion-monitoring (SIM) mode. Calibration curves showed an excellent linearity for concentrations ranging from 0.006 to 36.049 ppm, with r^2 >0.995. Green tea spiked at each of the two fortification levels, yielded average recoveries in the range of 87-112% and 71-109% for PLE and LLE, respectively. Precision values, expressed as RSDs, were below 6% at various spiking levels. With respect to the existing procedures, both methods gave LOQs that were lower than the maximum residue limits (MRLs) established by the Korea Food and Drug Administration (KFDA). Both methods have been successfully applied to the analysis of real samples, and bifenthrin was the only pesticide residue quantified in incurred green tea samples, with concentrations ranging from 0.093 ppm (LLE) to 0.1 ppm (PLE). These concentration levels were relatively low compared to KFDA-MRL (0.3 ppm). According to the validation data and performance characteristics, both methods are appropriate for multiresidue analysis of pesticide residues in green tea. PLE methodology showed superiority in recoveries of some pesticides, acceptable accuracy and precision while minimizing environmental concerns, time, and labor, and can be applied in routine analytical laboratories.

Keywords:

Green tea; Multiresidue; Pressurized solvent extraction; Simultaneous.

Faculty of Veterinary Medicine

Dep. **:** Pharmacology

Name **:** **Mohamed M. M. Hashim**

Title **:** Monitoring of Streptomycin and Dihydrostreptomycin Residual levels in Porcine Meat Press Juice and Muscle Via Solid-Phase Fluorescence Immunoassay and Confirmatory Analysis by liquid Chromatography After Post-Column Derivatization

Authors**:** Chang-Won Pyun, A. M. Abd EI-Aty, M. M. M. Hashim, Jae-Han Shim, Si-Kyung Lee, Kang-Duk Choi and Kwan Ha Park

Published In **:**

ISSN 0269-3879 ***Impact Factor*** 1.663

Abstract :

A solid-phase fluorescence immunoassay (SPFIA) that was primarily developed for detection of antibiotic residues in milk was qualitatively applied for the pre-screening of the residues of aminoglycoside antibiotics, streptomycin and dihydrostrepto-mycin, in meat press juice. The confirmation of both analytes was performed using a validated method of high-performance liquid chromatography with post-column derivatization. The analytical performance was demonstrated by the analysis of pork meat samples spiked at three concentration levels, ranging from 0.25 to 2.5 ppm for each analyte. In general, the recoveries ranged from 80.4 to 81.5% and from 79.6 to 84.4% for streptomycin and dihydrostreptomycin, respectively, with relative standard deviations lower than 6%. The limits of detection were 0.1 and 0.15 ppm for streptomycin and dihydrostrepto-mycin, respectively, and the limits of quantification of 0.35 and 0.5 ppm are below the maximum residue limits of Codex, the European Union, and the Korean Food and Drug Administration (ranging from 0.5 to 0.6 ppm). Eight real samples collected from the Seoul area were first monitored using SPFIA, and none of them were found positive. These findings are in good accordance with those observed by HPLC analysis. To the best of our knowledge, this is the first report to monitor the aminoglycoside residues in pork meat press juice using SPFIA .

Keywords:

Aminoglycosides; Meat press juice; Screening; SPFIA; Residue analysis; Immunoassay.

Faculty of Veterinary Medicine

Dep. **:** Toxicology and Forensic Medicine

Name **:** **Ashraf M. Morgan**

Title **:** Reproductive Toxicity Evaluation of Pestban Insecticide Exposure in Male and Female Rats

***Authors*:** Ashraf M. Morgan and A. M. Abd El-Aty

Published In **:** Toxicol. Res

ISSN 1976 - 8257 ***Impact Factor***

Abstract :

Sexually mature male and female rats were orally intubated with the organophosphorus insecticide, Pestban at a daily dosage of 7.45 or 3.72 mg/kg bwt, equivalent to 1/20 and 1/40 LD50, respectively. Male rats were exposed for 70 days, while the female rats were exposed for 14 days, premating, during mating and throughout the whole length of gestation and lactation periods till weaning. The results showed depressed acetylcholinesterase (AChE) activity in the brain of parents, fetuses and their placentae in a dose-dependent manner. The fertility was significantly reduced with increasing the dose in both treated groups, with more pronounced suppressive effects in the male treated group. The number of implantation sites and viable fetuses were significantly reduced in pregnant females of both treated groups. However, the number of resorptions, dead fetuses, and pre-and postimplantation losses were significantly increased. The incidence of resorptions was more pronounced in treated female compared to male group and was dose dependant. The behavioral responses as well as fetal survival and viability indices were altered in both treated groups during the lactation period .The incidence of these effects was more pronounced in the treated female group and occurred in a dose-related manner. The recorded morphological, visceral, and skeletal anomalies were significantly increased with increasing the dose in fetuses of both treated groups, with more pronounced effects on fetuses of treated females. In conclusion, the exposure of adult male and female rats to Pestban would cause adverse effects on fertility and reproduction.

Keywords:

Pestban; Chlorpyrifos; Fertility; Reproduction; Rats.

Faculty of Veterinary Medicine

Dep. **:** Toxicology and Forensic Medicine

Name **:** **Ashraf M. Morgan**

Title **:** Characterization of the Heavy Metals Contaminating the River Nile at El-Giza Governorate, Egypt and Their Relative Bioaccumulations in Tilapia nilotica

Authors**:** Ashraf M. Morgan, Ho-Chul Shin and A.M. Abd El Aty

Published In **:** Toxicol. Res

ISSN 1976 - 8257 ***Impact Factor***

Abstract :

This study was carried out to measure the concentration of heavy metals (Pb, Mn, Cr, Cd, Ni, Zn, and Cu) in water and Bolti fish (Tilapia nilotica) samples collected from Rasheed branch of River Nile, north of El-Giza Governorate, Egypt by atomic absorption spectrophotometry. The investigated districts through which the branch passes include El-Manashi, Gezzaya, El Katta, Abo Ghaleb and Wardan. Based on WHO and FAO safety reference standards, the results of the current study showed that water and fish tissues were found to contain heavy metals at significantly variable concentration levels among the investigated districts. They were polluted with respect to all the metals tested at Gezzaya district. However, the levels of analyzed metals in water and fish tissues were found lower than legal limits in other districts. The heavy metals showed differential bioaccumulation in fish tissues of the different districts as the accumulation pattern (as total heavy metal residues) was district dependant as follow: Gezzaya >Wardan > El Katta > Abo Ghaleb > El Manashi.

Keywords:

Metals; Water; Fish; El-Giza; Egypt.

Faculty of Veterinary Medicine

Dep. **:** Toxicology and Forensic Medicine

Name **:** **Ashraf M. Morgan**

Title **:** Immunotoxicity Following Pre- and Post-natal Aluminum Exposure in Rats

Authors**:** Abd El-Azeim A. Khalaf, Ashraf M. Morgan, Mohey M. Mekawy and Maged F. Ali

Published In **:** Toxicol. Res

ISSN 1976 - 8257 ***Impact Factor***

Abstract :

The present study was designed to explore the immunotoxic effects of orally administered aluminum (Al) on pregnant rats (n = 60) and their growing fetuses and consequently on the animal wealth. The animals were randomly allocated into three equal groups of 20 rats each. The first group has no treatment and kept as a control (G1). The second and third groups of pregnant rats were treated orally with aluminum chloride at 345 mg/Kg b.wt. The second group (G2) received the tested compound from the 6th day of gestation to the end of weaning, whereas the third group (G3) received the tested compound from the 15th day of gestation to the end of weaning. Control and treated animals (dams and offspring) were immunized ip with (0.5 ml) 20% sheep red blood cell (SRBC) suspension seven days before the end of experiments. At the end of exposure, ten dams and ten offspring from each group were used for assessment of cell-mediated immunity and a similar number of animals were sacrificed for evaluating the humoral immune response and serum protein profile. Aluminum chloride exposure of dams (G2 & G3) caused significant suppression of both cell mediated and humoral immune responses in the obtained offsprings compared to the control group (G1) without any significant effect on the immune responses of these dams. Moreover, the serum total globulins, albumin/ globulin (A/G) ratio and gamma globulin fraction were significantly decreased in the treated dam's offsprings compared to the corresponding controls while the serum total protein and all serum protein fractions showed non significant difference between the control and treated dams and between the two treated dam groups themselves. There were no histopathological changes observed in thymus, spleen and liver of the control and treated dams. Thymus of treated dam's offsprings (G2) showed lymphoid depletion in both cortex and medulla. Their spleens showed lymphoid depletion in the white pulps and congestion with hemosiderosis in the red pulps. Liver of treated dam's offsprings showed dilation and congestion of its central vein with degenerative changes in the hepatocytes.

These histopathological changes were more severe in G2 than in G3 offsprings. It can be concluded that gestational and/ or lactation exposure of pregnant dams to Al chloride caused suppression of both cellular and humoral immune responses of their offsprings.

Keywords:

Aluminum chloride; Immunotoxicity; Rats; Humoral and cell mediated immune response; Thymus; Spleen; Liver.

Faculty of Veterinary Medicine

Dep. **:** Veterinary Hygiene and Management

Name **:** **Hussien A. Ka-Oud**

Title **:** Evaluation of the Immune Response in AI Vaccinated Broiler Chickens: Effect of Biosecurity Faults on Immune Response

Authors**:** Hussien A. Ka-Oud, M.A. Zakia and Mervat M. Kamel

Published In **:** Poultry Science

ISSN 1682-8356 ***Impact Factor***

Abstract :

This article was a trial to evaluate: The immune responses of broiler chickens vaccinated with common AI commercial vaccines in Egypt and the effect of the applied biosecurity measures on the immune response of vaccinated chickens. The results revealed that: There were high to moderate levels of maternal immunity against AIV (H5N1and H5N2) on the 1st, 5th day of age and low levels on the 7th day of age. There was no significant difference concerning the immune response of H5N1 and H5N2 AI vaccines ($P < 0.05$) in vaccinated broilers. Vaccination at 10-days of age with 0.5ml of vaccine, gave satisfactory titers, on the 3rd week post vaccination. By the 4th week post vaccination chickens exhibited highest titers and continued to the 5th week post vaccination. Mortality rate was relatively higher in flocks have been given vaccine at the age of 5 days specially H5N1 vaccine (Mortality rates were 1%, 0.5 and 1%, 0.2% in the 1st and 2nd week post vaccination respectively) than those have been given at the age of 10 days (Mortality rates were 0.5%, 0.1% in both 1st and 2nd weeks post vaccination respectively). The relationships between the major components of biosecurity and immune response of vaccinated chickens revealed: 1. There was a significant correlation between HI titer and the distance between farms ($r = 0.72$, $P < 0.05$) 2. There was a significant difference between broiler houses of incorrect microclimatic conditions(Moisture content of litter, Air temperature, Air relative humidity) and immune response of broilers vaccinated against AIV ($P < 0.05$). The association between biosecurity faults as risk factors in broiler house and their effects on HI titers in chickens vaccinated against AIV revealed that, there was an association between faults of biosecurity.

