International Publications Awards Cairo University

Issue VI-A

May 2010





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 Sixth issue of the international publications of Cairo University staff members during the year 2009.

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. 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 2009 and wish them all the best for their future endeavors.

In this issue, and for the first time, the top 50 eminent authors of Cairo University is added. Their ranking was extracted from both Scopus and Thomson data-bases according to their number of published articles, number of citations and h-index.

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

Prof. Hussein M. Khaled

Prof. Hossam Kamel

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

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قائمة بأعلى عدد من الأبحاث المنشورة في الإصدار السادس للنشر العلمي 2009

عدد الأبحاث	Faculty	Name	م
15	Agr	هانى عبد العزيز الشيمى	1
13	Eng	احمد محمد سليمان	2
8	Med	هشام جابر عبد الوهاب العناني	3
11	Vet Med	عبد العاطى مصطفى عبد العاطى	4
10	NCI	عبد الرحمن نبوى ذكرى	5
9	Med	ألفت جميل احمد شاكر	6
9	Med	تيمور مصطفى إبراهيم	7
9	ODM	یحیی احمد مصطفی	8
8	Vet Med	كاميليا محمود عثمان احمد	9
7	Sci	یسری مصطفی عیسی	10

Max. If	Faculty	Name	م
10.432	Med	هبة الله محمد نبيل عبد الرازق	1
9.38	Sci	محمد صبري يوسف	2
8.479	Eng	مجدى عبد العاطى الطويل	3
6.512	Arts	احمد محمد صبحي عبد العزيز	4
6.493	Aggr	عصام محمد عبد المعطى درويش	5
6.325	NCI	مروة وجيه كامل بيومي	6
6.11	Pharm	محمد على على فرج	7
6.11	Agr	هانى عبد العزيز الشيمي	8
6.093	NSL	رحاب محمد حسن أمين	9
5.978	Med	امال محمد البشلاوي	10
5.393	Med	رانی محمد شملول	11
5.393	Med	تيمور مصطفى إبراهيم	12
5.393	Med	إيهاب إسماعيل أمين	13
5.393	Med	اسامة كمال شعير	14
5.362	Pharm	محمد على على فرج	15
5.182	Med	شرين عبد الغفار طه	16

IF قائمة بأعلى في الإصدار السادس للنشر العلمي 2009

في الإصدار السادس للنشر العلمي IF2009 قائمة بمجموع

Sum IF	Faculty	Name	a
37.574	Agr	هانى عبد العزيز الشيمى	1
25.583	Med	تيمور مصطفى إبراهيم	2
22.927	Vet Med	عبد العاطى مصطفى عبد العاطى	3
22.693	Med	هشام جابر عبد الوهاب العنانى	4
19.624	Med	الفت جميل احمد شاكر	5
19.32	NCI	عبد الرحمن نبوى ذكرى	6
18.021	Pharm	محمد على على فرج	7
16.179	Med	اسامة كمال شعير	8
13.254	Pharm	مجدی علی امین	9
12.656	Sci	ندا فاروق أحمد عطا	10
11.215	Med	امال محمد البشلاوي	11
11.028	Sci	یسری مصطفی عیسی	12
10.432	Med	هبه الله محمد نبيل عبد الرازق	13
10.272	Sci	محمد سعادة الديب حسب	14
10.035	Aggr	عصام محمد عبد المعطى درويش	15

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فى الإصدار السادس للنشر العلمى 2009							
Faculty	Count	%	TOT IF	%	Avg	Min	Max
Science	192	26.158	273.9	27.288	1.43	0.1	9.38
Agriculture	65	8.856	76.486	7.62	1.18	0.33	6.49
Veterinary Medicine	46	6.267	57.862	5.765	1.26	0.56	3.21
Statistical	4	0.545	0	0	0	0	0
Engineering	112	15.259	115.107	11.468	1.03	0.06	8.48
Computer	5	0.681	6.043	0.602	1.21	0.42	2.6
Medicine	129	17.575	239.569	23.868	1.86	0.7	10.4
Oral & Dental	14	1.907	8.465	0.843	0.61	1.09	1.96
Pharmacy	93	12.67	155.917	15.534	1.68	0.1	6.11
National Cancer Institute	20	2.725	41.853	4.17	2.09	0.65	6.33
Nursing	4	0.545	0	0	0	0	0
Arts	8	1.09	0	0	0	0	0
Archaeology	13	1.771	0	0	0	0	0
Educational Studies	4	0.545	0	0	0	0	0
Economics and Political Science	6	0.817	0	0	0	0	0
Commerce	4	0.545	0	0	0	0	0
Laser	15	2.044	28.537	2.843	1.9	0.87	6.09
Total	734	100		100			

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Faculty	Count	%	TOT IF	%	Avg	Min	Мах
Science	176	33.02	158.09	20.63	0.9	0.09	4.186
Agriculture	32	6	19.874	2.59	0.62	0.295	3.137
Veterinary Medicine	40	7.5	35.032	4.57	0.88	0.41	2.914
Statistical Studies and Research Institute	11	2.06	0.387	0.05	0.04	0.387	0.387
Engineering	69	12.95	39.684	5.18	0.58	0.13	3.427
Computers and Information	4	0.75	2.122	0.28	0.53	0.455	1.177
Medicine	99	18.57	335.1	43.73	3.38	0.13	52.589
Pharmacy	1	0.19	1.55	0.2	1.55	1.55	1.55
National Cancer Institute	59	11.07	140.919	18.39	2.39	0.145	17.6
Nursing	12	1.13	11.503	1.5	1.92	0.4	4.29
Oral and Dental Medicine	1	0.19	0	0	0	0	0
Arts	9	1.69	0	0	0	0	0
Archaeology	5	0.94	4.032	0.53	0.81	1.29	1.436
Economics and Political Science	9	1.69	0.788	0.1	0.09	0.229	0.302
Commerce	1	0.19	0	0	0	0	0
African Research and Studies Institute	2	0.38	0	0	0	0	0
National Institute of Laser Enhanced Sciences	9	1.69	17.169	2.24	1.91	0.827	2.957
Total	539	100	766.25	100	1.44		

<u>2008</u>

Faculty	Count	%	TOT IF	%	Avg	Min IF	Max IF
Science	162	36.73	186.03	29.74	0.082	1.15	3.902
Agriculture	14	3.17	20.63	3.30	0.637	1.47	4.228
Veterinary Medicine	20	4.54	23.03	3.68	0.314	1.15	3.554
Statistical Studies and Research Institute	6	1.36	2.26	0.36	0.06	0.38	1.003
Engineering	79	17.91	60.63	9.69	0.034	0.77	2.905
Computers and Information	3	0.68	3.86	0.62	0.816	1.29	1.79
Medicine	64	14.51	135.39	21.65	0.248	2.12	6.19
Oral and Dental Medicine							
Pharmacy	40	9.07	126.06	20.15	0.225	3.15	9.6
National Cancer Institute	16	3.63	50.61	8.09	0.529	3.16	5.366
Nursing							
Arts	7	1.59					
Archaeology	2	0.45					
Economics and Political Science	14	3.17	1.27	0.20	0.38	0.09	0.508
Commerce	2	0.45					
African Research and Studies Institute	1	0.23					
National Institute of Laser Enhanced Sciences	11	2.49	15.73	2.51		1.43	
Total	441	100	625.48	100			

<u>2007</u>

Faculty	Count	%	TOT IF	%	Avg	Min IF	Max IF
Science	142	40.46	164.32	28.59	1.16	0.22	3.809
Agriculture	8	2.28	8.57	1.49	1.07	0.719	2.161
Veterinary Medicine	11	3.13	15.51	2.70	1.41	0.39	3.61
Statistical Studies and Research Institute	8	2.28					
Engineering	56	15.95	45.30	7.88	0.81	0.07	4.054
Computers and Information	2	0.57		0.00	0.00	0.816	0.816
Medicine	49	13.96	241.25	41.98	4.92	0.58	29.273
Oral and Dental Medicine		0.00		0.00			
Pharmacy	27	7.69	54.72	9.52	2.03	0.687	5.854
National Cancer Institute	9	2.56	28.47	4.95	3.16	0.55	11.81
Nursing		0.00					
Arts	7	1.99					
Archaeology	1	0.28					
Economics and Political Science	13	3.70				0.73	0.73
Commerce	4	1.14					
African Research and Studies Institute		0.00					
National Institute of Laser Enhanced Sciences	13	3.70	16.54	2.88	1.27	0.796	2.695
Dar Al-Oloum	1	0.28					
Total	351	100	574.67	100			

<u>2006</u>

Faculty	2006	2007	2008	2009	Total
Science	142	162	241	192	737
Agriculture	8	14	35	65	122
Veterinary Medicine	11	20	47	46	124
Statistical Studies and Research Institute	8	6	11	4	29
Engineering	56	79	109	112	356
Computers and Information	2	3	4	5	14
Medicine	49	64	124	129	366
Oral and Dental Medicine			1	14	15
Pharmacy	27	40	77	93	237
National Cancer Institute	9	16	16	20	61
Nursing			1	4	5
Arts	7	7	17	8	39
Archaeology	1	2	5	13	21
Educational Studies				4	4
Economics and Political Science	13	14	13	6	46
Commerce	4	2	1	4	11
Mass Communication			1		1
African Research and Studies Institute		1	2		3
National Institute of Laser Enhanced Sciences	13	11	9	15	48
Dar Al-Oloum	1				1
Total	351	441	814	734	2240

Publication From 2006-2009

1- President	Prof. Hossam Kamel
2- Vice-President for post-graduate studies and research	Prof. Hussein M. Khaled
3- Vice-President for Social Services and Environment Developments	Prof. Heba A. Nassar

(تم التنازل عن قيمة المكافأة تشجيعاً لشباب الباحثين)

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Dept. : Medical Oncology

Name : Hossam K. Mahmoud



Cairo University

Title : Special Issues Related to Hematopoietic SCT in the Eastern Mediterranean Region and the First Regional Activity Report

M. D. Aljurf, S. Z. Zaidi, H. El Solh, F. Hussain, A. Ghavamzadeh, H. K. Mahmoud, T. Shamsi, T. Ben Othman, M.

Authors: M. Sarhan, D. Dennison, A. Ibrahim, S. Benchekroun, N. Chaudhri, B. Labar, M. Horowitz, D. Niederwieser and A. Gratwohl

Published In: Bone Marrow Transplantation

ISSN:	0268–3369	Impact Factor :	3.40

Abstract :

Although several centers are now performing allogeneic hematopoietic SCT (HSCT) in the Eastern Mediterranean (EM) region, the availability is still limited. Special issues including compatible donor availability and potential for alternative donor programs are discussed. In comparison to Europe and North America, differences in patterns ofdisea ses and pre-HSCT general status particularly for patients with BM failure, are described. Other differences including high seropositivity for CMV, hepatitis B and C infection, and specific observations about GVHD and its relation to genetically homogeneous communities are also discussed. We report that a total of 17HSCT programs (performing five or more HSCTs annually) exist in 9 countries of the EM region. Only six programs are currently reporting to European Group for Blood and Marrow Transplantation or Center for International Blood and Marrow Transplantation Research.

A total of7617 HSCTs have been performed by these programs including 5701 allogeneic HSCTs. The area has low-HSCT team density (1.56 teams per 10 million inhabitants vs 14.43 in Europe) and very low- HSCT team distribution (0.27 teams per 10 000 sq km area vs o1–6 teams in Europe). Gross national income per capita had no clear association with low-HSCT activity. Much improvement in infrastructure and formation of an EM regional HSCT registry are needed.

<u>Keywords :</u>

HSCT programs; Eastern Mediterranean; Regional activity; Donor availability; Genetic issues; Pattern of infections.

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- Dept. : Medical Oncology
- Name : Hossam K. Mahmoud



0.0

Title : Chronic Phase CML (CPCML), A Predictor of Response and Progression Free Survival

Hossam K. Mahmoud, Yasser El Nahas, Mohamad Abdel *Authors*: Moaty, Raafat Abdel Fattah, Mohamad El Emary and Wafaa El Metnawy

Published In : International Journal of Biomedical Science

ISSN	00–00	Impact Factor

Abstract :

Purpose: To assess the kinetics of molecular response to Imatinib Mesylate (IM) therapy in predicting progression free survival (PFS), sustained hematological, and cytogenetic responses in CPCML. Methods: Ninety five newly diagnosed CPCML Egyptian patients were treated with IM 400 mg daily dose. Cytogenetic analysis was performed at diagnosis and every 6 months. Molecular monitoring by RT-QPCR was performed at diagnosis and every 3 months during a median follow-up period (FUp) of 26 months. Mutation detection of ABL domain was performed by ASO-PCR. Results: Hematological response was 98% after three months of IM therapy. Out of 95 patients 59 showed 2 log reduction of BCR-ABL/ABL ratio after 6 months of whom 49 (83%) had complete cytogenetic response (CCyR) and 42 (71%) had major molecular response (MMR) at 12 months. BCR-ABL transcripts remained undetectable in 22 patients (39%) at 26 months. Among the remaining 34 patients not achieving 2 log reduction at 6 months only 5 (15%) had CCvR and MMR by 12 months. ABL domain mutations were detected in 11/15 (73%) resistant and suboptimal responding patients. Achieving 2 log reduction after 6 months of IM therapy significantly correlated with sustained cytogenetic and molecular responses (p<0.0001), with PFS at 2 years (p < 0.03) and inversely with ABL gene mutations (p < 0.001). Discussion: These data demonstrated the predictive value of early molecular response to IM in CPCML regarding disease course and PFS. A 2 log reduction at 6 months of IM treatment could be a cut off level predicting resistance, CCyR, or suggesting IM dose modification.

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- Dept. : Medical Oncology
- Name : Hussein Mostafa Khaled



Analysis of RhoC expression and lymphovascular Emboli in

Title : Inflammatory vs non-inflammatory Breast Cancers in Egyptian Patients.

L. O. AC, Georgopoulos A., Kleer C. G, Banerjee M., Omar S., *Authors*: Khaled H., Eissa S., Hablas A., Omar H. G., Douglas J. A., Merajver S. D., Soliman A. S.

Published In : Breast

ISSN: 0960-9776

Impact Factor: 2.155

Abstract :

Understanding the molecular factors that distinguish inflammatory breast cancer (IBC) from non-IBC is important for IBC diagnosis. We reviewed the records of 48 IBC patients and 64 non-IBC patients from Egypt. We determined RhoC expression and tumor emboli and their relationship to demographic and reproductive characteristics. Compared with non-IBC patients, IBC patients had significantly lower parity (P=0.018) and fewer palpable tumors (P<0.0001). IBC tumors showed RhoC overexpression more frequently than non-IBC tumors (87% vs. 17%, respectively) (P<0.0001). Tumor emboli were significantly more frequent in IBC tumors than non-IBC tumors (Mean+/- SD: 14.1+/-14.0 vs. 7.0+/-12.9, respectively) (P<0.0001). This study illustrates that RhoC overexpression and tumor emboli are more frequent in tumors of IBC relative to non-IBC from Egypt. Future studies should focus on relating epidemiologic factors to molecular features of IBC in this population.

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Dept. : Medical Oncology

Name : Hussein Mostafa Khaled



Title : Detection of HER-2/neu, c-myc Amplification and p53 Inactivation by FISH in Egyptian Patients with Breast Cancer

Authors: Ismail M. F., Aly M. S., Khaled H. M. and Mohamed H. M.

Published In: Ger Med Sci

ISSN: 00–00

Impact Factor: 0.0

Abstract :

Breast cancer is a leading cause of cancer-related deaths in women worldwide. The clinical course of this disease is highly variable and clinicians continuously search for prognostic parameters that can accurately predict prognosis, and indicate a suitable adjuvant therapy for each patient. Amplification of the two oncogenes HER-2/neu and c-myc and inactivation of the tumor suppressor gene p53 are frequently encountered in breast carcinomas. The purpose of this study was to use the fluorescence in situ hybridization (FISH) for the assessment of HER-2/neu and c-myc amplification and p53 inactivation and to relate these molecular markers with the commonly used clinical and pathological factors. The study was conducted on 34 tissue samples obtained from 33 females and 1 male with breast carcinomas and 17 samples obtained from 16 females and 1 male with benign breast lesions. Results revealed that the level of HER-2/neu, c-myc and p53 in the malignant group was significantly increased as compared to the benign group. On relating the level of the molecular markers to clinicopathological factors, p53 was significantly associated with increased patient's age. The sensitivity of the investigated markers significantly increased with larger tumor size. Concerning tumor grade, HER-2/neu and p53 showed a significant increase in low-grade tumors whereas c-myc showed a highly significant increase in highgrade tumors. With regard to disease staging, HER-2/neu and c-myc were the only markers that showed significant increase at late stages of disease. p53 and HER-2/neu were significantly associated with positive lymph nodal status. A significant correlation was obtained between the levels of the three biomarkers to each other. Conclusively, the combination of HER-2/neu, c-myc and p53 can stratify patients into different risk groups.