Keywords :

Avian influenza vaccines; Biosecurity; Immune response; Haemagglutination inhibition; Relative risk; Correlation Coefficient and Probability of disease occurrence.

Faculty of Veterinary Medicine

Dep. **:** Veterinary Hygiene and Management

Name **:** **Hussien A. Ka-Oud**

Title **:** Eco-Epidemiologic Impacts of HPAI on Avian and Human Health in Egypt

***Authors*:** Hussien .A .Ka-Oud

Published In **:** Poultry Science

ISSN 1682-8356 ***Impact Factor***

Abstract :

In this article, trials for investigation and analysis were carried out to understand the ecological and the epidemiological aspects of AI problem in Egypt and its impacts on poultry and human health.135 different flock types (Broilers, Breeders, Layers, Ducks and Geese) as well as Roof-top and Back-yard raising birds from 18 different Governorates of Egypt were examined serologically for detection of Al antibodies during the period from Feb. 6th, 2005 to Feb. 6th, 2006. Farm and Governorate biosecurity measurers were analyzed and evaluated besides, the impacts of HPAI on human health. The results showed that Al virus antibodies were detected in roof-top and back-yard raising birds only (Fowls, Ducksand Geese) in percentages averaged 4%,10% and 2% in (EL Qualiobia, EL Dakahlia, Dimiatta, Cairo and Giza) (EL Qualiobia, EL Dakahlia, Dimiatta, Cairo, Giza EL Menia, Beni-Seuif and Kafer EL Sheikh) and (EL Qualiobia and EL Behaira) respectively. The association between the biosecurity of the farms and the occurrence of AI infection during the epidemic strike, revealed: 3.76 relative risk, 0.69 attributable risk, 2.66 The association between governorates farm density and the occurrence of AI infection revealed: 1.29 relative risk, 0.15 attributable risk, 1.55 Omega magnitude and Q was 1.88. The impact of AI on human health in Egypt was analyzed through a retrospective study and a zoonotic epidemiological map was drew.

Keywords:

Health impacts; Biosecurity failure; Roof-top and back-yard birds; Retrospective; Case-fatality .

Faculty of Agriculture

Faculty of Agriculture

Dep. **:** Agricultural Engineering

Name **:** **Baher Mahmoud Ahmed Amer**

Title **:** Hybrid Solar Dryer for Quality Dried Tomato

Authors**:** M. A. Hossain, B. M. A. Amer and K. Gottschalk

Published In **:** Drying Technology

ISSN 0737 - 3937 ***Impact Factor*** 1.171

Abstract :

A proto type of a hybrid solar dryer was developed for drying of tomato. It consists of a flat-plate concentrating collector, heat storage with auxiliary heating unit, and drying unit. It has a loading capacity of 20kg of fresh half-cut tomato. The dryer was tested in different weather and operating conditions. The performance of the dryer was compared with an open sun-drying method. Drying performance was evaluated in terms of drying rate, color, ascorbic acid, lycopene and total flavonoids. Tomato halves were pretreated with UV radiation, acetic acid, citric acid, ascorbic acid, sodium metabisulphite, and sodium chloride. Sodium metabisulphite ($8gL^{-1}$) was found to be effective to prevent the microbial growth at lower temperature ($45^{\circ}C$).

Keywords:

Ascorbic acid; Color; Lycopene; Pretreatment; Solar dryer.

Faculty of Agriculture

Dep. **:** Animal Production

Name **:** **Osama M. El-Husseiny**

Title **:** Effect of Mixed Protein Schedules Combined with Choline and Betaine on the Growth Performance of Nile Tilapia (Oreochromis Niloticus)

Authors**:** Osama M. El-Husseiny, Galal El-Din, M Abdul-Aziz and Rania S. Mabroke

Published In **:** Aquaculture Research

ISSN 1355 - 557X ***Impact Factor*** 1.067

Abstract :

Reducing feed cost has been a major issue in fish nutrition. Mixed protein schedules have been proposed as one of the methods successfully tested in many fish species to reduce feed cost. Meanwhile, the effect of dietary choline and betaine supplementation on fish performance was assessed. The aim of the present study was to investigate the e‹ect of mixed protein schedules, combined with choline and betaine, on Nile tilapia performance.This experiment was conducted in a (4×3) factorial arrangement of treatments. Four mixed protein schedules were examined, in the presence of choline 0.3% and/or betaine 0.5%. The four mixed protein schedules were achieved by alternating diet (A; 31%CP) and diet (B; 24%CP) as follows: (6 days-A), (5 days-A/ 1day-B), (4 days-A/2 days-B) and (3 days-A/3 days-B). The results indicated that in the presence of betaine 0.5% and choline 0.3%, the optimal mixed protein schedule for tilapiawas (3A/3B). Fish fed on the 4A/ 2B or 3A/3B schedules utilized protein more efficiently than fish fed on the (6A) schedule. Fish fed diets supplemented with betaine (b) only showed the highest energy retention. The lowest feed cost was recorded for fish fed on (3A/3B) in the presence of betaine 0.5% and choline 0.3% in fish diet.

Keywords:

Tilapia; Mixed protein schedules; Betaine; Choline.

Faculty of Agriculture

Dep. **:** Animal Production

Name **:** **Hosam Mohamed Safaa**

Title **:** Semen evaluation of two selected lines of rabbit bucks

Authors**:** H. M. Safaa, J. S. Vicente, R. Lavara, and M. P. Viudes de Castro

Published In : World Rabbit Science

ISSN 1257 - 5011 ***Impact Factor*** 0.574

Abstract :

Twenty rabbit bucks of 9 months of age were used to evaluate semen quality of two lines of New Zealand rabbit bucks selected for litter size at weaning (A line) and growth rate from weaning to slaughter (R line). The morphological semen characteristics indicated that the A line spermatozoa had greater acrosome integrity (+3.6 percentage units; P<0.01) and smaller sperm head size (for example, −1.46 μm2 for sperm head area) than in the R line. Seminal functional traits were also signifi cantly higher for the A line (+13.4 percentage units for viability, +10.6 percentage units for hypo-osmotic swelling test (HOST) and +3.3 g/L for seminal plasma protein. However, no differences were detected between lines for motility parameters and seminal plasma protein electrophoretic profi les. Both lines had the same twelve bands with the following molecular weights to the nearest 1 kD: 124, 117, 99, 86, 75, 62, 40, 32, 21, 19, 10 and 6 kD. A relationship (r=0.308 for A line and 0.359 for R line; P<0.01) was found between the integrity of the plasmatic membrane (viability rate) and tail membrane (HOST) of the spermatozoa in the A line, but not in the R line, which had greater sperm head size.There was also a signifi cant positive correlation coeffi cient between sperm concentration and either viability or some kinetic traits (r=0.567 and 0.575 for VCL, r=0.584 and 0.561 for VSL and r=0.588 and 0.588 for VAP, for A and R lines, respectively; P<0.001). We concluded that the A line seems to have better semen characteristics than the R line. We also found an interesting correlation among the seminal morphological, functional and kinetic traits, which could possibly be used to facilitate semen evaluation .

Keywords:

Rabbit; Semen profile; Selection criteria; Hypo-osmotic swelling test; Seminal Plasma protein.

Faculty of Agriculture

Dep. **:** Animal Production

Name **:** **Hosam Mohamed Safaa**

Title **:** Seasonal effects on semen quality in Black Baladi and White New Zealand rabbit bucks

Authors**:** H. M. Safaa, M. E. Emarah, and N. F. A. Saleh

Published In : World Rabbit Science

ISSN 1257 - 5011 ***Impact Factor*** 0.574

Abstract :

A total of 32 sexually mature rabbit bucks (at 6th month of age) were used in this experiment to study the effects of breed (Black Baladi -BB- vs. White New Zealand -WNZ-) and season (summer vs. winter) on libido and seminal parameters. The experimental design was completely random with four groups arranged factorially (two breeds and two seasons) with eight rabbits in each group and three months per season. The results obtained from this study indicated that, libido (14.5 vs. 21.9 sec) and physical semen characteristics represented by the volume of semen per ejaculate without gel fractions (0.70 vs. 0.49 mL), sperm-cell concentration (703 vs. 597×106/mL), total sperm output (513 vs. 293×106/ejaculate), sperm abnormalities (11.6 vs. 14.0%), acrosomal damages (8.6 vs. 11.5%), dead spermatozoa (13.9 vs. 16.0%), and advanced sperm motility (63.2 vs. 57.1%) were signifi cantly ($P<0.01$) better on BB rabbit bucks than on WNZ breed. In addition, these parameters proved to be signifi cantly ($P<0.01$) better in winter season (15.8 sec, 0.68 mL, 702×106/mL, 487×106/ejaculate, 10.7%, 8.4%, 12.7%, and 65.6%, respectively) than in summer (20.6 sec, 0.52 mL, 598×106/mL, 319×106/ejaculate, 15.0%, 11.7%, 17.3%, and 54.7%, respectively.(Following the hypo-osmotic swelling test (HOST) at 75 mOsmol/L during incubation at 37oC for 20 min, the percentages of sperm motility, swollen spermatozoa, and spermatozoa with coiled tails were higher for BB bucks (16.98, 44.08, and 39.13) than for the WNZ breed (7.2, 32.3, and 26.0). This was also the case in the winter season (14.4, 42.7, and 38.5) when compared to summer (9.8, 33.7, and 26.6), respectively. We concluded that, under Egyptian conditions, both libido and semen quality in BB bucks seems to be better than those displayed by the WNZ bucks. Nevertheless, overall semen characteristics were better in winter than in the summer season.