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Faculty of Economics & Political Science

Dept. : Economics

Name : Heba A. Nassar



Title : Migration and Financial Flows: Egypt in the MENA Region

Authors: NASSAR, Heba

Published In :	Consortium for Applied Res Migration (CARIM)	tium for Applied Research on International ion (CARIM)		
ISSN :	00–00	Impact Factor :	0.0	

Abstract :

This paper describes the evolution of the main financial inflows into the MENA region with a special focus on Egypt as an origin country for emigrants and migration remittances as a component of financial flows. The evolution of Foreign Direct Investments (FDI), Official Development Assistance and Official Aid (ODA/OA) and Remittances into the region have been described and compared to the same flows in other regions. The variation over time of the amount and share of flows by country/region of origin and destination have also been analysed in an attempt to identify the reasons behind any changes. Special attention was given to remittances as the most important financial flow related to migration, and the diverse uses that remittances are put to in Egypt. Résumé Cette article décrit l'évolution des principaux flux financiers vers la région MENA avec une concentration sur l'Egypte comme pays de départ des migrants et sur les transferts migratoires comme composante des flux financiers. L'évolution des investissements directs étrangers, de l'aide officielle et des transferts vers la région a été décrite et ces éléments ont été confrontés aux même flux destinés à d'autres pays/régions du monde. Les variations dans le temps de la quantité et de la structure des flux a été aussi analysée avec une tentative d'identifier les raisons derrière ces changements. Une attention particulière a été accordée à l'analyse des transferts financiers comme composante principale des flux financiers relatifs à la migration ainsi qu'à leurs divers usages.

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- *Dept.* : Astronomy and Meteorology
- Name : Ahmed A. Abdel Hady
- *Title* : Descriptive study of solar activity sudden increase and Halloween storms of 2003

Authors: A. Abdel Hady

Published In: Atmospheric and Solar-Terrestrial Physics

ISSN: 1364-6826 **Impact Factor:** 1.667

Abstract :

During the declining phase of the last three solar cycles, secondary peaks have been detected 2-3 years after the main peak of sunspot number. The main peak of cycle 23 was in 2001, but a sudden increase of the solar activity occurred during the period October 17 to November 10, 2003 (the so-called Halloween storms). A similar storm occurred 1 year later, during the period October 3 to November 13, 2004. These events are considered as secondary peaks during the declining phase of cycle 23. Secondary peaks during declining phase of the last 10 solar cycles were detected by Gonzalez and Tsurutani [1990. Planetary and Space Science 38, 181-187]. During Halloween storm period, the sunspot area increased up to 1.11×10^{-9} hemisphere on October 19, and grow up to 5.69×10^{-9} hemisphere on October 30, 2003. Then it decreased to 1.11×10^{-9} hemisphere on November 4, 2003. Also, the radio flux of λ =10.7 cm increased from 120 sfu on October 19, to 298 sfu on October 26, 2003, then decreased to 168 sfu on November 4, 2003. Two eruptive solar proton flares were released on 26 and 28 October 2003, the latter being the most eruptive flare recorded since 1976 (values reaching X17/4B). The aim of this study is to follow the morphological and magnetic changes of the active region before, during, and after the production of high-energy flares. Furthermore, the causes of release of these eruptive storms have been discussed for the period, October-November 2003, during the declining phase of the solar cycle 23.

<u>Keywords:</u>

Solar proton flares; Active region No. 10486; Solar secondary peaks.



Dept. : Astronomy and Meteorology

Name : Ahmed A. Abdel Hady



Title : Space radiation environment forecast for EGYPTSAT-2 satellite

Authors: Samwell S. W. and A. A. Hady

Published In : Space Weather

ISSN 1542-7390 **Impact Factor:** 1.432

Abstract :

The space environment provides an assortment of hazards whose ill effects can range from degraded performance up to catastrophic loss of a spacecraft. The radiation environment is believed to be the most significant in terms of spacecraft failures. Hence, the present work provides a radiation analysis for the EGYPTSAT-2 which is supposed to be launched in 2012 as a low Earth orbit satellite in order to assist the EGYPTSAT-2 instrument team with adequate planning decisions. AE-8, AP-8, Jet Propulsion Laboratory (JPL) model, and the cosmic ray effects in microelectronic (CREME86) code are used to estimate the fluences of the trapped electrons and protons, solar protons, and galactic cosmic protons, respectively. SHIELDOSE-2 code is used for space-shielding radiation dose calculations, and the nonionizing energy loss function is used to estimate the nonionizing dose of space radiation. Finally, the end-of-life solar cell performance is evaluated using the displacement damage dose (DDD) method. The slowed down spectra emerging from the shielding material is obtained using the Multilayered Shielding Simulation Software (MULASSIS) code. It has been found that the radiation environment will not impede the sensitivity of EGYPTSAT-2 materials over the course of the baseline mission lifetime. For 1.5 mm aluminum shielding thickness, total ionizing dose is 2.65×10^4 rads (Si) and DDD is $7.75 \times$ 10^7 MeV/g(Si) for 5 years mission length, which are less than critical thresholds. Also, a flat glass of SiO₂ sheet of thickness 0.5 mm is enough to resist the damage effect of the solar array cells.

<u>Keywords:</u>

EGYPTSAT-2; Displacement damage dose; Galactic cosmic protons.

Faculty of Science

- *Dept.* : Astronomy and Meteorology
- Name : El-Sayed M. Robaa



Title : Validation of the existing models for estimating global solar radiation over Egypt

Authors: S. M. Robaa

Published In: Energy Conversion and Management

ISSN :	0196-8904	Impact Factor:	1.813
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<u>Abstract :</u>

Solar radiation data are required for many applications and many areas of research. In order to achieve this, several empirical models have been developed to predict the solar radiation in many developing countries like Egypt. The main objective of this study is to review and test the applicability of all models available for computing the monthly average daily global radiation on a horizontal surface, G, in Egypt. The different meteorological data measured at nine stations during the period (1983–2006) were used to calculate the monthly mean values of G over these stations using all available collected models. The collected models (10 models) were compared on the basis of many statistical error tests such as the relative percentage error (e%), the mean percentage error (MPE), mean bias error (MBD), root mean square error (RMSE), t-test and the Nash–Sutcliffe equation (NSE). According to the results, the modified Robaa model (model 8) showed the best estimation of the global solar radiation on a horizontal surface for all nine stations and therefore is recommended for predicting G at any location in Egypt.

Keywords:

Solar energy; Global solar radiation; Sunshine duration; Solar radiation models; Model comparison Egypt.

Faculty of Science

- *Dept.* : Astronomy and Meteorology
- Name : El-Sayed M. Robaa



Title : Urban–rural solar radiation loss in the atmosphere of Greater Cairo region, Egypt

Authors: S. M. Robaa

Published In: Energy Conversion and Management

ISSN: 0196-8904 **Impact Factor:** 1.813

<u>Abstract :</u>

A comparative study for measured global solar radiation, G, during the period (1969–2006) and the corresponding global radiation loss in the atmosphere, R_L %, over urban and rural districts in Greater Cairo region have been performed. The climatic variabilities of G radiation at the urban and rural sites are also investigated and discussed. Monthly, seasonal and annual mean values of extraterrestrial radiation, Go, and RL% during four successive periods, (1969-1978), (1979–1988), (1989–1998) and (1999–2006) at the above two sites have been calculated and investigated. The results revealed that urban area was always received lower amount of solar radiation due to urbanization factors. The yearly mean values of G radiation were distinctly decreased from maximum value 21.93 and 22.62 MJ m⁻² during 1970 year to minimum value 17.57 and 17.87 MJ m⁻² during 2004 and 2006 years with average decrease rate 0.09 and 0.10 MJ m⁻² per year for the urban and rural areas, respectively. Also, the seasonal and annual mean anomalies of G radiation have been also gradually decreased from maximum values during the eldest period (1969-1978) to minimum values during the recent period (1999–2006). R_L % over the urban area was always higher than that rural area. The urban–rural R_1 % differences range from 0.61% in 1999 year to 4.19% in 2002 year and 2.20% as average value. The yearly mean of R_1 % values distinctly gradually increase from minimum value 29.47% and 27.28% during 1970 year to maximum value 43.50% and 42.60% during 2004 and 2006 years with average increase rate 0.28% and 0.32% per year for the urban and rural areas, respectively. The minimum value of R_L% (26.88%) occurred at rural area during summer season of the eldest period (1969–1978) while the maximum value of $R_{\rm L}$ % (51.27%) occurred at the urban area during winter season of the last recent urbanized period (1999-2006).

Faculty of Science

Dept. : Astronomy

Name : Mamdoh. I. Wanas



Title : An AP-Structure with Finslerian Flavor I: The Principal Id

Authors: M. I. Wanas

Published In: Modern Physics Letters A

ISSN: 0217-7323 **Impact Factor:** 1.334

<u>Abstract :</u>

A geometric structure (FAP-structure), having both absolute parallelism and Finsler properties, is constructed. The building blocks of this structures are assumed to be functions of position and direction. A non-linear connection emerges naturally and is defined in terms of the building blocks of the structure. Two linear connections, one of Berwald type and the other of the Cartan type, are defined using the non-linear connection of the FAP. Both linear connections are non-symmetric and consequently admit torsion. A metric tensor is defined in terms of the building blocks of the structure. The condition for this metric to be a Finslerian one is obtained. Also, the condition for an FAP-space to be an AP-one is given.

<u>Keywords:</u>

Finsler Geometry; Absolute Parallelism Geometry.

Faculty of Science

Dep. : Astronomy

Name : Mamdoh I. Wanas



Title : Effect Of Spin Torsion Interaction On Raychaudhuri Equation

Authors: Mamdoh I. Wanas and M.A. Bakry

Published In: International J. Modern Physics A

ISSN 0217-751X **Impact Factor** 0.982

<u>Abstract :</u>

Raychaudhuri equation is generalized in the parametrized absolute parallelism geometry. This version of absolute parallelism is more general than the conventional one. The generalization takes into account the suggested interaction between the quantum spin of the moving particle and the torsion of the background gravitational _field. The generalized Raychaudhuri equation obtained contains some extra terms, depending on the torsion of space-time, that would have some effects on the singularity theorems of general relativity.

Under a certain condition, this equation could be reduced to the original Raychaudhuri equation without any need for a vanishing torsion.

<u>Keywords:</u>

Gravitation; relativity; cosmology; Raychaudhuri equation.

- *Dept.* : Astronomy and Meteorology
- Name : Walid A. Rahoma



Cairo University

Title : Analytical Treatment of the Two-Body Problem with Slowly Varying Mass

Authors: W. A. Rahoma, F. A. Abd El-Salam and M. K. Ahmed

Published In : Journal of Astrophysics and Astronomy

ISSN: 0250-6335 **Impact Factor:** 0.667

<u>Abstract :</u>

The present work is concerned with the two-body problem with varying mass in case of isotropic mass loss from both components of the binary systems. The law of mass variation used gives rise to a perturbed Keplerian problem depending on two small parameters. The problem is treated analytically in the Hamiltonian frame-work and the equations of motion are integrated using the Lie series developed and applied, separately by Delva (1984) and Hanslmeier (1984). A second order theory of the two bodies eject mass is constructed, returning the terms of the rate of change of mass up to second order in the small parameters of the problem.

<u>Keywords:</u>

Mass loss; Binary systems; Two-body problem; Perturbations.

- *Dept.* : Astronomy and Meteorology
- Name : Y. Y. Hafez



- *Title* : The Role Played by Azores High in Developing of Extratropical Cyclone Klaus
- Authors: Yehia Hafez

Published In: Journal of American Science; 5(5):145-163 2009

ISSN : 1545-1003 **Impact Factor:** 0.0

<u>Abstract :</u>

On 24 January 2009 southern France and northern Spain were affected by a severe windstorm associated with extratropical cyclone Klaus. This paper investigates the role played by Azores high in developing of extratropical cyclone Klaus. The 6-hour and daily NCEP/NCAR reanalysis data composites for meteorological elements (surface pressure, sea surface temperature, surface wind, surface relative humidity, and geopotential height and wind fields at 500 mb level) over the northern hemisphere for the period of 20-25 January 2009 were used in this study. In addition, satellite images for cyclone Klaus and its damage have been used. The results revealed that, the Azores high pressure system extended strongly and rapidly to the east direction towards the North Africa and it was accompanied with an eastward extension of a deep low pressure system over the northern Atlantic region. The combination of the two opposite pressure systems together over Atlantic Ocean creates a very strong pure westerly air current moving toward the eastward direction. This huge westerly winds set aside the air over the eastern Atlantic region and western European coasts and forced it to sweep and to circulate westward direction and develop cyclonic circulation system which originating in the west of Bay of Biscay, extratropical cyclone Klaus. The development theory and the life cycle of Klaus model are uncovered. Uncover of the life cycle model of cyclone Klaus conduct to a new theory of cyclones development which so called the cyclonic circulation theory.

Keywords:

Azores high; Cyclone Klaus; Air mass; Cyclonic circulation theory.

- **Dep.** : Biophysics Department
- Name : Osiris W. Gerges



Cairo University

Title : Elastic properties and structural studies on some zinc-borate glasses derived from ultrasonic, FT-IR and X-ray techniques

Authors: M.S. Gaafar, N.S. Abd El-Aal, O.W. Gerges and G. El-Amir

Published In : Alloys and Compounds

ISSN 0925-8388 **Impact Factor** 1.501

<u>Abstract :</u>

system (1 - x) [29Na₂O- 4Al₂O₃- 67B₂O₃]- xZnO Glasses in the $(0 \le x \le 35 \text{ mol}\%)$, have been prepared by the melt quenching technique. Elastic properties, X-ray and FT-IR spectroscopic studies have been employed to study the role of ZnO on the structure of the investigated glass system. Elastic properties and Debye temperature have been investigated using sound wave velocity measurements at 4 MHz at room temperature. The results showed that the density increases and the molar volume decreases while both sound velocities and the determined glass transition temperatures decrease with increase in x. X-ray and infrared spectra of the glasses reveal that the borate network consists of diborate units and is affected by the increase in the concentration of ZnO content. These results are interpreted in terms of the decrease in the N_4 values (fraction of tetrahedral coordinated boron atoms), and substitution of longer bond lengths of Zn–O in place of shorter B–O bond. The results indicate that Zinc ions have been substituted for boron ions as tetrahedral network former ions. The elastic moduli are observed to increase with the increase of ZnO content.

<u>Keywords:</u>

Borate glasses; Ultrasonic wave velocity; Elastic moduli; FT-IR and X-ray spectroscopy.

Faculty of Science

Dep. : Biophysics

Name : Mohsen M. Mady

Title : Biophysical studies on chitosan-coated liposomes

Authors: Mohsen M. Mady

Published In: European Biophysics Journal

ISSN 0175-7571 **Impact Factor** 2.409

Abstract :

Liposomes have been used as delivery vehicles for stabilizing drugs, overcoming barriers to cellular and tissue uptake, and for directing their contents toward specific sites in vivo. Chitosan is biological macromolecule derived from crustacean shells and has several emerging applications in drug development, obesity control and tissue engineering. In the present work, the interaction between chitosan and dipalmitoyl phosphatidylcholine (DPPC) liposomes was studied by transmission electron microscopy (TEM), zeta potential, solubilization using a nonionic detergent, octylglucoside (OG), as well as Fourier transform infrared (FTIR) spectroscopy and viscosity measurements. The coating of DPPC liposomes by a chitosan layer was confirmed by electron microscope images and the zeta potential of liposomes. Coating of liposome by chitosan resulted in increase of liposomal size by a layer of $(92 \pm 27.1 \text{ nm})$. The liposomal zeta potential is increasingly positive as chitosan concentration is increased from 0.1% to 0.3% w/v, then it came to a relatively constant value. The amount of detergent needed to completely solubilize the liposomal membrane was increased after coating of liposomes with chitosan, indicating an increased membrane resistance to the detergent and hence a change in the natural membrane permeation properties. In the analysis of FTIR spectra of DPPC, the symmetric and antisymmetric CH₂ (at $2800-3000 \text{ cm}^{-1}$) bands and the C=O (at 1740 cm⁻¹) stretching band were investigated in the absence and presence of the chitosan. It was concluded that appropriate combining of the liposomal and chitosan characteristics might be utilised for the improvement of the therapeutic efficacy of liposomes as drug delivery system.

<u>Keywords:</u>

Chitosan; Liposome; DPPC; Zeta potential; TEM; solubilization; FTIR; viscosity.



Faculty of Science

Dep. : Biophysics

Name : Mohsen M. Mady



0.698

Title : Efficiency of cytoplasmic delivery by non-cationic liposomes to cells in vitro: A confocal laser scanning microscopy study

Authors: Mohsen M. Mady

Published In : Physica Medica

ISSN 1120-1797 Impact Factor

Abstract :

It is necessary to understand liposomal uptake mechanisms and intracellular distribution in order to design more efficient gene (drug) carrier systems. Until now, a few studies have been carried out using confocal laser scanning microscopy (CLSM) to investigate the cellular uptake and transfection mediated with liposomes. So, by CLSM, we demonstrated that artificial virus-like envelope (AVE) vesicles labelled with rhodamine-PE (Rh-PE), carbocyanine (Dil) and carboxyfluorescein (CF) were investigated into the cytoplasm of two human cell lines, Mewo (human melanoma cell line) and HepG2 (human hepatoma cell line) cells grown in DMEM medium supplemented with different percentages (0%, 30%, and 100%) fetal calf serum (FCS). The liposome uptake was dependent on the cell line, in view that the whole process of liposomes associated with cells (uptake) is a two-step process involving binding and endocytosis. Based upon the various assays used to measure cellular uptake of liposomes, we conclude the efficacy of cytoplasmic delivery by AVEliposomes to cells in culture.

Keywords:

Anionic Liposome; CLSM; Fluorescence; serum; Human cells.

- **Dep.** : Biophysics Department
- Name : Mohammad S. Yousef



Cairo University

- *Title* : A 3D structure model of the melibiose permease of *Escherichia coli* represents a distinctive fold for Na⁺ symporter
- Authors: Sabry E. Ahmed and Can. J. Chem
- **Published In :** Proceedings of the American National Academy of Science PNAS
- **ISSN** 0027-8424 **Impact Factor** 9.38

Abstract :

The melibiose permease of Escherichia coli (MelB) catalyzes the coupled stoichiometric symport of a galactoside with a cation (either Na(+), Li(+), or H(+)), using free energy from the downhill translocation of one cosubstrate to catalyze the accumulation of the other. Here, we present a 3D structure model of MelB threaded through a crystal structure of the lactose permease of E. coli (LacY), manually adjusted, and energetically minimized. The model contains 442 consecutive residues (approximately 94% of the polypeptide), including all 12 transmembrane helices and connecting loops, with no steric clashes and superimposes well with the template structure. The electrostatic surface potential calculated from the model is typical for a membrane protein and exhibits a characteristic ring of positive charges around the periphery of the cytoplasmic side. The 3D model indicates that MelB consists of two pseudosymmetrical 6helix bundles lining an internal hydrophilic cavity, which faces the cytoplasmic side of the membrane. Both sugar and cation binding sites are proposed to lie within the internal cavity. The model is consistent with numerous previous mutational, biochemical/biophysical characterizations as well as low-resolution structural data. Thus, an alternating access mechanism with sequential binding is discussed. The proposed overall fold of MelB is different from the available crystal structures of other Na(+)-coupled transporters, suggesting a distinctive fold for Na(+) symporters.

<u>Keywords:</u>

Bioenergetics; ligand binding; Protein threading; MelB; Sugar/Cation symporter.

Faculty of Science

Dep. : Biophysics

Name : Wael M. Elshemey



- *Title* : Monte Carlo simulation of x-ray scattering for quantitative characterization of breast cancer
- Authors: Wael M. Elshemey

Published In: Physics in Medicine and Biology

ISSN 0031-9155 **Impact Factor** 2.784

<u>Abstract :</u>

In the last decade there has been a growing interest in the possibility of characterizing breast cancer using the differences in the coherent x-ray scattering profiles of normal and malignant tissues. To a great extent, characterization has depended on the differences in the peak positions of both tissues in addition to the overall profile which exhibits a distinctive sharp adipose peak in case of normal breast. In many excised tissue samples, breast cancer samples may be mixed with variable percentage of other tissues which affect the shape of its x-ray scattering profile and consequently the ability to characterize the tissue. Moreover, fibroglandular tissue produces scattering profile showing an extent of similarity to breast cancer. The present study introduces a Monte Carlo simulation code capable of tracing photon transport inside a mixed two-component sample. The code is utilized to simulate and best fit x-ray scattering profiles of measured samples. This provides reliable breast tissue characterization in addition to quantitative estimate of the percentage of each component in a given sample. It is expected that the present simulation would potentially enhance the characterization of breast cancer using x-ray scattering technique.

Keywords:

X-ray scattering, breast tissue, breast cancer, Monte Carlo, simulation.

Faculty of Science

Dep. : Biophysics

Name : Wael M. Elshemey



Title : X-ray scattering signatures of beta-thalassemia

Authors: Wael M. Elshemey

Published In: Nuclear Instruments and Methods in Physics Research A

ISSN 0168-9002 **Impact Factor** 1.019

Abstract :

X-ray scattering from lyophilized proteins or protein-rich samples is characterized by the presence of two characteristic broad peaks at scattering angles equivalent to momentum transfer values of 0.27 nm⁻¹ and 0.6 nm⁻¹ respectively. These peaks arise from the interference of coherently scattered photons. Once the conformation of a protein is changed, these two peaks reflect such change with considerable sensitivity. The present work examines the possibility of characterizing the most common cause of haemolytic anaemia in Egypt and many Mediterranean countries; β-thalassemia, from its x-ray scattering profile. This disease emerges from a genetic defect causing reduced rate of synthesis of one of the globin chains that make up haemoglobin. As a result, structurally abnormal haemoglobin molecules are formed. In order to detect such molecular disorder, haemoglobin samples of beta-thalassemia patients are collected, lyophilized and measured using a conventional x-ray diffractometer. Results show significant differences in the x-ray scattering profiles of most of the diseased samples compared to control. The shape of the first scattering peak at 0.27 nm⁻¹, in addition to the relative intensity of first to second scattering peaks provide the most reliable signs of abnormality in diseased samples. Results are interpreted and confirmed with the aid of Fourier Transform Infrared (FTIR) spectroscopy of normal and thalathemia samples.

Keywords:

X-ray, Scattering, Diffraction, Thalassemia, FTIR.

Faculty of Science

Dep. : Botany

Name : Ahmad Kamel Hegazy



Title : Abundance-occupancy relationships and implications for conservation of desert plants in the northwestern Red Sea region

Authors: J. Lovett-Doust, A. K. Hegazy, O. Hammouda, N. H. Gomaa

Published In : Community Ecology

ISSN 1585-8553 **Impact Factor** 0.898

<u>Abstract :</u>

Abundance-occupancy relationships were determined for desert plants in the northwestern Red Sea region, at both the whole landscape, and individual habitat levels. Some 58 stands (having a total of 66 species) were studied, using ten quadrats (10×10 m) per stand. The relation was positive and highly significant at both scales, but stronger at habitat level than across the regional landscape. Nichebreadth was estimated as the number of habitats occupied regionally by a species, and was significantly related to both abundance and occupancy. Niche breadth explained just 10.1% of variation in abundance but some 56.2% of variation in occupancy. Using empirical data, we tested whether those abundance-occupancy relationships diverged significantly from a theoretical null model. Relationships diverged significantly from the null model at both regional landscape and habitat levels. Applications of abundance-occupancy relationships for plant conservation showed that 36% of the species in the study region is at risk of extinction.

Keywords:

Abundance, Conservation, Desert, Occupancy, Niche breadth.
Faculty of Science

Dep. : Botany

Name : Ahmad Kamel Hegazy



Title : Variations of the germinable soil seed bank along the altitudinal gradient in the northwestern Red Sea region

Authors: A.K. Hegazy, O. Hammouda , J. Lovett-Doust, N.H. Gomaa

Published In: Acta Ecologica Sinica

ISSN 1872-2032 **Impact Factor** 0.0

<u>Abstract :</u>

The variations in the size, composition and diversity of the germinable soil seed bank were studied along an altitudinal gradient in the northwestern Red Sea region. The standing vegetation and the germinable seed bank were studied in 58 stands distributed along the altitudinal range from sea level to coastal mountain peaks. The classification of the germinable seed bank by the two-way indicator species analysis (TWINSPAN) led to the recognition of five groups representing different altitudinal ranges. Detrended correspondence analysis (DCA) shows that these groups are clearly distinguished by the first two DCA axes. The results demonstrate significant associations between the floristic composition of the seed bank and the edaphic factors such as CaCO3, electrical conductivity, organic carbon and soil texture. Species richness, Shannon index of diversity and the size of the germinable seed bank show a hump-shaped curve along the altitudinal gradient, whereas evenness shows a weak increase with elevation increasing. Beta diversity of the seed bank declines with altitude increasing. The similarity between the standing vegetation and the seed bank approaches a U-shaped pattern along the elevation gradient. About 34.8% of the species that constitute the standing vegetation are vulnerable to elimination from the standing vegetation because they are not represented in the seed bank. Soil seed bank can be used for restoration of the vegetation at some of the degraded sites.

Keywords:

Altitude, Desert, Diversity, Red Sea, Soil seed bank.

Faculty of Science

Dep. : Botany

Name : Ahmad Kamel Hegazy



Title : Duckweed as heavy metal accumulator and pollution indicator in industrial wastewater ponds

Authors: A.K. Hegazy, H.F. Kabiel, M. Fawzy

Published In : Desalination and Water Treatment

ISSN 0011-9164 **Impact Factor** 1.155

<u>Abstract :</u>

Bioaccumulations of the four heavy metals Cr, Cu, Pb and Zn in Lemna gibba (duckweed) as an environmental indicator of contaminated industrial wastewater were detected. Plant pigment content (chlorophyll and carotenoids) were estimated. During the study, heavy metals were ranked according to the preference for bioaccumulation by L. gibba, Zn came in the first place followed by Cr. Pb and Cu with bioaccumulation factors 13.9, 6.3, 5.5 and 2.5 respectively. The chlorophyll and carotenoid content in L. gibba fronds were altered by the bioaccumulation of heavy metals showing a substantial change in colour from green (lowest degree of bioaccumulation) to pale green (high bioaccumulation) and then degreened (maximum bioaccumulation) fronds. As the bioaccumula-tion of heavy metals increased in fronds, chlorophyll a content decreased, chlorophyll b content increased and the carotenoids became greater than chlorophyll (a + b)content especially in the pale green fronds. Zinc content in fronds showed greater negative correlations with chlorophyll a, chlorophyll b and total chlorophyll followed by Cu, Pb and Cr. Alternatively, Cr and Cu contents were mostly positively correlated with carotenoid content in L. gibba fronds. The accumulation of higher contents of heavy metal content in L. gibba than in wastewater samples indicates its phytore-mediation potentialities. The visual change in colour of fronds from green to pale green and the degreening accompanied by the increase in heavy metal pollution nominate the species as heavy metal accumulator and pollution indicator.

Keywords:

Pigments, Chlorophyll, Carotenoids, Degreening, Phytoremediation, Arid regions.

6690

Faculty of Science

Dep. : Botany

Name : Zeinat K. Mohamed



0.846

Title : Cloning and Molecular Characterization of Chitinase From *Bacillus Licheniformis* MS-3

Authors: Zeinat K. Mohamed

Published In: J. Gen. Appl. Microbiology

ISSN 0022-1260 Impact Factor

<u>Abstract :</u>

PCR was used to detect the presence of *chiA* gene in the four isolates and reference strains. The gene of interest was evident in all isolates and reference strain, the size of amplified product is identical to the expected amplified fragment 225bp.

Two pairs of specific PCR primers were designed based on the published *Bacillus licheniformis chiA* sequences to amplify the full length *chiA* gene of MS3 local isolate. The size of amplified product obtained was identical to the expected amplified fragment (2116bp).

The full length *chiA* gene PCR product was cloned into the pGEM[®]-T Easy vector and transformed into *E. coli*. Verification tests were carried out to confirm the presence of the *chiA* gene in the recombinant *chiA* clones.

The complete nucleotides sequence of the *chiA* gene was obtained. The *chiA* gene contains one open reading frame (ORF) of 2082 bases encodes 693 amino acids residues. The molecular mass of the protein calculated from the deduced amino acid sequence was 77613.49 Daltons.

Sequence analysis and homology searches revealed that *chiA* of MS3 exhibited a high sequence homology with *chiA* from *Bacillus licheniformis* ATCC 14580 (95%) and *Bacillus licheniformis* DSM 13 (95%), followed by chitinase from *Bacillus pumilis* (82%), and chitinase from *Herpetosiphon aurantiacus* ATCC 23779 (57%), *Streptomyces olivaceoviridis* (57%), and chitinase from *Strepomyces coelicolor* (55%), *Vibrio vulnificus* (54%) and a low sequence homology with chitinase from *Pyrococcus kodakaraensis* (26%).

<u>Keywords:</u>

Bacillus licheniformis; Chitinase; Gene cloning; Nucleotide sequence.

Dep. : Botany

Name : Zeinat K. Mohamed



- Potency evaluation of *Serratia marcescens* and *Pseudomonas fluorescens* as a biocontrol agents for root-knot nematodes in
- *Title* : *fluorescens* as a biocontrol agents for root-knot nematodes Egypt
- Authors: Zeinat K. Mohamed

Published In: Applied Sciences Research

ISSN 1816-157X **Impact Factor** 0.0

<u>Abstract :</u>

A number of bacterial species, isolated from either root-knot nematodes conductive or suppressive soil of different localities in Egypt, were evaluated for suppression of *Meloidogyne incognita*, the causal agent of root-knot of faba bean. Nine isolates of 50 bacterial isolates significantly reduced nematode larvae population in soil belonging to Meloidogyne spp. Death percentage of nematode larvae ranged from 54.7% to 96.25%. Two potent bacterial isolates with higher nematocidal activity were selected and identified as Serratia marcescens and Pseudomonas fluorescens using morphological and biochemical diagnosis tests. The identification was confirmed by genetic characterization, applying molecular finger printing of DNA of both isolates. RAPD sequencing and PCR sequencing analysis revealed genetic variation among the two isolates. The effect of bacterial treatment as bio-control agent on the development of Meloidogyne incognita infecting faba bean was evaluated under greenhouse conditions. Both Serratia marcescens and Pseudomonas fluorescens were effective as bio-control agent and significantly reduced the incidence of root-knot disease in soil artificially infested with Meloidogyne incognita. All bacterial treatments significantly increased all growth parameters in the presence or absence of the pathogen. The application of the bio-control agents increase shoot and root dry weight, number of nodules and number of pods.

The study indicated that *Serratia marcescens* and *Pseudomonas fluorescens* were potent as bio-control agents for root-knot nematodes, the production of local Egyptian inoculums of both bacterial species as a safe bio-control agents for the root-knot disease is possible.

<u>Keywords:</u>

Biocontrol; Nematodes; Bacterial bioagents.

Faculty of Science

Dep. : Botany

Name : Tarek A. Moussa



Title : Molecular Characterization of the Phenol Oxidase (*pox2*) Gene from the Ligninolytic Fungus *Pleurotus Ostreatus*

Authors: T. A. Moussa

Published In: FEMS Microbiol Lett

ISSN 0378-1097

Impact Factor 2.5

<u>Abstract :</u>

The gene (pox2) encoding a phenol oxidase from *Pleurotus ostreatus*, a lignin degrading basidiomycete, was sequenced and the corresponding pox2-cDNA was also synthesized, cloned and sequenced. The isolated gene consisted of 2674 bp, with the coding sequence interrupted by 19 introns and flanked by an upstream region in which the putative metal-responsive elements (MREs) were determined in the promoter region (849 bp), where MRE 1, 2, 3 and 4 were located in positions -20, -60, -236 and -297. A functional TATA consensus sequence was recognized in positions -85, while CAAT and its inversion consensus sequences were recognized in positions -284, -554, -689 and -752. The putative GC box consensus sequences were recognized in positions -107, -277 and -390. The isolation of a second cDNA (pox2-cDNA), the nucleotide sequence of pox2, was found to contain an ORF of 1665 bp capable of coding for a protein of 533 amino acid residues. Northern blot analysis revealed that strong transcriptional induction was observed in the copper-supplemented cultures for the pox2 gene.

<u>Keywords:</u>

Pleurotus Ostreatus; cDNA; pox2; Northern blot analysis; Gene promoter; Putative sequences.

Faculty of Science

Dep. : Botany

Name : Tarek A. A. Moussa



- *Title* : The interplay between iron and zinc metabolism in Aspergillus fumigatus
- *Authors*: S. Yasmin, B. Abt, M. Schrettl, T. A. Moussa, E. R. Werner and H. Haas
- Published In: Fungal Genetics and Biology
- **ISSN** 1087-1845 **Impact Factor** 3.5

<u>Abstract :</u>

Zinc plays a critical role in a diverse array of biochemical processes. However, excess of zinc is deleterious to cells. Therefore, cells require finely tuned homeostatic mechanisms to balance uptake and storage of zinc. Here we show that iron starvation affects zinc metabolism by downregulating expression of the plasma membrane zinc importer encoding *zrfB* and upregulating the putative vacuolar zinc transporter-encoding zrcA in Aspergillus fumigatus. Nevertheless, the zinc content of iron-starved mycelia exceeded that of iron replete mycelia, possibly due to unspecific metal uptake induced by iron starvation. In agreement with increased zinc excess and zinc toxicity during iron starvation, deficiency in siderophore-mediated high-affinity iron uptake caused hypersensitivity to zinc. Moreover, an increase of zinc uptake by conditional overexpression of zrfB was more toxic under iron depleted compared to iron replete conditions. This deregulated zinc uptake under iron starvation caused a decrease in heme production and an increase in protoporphyrin IX accumulation. Furthermore, zinc excess impaired production of the extracellular siderophore triacetylfusarinine C but not the intracellular siderophore ferricrocin. Taken together, these data demonstrate a fine tuned coordination of zinc and iron metabolism in A. fumigatus.

<u>Keywords:</u>

Aspergillus; Zinc; Iron; Heme; Siderophore.

Faculty of Science

Dep. : Botany

Name : Neveen S. Geweely



- Anticandidal Cytotoxicity, Antitumor Activities, and Purified
- *Title* : Cell wall Modulation by Novel Schiv Base Ligand and its Metal (II) Complexes Against some PathogenicYeasts

Authors: N. S. Geweely

Published In: Archives of Microbiology

ISSN 0302-8933

Impact Factor 1.975

<u>Abstract :</u>

The preparation of metal (II) complexes [CoCl₂·6H₂O, Ni(CH₃COO)₂·4H₂O, Cu(CH₃COO)₂·2H₂O, and Zn (CH₃COO)₂ ·2H₂O] with 2[N-(cinnamlidene) amino]-5-nitro phenol as a novel ligands and their biological evaluation against candida species was studied. The inhibitory effects of the tested metal complexes were tested against six pathogenic yeasts (Candida albicans, C. fructus, C. glabrata, C. oleophila, C. parapsilosis, and C. tropicalis). The effect of the most efficient metal complex (Zn(II) complex) was more pronounced at 1.25 g/ml, while Ni(II) complex was exhibited the least suppressive effect. Co(II) and Zn(II) complexes act as potential antitumor agents, while Zn(II) complex has shown promising cytotoxic activity with slow candidal respiration rate. Addition of Zn(II) complex leading to suppression of cell wall components in all candidal cells accompanied with leaking out of amino acids. Purification of the cell wall mannoprotein of C. glabrata treated with Zn(II) complex was established, resulting one pure fissured protein peak. Cell wall protein modulation was showed by appearance of two new protein bands with molecular weights of 72 and 39 KDa in C. glabrata cells treated with Zn(II) complex compared with one pure protein band 55.6 KDa in the non treated yeast cell.