Keywords :

Rabbit; Semen characteristics; Season, Bree.

Faculty of Agriculture

Dep. **:** Animal Production

Name **:** **Hosam Mohamed Safaa**

Title **:** Effects of the levels of methionine, linoleic acid, and added fat in the diet on productive performance and egg quality of brown laying hens in the late phase of production

Authors**:** H. M. Safaa, M. P. Serrano, D. G. Valencia, X. Arbe, E. Jime´nez-Moreno, R. Lazaro, and G. G. Mateos

Published In : Poultry Science

ISSN 0032 - 5791 ***Impact Factor*** 1.603

Abstract :

Two trials were conducted to study the effect of reducing the methionine (MET, 0.36 vs. 0.31%), linoleic acid (LIN, 1.60 vs. 1.12%), and supplemental fat (SFAT, 3.0 vs. 1.1%) content of isoenergetic diets on the productive performance and egg quality of brown laying hens late in the production cycle. The 8 treatments were arranged factorially (2 × 2 × 2), with 6 replicates of 20 hens per treatment (Hy-Line, from 59 to 70 wk of age in trial 1, and Lohmann, from 56 to 75 wk of age in trial 2). Except for SFAT content, dietary treatment had little effect on laying hen performance and egg quality. The only effect of a reduction in MET content on hen performance was the decrease in the percentage of large and extra large eggs (79.8 vs. 85.9%; $P < 0.05$) from 60 to 67 wk of age in trial 2. A decrease in the level of SFAT reduced egg production (79.3 vs. 77.0%; $P < 0.05$), egg weight (66.3 vs. 64.9 g; $P < 0.001$), egg mass (52.5 vs. 49.8 g/d; $P < 0.001$), feed conversion ratio (2.26 vs. 2.36 kg of feed/kg of eggs; $P < 0.001$), and percentage of extra large eggs (13.1 vs. 8.2%; $P < 0.05$) in trial 1, but no significant differences were detected in trial 2. Reducing the LIN content of the diet from 1.60 to 1.12% did not affect any trait in either of the 2 trials.We conclude that reducing the level of SFAT from 3.0 to 1.1% might decrease productivity and the percentage of extra large eggs. However, a reduction in the MET level from 0.36 to 0.31% and in LIN from 1.60 to 1.12% did not affect any trait in hens late in the production cycle. Eggshell quality was not affected by any of the dietary treatments.

Keywords :

Laying hen productivity; Methionine; Linoleic acid; Fat; Egg quality.

Faculty of Agriculture

Dep. **:** Animal Production

Name **:** **Hosam Mohamed Safaa**

Title **:** Productive performance and egg quality of brown egg-laying hens in the late phase of production as influenced by level and source of calcium in the diet

***Authors*:** H. M. Safaa, M. P. Serrano, D. G. Valencia, M. Frikha, E. Jimenez-Moreno, and G. G. Mateos

Published In : Poultry Science

ISSN 0032 - 5791 ***Impact Factor*** 1.603

Abstract :

A total of 1,152 Lohmann Brown laying hens were used to study the influence of level (3.5 and 4.0%) and source (coded FIN, COA, and OYS) of Ca in the diet on productive performance and egg quality from 58 to 73 wk of age. The FIN diet contained all the Ca carbonate as fine limestone (LIM). In the COA and OYS diets, 40% of the fine LIM was substituted with either coarse LIM or oyster shell. Each treatment was replicated 8 times (24 hens). Productive performance and egg quality traits were recorded every 4 wk, and tibia characteristics and shell quality traits were determined at 73 wk of age. An increase in Ca intake from 4.08 to 4.64 g/hen per day improved egg production (71.2 vs. 74.9%; $P < 0.001$), egg mass (49.0 vs. 51.4 g; $P < 0.05$), and feed conversion ratio (2.43 vs. 2.30 kg of feed/kg of egg; $P < 0.001$). In addition, an increase in Ca intake improved shell weight (9.98 vs. 10.20%; $P < 0.05$), shell thickness (0.342 vs. 0.351 mm; $P < 0.01$), and shell density (82.0 vs. 83.8 mg/cm^2; $P < 0.001$). Calcium source had no effect on productive performance, tibia characteristics, or egg quality except for shell density, which was greater for hens fed COA than for hens fed FIN, with hens fed OYS being intermediate (81.9 vs. 84.0 vs. 82.7 mg/cm^2 ,respectively; $P < 0.05$). It was concluded that Brown egg-laying hens in the late phase of production require more than 3.5% Ca in the diet (4.08 g of Ca/hen per day) and that the substitution of 40% of fine LIM with COA or OYS does not affect productive performance and has little impact on shell quality and tibia characteristics.

Keywords:

Brown egg-laying hen; Calcium level; Limestone; Oyster shell; Shell quality.

Faculty of Agriculture

Dep. **:** Biochemistry

Name **:** **Ahmed Mahmoud Mostafa Aboul-Enein**

Title **:** Optimization of the Industrial Production of Alkaline Protease by Bacillus licheniformis in Different Production Scales

Authors**:** El Enshasy, H., Aboul-Enein, A., Helmy, S. and El Azaly, Y.

Published In : Australian Journal of Basic and Applied Science

ISSN 1991 - 8178 ***Impact Factor***

Abstract :

Production of extra-cellular alkaline protease using an industrial strain of Bacillus licheniformis in different industrial media was optimized. of different media used, the production medium composed of glucose and soybean meal as carbon and nitrogen source, respectively, in addition inorganic phosphate, calcium chloride and magnesium chloride shoed the maximal enzyme production of about 2400 U mL^{-1} after 96 h. The effect of glucose concentration on the cell growth and the enzyme production was studied in shake flask culture. The maximal enzyme production was obtained on using glucose concentration of 60 g L^{-1} in the industrial medium. Further optimization in the production process was achieved on studying the effect of aeration rate in small scale 16 L bioreactor. Whereas, the increase of airflow rate in the range between 0.5 to 2.0 v v^{-1} min showed a negative effect on cell growth, the maximal enzyme production of 4120 U mL^{-1} was obtained at airflow 1 v v^{-1} min after 84 h at agitation rate of 500 rpm. When the process was scaled up to 500 L bioreactor and cultivated at the same airflow rate, the enzyme production reached about 5100 U mL^{-1} after 80 h cultivation .

Keywords:

Alkaline protease; Bacillus licheniformis; Submerged culture; Large-scale.

Faculty of Agriculture

Dep. **:** Biochemistry

Name **:** **Ahmed Mahmoud Mostafa Aboul-Enein**

Title **:** Effect of Iron-Food Intake on anemia Indices; Haemoglobin, Iron and Ferritin among Childbearing Egyptian Females

Authors**:** M.K. Abdel-Rahman, A. Aboul-Enein and A.M. Hussien

Published In : World Journal of Agricultural Sciences

ISSN 1817 - 3047 ***Impact Factor***

Abstract :

This study was aimed at evaluating the effects of different plant sources and animal liver on iron intake on childbearing Egyptian females who suffer from nutritional anemia. The study included 25 childbearing Egyptian females between the ages of 25 – 40 years. The current study used anemia cut-off values below the normal levels of 12 g/dl, 41 µg/dl, and 20 µg/1 for hemoglobin, iron, and ferritin, respectively. All females provided full consent for participation in the study. The participants were classified into 5 groups; each group consisted of 5 females ingesting 100 grams daily of either a plant or animal iron source for 7 weeks. The plant sources were Egyptian folk foods that are believed to improve anemia, such as aubergine (Solanum melongena), black dates (phoenix dactylifera), blackstrap molasses, watercress (Nasturtium oficinale), and buffalo liver. Before and after every week, hemoglobin, iron, and ferritin levels were determined. In summary, the results showed that aubergine, black dates, and buffalo liver improved hemoglobin, iron, and ferritin levels compared with watercress and molasses. Many nutritional factors may improve anemia and, therefore, further study is needed. The researchers recognize the importance of defining the relationship between iron intake and anemia among childbearing Egyptian females. In this study, the results indicated that both plant and liver sources of iron can enhance levels of serum anemia indices, which increase the ratio of hemoglobin, iron, and ferritin in serum.

Keywords:

Anaemia; Ferritin; iron; Haemoglobin; Childbearing females; Blackstrap Molasses; Black dates; Aubergine; Watercress; Buffalo liver.

Faculty of Agriculture

Dep. **:** Biochemistry

Name **:** **Gamal S. El-Baroty**

Title **:** Natural Preservative Ingredientfrom Marine Alga Ulva Lactuca L

***Authors*:** H. H. Abd. El-Baky, El- Baz, F. K and G. S. El-Baroty

Published In : Advances in Food Sciences

ISSN ***Impact Factor***

Abstract :

The contents of total chlorophyll (T-Chl), carotenoids (TCAR) and phenolics (TPc) were quantified in the biomasses of Ulva lactuca grown either in normal or artificial seawater under indoor conditions. The antioxidant and antibacterial activities of Ulva crude organic extracts (UCOEs) were determined. Seven and thirty-four compounds in UCOEs were characterized by thin layer chromatography (TLC) and high performance liquid chromatography (HPLC). The major compounds were Chl a (15.60-30.90 %), Chl b (12.20-14.89 %), 9-cis β-carotene (13.12-14.47%), α-carotene (11.44-11.47 %) and all-trans β- carotene (6.16-29.70 %, of the total area). The UCOEs exhibited remarkable antioxidant activity, compared to synthetic antioxidants: butylated hydroxyanisol (BHA) and butylated hydroxyltoluene (BHT), as evaluated by bleaching β-carotene/l inoleate and 1,1-diphenyl-2- picrylhydrazyl (DPPH.) radical scavenging methods. Also, UCOEs exhibited great potential of antibacterial activities against 6 bacterial strains, with minimal inhibitory concentration (MIC) values ranging from 400 to 350 µg/ml. Data indicate that U. lactuca could be a potentially rich source of natural colorant with antioxidative and antibacterial properties, and could possibly be utilized as natural preservative ingredient in food and pharmaceutical industry.

Keywords:

Ulva lactuca; Antioxidant activity; Antimicrobial activity.

Faculty of Agriculture

Dep. **:** Biochemistry

Name **:** **Gamal S. El-Baroty**

Title **:** Chemical and biological evaluation of the essential oil of Egyptian Moldavian balm.

***Authors*:** H. H. Abd. El-Baky and G. S. El-Baroty

Published In : International Journal of Integrative Biology

ISSN 0973 - 8363 ***Impact Factor***

Abstract :

The essential oil of Dracocephalum moldavica L. growing in Egypt was analyzed by TLC and GC/MS. More than 90 components were detected, of which 44 comprising 97.18% of the total oil were identified. The principal constituents were geranyl acetate (24.93%), geranial (23.67%), geraniol (14.96%), nerol (11.0%), neryl acetate (5%), neral (3.3%) and linalool (1.38%). The antimicrobial potential of the oil against six bacterial and four fungal strains were investigated. D. moldavica essential oil exhibited a significant antibacterial and antifungal activity in comparison to a positive reference standard (chloramphenicol). The minimum inhibitory concentration values were 0.07 mg/ml and 0.08 mg/ml for the tested bacterial and fungal strains, respectively. Inhibition zones of bacterial growth in the bioautograms had Rfs of 0.1, 0.30, 0.42, 0.54 and 0.73. These active components were identified by GC/MS after separation with preparative TLC as geraniol and nerol; geranyl acetate; geranial; neral; neryl actetate and methyl nerolate, respectively. Antioxidant activity was also tested, the oil showing a moderate antioxidant activity compared to that of α- tocopherol , BHT and BHA. The use of D. moldavica essential oil could thus provide a powerful tool in the control of pathogenic microbes in the food and pharmaceutical industries .

Keywords:

Dracocephalum moldavica; Moldavian balm; Antimicrobial activity; Essential oil; Bioautography method; GC/MS.

Faculty of Agriculture

Dep. **:** Biochemistry

Name **:** **Gamal S. El-Baroty**

Title **:** Characterization of nutraceutical compounds in blue green alga Spirulina maxima

Authors**:** H. H. Abd. El-Baky, El- Baz, F. K and G. S. El-Baroty

Published In : Journal of Medicinal Plants Research

ISSN 1996 - 0875 ***Impact Factor***

Abstract :

This work was conducted to evaluate the influence of culture conditions (nitrogen concentrations in growth medium) on characterization of some nutraceutical compounds in algal Spirulina maxima. Antioxidant and antibacterial activities as well as chemical composition of organic extracts obtained from different cultures were examined. The amounts of total carotenoids, chlorophylls-derived and phenolic compounds were associated inversely with concentration of nitrogen in growth media. The antibacterial results showed that all S.maxima extracts exhibited great potential antibacterial activities against six bacterial strains with inhibition zones ranged 7-18 mm and MICs values ranged 30-40 µg/mL. Also, all S.maxima extracts possessed potent antioxidant properties as comparable to commercial antioxidants.The chromatographic analyses of Spirulina organic extracts with TLC and HPLC showed that carotenoids, chlorophyll-derived and phenol compounds were presence as main constituents and their quantities was significantly changed dependant on culture conditions. Thus, it could be suggested that the Spirulina is useful bio-system for production bioactive compounds possess an antioxidants and antimicrobial principles and as natural pigments.

Keywords:

Spirulina maxima; Organic extract; Antioxidant activity; Antimicrobial activity.

Faculty of Agriculture

Dep. **:** Biochemistry

Name **:** **Gamal S. El-Baroty**

Title **:** Enhancement of antioxidant production in Spirulina plantensis under oxidative stress

Authors: H. H. Abd. El-Baky, El- Baz, F. K and G. S. El-Baroty

Published In : Advances in Food Sciences

ISSN ***Impact Factor***

Abstract :

The present study examines the possibility of increasing the levels of some bioactive compounds in Spirulina platensis cultivated in media containing various hydrogen peroxide concentrations (2, 4, 6 and 8 mM), as a model for environmental stress. Spirulina platensis showed significant linear increase in antioxidant enzyme activities, i.e., catalase (CAT), peroxidase (PX), ascorbate peroxidase (APX) and superoxide dismutase (SOD), with increasing H_2O_2 levels. A pronounced decrease of oxidative lesion indexes (thiobarbituric acid reactive substances (TBARs) and alkyl radical-EPR signal) was noticed. HPLC profile of carotenoids and tocopherols of treated algae revealed that algae responded to the change of H_2O_2 exposure by modifying their cellular contents and compositions. Significant positive correlation was observed between the increase of H_2O_2 in media and increasing amounts of astaxanthine, lutein and α - tocopherol. Also, hydrophilic antioxidants (glutathione and ascorbic acid content) were increased with increasing H_2O_2 concentration. These data revealed that Spirulina platensis behaved with different tolerances and strategies against H_2O_2 exposure, which is dose-dependent and strongly correlated With antioxidant enzyme activities and the levels of low molecular weight of antioxidant compounds. Therefore, all these effects make Spirulina platensis good candidates for successful cultivation in artificial open ponds under different environmental conditions as high value health foods, functional foods and as a source of a wide spectrum of nutrients.

Keywords:

Spirulina platensis; Carotenoids; Antioxidant enzymes; Ascorbic acid; Tocopherols and free radicals.

Faculty of Agriculture

Dep. **:** Biochemistry

Name **:** **Gamal S. El-Baroty**

Title **:** Algal extracts improve antioxidant defense abilities and salt tolerance of wheat plant irrigated with sea water

Authors: H. H. Abd. El-Baky, El- Baz, F. K and G. S. El-Baroty

Published In : African Journal of Biochemistry Research

ISSN 1996 - 0778 ***Impact Factor***

Abstract :

Effect of irrigation bread wheat plants (Triticum aestivum L., cv. Giza 94) with sea water (10 and 20% v/v), spraying with microalgae extracts obtained from Chlorella ellipoida and Spirulina maxima (5 gL^{-1} dry weight in 0.1% Tween solution) cultivated under normal and stress conditions were studied. Some plant bioregulators (BRGs, ascorbic acid and benzyl adenine, at 200 ppm) at the vegetative growth stage on photosynthetic pigments, antioxidant components, activity of some antioxidant enzymes, lipid peroxidation products, growth parameters, mineral content and economic yield were estimated. Irrigation of wheat plants with sea water led to an increase in Na^+ ion, activities of antioxidant enzymes, superoxide dismutase, ascorbate peroxidase and total peroxidase, and TBARs components. In contrast, the contents of photosynthetic pigments and yield components were reduced. Furthermore, the overall growth of wheat plants was interrupted by irrigation with sea water (10 and 20%) and the effect was pronounced at higher level (20%). Application of BRGs had a slight effect on plant growth, antioxidant behavior and activity of antioxidant enzymes in plants irrigation with sea water compared with that in stressed wheat plants .Application of algal extracts significantly increased the contents of total chlorophyll and antioxidant phenomenon. In additional, application of algal extracts exhibited strong positive correlation with increase in fresh weight (FW), grain weight and yield components. It is concluded that productive purpose of wheat crop by mean of brackish water (at 20 v/v level) is possible under a level of economical value through its application of algal extracts.

Keywords:

Microalgae; Sea water; Wheat; Salinity stress; Antioxidant systems.

Faculty of Agriculture

Dep. **:** Biochemistry

Name **:** **Gamal S. El-Baroty**

Title **:** Chemical composition and antimicrobial activities of the essential oil from the seeds of Enterolobium contortisiliquum (leguminosae)

Authors: Abdelaaty A. Shahat, Gamal El-Barouty, Rasmeia A. Hassan, Fiza M. Hammouda and Fawzia H. Abdel- Rahman

Published In : Journal of Environmental Science and Health

ISSN 0360 - 1234 ***Impact Factor*** 0.683

Abstract :

Seeds of Enterolobium contortisiliquum were subjected to steam distillation to obtain a light yellow essential oil in a yield of 3 ml/kg of seeds. The major components of the oil were identified using gas chromatography/mass spectrometry (GC-MS) and were furfural, limonene, linalool, estragole, carvone, and apiole with carvone representing more than 50% of the total composition. Antimicrobial activities of the essential oil were determined against four species of gram positive bacteria (Bacillus subtilis, Bacillus cereus, Staphylococcus aureus, Micrococcus luteus) and two gram negative bacteria (Klebsiella pneumoniae, Serratia Marcescencs). The essential oil inhibited the growth of all tested bacteria but was most effective against the gram positive bacteria. Chemicals that are responsible for the antibacterial effect of the essential oil were determined using the bio-autography thin layer chromatography (TLC) technique. The active compounds responsible for the activity were found to be carvone and estragole.

Keywords:

Antibacterial activity; Volatile compounds; Terpenes; Bioautography; GCMS.

Faculty of Agriculture

Dep. **:** Biochemistry

Name **:** **Gamal S. El-Baroty**

Title **:** Gynecological efficacy and chemical investigation of Vitex agnus-castus L. fruits growing in Egypt

Authors: N. A. Ibrahim, A. S. Shalaby, R. S. Farag, G. S. Elbaroty, S. M. Nofal and E. M. Hassan

Published In : Natural Product Research

ISSN 1478 - 6419 ***Impact Factor*** 0.683

Abstract :

Flavonoid glycosides, orientin and apigenin 3, 8-di-C-glycosides in addition to, iridoid compound, aucubin were isolated from the ethanolic extract of Vitex agnus-castus fruits. Their structures were identified on the basis of the spectroscopic data. The estrogenic activity of the ethanolic extract in two dose levels 0.6 and 1.2 g kg^{-1} per body weight (b.w.) was studied by the vaginal smear, and uterine weight methods for normal and ovariectomized female rats. The extract induced significant increase in the uterine weight of ovariectomized rats at two dose levels comparable to that of control group. The percentages of the total average number of scores were increased significantly too. Significant increases in plasma progesterone and total estrogens levels were shown at the two dose levels when compared to that of control group. On the other side, the extract induced significant reduction in lutinizing and plasma prolactin hormones .

Keywords:

Vitex agnus-castus fruits; Verbinaceae; Orientin; Apigenin3; 8-di-C-Glycoside; Aucubin; Gynecological efficacy.