Keywords:

Anticandidal; Cytotoxicity; Purification; Antitumor; Metal complexes.

Dep. : Botany

Name : Neveen S. Geweely



Title : Novel Inhibition of some Pathogenic Fungal and Bacterial Species by New Synthetic Phytochemical Coumarin Derivatives

Authors: N. S. Geweely

Published In: Annals of Microbiology

ISSN 1590-4261

Impact Factor 0.466

<u>Abstract :</u>

novel antifungal and antibacterial activities of new synthesized phytochemical coumarin $[H_2L^1, HL^2]$ and H_2L^3 and their copper (II) complexes $[L^1Cu]$, $[L^2Cu(OAc)]$ and $[(L^3)Cu_2(H_2O)_4(OAc)_2]$ were evaluated against nine pathogenic fungal species (Alternaria alternata, Aspergillus flavus, Botrytis cinerea, Cladosporium herbarum, Fusarium moniliforme, Helminthosporium tetramera, Penicillium expansum, Rhizopus stolonifer and Verticillium albo-atrum) and eight pathogenic bacterial species, from which four Gram-positive bacteria (Staphylococcus citrus, Streptococcus pneumoniae, Bacillussubtilis and Micrococcus luteus) and four Gram-negative bacteria (Enterobacter aerogenes, Escherichia coli, Pseudomonas aeruginosa and Salmonella typhi). The phytochemical copper (II) complex $[L^2Cu(OAc)]$ was the most effective derivative, where it reaches to 90 and 100% inhibition in the most sensitive pathogens (B. subtilis and A. flavus), respectively accompanied with a significant reduction in pectinolytic and cellulytic enzyme activities in all tested pathogenic species. Addition of [L²Cu(OAc)] complex leading to leakage of sugars and electrolytes from the most sensitive microbial cells accompanied with collapsed hyphae of A. flavus and membrane blobbing of B. subtilis. The production of mycotoxins decreased with the extension exposure to $[L^2Cu(OAc)]$ complex reaching to a minimum values for the mycelium originating from the inoculum exposed to the minimum inhibitory concentration (2%). Both aflatoxin (AFB₁) and citrinin were the most sensitive toxins.

<u>Keywords:</u>

Antifungal Antibacterial; Enzymes; Toxin, Coumarin.

Faculty of Science

Dep. : Chemistry

Name : Aboubakr M. Abdullah



- *Title* : Effect of load, temperature and humidity on the pH of the water drained out from H2/air polymer electrolyte membrane fuel cell
- *Authors*: Aboubakr M. Abdullah, Takeyoshi Okajima, Ahmad M. Mohammad, Fusao Kitamura and Takeo Ohsaka

Published In : Journal of Power Sources

ISSN 0378-7753 **Impact Factor** 3.447

Abstract :

The effect of the operating conditions, e.g., load, temperature, relative humidity (RH), and the MEA's aging condition on the pH of thewater drained out from the cathode and anode sides of a H₂/air PEM fuel cell was studied. Also the effect of the pollutants' existence in natural air on the measured pH and the performance of the fuel cell was investigated. pH values as low as 1 were measured for the water drained out from the cathode side under a low temperature-low RH condition. Increasing the load, temperature or RH value resulted in an increase of the measured pH except for the low temperature-low RH condition where increasing the load resulted in a decrease in the measured pH. On the other hand, the pH value of the water drained out from the anode side was around 4 under the same low temperature-low RH condition. Aging of the MEA at 90°C and RH of 100% for at least 30 h resulted in low measured pH values for the water drained out from the cathode side. The polarization behaviors of the cathode under these different conditions were measured and correlated to the pH change and the performance of the MEA. Measuring the pH using a flow pH meter for the water droplets drained out from the cathode side can be used as an alarm for the onset of the chemical degradation of the Nafion membrane.

Keywords:

PEM; Degradation; Emissions; pH; Temperature; Relative humidity.

Faculty of Science

Dep. : Chemistry

Name : Ihsan M. Kenawi



Title : A Concise Survey of Some Experimental Determinations of Static Dipole Polarizability

Authors: Ihsan M. Kenawi

Published In : AIP Conference proceedings

ISSN 000-000 **Impact Factor** 0.00

Abstract :

This work deals with a concise survey of some techniques that were used by different authors to determine experimentally the static dipole polarizability ranging from index of refraction measurements to optical, electrical or spectroscopic studies. A short discussion of the consequent adjustments made by theoreticians to their methods of calculations is reported whenever available. However, as in any report of the kind, unintentional omissions may have occurred; I do apologize to those authors whose work has been overlooked.

Faculty of Science

Dep. : Chemistry

- Name : Ahmed H. Elwahy
- *Title* : Synthesis of C-Pivot Lariat Ethers

Authors: A. A. Abbas and A. H. Elwahy

Published In: Journal of Heterocyclic Chem.

ISSN 0022-152X **Impact Factor** 0.899

<u>Abstract :</u>

This review casts light on the main strategies for the synthesis of C-pivot lariat ethers as well as their specific syntheses. A number of other reviews that have appeared concerning lariat ethers did not cover the synthesis of these compounds in an organized manner. We have concentrated on the crown compounds containing at least 12-membered rings.

Keywords:

Crown ethers; Lariat ethers; Alkylation; Macrocyclization; Sidearm.



Dep. : Chemistry

- *Name* : Ahmed H. Elwahy
- Synthesis of spiro-linked macrocyclic crown formazans and a Title : bis (crown formazan)

Authors: A. A. Abbas and A. H. Elwahy

Published In : Arkivoc

ISSN 1424-6376 **Impact Factor** 1.377

Abstract :

The spiro-linked crown formazans 7a,b and bis(crown formazan) 11 were synthesized by diazotization of tetrakis(amine) hydrochlorides 6, and 10, respectively, followed by coupling with malonic acid or cyanoacetic acid in pyridine.

Keywords:

Alkylation; Diazotization; Coupling; Macrocyclic formazan.



Faculty of Science

Dep. : Chemistry

Name : Ahmed H. Elwahy



Synthesis of Novel Amide-Crownophanes and Schiff Base-

Title : Crownophanes Based on p-Phenylene, 2,6-Naphthalene, and 9,10-Anthracene.

Authors: H. A. Muathen, N. A. M. Aloweiny and A. H. Elwahy

Published In: J. Heterocyclic Chem.

ISSN 0022-152X **Impact Factor** 0.899

<u>Abstract :</u>

The novel macrocyclic diamides 11–13, 16–18 are obtained in 45–66% yields by the reaction of dipotassium salts 10a–c and 15 with each of 1,4di(bromomethyl)benzene 4, 2,6-di(bromomethyl)naphthalene 6 and 9,10di(bromomethyl) anthracene 8, repectively, in boiling DMF. On the other hand, the new macrocyclic Schiff bases 28 and 29 are obtained in 44% and 42% yields by heating the appropriate bis-amines 25b, 26b with the corresponding bisaldehydes 21, 22, respectively, in refluxing acetic acid under high-dilution conditions.

<u>Keywords:</u>

Macrocyclic diamides; Macrocyclic schiff bases; Bis-amines; Bis-phenols; Dihaoarenes.

Faculty of Science

Dep. : Chemistry

Name : Ahmad S. Shawali



Title : Synthesis and Tautomeric Structure of 6-arylhydrazono 1Hpyrazolo[3',4':4,5]pyrimido[1,6-b][1,2,4,5]triazepines

Authors: A. S. Shawali and T. A. Farghaly

Published In : Tetrahedron

ISSN 0040-4020

Impact Factor 2.897

<u>Abstract :</u>

A simple synthetic strategy is described for synthesis of the hitherto unreported 6-arylhydrazono 1H-pyrazolo[3',4':4,5]pyrimido[1,6-b][1,2,4,5]triazepines **5a-j**. The acid dissociation constants were determined for the series preparedand wee correlated by the Hammett equation using the enhanced substituent constants. The results of such a correlation together with the spectral data indicated that the studied compounds exist predominantly in the hydrazone tautomeric form.

<u>Keywords:</u>

Azo-hydrazone tautomerism; Heterocycles; Pyrazolo[3',4':4,5]pyrimido[1,6b][1,2,4,5]triazepine.

Dep. : Chemistry

Name : Ahmad S. Shawali



Title : A New Synthesis of the Tricyclic system Bis-Pyrazolo[1,5a][4',3'-e]-pyrimidine

Authors: A. S. Shawali and N. M. Tawfik

Published In : Arkivoc

ISSN 1424-6376

Impact Factor 1.377

<u>Abstract :</u>

Starting from 2,7-dimethyl-8-phenylazo-4(6H)-pyrazolo[1,5-a]pyrimidinone 1, a series of functionalized derivatives of the title tricyclic system 4 have been synthesized via its reaction with various hydrazonoyl halides 2 and cyclization of the resulting substitution products 3. The mechanism and the site selectivity of the reactions studied are discussed. The structures of the products 3 and 4 isolated were elucidated on the basis of their spectra, elemental analyses and alternate synthesis.

<u>Keywords:</u>

Heterocycles; Hydrazonoyl halides; enaminones; nitrilimines.

Faculty of Science

Dep. : Chemistry

Name : Ahmad S. Shawali



Title : Novel facile synthesis of imidazo[1,2-b][1,2,4,5]- tetrazines with Potential Antimicrobial Activity

Authors: A. S. Shawali and N. M. Tawfik

Published In: Arch. Pharm. Res

ISSN 0253-6269 **Impact Factor** 1.074

<u>Abstract :</u>

Starting from 1-amino-2-methylthio-4-phenylimidazole 2, a series of the title compounds have been synthesized via its reactions with various hydrazonoyl halides 3. The mechanism of the reactions studied is discussed. The structures of the compounds prepared were elucidated on the basis of their elemental analyses, spectral data and alternate synthesis. The antimicrobial activities of the compounds prepared were screened and the results showed that most of such compounds exhibit considerable activities.

<u>Keywords:</u>

Hydrazonoyl halides, Nitrilimines, Heterocycles.

Faculty of Science

Dep. : Chemistry

Name : Ahmad S. Shawali



- *Title* : Synthesis and Antitumor Activity of Novel Pyrazolylenaminone and Bis-(Pyrazolyl)ketones via Hydrazonoyl halides
- Authors: A. S. Shawali, S. M. Sherif, M. M. El-Merzabani and M. A. A. Darwish

Published In: Aquaculture Research

ISSN 0022-152X **Impact Factor** 0.899

<u>Abstract :</u>

3-Acetyl-4-benzoyl-1,5-diphenylpyrazole reacts with DMF-DMA to give the novel enaminone **2**. The reaction of the latter with various hydrazonoyl halides afforded regioselectively the respective substituted (3-pyrazolyl)(4-pyrazoly)ketones **4** in good yield. The preliminary screening for antitumor activity of the synthesized compounds **2** and **4a-g** against human bbeast cancer cell line (MCF-7) revealed that both compounds **2** and **4b** have high antitumor activity. SAR is discussed.

<u>Keywords:</u>

Hydrazonoyl halides; Enaminones; Cycloaddition; Antitumor activity.

Faculty of Science

Dep. : Chemistry

Name : Ahmad S. Shawali



Title : Hydrazonoyl Halides: their Versatile Biological Activities

Authors: A. S. Shawali and N. A. Samy

Published In : Aquaculture Research

ISSN 1874-8473 **Impact Factor** 0.00

<u>Abstract :</u>

The various biological activities namely, anthelmintic, antiarthropodal, antiviral, antimicrobial, herbicidal, antisarcoptic, acaricidal, insecticidal and miticidal activities exhibited by the hydrazonoyl halides are surveyed. Also, the uses of such halides as pesticides, weed controlling and antihypertensive agents as well as lipoxygenase and cyclooxygenase inhibitors are presented. Furthermore their contact dermatitis and phytotoxicity effects are pointed out in addition to their metabolic fate.

Keywords:

Hydrazonoyl halides; Biological activities; Metabolism.

Faculty of Science

Dep. : Chemistry

Name : Ahmed S. Abdellah



- *Title* : Kinetic study of the Complex Reaction Between Copper(II) and 2-(2hydroxy-3-methoxyphenyl)benzothiazole
- Authors: Wolfhardt Freinbichler, Ahmed S. Abdellah, Reginald F. Jameson, Guy N.L. Jameson and W. Linert

Published In : Spectrochim. Acta Part A

ISSN 1386-1425 **Impact Factor** 1.51

<u>Abstract :</u>

2-(2_-Hydroxy-3_-methoxyphenyl)benzothiazole reacts with copper(II) in an ethanol/water mixture to form an O,S chelate which exhibits the remarkable property of changing the chelation site above a pH of ca.5.0, to the O,N site. The detailed kinetics of this reaction in an ethanol/water mixture (3:1) at a temperature of 25 \circ C was investigated using a stopped-flow spectrophotometric technique employing a wavelength of 400 nm. The initial complex, Cu(O,S), is formed via a fast, reversible second-order complex formation step whereupon the formation of the Cu (O,N) follows first order kinetics. The Cu(O,N) complex is, however, unstable towards internal electron exchange and after the reaction is complete, a black polymeric material very slowly precipitates out of solution. Rate and equilibrium constants for the postulated reactions are presented and discussed.

<u>Keywords:</u>

2-(2_-Hydroxy-3-ethoxyphenyl)benzothiazole; Copper(II); Kinetics; Change of coordination side.

Faculty of Science

Dep. : Chemistry

Name : Ahmad A. El-Sherif



Synthesis, Spectroscopic Characterization, and Biological Activity on Newly Synthesized Copper(II) and Nickel(II)

Title : Retry of Newry Synthesized Copper(II) and Nekel Complexes Incorporating Bidentate Oxygen-Nitrogen Hydrazone Ligands.

Authors: Ahmad A. El-Sherif

Published In: Inorganica Chimica Acta

ISSN 0020-1693

Impact Factor 1.940

<u>Abstract :</u>

We report the synthesis of the hydrazone ligands, 1-(phenyl-hydrazono)propan-2-one (PHP), 1-(p-Tolyl-hydrazono)-propan-2-one (THP), 1-[(4-Chlorohydrazono)]-propan-2-one (CHP), and their Ni(II) and Cu(II) metal complexes. The structure of the ligands and their complexes were investigated using elemental analysis, magnetic susceptibility, molar conductance and spectral (IR, UV, and EPR) measurements. IR spectra indicate that the free ligands exist in the hydrazoketone rather than azo-enol form in the solid state. Also, the hydrazo-NH exists as hydrogen bonded to the keto-oxygen either as intra or as intermolecular hydrogen bonding. In all the studied complexes, all ligands behave as a neutral bidentate ligands with coordination involving the hydrazone-nitrogen and the keto-oxygen atoms. The magnetic and spectral data indicate a square planar geometry for Cu^{2+} complexes and an octahedral geometry for Ni²⁺ complexes. The ligand and their metal chelates have been screened for their antimicrobial activities using the disc diffusion method against the selected bacteria and fungi. They were found to be more active against Gram-positive than Gram-negative bacteria. It may be concluded that the antimicrobial activity of the compounds is related to cell wall structure of bacteria.

Protonation constant of (PHP) ligand and stability constants of its Cu^{2+} and Ni^{2+} complexes were determined by potentiometric titration method in aqueous solution at ionic strength of 0.1 M sodium nitrate. It has been observed that the hydrazone ligand (PHP) titrated here has one protonation constant. The divalent metal ions Cu^{2+} and Ni^{2+} form with (PHP) 1:1 and 1:2 complexes. The insolubility of (THP) and (CHP) ligands in aqueous medium does not permit the determination of their protonation constants and complexes in solution.

Keywords:

Hydrazone; Copper(II); Nickel(II); EPR spectra; IR spectra; Equilibrium studies; Biological activity.

6509

Dep. : Chemistry

- Name : Nadia E. A. El-Gamel
- *Title* : Metal chelates of ampicillin versus amoxicillin: synthesis, structural investigation, and biological studies

Authors: Nadia E.A. El-Gamel

Published In: Coordination Chemistry

ISSN 0095-8972 **Impact Factor** 0.732

Abstract :

Solid chelates derived from some alkaline earth and transition metal complexes with ampicillin (Hamp, a) and amoxicillin (Hamox, b) were synthesized and characterized using elemental analysis, molar conductivity, IR, magnetic susceptibility, and thermogravimetric studies. Both drugs behave as tetradentate ligands coordinating to metal through amino, imino, and carboxylate as well as through-lactamic carbonyl. All chelates have octahedral geometry except Cu(II) complexes which have square planar structure and uranium has pentagonal bipyramidal coordination. 1H- and 13C-NMR of the Zn(II) and UO2(VI) chelates are compared with the free ligands. The antimicrobial activity of the prepared chelates was determined.

<u>Keywords:</u>

Ampicillin (Hamp); Amoxicillin (Hamox); IR; Thermal behavior; 1H– and 13C-NMR spectra; Antimicrobial activity.

Dep. : Chemistry

Name : Ahmad M. Farag



Cairo University

- Synthesis and Antimicrobial Evaluation of New Pyrazole, Thiophene, Thiazole and 1,3,4-Thiadiazole Derivatives
- *Title* : Thiophene, Thiazole and 1,3,4-Thiadiazole Derivativ Incorporating Pyrimidine Ring

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

Published In : Heterocycles

ISSN 0385-5414 **Impact Factor** 0.98

Abstract :

The utility of 3-oxo-N-(pyrimidin-2-yl)butanamide (1) in the synthesis of some new pyrazole, thiophene, thiazole, and 1,3,4-thiadiazole derivatives pendant to a pyrimidine ring is reported. Antimicrobial evaluation of some selected examples from the synthesized products was carried out and showed moderate activity.