Faculty of Agriculture

Dep. **:** Biochemistry

Name **:** **Hossam El-Din Saad El-Beltagi**

Title **:** Assessment of Volatile compounds, Free Radical-Scavenging Capacity and Anti-Microbial Activity of Lemon Verbena Leaves

Authors: Hanaa F.M. Ali, Hossam S. El-Beltagi and N.F. Nasr

Published In : Research Journal of Phytochemistry

ISSN 1819 - 3471 ***Impact Factor***

Abstract :

The volatile chemicals constituents of Lemon verbena, Aloysia triphylla were extracted by modified steam distillation method and determined by gas chromatography-mass spectroscopy (GC-MS). Forty-three components were determined qualitatively and quantitatively, which represented about 96.05%. The major component was citral (14.21%) and seven components were identified as main components (more than 4 %) i.e., β-caryophyllene (10.71%), 1,8-cineole (9.1%), Citronellol (8.87%), iso-menthone (6.43%), α- bergamotene (5.33%), menthonol (5.10%) and p-cymene (4.23%). The resulting oil was tested for its radical scavenging activity employing 1,1-diphenyl-2-picrylhydrazyl (DPPH) assay. Throught all concentrations (5, 10 and 15 µL) for DPPH assay moderate radical scavenging activity compared to BHA. A. triphylla essential oil was tested against six Gram-positive and Gram-negative bacteria and four phytopathogenic fungi. A. triphylla essential oil exhibited an interesting antimicrobial activity against Bacillus subtilis and Staphylococcus aureus. No antibacterial activity was observed against Listeria monocytogenes, Salmonella spp. and Escherichi coli. A. triphylla essential oil partially inhibited the growth of the fungal strains was observed against Candida albicans, Phanerochaete chysosporium and Trichoderma reesei. No antifungal was observed against Trichoderma viride .

Keywords:

Lemon verbena; Scavenging capacity; Antioxidant; Antimicrobial.

Faculty of Agriculture

Dep. **:** Biochemistry

Name **:** **Hossam El-Din Saad El-Beltagi**

Title **:** Some Biochemical Markers for Evaluation of Flax Cultivars under Salt Stress conditions

Authors: Hossam S. El-Beltagi, Zeinb A. Salama and D. M. El-Hariri

Published In : Natural Fibers

ISSN 1544 - 0478 ***Impact Factor***

Abstract :

Increment of salt stress brought about a clear enhancement of the oxidative activities in tolerant plant species. Five cultivars of flax (Linum Usitatissimum L.) Sakha-1, Sakha-2, Giza-8, (Egyptian origin) Alfa-B (Lithanian origin), and Ariane (French origin) were tested for salt stress tolerance. Plants were subjected hydroponically to sodium chloride (0.00 and 100 mM NaCl) for 21 days. Parameters of oxidative stress such as activity of antioxidant enzymes: peroxidase (POD), superoxide dismutase (SOD) and ascorbate peroxidase (APX) together with lipid peroxidation were determined. Electrophoretic isozyme profiles detection and total soluble protein SDS-PAGE were used as biochemical markers for assessing plant salt tolerance. Plant growth of Ariane was improved at 100 mM NaCl as compared to control (0.0 NaCl) whereas; plant growth of Sakha-1 and Sakha-2 was decreased by 100 mM NaCl level. No response was observed on plant growth of Giza-8 and Alfa-B cultivars under salt stress. Nutrients concentration ratios were disturbed under high level of NaCl (100 mM). The relative salt tolerance of Sakha-1 and Ariane cultivars was associated with high antioxidant enzymes activity POD, SOD and low MDA content. Salt stress caused an inhibition in the synthesis of polypeptide in the leaves of flax cultivars. In addition, electrophoretic profiles of POD and SOD showed differences under salt stress. From this study, it could be concluded that Ariane and Sakha-1 cultivars showed salt tolerance for the high capacity to limit oxidative damage by increasing their activity of antioxidant enzymes together with the low content of MDA and the decrease of Na/K concentration which may play as a part of biochemical and physiological role involved in salt tolerance and impair the oxidative damage resulted from salinity salt stress. Ariane and Sakha-1 cultivars were found to be more tolerant to salinity salt stress.

Keywords:

Flax; lipid peroxidation (MDA); Antioxidant enzymes; Isozymes; Protein SDS-PAGE; and salt stress.

Faculty of Agriculture

Dep. **:** Biochemistry

Name **:** **Radwan S. Farag**

Title **:** Use of Sunflower Oil Mixed with Jojoba Paraffin Oils in Deep-fat Frving Process

Authors: Radwan S. Farag, Mostafa M. Farag and Rehab F.M. Ali

Published In : Food Science and Technology

ISSN ***Impact Factor***

Abstract :

The aime of the Present Study was to increase the Stability of sunflower oil during frying process and to obtain low- calorie fried foods. Therefore Sunflower oil was mixed separately with jojoba oil and paraflin oil at ratios of 9:1 and 8:2 (v/v) . The frying process was conducted at 180°±°C for 12 h continuous heating time. Some physico-chemical properties (refractive index, viscosity,colour, acid value, peroxide value, thiobarbituric test, iodine value and polymer content) of non-fried and binary fried and oil systems were measured at various heating periods the results demonstrated that mixing sunflower oil with jojoba oil or parafhn oil increased thestability and hence improved the quality of sunflower oil during frying process.

Keywords:

Sunflower oil; Jojoba oil; Quality assurance tests.

Faculty of Agriculture

Dep. **:** Biochemistry

Name **:** **Radwan S. Farag**

Title **:** Safety Limits of Heat- Treate- Sunflower Oil with Ferrous Sulphate

Authors: Radwan S. Farag, Amany M.M Basuny, Shaker M. Arafat and Sahar A. Arafa

Published In : Advances in Food Sciences

ISSN ***Impact Factor***

Abstract :

Nutritional experiments were conducted in which rats administered standard diets containing non-heated, heated and heat-treated sunflower oil with ferrous sulphate. The safety limits of different sunflower oil samples were recognized by measuring the activities of some enzymes (alanine and aspartate amino-transferases, alkaline phosphatase) and sera constituents (total lipids, total cholesterol, HDL- and LDL-cholesterol, creatinine, urea and uric acid). The data demonstrate that heated sunflower oil induced significant rise in sera components and enzyme activities. On the contrary, administration of heat-treated sunflower oil with ferrous sulphate solution to rat diets indicated that the enzyme activities and sera constituent levels were similar to those of rats given non-heated sunflower oil. The ferrous sulphate method can safely be used for regenerating heated sunflower oil quality.

Keywords:

Sunflower oil; Ferrous sulfate; Oil heating process; Rats; Nutritional experiments.

Faculty of Agriculture

Dep. **:** Biochemistry

Name **:** **Radwan S. Farag**

Title **:** Safety Evaluation of Individual Non- fried and Fried Sunflower Oil, Paraffin Oil, Jojoba Oil and their Binary Mixtures on Rat Health

Authors: Radwan S. Farag,Mostafa M. Farag Amany M. Basuny, and Rehab F. Mohammed

Published In : Food Science and Technology

ISSN ***Impact Factor***

Abstract :

Sunflower jojoba paraffin oils and binary oil mixtures of Sunflower jojoba and Sunflower- paraffin oils were continuously heated at 180° c for 12h. Aliquots of potato chips were fried in the aforementioned oil samples. Organoleptic tests were performed on fried chips and safety limits of the oil samples were performed on fried chips and safety limits of the oil samples were measured by certain biochemical tests. Histopathology examinations of rat liver and kidney tissues were microscopically done. Organoleptic results for fried potato chips indicate that all types of chips obtained from heated oils were categorized good .Histopathological examinations indicate changes in rat tissues of liver and kidney paralleled the biochemical data in general, the results suggest that paraffin oil alone and in mixtures with sunflower oil have to ben its use in frying processes.

Keywords:

Liver and Kidney Function tests; Microscopic Examination; non- fried and fried oils; Organoleptic tests; Rats.

Faculty of Agriculture

Dep. **:** Biochemistry

Name **:** **Radwan S. Farag**

Title **:** Biochemical Studies on Pollen Grains of some Medicial and Classical Plants

Authors: Radwan S. Farag, M. M. Rashed- Safaa A.E. Abded- Wahab- A. S. Ahmed, and Hala A. Thabet

Published In : Advances in Food Sciences

ISSN ***Impact Factor***

Abstract :

A study was conducted to evaluate the nutritional effect of pollens collected from some medicinal (palm, chamomile. coriander) and classical (sunflower) plants. Therefore, the gross chemical compositions (ash, protein, lipid, total carbohydrates and fibre contents), fatty acids, amino acids. as well as polyphenol patterns were determined. The results indicated-that the gross chemical composition of pollens was largely dependent on their botanical origin. The gas chromatographic analysis of sunflower and palm pollens demonstrated that the most predominant saturated and unsaturated latty acids were 22:0. 18:3 and 22:0. 18: I. respectively. Chamomile pollens were characterized by the highest concentrations of palmitic (12.73 %) and oleic (23.05%) acids as saturated and unsaturated ones, respectively. The pollens of coriander plants were distinguished by having the acids 16:0. 18: 1 and 18:3 as major substances. The present results demonstrated that fatty acids, taken as group, may provide a key for the identification of pollen natural sources. The fatty acid patterns of pollens elucidated that the atherogenic index of the different pollens was arranged in the ascending order: chamomile> sunflower> coriander > palm. Seventeen amino acids were identified in all pollens using an amino acid analyzer. In general, palm pollens contained the highest amounts of all essential amino acids, compared with other pollen sources. The least limiting essential amino acids in all pollens were the sulfur amino acids (methionine + cysteine). According to the chemical score values. the quality of pollen proteins was arranged in the decreasing order: palm> sunflower > chamomile = coriander .HPLC chromatographic analyses indicated that chlorogenic acid was the most abundant polyphenolic compound in pollens. The levels of chlorogenic acid in pollens were ranked in different plants according to the descending order': coriander> sunflower > chamomile> palm .

Keywords:

Pollen grain; Medicinal plants; Chemical composition; Fatly acid; Amino acid and polyphenol patterns.

Faculty of Agriculture

Dep. **:** Biochemistry

Name **:** **Radwan S. Farag**

Title **:** Gynecological Efficacy and Chemical Investigation of Vitex Agnus- castus L. Fruits Growing in Egypt

Authors: Ibrahim NA, Shalaby AS, Farag RS, Elbaroty GS, Nofal SM and Hassan EM

Published In : Natural Products Research

ISSN ***Impact Factor***

Abstract :

Flavonoid glycosides, orientin and apigenin 3,8-di-C-glycosides in addition to, iridoid compound, aucubin were isolated from the ethanohc extract of Vitex agnulI-ca.Hu.v fruits. Their structures were identified on the basis of the spectroscopic data. The estrogenic activity of the ethanolic extract in two dose levels 0.6 and I.2gkg^{-1} per body weight (b.w.) was studied by the vaginal smear, and uterine weight methods for normal and ovariectomized female rats. The extract induced significant increase in the uterine weight of ovariectomized rats at two dose levels comparable to that of control group. The percentages of the total average number of scores were increased significantly too. Significant increases in plasma progesterone and total estrogens levels were shown at the two dose levels when compared to that of control group.On the other side, the extract induced significant reduction in lutinizing and plasma prolactin hormones .

Keywords:

Vitex agnulI-ca.flu.f fruits; Verbinaceae; Orientin; Apigenin 3; 8-di-C·Glycoside; Aucubin; Gynecological efficacy.

Faculty of Agriculture

Dep. **:** Biochemistry

Name **:** **Mahmoud Abdelhaleim Mahmoud Mohamed**

Title **:** Quantitative Analysis of Phthalates Plasticizers in Traditional Egyptian Foods (Koushary and Foul Medams), Black Tea, Instant Coffee and Bottled Waters by Solid Phase Extraction-Capillary Gas Chromatography-Mass Spectroscopy

Authors: Mahmoud A. Mohamed and Abdallah S.Ammar

Published In : American Journal of Food Technology

ISSN 1557 - 4571 ***Impact Factor***

Abstract :

In the present study, method of solid-phase extraction followed by capillary gas chromatography coupled to mass spectrometry (SPE-GC-MS) was used for quantitative analysis of trace levels of phthalates in the most tow Egyptians traditional food (foul medams and koushary) and drinks (black tea and instant black coffee) and bottled water samples.Method performance was evaluated in terms of accuracy, linearity, limits of detection and recovery. Also the practical application of extraction and analysis method was explained.

Keywords:

Phthalates plasticizers; Egyptian; Mass spectroscopy; Solid phase extraction.

Faculty of Agriculture

Dep. **:** Biochemistry

Name **:** **Hany A. El-Shemy**

Title **:** N-deficiency damps out circadian rhythmic changes of stem diameter dynamics in tomato plant

Authors: Syunsuke Kanai, Joseph Adu-Gymfi, Kei Lei, Junki Ito, Katsumi Ohkura, Reda E.A. Moghaieb and Hany El- Shemy

Published In : Plant Science

ISSN 0168 - 9452 ***Impact Factor*** 1.795

Abstract :

Tomato (Lycopersicon esculentum) plants were grown in hydroponics. At the fruiting stage, N was withdrawn from the growing medium for a period of 19 days and its effects were studied on plant biomass production, photosynthesis, partitioning of 13C and 15N, and changes in the stem and fruit diameters, etc., in order to monitor the mechanism of resource management on the plant parts at low N and prevent excess use of the fertilizer. N-deficiency treatment decreased leaf photosynthesis immediately and affected biomass accumulation of tomato. Conversely, N-deficiency increased stem diameter for a period of two weeks before reducing it below the control. During this period, these results suggest that N deficiency suppresses the source activity more than the sink activity. N-deficiency reduced the amplitude of the circadian pattern of daytime shrinkage and nocturnal expansion of the stem diameter by decreasing the magnitude of the former. Circadian pattern of contraction and expansion of diameter was less evident in the fruit. Under N-deficiency, distribution of 13C and 15N decreased and increased, respectively in fruits. Restricted partitioning of carbon to fruits could be responsible for accumulation of unused assimilates and consequential osmotic adjustment for maintenance of stem water potential. This effect might have precluded contraction of stem diameter of N-deficient plants until the production of assimilates became limiting on account of depression of leaf photosynthesis.

Keywords:

Nitrogen; Source–sink relationship; Stem and fruit diameter; Tomato; Micro-morphometry.

Faculty of Agriculture

Dep. **:** Biochemistry

Name **:** **Hany A. El-Shemy**

Title **:** The effect of phosphorus deficiency on nutrient uptake, nitrogen fixation and photosynthetic rate in mashbean, mungbean and soybean

Authors: Muhammad Iqbal Chaudhary , Joseph J. Adu-Gyamfi , Hirofumi Saneoka , Nguyen Tran Nguyen , Ryuichi Suwa , Shynsuke Kanai , Hany A. El-Shemy David A. Lightfoot and Kounosuke Fujita

Published In : Acta Physiologia Plantarum

ISSN 0137 - 5881 ***Impact Factor*** 0.295

Abstract :

Phosphorous (P) fertilization is the major mineral nutrient yield determinant among legume crops. However, legume crops vary widely in the ability to take up and use P during deficiency. The aim here was to compare P uptake and translocation, biological nitrogen fixing ability and photosynthetic rate among mashbean (Vigna aconitifolia cv. 'Mash-88'), mungbean (Vigna radiata cv. 'Moong-6601') and soybean (Glycine max L. cv. 'Tamahomare') during deficiency in hydroponics. Two treatments, the withdrawal of P from the solution (Pdeprivation) and continued P at 160 lM (P sufficient) were effected at the pod initiation stage. Plants were grown for 20 days. Short-term labeling with $_{32}$P showed the uptake and distribution of P into plant parts. Withdrawal of P from the solution reduced biomass, photosynthetic activity, and nitrogen fixing ability in mungbean, and mashbean more than in soybean. P deprivation decreased P accumulation more than N accumulation. The decrease was more severe in mungbean and mashbean than soybean. More P was translocated and distributed into leaves in soybean than in mungbean and mashbean. Leaf P amount was more correlated to leaf area than to photosynthetic rate per unit leaf area among all three legume species .The results indicate that selection for increased efficiency of P utilization and leaf area may be used to improve leguminous crops.

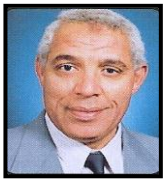
Keywords:

BNF; Leaf area development; Mashbean; Mungbean; Soybean; $_{32}$P-labelledP

Faculty of Agriculture

Dep. **:** Dairy Science and Technology

Name **:** **Ibrahim Abd El-Salam Abd El-Gawad**



Title **:** Effects of milk fermented by Lactobacillus gasseri SBT2055 on adipocyte size in rats

Authors: Masao Sato, Kazunori Uzu, Takeshi Yoshida, Essam M. Hamad, Hiroshi Kawakami, Hiroaki Matsuyama, Ibrahim A. Abd El-Gawad and Katsumi Imaizumi.

Published In : British Journal of Nutrition

ISSN 0007 - 1145 ***Impact Factor*** 2.339

Abstract :

Despite adequate scientific evidence of the potential benefits of probiotics to human health or disease prevention, their contribution to the growth of adipose tissue remains to be established. Four-week-old male Sprague-Dawley rats were fed a diet containing skim milk (control diet) or skim milk fermented by Lactobacillus gasseri SBT2055 (LGSP diet) for 4 weeks. Their body weight gain, adipose tissue weight, adipocyte size distribution profile, blood and hepatic lipids, and serum leptin, glucose and adiponectin levels were determined. There was a significant reduction in average adipocyte size in mesenteric white adipose tissue (P=0·004). Moreover, the rats fed the LGSP diet displayed greater numbers of small adipocytes from mesenteric and retroperitoneal adipose tissues than did those on the control diet. Whereas adiponectin concentrations did not differ between the groups, serum leptin concentrations were decreased to 32% in the LGSP diet group compared with the control group. Concentrations of serum glucose and lipids, and liver lipids, except for the liver TAG level, were similar in the two groups. These results indicate a possible role for a fermented milk product in the regulation of adipose tissue growth.

Keywords:

Lactobacillus gasseri; Probiotics; Leptin; Adipocyte size.

Faculty of Agriculture

Dep. **:** Dairy Science and Technology

Name **:** **Elham Mostafa El-Sayed**

Title **:** Effects of chicory water extract and lactulose syrup on growth and viability of Lactobacillus plantarum, Lactobacillus casei and Lactobacillus rahmnosuss in skim milk

Authors: E. M. El-Sayed, A.M. Abdel-Salam, S. Badran and G.A. Ibrahim

Published In : International Journal of Dairy Science

ISSN 1811 - 9743 ***Impact Factor***

Abstract :

The present research aimed to study the effect of chicory extract and lactulose syrup on the growth and viability of three probiotic organisms (Lactobctcillusplantarurn, Lactobcicillus casei and Lactobacillus rhamnosuss) and regular yoghurt cultures(Streptococcus subsp. therm op hilus, Lactobacillus deibrueckli subsp. bulgaricus) in skim milk. Three concentrations of probiotic inoculums and prebiotic ingrechents (0.5, 1 and 1.5% for probiotic and 1, 3 and 5% for prebiotic) were used to select the suitable ratio in the application experiments. The tested cultures with or without prebiotic were incubated on 42 and 37°C. The obtained results showed that the growth of Lactobacillus plantarum, Lactcbacillus casei, Lactobacillus rhamnosuss and yoghurt cultures (Streptococcus thermophilus, Lactobacillus bulgaricus) were affected by the incubation temperature in all of the tested bacteria and inoculation percentage in all of probiotic strains individually or mixed with traditional yoghurt cultures. The percentage of viability in traditional yoghurt cultures were increased when cultures were incubated at 42°C compared with the cultures incubated at 37°C and different from the viability of L actobacillus plantarum, Lactobacillus casei and Lactobacilius rhamnosuss which, were increased with incubation at 37°C compared with incubation at 42°C. Also, data found that the generation time of all probiotic cultures was decreased in the presence of chicory extract and lactulose syrup due to the enhancement of growth in probiotie cultures. The obtained results can help our further studies for selection the optimum inoculation percentage and incubation temperatures of tested strains individually and/or mixed with traditional yoghurt cultures in the application experiments.

Keywords:

Lactulose syrup; Skim milk; Yoghurt culture .