<u>Keywords:</u>

1,3,4-Thiadiazole; Hydrazonoyl Chloride; Pyrimidine Pyrazole; Thiophene; Antimicrobial Evaluation; Thiazole.

Faculty of Science

Dep. : Chemistry

Name : Ahmad M. Farag



A convenient route to new pyrrolo[1,2c]pyrimidone,

Title : thiazolo[3,4-c]pyrimidone and pyrimido[4,5-d]pyriadazine derivatives

Authors: N. A. Kheder, Y. N. Mabkhot and A. M. Farag

Published In : Heterocycles

ISSN 0385-5414 **Impact Factor** 0.98

Abstract :

The utility of versatile, readily accessible ethyl 6-bromomethyl-2-oxo-4-phenyl-1,2,3,4-tetrahydropyrimidine-5-carboxylate (3) and ethyl 6-bromomethyl-2-oxo-4-phenyl-1,2-dihydropyrimidine-5-carboxylate (4) in the synthesis of some new pyrimidine, pyrimido[4,5-d]pyridazine, pyrrolo[1,2-c]pyrimidone and thiazolo[3,4-c]pyrimidone derivatives is reported.

<u>Keywords:</u>

1,2,3,4-Tetrahydro- and 1,2-Dihydropyrimidine-5-carboxylates; Pyrimido[5,4*d*]pyridazine; Pyrrolo[1,2-c]- and Thiazolo[3,4-*d*]pyrimidones.

Faculty of Science

Dep. : Chemistry

Name : Ahmad M. Farag



Title : Synthesis and Antimicrobial Evaluation of New Thiophene and 1,3,4-Thiadiazole Derivatives

Authors: M. R. Shaaban, T. S. Saleh, and A. M. Farag

Published In : Heterocycles

ISSN 0385-5414 **Impact Factor** 0.98

<u>Abstract :</u>

A Facile route to some new thiophene derivatives via the reaction of 3mercapto-2-(1-methylbenzimidazole-2-carbonyl)-3-phenylaminopropenal (3) with 1-aryl-2-bromoethanones, chloroacetonitrile and ethyl bromoacetate is reported. Reaction of 3 with hydrazonoyl halides afforded 1,3,4-thiadiazole derivatives incorporating a benzimidazole moiety. Antimicrobial and antifungal activities of selected examples of the new products were evaluated.

<u>Keywords:</u>

1,3,4-Thiadiazole; Antimicrobial Activity; Enaminone; Hydrazonoyl Halide; Thiophene.

Faculty of Science

Dep. : Chemistry

Name : Ahmad M. Farag.



An Efficient Single Step Synthesis of Pyridazine,

Title : Pyrazolo[5,1-c]-1,2,4-Triazine, 1,2,4-Triazolo[5,1-c]-1,2,4-Triazine and 1,2,4-Triazino[4,3-a]Benzimidazole Derivatives

Authors: M. R. Shaaban, T. S. Saleh, and A. M. Farag

Published In : Heterocycles

ISSN 0385-5414 **Impact Factor** 0.98

Abstract :

Coupling of E-1-(1-methylbenzimidazol-2-yl)-3-(N,N-dimethylamino)prop-2enone (1) with the arenediazonium salt gave hydrazonopropanal 5 which underwent cyclocondensation with active methylene compounds to afford substituted pyridazin-6-imine 8 and 11. The enaminone 1 coupled also with the diazonium salts prepared from aminopyrazole, aminotriazole and 2-amino-1Hbenzimidazole to afford pyrazolo[5,1-c]-1,2,4-triazine 15, 1,2,4-triazolo[5,1-c]-1,2,4-triazine 19, 1,2,4-triazino[4,3-a]benzimidazole 23 derivatives, respectively.

<u>Keywords:</u>

1,2,4-Triazino[4,3-*a*]benzimidazole; 1,2,4-Triazolo[5,1-*c*]-1,2,4-triazine; Enaminone; Pyrazolo[5,1-*c*]-1,2,4-triazine; Pyridazine.

Faculty of Science

Dep. : Chemistry

Name : Ahmad M. Farag



Title : Synthesis of Bipyrazole and 1,3,4-thiadiazole Derivatives

Authors: K. M. Dawood, E. A. Ragab and A. M. Farag

Published In : Chemical Research

ISSN 0308-2342 **Impact Factor** 0.097

<u>Abstract :</u>

New hydrazonoyl bromides reacted with several C-nucleophiles to give the corresponding bipyrazoles. Treatment of 3-cyanoacetylpyrazole derivatives with phenyl isothiocyanate in potassium hydroxide followed by hydrazonoyl bromides gave the corresponding pyrazolyl-1,3,4-thiadiazoles.

<u>Keywords:</u>

Pyrazoles; Thiophenes; 1,3,4-Thiadiazoles; Hydrazonoyl bromides.

Faculty of Science

Dept. : Chemistry

Name : Ahmad M. Ahmad



- *Title* : Development of Spin-coated Si/TiOx/Pt/TiOx Electrodes for the Electrochemical Ozone Production
- *Authors* : A. M. Ahmad, K. Kitsuka, A. M. Abdullah, M. I. Awad, T. Okajima, K. Kaneda, M. Ikematsu and T. Ohsaka

Published In : Applied Surface Science

ISSN: 0169-4332 **Impact Factor:** 1.576

<u>Abstract :</u>

A novel electrode having the compositional sequence Si/TiOx/Pt/TiOx was developed for ozone electrogeneration. The spin-coating method, the sputtering deposition technique, and a post-annealing procedure were all combined to assemble the electrode composition. A two-compartment electrolytic cell separated by a Nafion membrane was used to generate ozone galvanostatically. The X-ray photon electron spectroscopy (XPS) and atomic force microscopy (AFM) were used to reveal the electrode composition and morphology. The influence of several factors including the electrode's annealing temperature, the electrolyte composition, and the electrolysis' current density on the efficiency of ozone production was investigated. A maximum ozone generation efficiency of 2.5% was obtained at 74 mA cm⁻² at room temperature. Interestingly, the electrode preserved (ca. 80%) of its original activity to produce ozone after 50 h of continues electrolysis at 74 mA cm⁻² at room temperature.

<u>Keywords :</u>

Titanium oxide; Ozone; Electrolysis; Spin coating; Sputtering; XPS; AFM.

Faculty of Science

Dept. : Chemistry

Name : Ahmad M. Ahmad



- *Title* : Template-Assisted Growth of Rhodium Nanowire Contacts to Sil Nanowires
- *Authors* : A. M. Mohammad, A. M. Abdullah, B. E. El-Anadouli and S. E. Mohney

Published In: International Journal of Nanomanufacturing

ISSN: 1746-9392 **Impact Factor**: 0.0

<u>Abstract :</u>

Nanoscale materials are attracting growing interest due to their fascinating properties compared to the corresponding bulk materials, such as high effective surface area, catalytic activity and quantum confinement. Silicon nanowires, in particular, received much of this interest due to their promising applications in nano-electronics and nano-optoelectronics. Template synthesis, which involves a deposition into the nanopores of a nanoporous template, is considered among the easiest and least expensive approaches to fabricate nanowires with uniform diameters over a large area. More interestingly, it opens an opportunity to confine a nanocontact in the template's pores via a sequentional deposition of different materials. Herein, we describe a template-based approach to fabricate metallic nanowire contacts to silicon nanowires. The metallic part of the nanowire (herein is rhodium) was deposited electrochemically within the pores of the template. However, the other (silicon) part was grown using the metal-catalysed vapour-liquid-solid (VLS) mechanism. The influence of the growth parameters on the structural quality of the nanowire was addressed.

<u>Keywords:</u>

Silicon nanowires; Nanowire contacts; Nanomaterials; Nanomanufacturing; Rhodium nanowires; Vapour-liquid-solid; Template growth; Electrodeposition.

-45-

Faculty of Science

Dep. : Chemistry

- Name : Ismail A. Abdelhamid
- *Title* : Chemistry of 2-Arylhydrazonals

Authors: I. A. Abdelhamid

Published In : Synlett

ISSN 0936-5214

Impact Factor 2.659

Abstract :

Approaches for the preparation of 2-arylhydrazonals as well as the chemical reactivity profiles and structures of these substances are reviewed. Emphasis is given to the use of these substances in the synthesis of five- and six-membered heterocycles.

Keywords:

Arylhydrazonals; Synthesis; Reactivity.



Faculty of Science

Dep. : Chemistry

Name : Ismail A. Abdelhamid



- *Title* : Recent Developments in Pyridazine and Condensed Pyridazine Synthesis
- Authors: I. A. Abdelhamid

Published In: Advances in Heterocyclic Chemistry

ISSN	0065-2725	Impact Factor	1.35

<u>Abstract :</u>

Due to the interest in the biologically active pyridazines and condensed pyridazines, the different routes to pyridazines and condensed pyridazines utilizing arylhydrazones as starting materials are reviewed with the references to previous contributions in this area since the subject has never been previously surveyed.

Dep. : Chemistry

Name : Ismail A. Abdelhamid



2.659

Synthesis of Novel Spiro Cyclic 2-Oxindole Derivatives of 6-

- *Title* : Amino-4H-Pyridazine via [3+3] Atom Combination Utilizing Chitosan as a Catalyst
- Authors: I. A. Abdelhamid

Published In : Synlett

ISSN 0936-5214 Impact Factor

<u>Abstract :</u>

Azaenamines were reacted with 3-cyanomethylidene-2-oxindoles using chitosan catalyst to yield spirocyclic 2-oxindole derivatives of 6-amino-4H-pyridazine and fused pyridazinoquinazolines.

Keywords:

Azaenamine; Chitosan; Michael addition; 3-Spiropyridazines-2-oxindoles.

Cairo University

Faculty of Science

Dep. : Chemistry

Name : Amany M. Fekry



3.078

Title : the Influence of Chloride and Sulphate Ions on the Corrosion Behavior of Ti and Ti-6Al-4V Alloy in Oxalic Acid

Authors: A. M. Fekry

Published In : Electrochimica Acta

ISSN 0013-4686 Impact Factor

<u>Abstract :</u>

The electrochemical behavior of pure Ti and Ti-6Al-4V alloy was investigated in oxalic acid solution using various electrochemical techniques, i.e. open circuit potential (OCP), potentiodynamic polarization, electrochemical impedance measurements (EIS) and surface examination via scanning electron microscope (SEM) technique. The influence of concentration and temperature on the electrochemical behavior of Ti and its alloy were also studied. The results of polarization measurements showed that corrosion current density (i_{corr}) increases with increasing either temperature or oxalic acid concentration for both samples. Moreover, the value of i_{corr} for Ti was found to be lower than that for Ti-6Al-4V alloy, where the corrosion resistance for titanium was always higher. The effect of additives as $SO_4^{2^-}$ and Cl^- ions was studied; results indicated that the oxide film resistance (R_{0x}) value decreases with increasing the concentration of SO₄²⁻ ion. However, for Cl⁻ ion, the value of R_{ox} decreases with increasing Cl⁻ ion concentration up to 1mM before it starts to increase at higher concentrations. EIS and polarization results are in good agreement with each other. The obtained results were confirmed by surface examination.

Keywords:

Corrosion; EIS; SEM; Ti; Ti-6Al-4V alloy.

Dep. : Chemistry

Name : Amany M. Fekry

Title : Electrochemical Corrosion Behavior of AZ91D Alloy in Ethylene Glycol

Authors: A. M. Fekry and M. Z. Fatayerji

Published In : Electrochimica Acta

ISSN 0013-4686 **Impact Factor** 3.078

Abstract :

The effect of concentration on the corrosion behavior of Mg-based alloy AZ91D was investigated in ethylene glycol-water solutions using electrochemical techniques i.e. potentiodynamic polarization, electrochemical impedance measurements (EIS) and surface examination via scanning electron microscope (SEM) technique. This can provide a basis for developing new coolants for magnesium alloy engine blocks. Corrosion behavior of AZ91D alloy by coolant is important in the automotive industry. It was found that the corrosion rate of AZ91D alloy decreased with increasing concentration of ethylene glycol. For AZ91D alloy in chloride > 0.05 M or fluoride < 0.05 M containing 30 % ethylene glycol solution, they are more corrosive than the blank (30% ethylene glycol-70% water). However, at concentrations < 0.05 for chloride or > 0.05 M flouride containing ethylene glycol solution, some inhibition effect has been observed. The corrosion of AZ91D alloy in the blank can be effectively inhibited by addition of 0.05 mM paracetamol that reacts with AZ91D alloy and forms a protective film on the surface at this concentration as confirmed by surface examination.

Keywords:

AZ91D alloy; Ethylene glycol; EIS; SEM; Paracetamol.



Faculty of Science

Dep. : Chemistry

Name : Eman Ali Ragab



- Application of (2Z)-3-dimethylamino-2-(1H-indole-3-carbonyl) : Acrylonitrile in the Synthesis of Novel 3-heteroarylindoles:
- Condensed Meridianine Analogs

Authors: M. A. Radwan, E. A. Ragab, M. R. Shaaban, A. O. H. El-Nezhawy

Published In : Arkivoc

ISSN 1424-6376

Impact Factor 1.377

Abstract :

Title

3-Dimethylamino-2-(*1H*-indole-3-carbonyl) acrylonitrile (2) was treated with phenyl hydrazine, in refluxing basic ethanol, afforded a single product *N*-1 or *N*-2 substituted pyrazole. Basic promoted cyclization of enaminonitrile 2 with α -heteroarylamines as *N*,*N*-1,3-dinucleophiles, condensed indolylpyrimidines as a new class of meridianine natural product analogs were obtained in moderate to good yields.

<u>Keywords:</u>

Indole; Alkaloids; Enaminonitrile; Meridianines; Natural products; X-ray.

Faculty of Science

Dep. : Chemistry

Name : Tamer Y. Soror



Title : Scale and Corrosion Prevention In Cooling Water Systems Part I : Calcium Carbonate

Authors: T. Y. Soror

Published In : The Open Corrosion journal

ISSN 1876- 5033

Impact Factor 0.0

<u>Abstract :</u>

This paper presents the results of study that was undertaken to investigate the ability of a new antiscale, Polyacrylamide in solving problems found in cooling water systems . The effects of the polymer on C-steel and copper dissolution in synthetic cooling water environments were studied through scale, Tafel, and Linear Polarization measurements . The results obtained from this study showed that the new antiscale polymer can decrease scale build-up growth under the conditions tested . Both linear and Tafel polarization studies indicate that the polymer acted as an anodic type corrosion inhibitor on C-steel and mixed – type on copper, thus reducing metal dissolution . Morphological investigation of calcium carbonate deposits on both C-steel and copper surfaces was studied by optical microscopy . The polymer used in this study appears to have excellent crystal modification effect on reducing calcium carbonate scale . The antiscale effect results from changes in crystallization behavior promoting bulk solution precipitation rather than formation of adherent scale .

<u>Keywords:</u>

Scale inhibition; Cooling water treatment; Polyacrylamide; Calcium carbonate; Electrochemical Polarization; Optical microscopy.

Faculty of Science

Dep. : Chemistry

Name : Tamer Y. Soror



Title : Scale and Corrosion Prevention In Cooling Water Systems Part II: Calcium Sulphate

Authors: T. Y. Soror

Published In : The Open Corrosion Journal

ISSN 1876- 5033

Impact Factor 0.0

<u>Abstract :</u>

This paper describes an experimental study on calcium sulphate scaling and prevention by newly treated polyacrylamide in a laboratory model. In order to study the inhibiting capacity of the chemical used, experiments were performed in solutions involving treatment of synthetic sea water with different concentrations of the polyacrylamide. The performances of scale inhibitor with different concentrations were analyzed in terms of the amount of scale formed. The results showed that the amount of scale was reduced to 0.00%, with, 10-15ppm polymer additions, after 1 day incubation at 90°C. The deposition of calcium sulphate in lines carrying hot water or in pumping systems is an undesirable process in most cases. The mechanism of calcium sulphate scale formation is of key importance and has many practical implications. Antiscale agents specific to calcium sulphate deposits have recently been developed and tested on a laboratory scale. The presence of polyacrylamide in very low concentration (5ppm) gave significantly lower precipitation rate compared to the treatment in absence of inhibitor. The inhibitor probably is adsorbed on the active growth sites of the I itially formed crystals. The work was also extended to study the corrosion inhibition of polyacrylamide to both C-steel and copper specimens in contact with synthetic cooling water environment. Electrochemical polarization techniques reveal that the inhibitor acts as anodic type with respect to C-steel and mixed type for copper. Corrosion current Ic and corrosion rate CR were reduced and inhibition efficiency IE% increases with polymer additions. The inhibition effects are due to the formation of protective film. Morphological investigation for CaSO4. 2H20 gypsum crystals formed on both C-steel and copper surfaces in synthetic sea water indicate reduction of calcium sulphate crystals in the presence of the polymer as indicated by optical microscopy and scanning.