Faculty of Agriculture

Dep. **:** Dairy Science and Technology

Name **:** **Essam Mohamed Mohamed Hamad**

Title **:** Milk fermented by Lactobacillus gasseri SBT2055 influences adipocyte size via inhibition of dietary fat absorption in Zucker rats

Authors: Essam M. Hamad, Masao Sato, Kazunori Uzu, Takeshi Yoshida, Siichiro Higashi, Hiroshi Kawakami, Yukio Kadoka, Hiroaki Matsuyama, Ibrahim A. Abd El-Gawad and Katsumi Imaizumi

Published In **:** British Journal of Nutrition

ISSN 0007 - 1145 ***Impact Factor*** 2.339

Abstract :

We have demonstrated previously that a diet containing skimmed milk (SM) fermented by Lactobacillus gasseri SBT2055 (LGSP) reduces adipocyte size in Sprague–Dawley rats. Two experiments were conducted to extend these observations in order to elucidate the mechanism involved. In experiment 1, lean and obese Zucker rats were fed a diet containing SM or LGSP for 4 weeks. The LGSP diet, compared with the SM diet, resulted in lowering of the mesenteric adipose tissue weight (23%; $P<0{\cdot}05$), adipocyte sizes (28%; $P<0{\cdot}001$) and serum leptin concentration (36%; $P<0{\cdot}05$) in lean rats. Obese Zucker rats did not display such dietary effects. Only the number of smaller adipocytes was increased ($P<0{\cdot}05$) by the LGSP diet in the subcutaneous adipose tissue of obese rats. The LGSP diet significantly reduced the serum and hepatic cholesterol in rats. In addition, the LGSP diet led to an increased excretion of faecal fatty acids and total neutral faecal sterols in both rat strains. In experiment 2, Sprague–Dawley rats with permanent cannulation of the thoracic duct were fed either the SM or LGSP diets and their lymph was collected. The LGSP diet lowered the maximum transport rate of TAG and phospholipids .These results indicate that fermented milk regulates adipose tissue growth through inhibition at the stage of dietary fat absorption in lean Zucker rats.

Keywords:

Lactobacillus gasseri; Zucker rats; Adipocyte size; Lymph lipids; Faecal fatty acids .

Faculty of Agriculture

Dep. **:** Economic Entomology and Pesticides

Name **:** **Said Ali Eid El-Salamouny**

Title **:** Green tea extracts as ultraviolet protectants for the beet armyworm, Spodoptera exigua, nucleopolyhedrovirus

Authors: Martin Shapiro, Said El Salamouny and Merle Shepard

Published In : Biocontrol Science and Technology

ISSN 0958 - 3157 ***Impact Factor*** 1.087

Abstract :

The addition of a caffeinated green tea, Cainellia sinensis L., filtrate (1%) to the nucleopolyhedrovirus (SeMNPV) of the beet armyworm, Spodoptera exigua (Hübner), provided almost complete protection following UVB irradiation (30 min) in laboratory tests. There were few differences in UV protection when extracts were prepared at 27 or at 90°C. Moreover, few differences in UV protection were demonstrated following infusion times of 5, 15, 30, and 60 min at 90°C. At a I % concentration, decaffeinated and caffeiiiated green teas were equally effective as UV protections. At lower concentrations (0.1, 0.01, and 0.001%) caffeinated green tea provided greater UV protection UVB/UVB 30, 60min). Virus/tea extracts (caffeinated), under field conditions at I and 5%, were ineffective as UV screens. At a 10% concentration, some UV protection was provided and UV protection further increased in a concentration dependent manner.

Keywords:

Baculovirus; Spodoptera exiglia; Green tea; UV radiation.

Faculty of Agriculture

Dep. **:** Economic entomology and Pesticides

Name **:** **Essam A. Agamy**

Title **:** Is mating disruption effective in controlling the olive moth, Prays oleae?

Authors: E.M. Hegazi, M.A. Konstantopoulou, A. Herz, B.E. Mazomenos, W.E. Khafagi, E. Agamy, A. Zaitun, G.M. Abd El-Aziz, S. Showiel and S.M. Abdel-Rahman

Published In : Natural Products Research

ISSN ***Impact Factor***

Abstract :

Field trials were carried out from 2002 to 2004 in an olive grove near Cairo, Egypt, to evaluate the efficacy of mating disruption to control the olive moth, Prays oleae (Lepidoptera: Yponomeutidae), during the first and second generations. Adding the stabilizer butylhydroxytoluene (BHT) to the β-cyclodextrin (β-CD)–pheromone complex and using polypropylene tubes as new dispensers maintained an adequate level of pheromone release for >60 days in 2004 vs. z10 days in 2002. With this improved application technique and applying the mating disruption at a dose of 40g active ingredient per ha a few days before the onset of the first flight (‘‘the flower’’ generation), the inhibition of successful orientation was almost complete (>96%). Moreover, in 2004, significant reductions in fruit fall early in the season ($F = 133.2$; $df = 2, 12$; $P= 0.01$) and fruit damage late in the season ($F = 34.03$; $df = 2, 12$; $P= 0.01$) were observed.Also yield/tree was significantly higher ($F= 54.98$; $df=2, 12$; $P = 0.01$) in treated trees (105.5±2.4 kg/ tree) compared with untreated ones (66.6 ±3.5 kg/tree). Mating disruption applied on the same olive trees over three years progressively reduced the olive moth population from year to year .The results of 2003–2004 confirm that the principal mechanism of the mating disruption treatment-interference with mate location and reproduction - worked successfully with the pheromone formulation, dose, dispensers and early application of the pheromone. Integration of MD with other biological control methods may also improve the efficacy of this technique.

Keywords:

Prays oleae; Mating disruption; Olive pest management.

Faculty of Agriculture

Dep. **:** Plant Pathology

Name **:** **Ashraf Mousa Mahmoud Abd-Elbacki**

Title **:** Molecular mapping of the novel powdery mildew resistance gene Pm36 introgressed from Triticum turgidum var. dicoccoides in durum wheat.

Authors**:** Antonio Blanco · A. Gadaleta · A. Cenci · A. V. Carluccio · A. M. M. Abdelbacki · R. Simeone

Published In : Theoretical and Applied Genetics

ISSN 0040 - 5752 ***Impact Factor*** 3.137

Abstract :

Powdery mildew, caused by Blumeria graminis f.sp. tritici, is one of the most important wheat diseases in many regions of the world. Triticum turgidum var. dicoccoides(2n=4x=AABB), the progenitor of cultivated wheats, shows particular promises as a donor of useful genetic variation for several traits, including disease resistances. The wild emmer accession MG29896, resistant to powdery mildew, was backcrossed to the susceptible durum wheat cultivar Latino, and a set of backcross inbred lines (BC_5F_5) was produced. Genetic analysis of F3 populations from two resistant introgression lines (5BIL-29 x Latino and 5BIL-42 x Latino) indicated that the powdery mildew resistance is controlled by a single dominant gene. Molecular markers and the bulked segregant analysis were used to characterize and map the powdery mildew resistance. Five AFLP markers ($XP43M32_{(250)}$, $XP46M31_{(410)}$, $XP41M37_{(100)}$, $XP41M39_{(250)}$, $XP3M32_{(120)}$), three genomic SSR markers (Xcfd07, Xwmc75, Xgwm408) and one EST-derived SSR marker (BJ261635) were found to be linked to the resistance gene in 5BIL-29 and only the BJ261635 marker in 5BIL-42. By means of Chinese Spring nullisomic–tetrasomic, ditelosomic and deletion lines, the polymorphic markers, and the resistance gene were assigned to chromosome bin 5BL6-0.29-0.76. These results indicated that the two lines had the same resistance gene and that the introgressed dicoccoides chromosome segment was longer (35.5 cM) in 5BIL-29 than that introgressed in 5BIL-42 (less than 1.5 cM). As no powdery mildew resistance gene has been reported on chromosome arm 5BL, the novel resistance gene derived from var. dicoccoides was designated Pm36. The 244 bp allele of BJ261635 in 5BIL-42 can be used for marker-assisted selection during the wheat resistance breeding process for facilitating gene pyramiding.

Keywords:

Resistance gene; Wild emmer; Molecular markers; Powdery mildew.

Faculty of Agriculture

Dep. **:** Zoology and Agricultural Nematology

Name **:** **Hosny Hamed Hosny Kesba**

Title **:** Survival and reproduction of Meloidogyne incognita on tomato as affected by humic acid.

Authors: Hosny H. Kesba and Mona E.M. El-Shalaby

Published In : Nematology

ISSN 1388 - 5545 ***Impact Factor*** 0.924

Abstract :

The commercial products humic acid (Actosol®), humic acid (Actosol®) + NPK and humic acid (Actosol®) + microelements (Fe, Mn, Cu) were tested against the root-knot nematode, Meloidogyne incognita, in vitro and in vivo on tomato and compared with the nematicide, Vydate. In vitro, Vydate at 2 ml 1^{-1} water was the best treatment for inhibiting hatch (30.8% inhibition) and was significantly more effective than all other treatments, except Vydate at 4 ml 1^{-1}. Humic acid + micro-elements (2 ml 1^{-1} water) was the least effective treatment for inhibiting hatch. Humic acid supplemented with micro-elements was significantly better than other products in reducing the number of surviving juveniles and achieving the highest percentage of nematode inhibition (49.2%), followed by the two concentrations of Vydate, which were not significantly different from one another. In vivo, all treatments significantly reduced the numbers of galls, embedded stages in roots, final population and population build-up (Pf/Pi) in all types of soil as compared to the untreated control. Materials appeared to be more effective at preventing nematode penetration of roots in sandy loam soil than in the other two soil types (sandy and clay). The double application of humic acid + NPK gave the best plant growth (fresh and dry weights) in sandy loam soil. All treatments reduced plant content of NPK in sandy soil except for humic acid + micro-elements and the two doses of Vydate.

Keywords:

Control; Lycopersicon esculentum; Organic acid; Root-knot nematode.

Statistical Studies and Research Institute

Statistical Studies and Research Institute

Dep. **:** Applied Statistics and Econometrics

Name **:** **Ahmed Amin El-Sheikh**

Title **:** Lumpability and Absorbing Markov Chains

Authors: Ahmed A. El-Sheikh

Published In : Interstat

ISSN 1941- 689X ***Impact Factor***

Abstract :

We consider an absorbing Markov Chain Y (t) that a result of an aggregation finite Markov Chain X (t) of higher dimension with respect to the partition A and unknown transition probability matrix (t.p.m)P, the question of whether X (t) is (not) also absorbing will be study for the lumped and the weakly lumped absorbing Markov Chain for all (certain) partitions within isomorphic with respect to the cases (k, k+1) and (2, k). Special cases will be introduced for each case, for each partition.