6669
Faculty of Science

Dep. : Chemistry

Name : Tamer Y. Soror



- *Title* : Microbial Corrosion Inhibition of Mild Steel in Salty Water Environmen
- *Authors*: A.M. EI-Shamy, T.Y. Soror, H.A. EI- Dahan, E.A. Ghazy and A.F. Eweas
- Published In: Materials chemistry and physics

ISSN 0254-0584 **Impact Factor** 1.799

<u>Abstract :</u>

The use of antimicrobial corrosion inhibitor is increasingly being curtailed by recent corrosion restrictions. This paper represents the results of the study of new biocide, antimicrobial corrosion inhibitor named 8-hydroxy-N-(2-(quinolin-8-yloxy)acetyl)quinoline-5-sulfonohydrazide (HQS) was used to inhibit corrosion - causing sulphate - reducing bacteria (SRB). The effects of the inhibitor on mild steel dissolution in salty water environment were studied through weight loss measurements, electrochemical and microorganism tests. The results obtained from this study show that, the new inhibitor can decrease corrosion and microbial growth under the conditions tested. The mass loss for the protected mild steel coupons shows lower corrosion rate compared to the unprotected once. Cyclic polarization test reveals that, the biocide minimizes the pitting area (hystersis). The nature of protective film formed on mild steel was studied by scanning electron microscopy. SEM images revealed that, the corrosion inhibition by the HQS on the mild steel surface significantly improved in the presence of biocide.

<u>Keywords:</u>

Protective biocide; Mild steel; HQS; Biocide activity; Electrochemical test; SEM analysis.

Faculty of Science

Dep. : Chemistry

Name : Thoraya A. Farghaly



Synthesis, Tautomerism, and Antimicrobial, anti-HCV, anti-

Title : SSPE, Antioxidant, and Antitumor Activities of Arylazobenzosuberones

Authors: T. A. Farghaly and M. M. Abdalla

Published In: Bioorganic and Medicinal Chemistry

ISSN 0988-0896 **Impact Factor** 3.075

<u>Abstract :</u>

2-Dimethylaminomethylene-1-benzosuberone 1 was coupled with diazotized aniline derivatives to afford a series of the hitherto unreported 2-arylazo-1-benzosuberones **3a–i**. The tautomeric structure and the effect of substituents on the tautomeric form (s) of the products 3a–i were discussed. Similar coupling of the enaminone 1 with diazonium salts of heterocyclic amines gave the respective fused azolotriazino-benzosuberones. Some of the newly synthesized compounds showed potent antimicrobial, anti-HCV, antioxidant, antitumor (as topoisomerase I inhibitors), and antimicrobial activities

<u>Keywords:</u>

Azo-hydrazone tautomerism; Japp–Klingemann reaction; Antimicrobial; Antitumor; Anti-HCV; Anti- SSPE; Antioxidant activities.

Faculty of Science

Dep. : Chemistry

Name : Thoraya A. Farghaly



- *Title* : Synthesis, Anti-HCV, Antioxidant, and Peroxynitrite Inhibitory Activity of Fused Benzosuberone Derivatives
- *Authors*: T. A. Farghaly, N. A. Abdel Hafez, E. A. Ragab, H. M. Awad and M. M. Abdalla

Published In: European Journal of Medicinal Chemistry

ISSN 0223-5234 **Impact Factor** 2.882

Abstract :

Reaction of benzosuberone 1 with dimethylformamide-dimethylacetal (DMF-DMA) gives 2-dimethylamino-methylenebenozosuberone 2 which in turn reacts with heterocyclic amines to furnish newheterocyclic ring systems 6-9. Moreover, enaminone 2 reacts with hydrazine hydrate and hydroxylamine hydrochloride to benzo[6,7]cyclohepta[1,2–c]pyrazole (10) corresponding afford the and benzo[6,7]cyclohepta[2,1-d] isoxazole (12), respectively. In addition, the reactions of enaminone 2 with active methylene compounds afforded The crystallographic benzo[6,7]cyclohepta[1,2–b]pyridines (13-18).X-ray analysis of compounds 6 and 16, were recorded. We demonstrated the ability of nine new synthesized compounds to inhibit Hepatitis C Virus (HCV) and Subacute Sclerosing Panencephalitis (SSPE) due to structural similarity between ribavirin and some of the newly synthesized compounds were they contain triazoles and its bioisosters. In addition, the ability of ten synthesized compounds to react with the biologically relevant reactive nitrogen species, peroxynitrite was investigated indirectly by measurement of their ability to inhibit ONOO--induced tyrosine nitration. The antioxidant activity of these ten compounds was also studied using 1,1-diphenyl-2-picrylhydrazyl (DPPH) assay.

<u>Keywords:</u>

Benzosuberone; X-ray crystal structure; Hepatitis C virus; 1,1-Diphenyl-2-picrylhydrazyl; Antioxidant.

Faculty of Science

Dep. : Chemistry

Name : Thoraya A. Farghaly



1.377

Synthesis and Reactions of 3-hydrazino-2,7,8,9-tetrahydro-

Title : 1*H*benzo[6',7']cyclohepta [1',2':4,5] pyrido[2,3-*d*]pyrimidin-1-One

Authors: M. S. M. Ahmed and T. A. Farghaly

Published In : Arkivoc

ISSN 1424-6376 Impact Factor

Abstract :

3-Hydrazino-2,7,8,9-tetrahydro-1*H*-benzo [6',7']cyclohepta[1',2':4,5] pyrido [2,3-d] pyrimidin-1-one (5) was prepared in good yield by reaction of **3** or **4** with hydrazine hydrate under reflux.

Reaction of compound **5** with different aldehydes in acetic acid gave the corresponding hydrazono derivatives **7**. Cyclization of the latter compounds with bromine in acetic acid afforded a series of novel pentacyclic compounds namely, 5,6,7,11-tetrahydro-15Hbenzo[6",7"]cyclohepta [1",2":4',5']pyrido[2',3'-d][1,2,4] triazolo[4,3-a]pyrimidin-15-ones (**11a-f**).

In addition, reaction of compound **5** with β -diketones and α -diketone were investigated. The structures of the so formed compounds were confirmed by elemental and spectral analyses (¹H NMR, ¹³C NMR, IR and MS).

<u>Keywords:</u>

Hydrazones; Hetero-pentacyclic compounds; Oxidative cyclization; Pyrazoles.

Faculty of Science

Dep. : Chemistry

Name : Gehad G. Mohamed



- *Title* : Metal Complexes of Omeprazole. Preparation, Spectroscopic and Thermal Characterization and Biological Activity
- *Authors*: G. G. Mohamed, F.A. Nour EL-Dien, S. M. Khalil and A. S. Mohammad.

Published In: Coordination Chemistry

ISSN 0095-8972 **Impact Factor** 0.732

Abstract :

Metal complexes of omeprazole (OPZ) are prepared and characterized based on elemental analyses, IR, diffuse reflectance, magnetic moment, molar conductance and thermal analyses (TGA and DTA) techniques. From the elemental analyses, the complexes have the general formula $[M(L)_2]X_n$ [where M = Cr(III) (X = Cl, n = 3), Ni(II) (X = ClO₄, n = 2) and Zn(II) (X = Cl, n = 2)], and $[M(L)_2(H_2O)_2]X_n, yH_2O$ (where M = Fe(III) (X = Cl, n = 3, y = 0), Co(II) (X = Cl or ClO₄, n = 2, y = 0-4) and Ni(II) (X = Cl, n = 2, y=4) and [Cu(L)₂]Cl₂.H₂O. The molar conductance data reveal that all the metal chelates are 3:1 electrolytes (for Cr(III) and Fe(III) complexes) and 2 : 1 (for the remaining complexes). IR spectra show that OPZ coordinates to the metal ions as neutral bidentate with ON donor sites of the pyridine-N and sulphone-O. The magnetic and solid reflectance spectra indicate octahedral (FeCl₃, CoCl₂, CoClO₄ and NiCl₂), square planar [Cu(II)] and tetrahedral [Mn(II), Cr(III), NiClO₄ and Zn(II)] structures. The thermal behavior of these chelates using thermogravimetric and differential thermal analyses (TGA and DTA) techniques indicate the hydrated complexes lose water of hydration followed immediately by decomposition of the anions and ligand molecules in the successive overlapping OPZ and its metal complexes are screened for antibacterial activity against Escherichia coli, Staphylococcus aureus, Aspergillus flavus and fungi (Candida albicans). The activity data show the metal complexes to be more potent/antibacterial than the parent OPZ ligand against one or more bacterial species.

Keywords:

Omeprazole; Metal complexes; IR; Molar conductance; Solid reflectance; Magnetic moment; Thermal analyses; Biological activity.

Faculty of Science

Dep. : Chemistry

Name : Gehad G. Mohamed



Biological Activity Studies on Metal Complexes of Novel

Title : Tridentate Schiff Base Ligand. Spectroscopic and Thermal Characterization

Authors: G. G. Mohamed, M. M. Omar and A. A. Ibrahim

Published In: European Journal of Medicinal Chemistry

ISSN 0223-5234 **Impact Factor** 2.882

<u>Abstract :</u>

Metal complexes of novel Schiff base (HL) ligand, prepared via condensation of 4-aminoantipyrine and 2-aminophenol, are prepared. The ligand is characterized based on elemental analysis, mass, IR and ¹H NMR spectra. Metal complexes are reported and characterized based on elemental analyses, IR, 1H NMR, solid reflectance, magnetic moment, molar conductance, ESR spectra and thermal analyses (TG, DTG and DTA). From the elemental analyses, 1:1 [M]:[ligand] complexes are prepared with the general formulae $[M(L)Cl(H_2O)_2]$ ·yH₂O (M = Mn(II), Co(II), Ni(II), Cu(II), Zn(II) and Cd(II), y = 3-4, [Fe(L)Cl₂(H₂O)]·3H₂O and $[Th(L)Cl(H_2O)_2]Cl_2 \cdot 3H_2O$. The molar conductance data reveal that all the metal chelates are nonelectrolytes (except Th(IV) complex, it is 2:1 electrolyte). IR spectra show that HL is coordinated to the metal ions in a uninegatively tridentate manner with NNO donor sites of the azomethine-N, amino N and deprotonated phenolic-O. From the magnetic and solid reflectance spectra. it is found that the geometrical structures of these complexes are octahedral. The thermal behaviour of these chelates shows that the hydrated complexes losses water molecules of hydration in the first step followed immediately by decomposition of the anions and ligand molecules in the subsequent steps. The activation thermodynamic parameters are calculated from the DTG curves using Coats-Redfern method. The synthesized ligand, in comparison to its metal complexes is screened for its antibacterial activity against bacterial species, Escherichia coli, Pseudomonas putida, Exiguobacterium acetylicum and Bacillus simplex. The activity data show that the metal complexes to be more potent/antibacterial than the parent Shciff base ligand against one or more bacterial species.

Keywords:

4-Aminoantipyrine; 2-Aminophenol; Transition metal complexes; Spectral studis; Thermal analyses; Biological activity.

6517

Faculty of Science

Dep. : Chemistry

Name : Gehad G. Mohamed



Title : Synthesis and Anti-Fungicidal Activity of some Transition Metal Complexes with Benzimidazole Dithiocarbamate Ligand

Authors: G. G. Mohamed, N. A. Ibrahim and H. A.E. Attia

Published In: Spectrochimica Acta Part A

ISSN 1386-1425 **Impact Factor** 1.622

Abstract :

Seven transition metal complexes of benzimidazole ligand (HL) are reported and characterized based on elemental analyses, IR, solid reflectance, magnetic moment, molar conductance and thermal analyses (TGA and DTA). From the obtained data, the complexes were proposed to have the general formulae $[MX_2(HL)(H_2O)]$ ·yH₂O, where M = Mn(II), Co(II), Ni(II), Cu(II), Zn(II), Cr(III); $X = C\Gamma$, SO_4^{2-} and y = 0-4. The molar conductance data revealed that all the metal chelates were non-electrolytes. From the magnetic and solid reflectance spectra, it was found that the geometrical structure of these complexes is octahedral. The thermal behaviour of these chelates showed that the hydrated complexes loss water molecules of hydration in the first step followed immediately by decomposition of the anions and ligand molecules in the subsequent steps. Fungicidal activity of the prepared complexes and free ligand was evaluated against three soil borne fungi. Data obtained showed the higher biological activity of the prepared complexes than the parent Schiff base ligand. Formulation of the most potent complex was carried out in the form of 25% WP. Fungicidal activity of the new formulation was evaluated and compared with the standard fungicide Pencycuron (Monceren 25% WP). In most cases, the new formulation possessed higher fungicidal activity than the standard fungicide under the laboratory conditions.

Keywords:

Benzimidazole ligand; Dithiocarbamate; Transition metal complexes; IR; Magnetic moment; Thermal analysis; Soil borne fungi and WP formulation.

Faculty of Science

Dep. : Chemistry

Name : Hamdi M. Hassaneen



- *Title* : Synthesis and Antimicrobial Evaluation of some New Pyrazole, Pyrazoline and Chromeno[3,4-c]pyrazolDee rivatives
- *Authors*: N. M. Abunada, H. M. Hassaneen, A. S. M. Abu Smaha and O. A. Miqda

Published In: Journal of Braz. Chem. Soc

ISSN 0103-5053 **Impact Factor** 0.436

Abstract :

9 e pirazol-5-Alguns novos derivadosd e pirazol-S-carbonitril8a, carboxamid1a3 foram sintetizadosp ela reagdod e cicloadigSod e nihiliminas 3,4 a c-cianocinamonitrilas5 a-f e oc-cianocinamamid1a2 a,b,r espectivamenteP.o r outro 1adoa, adigaod e3 .4 a cr- cianocinamatdoe etila 14a-fleva h produgdod e derivadosd e 2-pyrazoline-5-carboxilatdoe etila, 15, 16.T amb6rn,a cicloadigdod e3 ,4 i 3-cianocurnarin1a9 ao u i 3-fenilsulfonilcumarina1 9b ou d 3bromocurnarina 19c leva d produEdod e derivadosd o cromeno[3,4-c]pirazol-4(31[)-ona2,0. A cicloadigdod e 3,4 d 3-acetilcumarni a,2 2 e 3-benzoilcumarni a, 23, produzo correspondented iidrocromeno[3,4-cIpirazol-4(31{)-ona,2 4 e 25, respectivamenteA. oxidagio de 24 e 25 produz 20. A maioria dos compostosp reparadosm ostroub oa a moderadaa tividadea ntibacterianae antifl'Ingica. Some new pyrazole-5-calbonitrildee rivatives { 1,9a nd pyrazole-5-carboxarnid1e3 were actiono f synthesizebdy the cycloadditionre nitrilirnines3 4 to otcyanocinnamonitril5eas- f and g-cyanocinnamamidel2 a,b respectivelyO. n the other hand 3,4 add to ethyl ct- yanocinnamate 14a-f to give ethyl 2-pyrazoline-5carboxyladtee rivatives1 5,16.A lso, cycloadditiono f 3,4 to 3-cyanocoumarin1 9a or 3-phenylsulphonylooumar1ir9-br or 3-bromocoumirrin1 9c give chromeno[3,4clpyrazol-4(3A-ondee rivatives2 0. In the samed irection, the cycloadditiono f 3,4 trr 3-acetylccrunranr2i 2 and3-benzoylcournari2n3 givest he corresponding ihydrochromeno[3,4-c] pyrazol-4(.3H)-on2e4 and2 5 respectivelyO. xidationo f 24 and 25 give2 0. Most of the prepared compoundss howedg ood to moderatea ntibacteriaal nd antifungala ctivities.

<u>Keywords:</u>

Nitrilimines; Pylazole; Pyrazoiine; Cluomeno[3,4-r]pyrazole.

Faculty of Science

Dep. : Chemistry

Name : Hamdi M. Hassaneen



Title : A Facile Access for Synthesis of Novel Isoquinolinebased Heterocycles

Authors: H. M. Hassaneen, T. A. Abdallah, and E. M. Awad

Published In : Heterocycles

ISSN 0385-5414 **Impact Factor** 0.980

Abstract :

Hydrazonoyl halides 2, 7 and 12 react with alkyl 2-(3,4-dihydro-6,7- dimethoxy-2H-isoquinoline-1-ylidene)carboxylate 1 to give 4-(3,4-dihydro-6,7- dimethoxy-2H-isoquinoline-1-ylidene)-2,5-diaryl-2,4-dihydropyrazol-3-one 6, alkyl 2-arylazo-5,6-dihydro-8,9-dimethoxy-3-alkyl(or aryl)pyrrolo[2,1-a]isoquinoline- 1-carboxylate 10 and alkyl 2-(2-arylhydrazono)-2,3,5,6-tetrahydro 8,9- dimethoxy-3-oxopyrrolo[2,1-a]isoquinoline-1-carboxylate 15, respectively. The structures of the new compounds were elucidated on the basis of elemental analyses, spectral data and X-ray crystallographic analyses.

Faculty of Science

Dep. : Chemistry

Name : Rabab M. A. El-Sherif



Title : Electrochmical Corrosion Behavior of Magnesium and Titanium Alloys in Simulated Body Fluid

Authors: A.M. Fekry and R. M. El-Sherif

Published In : Electrochimica Acta

ISSN 0013-4686 **Impact Factor** 3.078

<u>Abstract :</u>

The electrochemical behavior of AZ91D and Ti–6Al–4V alloys was investigated in simulated body fluid (SBF) at 37 °C. The aim of the present study was to evaluate their corrosion performance through the analysis of corrosion resistance variation with time, using electrochemical impedance spectroscopy (EIS) tests and corrosion current density using potentiodynamic polarization measurements. Very low current density was obtained for Ti–6Al–4V alloy compared to that of AZ91D alloy, indicating a typical passive behavior for Ti alloy. EIS results exhibited high corrosion resistance indicating a highly stable film on titanium alloy compared to magnesium alloy in SBF.

Keywords:

AZ91D; Ti-6Al-4V; EIS; SEM; Simulated body fluid (SBF).

Faculty of Science

Dep. : Chemistry

Name : Rasha A. M. Faty



Title : Oxothioxopyridinecarbonitriles as Precursors for Pyridothiazolopyridines, Pyrazolopyridotriazines and Pyridothiazolopyrimidines.