Keywords:

Absorbing Markov Chains; Aggregation of States; Identifiability Problem; Lumpability; Isomorphic.

Statistical Studies and Research Institute

Dep. **:** Applied Statistics and Econometrics

Name **:** **Ahmed Hassen Ahmed Youssef**

Title **:** A new estimator for the unit root

Authors**:** Ahmed H. A. Youssef

Published In : Statistical Computation and Simulation

ISSN 0094 - 9655 ***Impact Factor*** 0.387

Abstract :

We compare the ordinary least squares, weighted symmetric, modified weighted symmetric (MWS), maximum likelihood, and our new modification for least squares (MLS) estimator for first-order autoregressive in the case of unit root using Monte Carlo method. The Monte Carlo study sheds some light on how well the estimators and the predictors perform on different samples sizes. We found that MLS estimator is less biased and has less mean squared error (MSE) than any other estimators, and MWS predictor error performs well, in the sense of MSE, than any other predictors' methods. The sample percentiles for the distribution of the ? statistic for the first, second, and third periods in the future, for alternative estimators, are reported to know if it agrees with those of normal distribution or not.

Keywords:

First-order autoregressive; Unit roots estimators; Unit roots predictors .

Statistical Studies and Research Institute

Dep. **:** Applied Statistics and Econometrics

Name **:** **El- Houssainy Abdel-Bar Rady**

Title **:** Testing EBUASI Class of Life Distribution Based on Goodness of Fit Approach

***Authors*:** E.A.Rady, E.F.Lashin and F.A.Abass

Published In : Interstat

ISSN 1941- 689X ***Impact Factor***

Abstract :

Test statistics for testing exponentiality against Exponential Better (Worse) than used in Average on Specific Interval EBUASI (EWUASI) is proposed based on the goodness of fit approach. The critical values of this test are calculated and tabulated for sample size $_n$*=5(1)40, 45, 50.* The Pitman asymptotic efficiency (PAE) is discussed and the power of the test for some commonly used distributions in reliability is calculated. Finally real example is presented to illustrate the theoretical results.

Keywords:

EBUASI; EWUASI; Exponential distribution; Goodness of fit; Pitman's asymptotic efficiency.

Statistical Studies and Research Institute

Dep. **:** Applied Statistics and Econometrics

Name **:** **El-Houssainy Abdel-Bar Rady**

Title **:** Testing Exponential Better than Used in Average on Specific Interval Class of Life Distribution Based on Total Time on Test Transform

***Authors*:** E.A.Rady, E.F.Lashin and F.A.Abass

Published In : Interstat

ISSN 1941- 689X ***Impact Factor***

Abstract :

Test statistics for testing exponentiality against Exponential Better (Worse) than Used in Average on Specific Interval EBUASI (EWUASI) is proposed based on Total Time on Test transform (TTT). The critical values of this test are calculated and tabulated for sample size $_n$*=5(1)25(5)40*, and the power of the test for some commonly used distributions in reliability is calculated. Finally real example is presented to illustrate the theoretical results.

Keywords :

EBUASI; EWUASI; Exponential distribution; Total Time on Test transform; Classes of life distributions.

Statistical Studies and Research Institute

Dep. **:** Applied Statistics and Econometrics

Name **:** **El- Houssainy Abd El-Bar Rady**

Title **:** A Moment Inequality for Exponential Better than Used in Average on Specific Interval Class of Life Distribution with Hypothesis Testing Application

Authors**:** E. A. Rady, M. I. Hendi, E. F. Lashin and F. A. Abass

Published In : Statistical Theory and Applications

ISSN 1538- 7887 ***Impact Factor***

Abstract :

A moment inequality is derived for Exponential Better (Worse) than Used in Average on Specific Interval EBUASI (EWUASI) class of life distribution. A Test statistic for testing exponentiality against EBUASI (EWUASI) is proposed based on this inequality. Critical values of this test are calculated and tabulated for sample size $_n$*=5(1)40*. The power of the test and Pitman's asymptotic efficiency for some commonly used distributions in reliability are calculated. A set of real data is used as an example to elucidate the use of the proposed test statistic for practical reliability analysis.

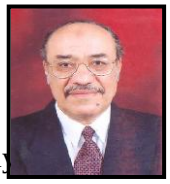
Keywords:

Ebuasi; Ewuasi; Exponential distribution; Moments; Pitman's Efficiency.

Statistical Studies and Research Institute

Dep. **:** Applied Statistics and Econometrics

Name **:** **Samir Kamel Ashour**



Title **:** Estimations of the Parameters of Exponentiated Weibull Family Ii Progressive Interval Censoring with Random Removals

Authors: S. K. Ashour and W. M. Afify

Published In : Applied Sciences Research

ISSN ***Impact Factor***

Abstract :

This paper considers the analysis of exponentiated Wiebull family distributed lifetime data observed under Type II progressive interval censoring with random removals, where the number of units removed at each failure time follows a binomial distribution. Maximum likelihood estimators of the parameters and their asymptotic variances are derived. The formula to compute the expected length of time is given. An example is discussed to illustrate the application of results under this censoring scheme .

Keywords :

The Exponentiated Weibull family; Maximum likelihood estimation; Interval Censoring; Progressive Type II censoring; Random removal; Expected length of time.

Statistical Studies and Research Institute

Dep. **:** Mathematical Statistics

Name **:** **Abdallah Mohamed Abdel-Fattah**

Title **:** Inferences for P(Y - X) for Weibull Distribution Based on Censored Samples

***Authors*:** Abd Elfattah, A. M. and Marwa O. Mohamed

Published In : Interstat

ISSN 1941- 689X ***Impact Factor***

Abstract :

This paper deals with the estimation of $R = P(Y - X)$ where X and Y are two independent Weibull distributions with different scale parameters but having the same shape parameter. The results are based on censored data. Different methods for estimating R are proposed. The MLE, UMVUE and Bayes estimators are obtained. A numerical illustration presented to compare the different proposed estimators. The confidence interval of R is also obtained .

Keywords:

Maximum likelihood estimator; Unbiasedness; Consistency; Uniform minimum variance unbiased estimator; Bayesian estimator; Pivotal quantity; Fisher information.

Statistical Studies and Research Institute

Dep. **:** Mathematical Statistics

Name **:** **Abdallah Mohamed Abdel-Fattah**

Title **:** Expected Experiment Times for Burr Type XII Distribution Un Progressive Censoring With Random Removals

Authors**:** Abd Allah A. Abd Elghaly, Abd-Elfattah A. M. and Assar S.

Published In : Interstat

ISSN 1941- 689X ***Impact Factor***

Abstract :

In this paper, the estimation problem for the unknown parameters of the Burr type XII distribution based on progressive type-II censoring with random removals is considered, where the number of units removed at each failure time follows a binomial distribution. Maximum likelihood estimators of the unknown parameters and the asymptotic variance-covariance matrix of the estimates are obtained. Also, the expected experiment times for the Burr type XII distribution under progressive type-II censoring with binomial removals is considered. Furthermore, the ratio of the expected experiment time under type II progressive censoring to the expected experiment time under complete sampling is studied. Finally, numerical examples are given to illustrate some of the theoretical results.

Keywords:

Binomial removals; Burr type XII distribution; Expected experiment time; Maximum likelihood estimation; Type-II Progressive censoring; Variance covariance matrix.

Statistical Studies and Research Institute

Dep. **:** Mathematical Statistics

Name **:** **Abdallah Mohamed Abdel-Fattah**

Title **:** Estimation in step-stress partially accelerated life tests for the Burr type XII distribution using type I censoring

Authors**:** A. M. Abd-Elfattah, Amal S. Hassan and S. G. Nassr

Published In **:** Statistical Methodology

ISSN 1572- 3172 ***Impact Factor***

Abstract :

In this paper, step-stress partially accelerated life tests are considered when the lifetime of a product follows a Burr type XII distribution. Based on type I censoring, the maximum likelihood estimates (MLE) are obtained for the distribution parameters and acceleration factor. In addition, asymptotic variance and covariance matrix of the estimators are given. An iterative procedure is used to obtain the estimators numerically using MathCAD (2001). Furthermore, confidence intervals of the estimators are presented.Simulation results are carried out to study the precision of the MLE for the parameters involved.

Keywords:

Reliability; Step-stress partially accelerated life test; Accelerated factor; Burr type XII distribution; Maximum likelihood method; Fisher information matrix.

Statistical Studies and Research Institute

Dep. **:** Mayhenatical Statistics

Name **:** **Shaban Abdel-Hamid Shaban**

Title **:** Bayesian Estimation of the parameters of the Weibull-Weibull Length-Biased mixture distributions using time censored data

***Authors*:** S. A. Shaban and Naima Boudrissa

Published In : Inter Stat

ISSN ***Impact Factor***

Abstract :

In this paper the parameters of the Weibull-Weibull length biased mixture distributions are estimated using the Gibbs sampling technique under type I censoring scheme. Two kinds of data were considered postmortem and non-postmortem. Two numerical examples are given for illustration.

Keywords:

Weibull distribution; Weibull length-biased distribution; Gibbs sampling; Type I censoring; Postmortem data; Non-postmortem data.

Statistical Studies and Research Institute

Dep. **:** Mayhenatical Statistics

Name **:** **Shaban Abdel-Hamid Shaban**

Title **:** Failure Rate of The Weibull-Weibull Length-Biased Mixture Model

***Authors*:** S. A. Shaban and Naima Boudriss

Published In : Inter Stat

ISSN ***Impact Factor***

Abstract :

In this paper the failure rate of the Weibull-Weibull length-biased mixture distribution which is characterized by five parameters is studied. Depending on the parameter values, it is shown that this failure rate can have one of six shapes, which are increasing failure rate (IFR), decreasing failure rate (DFR), upside down bathtub (UBT), modified upside down bathtub (MUBT), bathtub (BT), and modified bathtub (MBT) failure rates, by consequence it has zero, one or two turning points.

Keywords :

Weibull distribution; Weibull length-biased distribution; Mixture distribution; Failure rate.

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