Authors: R. A. M. Faty

Published In: Current Organic Chemistry

ISSN 1385-2728 **Impact Factor** 3.184

Abstract :

-ketoesters namely, ethyl acetoacetate (1a) or ethyl benzoylacetate (1b) reacted with1,3-binucleophilic reagents to yield 1,2,3,6-tetrahydropyridine-3-carbonitrile (3a-d) derivatives. Each of 3a,b coupled with a proper arenediazonium or produce 5-aryl-(heteroaryl)azo-6-hydroxy-4heteroarenediazonium salts to methyl-2-oxo(thioxo)-2,3- dihydropyridine-3-carbonitriles 5a-f. Heating under reflux each of 5c.e with acetic anhydride in pyridine led to cyclization and formation of pyrazolo[5,1-c]pyrido[2,3-e][1,2,4] triazine-3-carboxylate derivatives 6a,b. Compounds 3a,b added to 4- chloro- \Box -cyanocinammonitriles (7) in refluxing pyridine afforded pyrano[2,3-b]pyridines 8a,b. Treatment of 3b with bromomalononitrile in ethanolic potassium hydroxide solution gave directly 3amino-8-cyano-7-methyl-5-oxothiazolo 3,2-a]pyridine-2-carboxamide(18). Heating compound 18 with either formic acid alone or in the presence of formamide yielded pyrido[2/,3/:2,3]thiazolo[4,5-d]pyrimidine derivatives 19,20 respectively.

Faculty of Science

Dep. : Chemistry

Name : Rafie H. Abu-Eittah



Cairo University

Title : ⁱAzido-tetrazole Equilibrium in 2-azidothiazole System. Molecular Orbital Calculations

Authors: R. H. Abu-Eittah, F. Taha, M.M. Hamed and Kh.E. El-Kelany J.

Published In : Molecular Structure

ISSN 1166-1280 **Impact Factor** 1.167

<u>Abstract :</u>

Trials to prepare 2-azidothiazole in the lab led extensively to the isolation of thiazolo-tetrazole. In this paper an attempt has been made to investigate theoretically the factors which govern this ring closure isomerization on a quantitative basis. The structural parameters of 2-azidothiazole molecule which lead exclusively to the formation of the tetrazole have been investigated. The process of rotation of trans- to cis-2-azidothiazole and the process of ring closure of cis-2-azidothiazole to thiazolo-tetrazole have been investigated at a B3LYP/6-311G** level of the theory. The transition state in each process has been confirmed through vibrational analysis. The energy and the optimized geometry of the transition state have been determined. Results of computations in this work indicated clearly that the factors which lead to ring closure of azidothiazole to thiazolo-tetrazole start with the electronic structure of the thiazole ring where Satom is bonded while it is in the ground state i.e., no hybridization. This behavior leads to a bond angle CASAC of 88 and a push-up of the azide group. The low rotational barrier of the azido group in the trans cis isomerization and the significant increase of the dipole moment of the tetrazole isomer are determining factors in ring closure tautomerization. The low values of the energies of the transition states favor cyclization.

<u>Keywords:</u>

Azidothiazole; Thiazolo-tetrazole; Ring closure; Tautomerization.

Faculty of Science

Dep. : Chemistry

Name : Rafie H. Abu-Eittah



Title : the Electronic Absorption Spectra of Pyridine Azides, Solvent–Solute Interaction

Authors: R. H. Abu-Eittah and M. K. Khedr

Published In: Spectrochimica Acta Part A

ISSN 1386-1425 **Impact Factor** 1.510

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 $\pi \rightarrow \pi^*$ transitions, $n \rightarrow \pi^*$ may be overlapped with the stronger $\pi \rightarrow \pi^*$ ones.

<u>Keywords:</u>

Pyridine azides; Absorption spectra of pyridine azides; Solvent-solute interaction; Spectra of pyridine azides.

Faculty of Science

Dep. : Chemistry

Name : Said A. S. Ghozlan



1.377

- *Title* : Synthesis of Pyridazines and Fused Pyridazines via [3+3] atom Combination using Chitosan as a Green Catalyst
- *Authors*: S. A. S. Ghozlan, M. H. Mohamed, A. M. Abdelmoniem, and I. A. Abdelhamid

Published In: Arkivoc

ISSN 1424-6376

Impact Factor

Abstract :

A series of arylhydrazones **1a-c** were prepared and reacted with α,β unsaturated nitriles **2a-e** to yield 1,4-dihydropyridazines and fused pyridazinoquinazoline. The prepared pyridazines and fused pyridazines are then used as precursors for synthesis of polycondensed pyridazine ring systems.

<u>Keywords:</u>

Azaenamine; chitosan; 1,4-dihydropyridazine; Pyridazino[1,6-*a*]quinazoline; pentaaza-benzo[*a*]fluoren; pyrimido[4,5-*c*]pyridazin-5-one; pyridazino[1,6-*a*]quinazoline-4-

Faculty of Science

Dep. : Chemistry

Name : Said A. S. Ghozlan



DBU-Catalyzed, Facile and Efficient Method for Synthesis of Spirocyclic 2-oxindole Derivatives with Incorporated 6-amino-

Title : Sphoeyene 2-oxindole Derivatives with incorporated 0-a 4H-pyridazines and Fused Derivatives via [3+3] atom Combination

Authors: I. A. Abdelhamid, M. H. Mohamed, A. M. Abdel-moniem and S. A.S. Ghozlan

Published In : Tetrahedron

ISSN 0040-4020

Impact Factor 2.897

<u>Abstract :</u>

3-Cyanomethylidene oxindole derivatives were prepared in excellent yields utilizing DBU-promoted Knoevenagel condensation of isatin derivatives with active methylene reagents. The isolated products were then reacted with azaenamines via a DBU-promoted Michael addition to yield spirocyclic 2-oxindole derivatives with incorporated 6-amino-4H-pyridazines and their fused derivatives.

Keywords:

3-Cyanomethylidene oxindole; DBU; Azaenamines; Michael addition; Spiropyridazines.

Faculty of Science

Dep. : Chemistry

Name : Said A. S. Ghozlan



Title:Synthesis and Reactions of some New 2,6-bis-substituted
Pyridine Derivatives as Antimicrobial Agents CombinationAuthors:S. A. S. Ghozlan, S. F. Mohamed, A. E. Amr, E. E. Mustafa and

A. A. Abdel-Salam

Published In: World Journal of Chemistry

ISSN 1817-3128 **Impact Factor** 0.00

<u>Abstract :</u>

A series of 2,6-bis-substituted pyridine derivatives 3-12 were synthesized by using 2,6-pyridine-dicarbonylhydrazide (2) as starting material. The antimicrobial screening for the synthesized compounds showed that many of these compounds hve good antimicrobial activities comparable to Chloaramphinicol and Fusidic acid as reference drugs. The detailed synthesis, spectroscopic data and pharmacological properties are reported.

Keywords:

Pyridine-2,6-dicarbonylhydrazide; Thiosemicarbazide; Thiadiazole; Antimicrobial agents.

Faculty of Science

Dep. : Chemistry

Name : Sayed M. Riyadh



Title : Microwave Assisted Synthesis of Annelated Benzosuberone as New Penta-Heterocyclic Ring Systems

Authors: T. A. Farghaly and S. M. Riyadh

Published In : Arkivoc

ISSN 1424-6376

Impact Factor 1.377

<u>Abstract :</u>

Derivatives of novel penta-heterocyclic ring systems, namely, 5,6,7,11tetrahydro-15Hbenzo[6',7']cyclohepta[1',2':4,5]pyrido[2,3-d][1,2,4]triazolo[4,3 a]pyrimidin-15-ones (9a-g) and 6,7-dihydrobenzo[6',7']cyclohepta[1',2':4,5] pyrido[2,3-d][1,3]thiazolo[3,2-a]pyrimidin-15(5H)-ones (11a-d) were easily 3-thioxo-2,3,4,7,8,9-hexahydro-1H-benzo[6',7'] reactions of prepared via cyclohepta[1',2':4,5]pyrido[2,3-d]pyrimidin-1-one (3) with hydrazonoyl halides and active methylene compounds, respectively. The foregoing reactions were carried out with conventional heating as well as pressurized microwave irradiation and a comparative study was employed.

<u>Keywords:</u>

6691

Penta-heterocyclic ring systems; Hydrazonoyl halides; Microwave irradiation; Benzosuberone.

-70-

Faculty of Science

Dep. : Chemistry

Name : Sayed M. Riyadh



- Synthesis of Triazolo[4,3-b][1,2,4,5]tetrazines and Triazolo[3,4-
- *Title* : b] [1,3,4]thiadiazines using Chitosan as Ecofriendly Catalyst under Microwave Irradiation

Authors: S. M. Gomha and S. M. Riyadh

Published In : Arkivoc

ISSN 1424-6376

Impact Factor 1.377

<u>Abstract :</u>

A novel approach to the synthesis of triazolo[4,3-b][1,2,4,5]tetrazines **5a-f** and triazolo[3,4-b][1,3,4]thiadiazines **10a-g** has been developed via reactions of 4-amino-5-methyl-1,2,4-triazole-3(2H)-thione **1** with hydrazonoyl halides **2a-f** and **8a-g**, respectively using chitosan as a basic catalyst under microwave irradiation. The structure of the products was established based on elemental and spectral analyses. Further evidence for the assigned structure of the products is based on alternative synthesis. Also the mechanism of the studied reactions was discussed.

<u>Keywords:</u>

Chitosan; Microwave irradiation; Hydrazonoyl halides; Triazolotetrazines; Triazolothiadiazines.

Faculty of Science

Dep. : Chemistry

Name : Sayed Z. Mohammady



- TitleOleoylethanolamide-Based Lyotropic Liquid Crystals as
Vehiclesfor Delivery of Amino Acids in Aqueous EnvironmentAuthors:S. Z. Mohammady, M. Pouzot, and R. Mezzenga
- Published In: Biophysical Journal

ISSN 0006-3495

Impact Factor 4.683

Abstract :

We have investigated the phase behavior of self-assembled lyotropic liquid crystals (LC) formed by ternary mixtures of oleoylethanolamide (OEA), water and arginine. OEA, a natural analog of the endogenous cannabinoid anandamide involved in the peripheral regulation of feeding, was selected as a main component due to its capacity to induce efficient decreases in food intake and gains in body mass. Arginine was selected as representative hydrophilic amino acid and added to the OEA-water mixture at different concentrations. The phase diagrams were determined by combining cross-polarized optical microscopy and small angle xray scattering. First, the phase diagram for the OEA-water system was determined. It was shown that these two compounds give rise to reverse Ia3d double gyroid and reverse Pn3m double diamond cubic phases existing in bulk over a large window of temperature and composition, and that for water content beyond 25% Pn3m coexisted with excess water. Successively, the influence of arginine as guest molecule in the water channels of the reverse LC was investigated. For the sake of comparison, results for the OEA-water-arginine system were compared with analog series of OEA-water-glucose. The results showed that, at a fixed water content and temperature, the phase behavior of the liquid crystalline phases is strongly dependent on arginine concentration. In more detail, arginine could be encapsulated in the bulk OEA-water LC up to 2.0% wt, whereas transitions from Ia3d to Pn3m cubic phase were observed with increasing arginine concentration. Interestingly, upon an increase of water concentration beyond 20-25%, Pn3m phase started to coexist with excess water releasing the arginine in external water solution. Quantitative measurements of arginine content inside the LC water channels and in the excess external water solution revealed a complete release of the amino acid, demonstrating that the investigated lyotropic liquid crystalline systems can be used as ideal vehicles for the delivery of functional hydrophilic active molecules in aqueous environment.

Keywords:

Self-assembly; Lyotropic liquid crystals; Oleoylethanolamide (OEA); Hydrophilic amino acids; Phase diagrams; Ia3d double gyroid; Pn3m double diamond; Cubic phases; Vehicles; Delivery systems.

Faculty of Science

Dep. : Chemistry

Name : Sobhi M. Gomha



- A New Aspect of the Pfitzinger Reaction: Microwave-assistedTitle:Synthesis of the New Heterocyclic Ring System 6 Arylbenzo
 - [4,5]imidazolo[2,1-b]quino[4,3-e]-1,3-thiazin-14-one

Authors: Hatem A. Abdel-Aziz and S. M. Gomha

Published In: Zeitschrift fü["]r Naturforschung

ISSN 0932-0776 **Impact Factor** 0.852

<u>Abstract :</u>

We report herein on the utility of the Pfitzinger reaction in a facile two-step synthesis of the new heterocyclic ring system 6-arylbenzo[4,5]imidazolo[2,1-b]quino[4,3-e]-1,3-thiazin-14-one using microwave irradiation (MWI) and/or conventional heating. Microwave irradiation was used for a rapid and efficient synthesis of quinoline-4-carboxylic acids 6a – d from the reaction of isatin with 2-(1*H*benzimidazol- 2-ylthio)-1-arylethanones 3a – d. Cyclization of cinchoninic acids 6a – d afforded thefused title compounds 7a – d.

Keywords:

Quinolines; Antibiotics; Cyclization; Pfitzinger Reaction; Microwave Irradiation (MWI).

Faculty of Science

Dep. : Chemistry

Name : Sabry E. Ahmed



Theoretical Investigation of the Oxidation Pathways of HO'-

Title : Initiated reactions of Acrolein, Methacrolein, and Trans-Crotonaldehyde

Authors: S. E. Ahmed and Can. J. Chem

Published In: Canadian Journal of Chemistry

ISSN 1480-3291 **Impact Factor** 0.0

Abstract :

Ab initio molecular orbital calculations have been performed to investigate the reaction mechanisms of the HO'-initiated reactions of the α , β -unsaturated aldehydes: acrolein (ACR), methacrolein (MACR), and trans-crotonaldehyde (CROT). All geometries were fully optimized at the MP2(Full)/6-31G(d,p) level. The correlation energy corrections were introduced by carrying out single-point calculations using both spin-projected second-order Müller-Plesset perturbation theory (PMP2) and coupled-cluster theory (CCSD(T)) using basis sets of different sizes. All reaction pathways studied proceed via a barrierless formation of a loosely bound pre-reactive complex in the entrance channel. The transition-state structures of the HO' additions to the terminal (β) and to the central (α) carbon atoms of the C=C double bond are found to be reactant-like structures. The lowestenergy barrier pathways are found to be the aldehydic H-atom abstraction. The βaddition pathways are found to be energetically more favored than the α -addition pathways. The HO' addition and aldehydic H-atom abstraction pathways are found to be highly exoergic; with the H-atom abstraction pathway being more exoergic than the addition pathways. The methyl substitution at the C=C double bond of methacrolein and crotonaldehyde while it lowers the energies of the transitionstate structures of both α - and β -addition pathways, it destabilizes the energies of the transition-state structures of the corresponding aldehydic H-atom abstraction pathways, compared to that of acrolein.

Keywords:

Ab initio; Transition-state structures; Acrolein; Methacrolein; Crotonaldehyde.

Faculty of Science

Dep. : Chemistry

Name : Maher Z. Elsabee



- *Title* : Extraction and Characterization of Chitin and Chitosan from Marine Sources in Arabian Gulf
- Authors: F. A. Al Sagheer, M. A. Al-Sughayer, S. Muslim and M. Z. Elsabee

Published In: Carbohydrate Polymers

ISSN 0144-8617 **Impact Factor** 2.644

<u>Abstract :</u>

Chitin in the α and the β forms has been extracted from different marine crustacean from the Arabian Gulf. The contents of the various exoskeletons have been analyzed and the percent of the inorganic salt (including the various elements present), protein and the chitin was determined. Deacetylation of the different chitin produced was conducted by the conventional thermal heating and by microwave heating methods. Microwave heating has reduced enormously the time of heating from 6–10 h to 10–15 min, to yield the same degree of deacetylation and higher molecular weight chitosan. This technique can save massive amount of energy when implemented on a semi-industrial or industrial scale. The chitin and the obtained chitosan were characterized by elemental analysis, XRD, NMR, FTIR and thermogravimetric measurements. XRD analysis showed that chitosan has lower crystallinity than its corresponding chitin; meanwhile its thermal stability is also lower than chitin

<u>Keywords:</u>

Arabian Gulf; Chitin extraction; Deacetylation; Microwave heating; Chitosan.

Faculty of Science

Dep. : Chemistry

Name : Maher Z. Elsabee



Title : Sorption Behavior of ⁶⁰Co and ¹⁵²⁺¹⁵⁴ Eu radionuclides Onto Chitosan Derivatives

Authors: E. Metwally, S. S. Elkholy, H. A. M. Salem and M. Z. Elsabee

Published In : Carbohydrate Polymers

ISSN 0144-8617 **Impact Factor** 2.644

<u>Abstract :</u>

Chitosan benzoyl thiourea derivative has been synthesized and used successfully for the removal of the hazardous ⁶⁰Co and ¹⁵²⁺¹⁵⁴Eu radionuclides from aqueous solutions. Different parameters were applied for studying the adsorbitivity of these radionuclides, including change in pH, time, ion concentration, and equilibrium concentration. Freundlich and Langmuir isotherms were applied successfully to fit the experimental data. Two more isotherm models, Lagergren and Morris–Webber, have been applied. All the parameters and the constants calculated for the kinetic isotherms and models are evaluated and listed. A mechanism for the complex formation of Co+2 with the chitosan derivative has been suggested.

<u>Keywords:</u>

Chitosan benzoyl thiourea; Radionuclides; Adsorption isotherms.

Faculty of Science

Dep. : Chemistry

Name : Maher Z. Elsabee



Title : Surface Active Properties of Chitosan and its Derivatives

Authors: M. Z. Elsabee, R. E. Morsi and A.M. Al-Sabagh

Published In : Colloids and Surfaces B: Biointerfaces

ISSN 0927-7765 **Impact Factor** 2.593

<u>Abstract :</u>

This review discusses the definition of surface active agents and specifically natural polymeric surface active agents. Chitosan by itself was found to have weak surface activity since it has no hydrophobic segments. Chemical modifications of chitosan could improve such surface activity. This is achieved by introducing hydrophobic substituents in its glucosidic group. Several examples of chitosan derivatives with surfactant activity have been surveyed. The surface active polymers form micelles and aggregates which have enormous importance in the entrapment of water-insoluble drugs and consequently applications in the controlled drug delivery and many biomedical fields. Chitosan also interacts with several substrates by electrostatic and hydrophobic interactions with considerable biomedical applications.

<u>Keywords:</u>

Chitosan; Chitosan derivatives; Hydrophobic substitution; Surface active properties; Aggregation behavior; Drug encapsulation; Surface interactions.

Faculty of Science

Dep. : Chemistry

Name : Maher Z. Elsabee



- *Title* : Styrene-maleic Anhydride Copolymer Esters as flow Improvers of Waxy Crude Oil
- Authors: A.M. Al-Sabagh, M.R. Noor El-Din, R.E. Morsi and M.Z. Elsabee

Published In : Journal of Petroleum Science and Engineering

ISSN 0920-4105 **Impact Factor** 0.824

<u>Abstract :</u>

Four comb-like copolymers derived from styrene-maleic anhydride copolymer were prepared and characterized by FTIR, 1H-NMR and elemental analysis. The molecular weight was determined using GPC their and intrinsic viscositywasmeasured. The prepared polymers were investigated as pour point depressants and flow improvers for waxy crude oil and it was found that, the maximum depression was obtained by the sample that has long branch chain (PPD4) from 27 °C to -3 °C(Δ PP=30 °C, at 10,000 ppm), while the minimum depression was exhibited by short branch chain, PPD1 ($\Delta PP=21 \circ C$) at the same conditions. The effect of these polymers on the rheology and flowproperties of Qarunwaxy crude oilwas investigated. It was found that the Binghamyield value $(\tau\beta)$ decreased from 6.0 Pa s to 0.5 Pa s for PPD4 at 27 °C and 10,000 ppm. The dynamic viscosity also decreased from 110 mPa s to 24 mPa s for the same sample and the same conditions.

Keywords:

Branched styrene-maleic anhydride; Copolymers; Pour point depressants rheological behavior flow improvers.

Faculty of Science

Dep. : Chemistry

- Name : Aida L. El-Ansary
- *Title* : Thermal and Spectral Studies on Complexes Derived from Tetradentate Schiff Bases

Authors: H.M. Abdel Fattah, A. El-Ansary, and N. S. Abdel-Kader

Published In: Journal of Thermal Analysis and Calorimetry

ISSN	1388-6150	Impact Factor	1.63

<u>Abstract :</u>

Several new complexes of Schiff bases ligands H4La and H4Lb with transition metal ions such as Cr(III), Fe(III), Co(II) and Zn(II) are synthesized. Elemental analysis, infrared, UV–Vis and thermal analysis, as well as conductivity and magnetic susceptibility measurements are used to elucidate the structure of the newly prepared metal complexes. A square planar geometry is suggested for Zn(II) complexes, while an octahedral geometry suggested for the Cr(III), Fe(III) and Co(II) complexes. The thermal decomposition of complexes was found to be first order reaction and the thermodynamic parameters corresponding to the different decomposition steps were reported.

<u>Keywords:</u>

Schiff bases; Thermal analysis; Transition metal chelates; IR, UV–Vis; Magnetic measurements.

Faculty of Science

Dep. : Chemistry

Name : Abdellatif M. Salaheldin



- Cyanoacetylation of 5-Aminopyrazole: Synthesis of 2-(1-Aryl-4-
- *Title* : substituted pyrazolo[3,4-d]pyrimidin-6-yl) acetonitrile Derivatives
- Authors: A. M. Salaheldin

Published In: Z. Naturforsch

ISSN 0932-0776 **Impact Factor** 0.852

<u>Abstract :</u>

N1-Substituted-5-amino-4-cyanopyrazoles were cyanoacetylated with a mixture of cyanoacetic acid and acetic anhydride. Cyclization with POCl₃ gave 4-chloro-pyrazolo[3,4-*d*]pyrimidine derivatives. From the reaction with hydrazine and arylhydrazines, the hydrazinyls and their oxidized forms, the azo products, were obtained. The structure of the compounds obtained has been confirmed by ¹H and ¹³C NMR spectroscopy.

<u>Keywords:</u>

Cyanoacetylations; Cyanopyrazoles; Pyrazolo [3,4-d]pyrimidines; Acetonitrile Derivatives.

Faculty of Science

Dep. : Chemistry

- Name : Abdel Aziz A. El Maghraby
- Corrosion Inhibition of Aluminum in Hydrochloric Acid Title : Solution using Potassium Iodate Inhibitor
- Authors: A. A. El Maghraby

Published In : The Open Corrosion Journal

ISSN 1876-5033 Impact Factor 0.00

Abstract :

The inhibition effect of potassium iodate on the corrosion of aluminum in 2M HCl has been studied by weight loss, polarization and electrochemical impedance spectroscopy (EIS) measurements. It has been found that KIO₃ acts as an excellent inhibitor. Inhibition efficiency with 100 ppm inhibitor was very high. Polarization curves reveal that the used inhibitor is a mixed type inhibitor. The surface adsorption of KIO₃ leads to a decrease of double layer capacitance as well as an increase of polarization resistance. The adsorption of the inhibitor on the aluminum surface is in agreement with Temkin adsorption isotherm.

Keywords:

Aluminum, Corrosion inhibition, KIO₃; HCl.



Faculty of Science

Dep. : Chemistry

Name : Abdel Aziz A. El Maghraby



- *Title* : Electrochemical study of some substituted chromene derivatives in nonaqueous media at Pt, Au and glassy carbon electrodes
- Authors: A. A. El Maghraby

Published In : The Open Electrochemistry Journal

ISSN 1876-505X **Impact Factor** 0.00

<u>Abstract :</u>

The redox characteristics of some substituted chromene derivatives has been investigated in different nonaqueous solvents such as, 1,2- dichloroethane (DCE), and dichloromethane (DCM) acetonitrile (AN) using 0.1mol dm^{-3} tetrabutylammonium perchlorate (TBAP) as a supporting electrolyte at platinum, gold and glassy carbon electrodes using cyclic voltammetry. Through controlled potential electrolysis (CPE), the product of oxidation and reduction can be separated and identified. The product of oxidation was found to be the corresponding bis-compound.On the other hand, the reduction occurs in a single two electron process to give the dianion which abstracts protons to saturate the (-C=O) bond. The effect of substituents on the redox mode of an electroactive site has also been studied.

<u>Keywords:</u>

Chromene; cyclic voltammetry; Oxidation; reduction; Non-aqueous solvent; Platinum electrode; Glassy carbon electrode; Gold electrode.

Faculty of Science

Dep. : Chemistry

- *Name* : Abdel Aziz A. El Maghraby
- *Title* : Voltammetric Studies on Some Thiadiazoles and their Derivatives
- Authors: A. A. El Maghraby, G. M. Abou-Elenien, N. M Rateb and H. R. Abdel-Tawab

Published In: Journal of Korean Electrochemical Society

ISSN 1229-1935 **Impact Factor** 0.00

<u>Abstract :</u>

The redox characteristics of 2-arylaldehydehydrazono-3-phenyl-5-substituted-2,3-dihydro-1,3,4-thiadiazoles (1a-h) have been investigated in nonaqueous solvents such as 1,2-dichloroethane (DCE), dichloromethane (DCM), acetonitrile (AN), Tetrahydrofuran (THF), and dimethylsulfoxide (DMSO) at platinum electrode. Through controlled potential electrolysis, the oxidation and reduction products of the investigated compounds had been separated and indentified. The redox mechanism had been suggested and proved. It had been found that all the investigated compounds were oxidized in two irreversible one-electron processes following the well-known pattern of The EC-mechanism; the first electron loss gives the corresponding cation - radical which is followed by proton removal from the ortho-position in the N-phenyl ring forming the radical. The obtained radical undergoes a second electron uptake from the nitrogen in the N=C group forming the unstable intermediate (di-radical cation) which undergoes ring closure forming the corresponding cation. The formed cation was stabilized in solution through its combination with a perchlorate anion from the medium. On the other hand, these compounds are reduced in a single two - electron process or in a successive two one - electron processes following the well known pattern of the EEC mechanism according to the nature of the substituent; the first one gives the anion -radical followed by a second electron reduction to give the dianion which is basic enough to abstract protons from the media to saturate the (C = O) bond.

Keywords:

Thiadiazoles; Cyclic Voltammetry; Redox Characteristics; Non-aqueous Solvents; Controlled Potential Electrolysis.



Cairo University

Faculty of Science

Dep. : Chemistry

Name : Azza A. Ghoneim



Electrochemical Behavior of Vanadium in Azide Electrolyte in

- *Title* : Comparison with the Behavior in Halogen Ions-Containing Electrolytes
- Authors: Azza A. Ghoneim

Published In: The Open Electrochemistry Journal

ISSN 1876-505X **Impact Factor** 0.00

<u>Abstract :</u>

The influence of azide ion concentration and temperature on the electrochemical behavior of vanadium was studied using open-circuit potential (OCP), potentiodynamic polarization and electrochemical impedance spectroscopy (EIS) techniques. The steady state potential (E_{ss}) is a linear function of azide ion concentration. Polarization measurements have shown that the rate of corrosion i_{corr} increases with increasing the azide ion concentration as well as increasing solution temperature. EIS investigations under open-circuit conditions confirm these results as can be identified by the decrease of the polarization resistance (R_{ox}) and oxide thickness ($1/C_{ox}$) with increasing the azide ion concentration. The measured impedance responses were analyzed using a constant phase element (CPE) model with its complex transfer function. The behavior of vanadium in the azide medium is also compared with that in other halide salt solutions, it was found that the tendency for spontaneously grown thicker oxide film increases in the order: $Br^- > CI^- > I^- > N_a^- > F^-$.

Keywords:

Vanadium; Corrosion; Azide; Polarization; Impedance; Electrochemical.

Faculty of Science

Dep. : Chemistry

Name : Azza M. Abdel Fattah



- Novel Synthesis, Reactions and anti-Cancer Activities of 4,4'-
- *Title* : Benzene-1,4-diylbis(6-phenyl-2-thioxo-1,2-dihydropyridine-3-carbonitrile
- Authors: A. M. Abdel-Fattah and M. M. Elsayed

Published In: Current Organic Chemistry

ISSN 1385-2728 **Impact Factor** 3.184

<u>Abstract :</u>

3,3'-Benzene-1,4-diylbis(1-phenylprop-2-enone) **3** reacted with 2cyanoethanethioamide **4** to afford the corresponding 4,4'-benzene-1,4-diylbis(6phenyl-2-thioxo-1,2-dihydropyridine-3-carbonitrile) **5**. The synthetic potentiality of compound **5** was investigated in the present study via its reactions with several active-hydrogen containing compounds **6a-f** aiming to synthesize 4-(3-amino-6phenylthieno[2,3-b]-pyridine-4-yl)phenyl-3-amino-6-phenylthieno[2,3-b]pyridine derivatives **8a-f** directly in case of **8d,e,f,h** and via 4-{4-(3-cyano-2-(alkylthio)-6 phenylpyridin-4-yl)phenyl}-2-(alkylthio)-6-phenylpyridine-3-carbonitrile derivatives **7a-c,g**.

Faculty of Science

Dep. : Chemistry

Name : Faten A. Nour El-Dien

Utility of π -acceptor reagents for Spectrophotometric

- *Title* : Determination of Sulphonamide Drugs Via charge-transfer Complex Formation
- Authors: F. A. Nour El-Dien

Published In : Chemical Papers

ISSN 0366-6352

Impact Factor 0.758

<u>Abstract :</u>

A simple, sensitive and accurate spectrophotometric method for the determination of sulphonamides (sulphamethoxazole (SMZ), sulphaguanidine sulphaquinoxaline sodium (SQX), sulphametrole (SMR), (SGD), and sulphadimidine sodium (SDD)) has been developed. The charge-transfer reactions sulphonamides donors between as n-electron and 7.7.8.8tetracyanoguinodimethane (TCNO), 2,3-dichloro-5,6-dicyano-1,4-benzoguinone (DDQ), and 2,5-dichloro-3,6-dihydroxy-1,4- benzoquinone (chloranilic acid, p-CLA) as π -acceptors resulting in highly coloured complexes were studied. Experimental conditions for these CT reactions were carefully optimised. Beer's law is valid over the concentration ranges from 4–280 μ g mL⁻¹, 4–260 μ g mL⁻¹, 4–200 μ g mL⁻¹, and 4–200 μ g mL⁻¹ of SMZ, SGD, SQX, and SDD using DDQ reagent, respectively. While the calibration curves are linear in the concentration ranges from 4–180 μ g mL⁻¹, 4–80 μ g mL⁻¹, 4–60 μ g mL⁻¹, 4–180 μ g mL⁻¹, and 4–60 μ g mL⁻¹ of SMZ, SGD, SQX, SMR, and SDD, respectively, using TCNQ reagent and from 4–380 μ g mL⁻¹ and 4–300 μ g mL⁻¹ of SQX and SDD, respectively, using p-CLA reagent, respectively. Different analytical parameters, namely molar absorptivity (e), standard deviation, relative standard deviation, correlation coefficient, limit of detection, and limit of quantification, were calculated. The results obtained by the proposed methods are in good agreement with those obtained by the official method as indicated by the percent recovery values.

<u>Keywords:</u>

Charge-transfer; Sulphonamide drugs; Spectrophotometry; TCNQ; DDQ; Chloranilic.



Faculty of Science

Dep. : Chemistry

Name : Faten A. Nour El-Dien



- *Title* : Quantitative Determination of Dopamine Hydrochloride and Levodopa in Tablets and Ampoules
- Authors: F. A. Nour El-Dien

Published In : Afinidad

ISSN 0001-9704

Impact Factor 0.244

<u>Abstract :</u>

A Simple, accurate and sensitive spectrophotometric method for determining dopamine hydrochloride (DO.HCl) and levodopa (LD) in either pure forms or in their commercially available pharmaceutical formularions is reported. The main idea of the method is based on reacting a solution of DO.HCl or LD at pH 12; using universal buffer, with 4-aminoantipyrine (4-AAP) to form pink coloured coupling dye product with $\lambda max = 475$ ($\epsilon = 1.46 \times 10^4 \text{ l.mol}^{-1} \text{.cm}^{-1}$) or 454 nm (1.05x10⁴ l.mol⁻¹.cm⁻¹) for DO.HCl and LD drugs, respectively. Before carrying out Beer's law, different experimental conditions like time, temperature, sequence of addition and pH are optimized. The molar ratio method revealed a 1:1 [active ingredient]:[4-AAP] coupling product. The common excipients used as additives in pharmaceuticals are examined in our proposed procedure as interfering materials. The calibration curves were developed by using standard DO.HCl and LD with percent recovery of 98.62 - 102.9 and 97.40 - 101.5%, respectively. Beer's law was obeyed in the concentration range from 37.90 - 170.6 and 49.30 -221.8 mg/L of DO.HCl and LD, respectively. The reproducibility and accuracy of the method was checked by the values of SD = 0.04-0.22 and 0.05-0.15 and RSD = 0.06-0.16 and 0.02-0.10% for DO.HCl and LD, respectively. The results compare favourably with those of official and reported methods as indicated by the t- and F-test values, indicating the possibility of applying this spectrophotometric method in routine measurements.

<u>Keywords:</u>

Spectrophotometry; Standard addition method; Dopamine hydrochloride; Levodopa; Universal buffer; 4-aminoantipyrine; Tablets; Ampoules.

Faculty of Science

Dep. : Chemistry

Name : Faten A. Nour El-Dien



Radiation-induced Grafting of Glycidyl Methacrylate Onto

- *Title* : Cotton Fabric Waste and its Modification for Anchoring Hazardous Wastes from their Solutions
- *Authors*: H. H. Sokker, S. M. Badawy, E. M. Zayed, F. A. Nour Eldien and A. M. Farag

Published In : Hazardous Materials

ISSN 0304-3894 **Impact Factor** 2.975

<u>Abstract :</u>

Ion exchange adsorbents based on cellulosic fabric wastes carrying sulfonic acid and amine functional groups were synthesized by radiation-induced graft polymerization of glycidyl methacrylate (GMA) with subsequent chemical modification of the epoxy groups of poly-GMA graft chains with sodium sulfite/H₂SO₄ and triethylamine, respectively. The conversion of epoxy groups into the functional groups was investigated. Factors affecting on grafting process such as radiation dose, monomer concentration and solventwere studied. The synthesized adsorbent and its applications in the removal of different types of hazardous pollutants e.g. acidic dye, cobalt, dichromate and phenols from aqueous solution were also studied.

<u>Keywords:</u>

Radiation-induced grafting; Adsorption; Glycidyl methacrylate; Acidic dye; Cotton fabric waste.
Faculty of Science

Dep. : Chemistry

Name : Faten A. Nour El-Dien



- *Title* : Novel Zinc (II) Benzoate Complex Compounds with Caffeine and Ureasynthesis and Characterization
- *Authors*: L. Findoráková, K. Gy_ryová, J. Ková ová, V. Balek, F. A. Nour El-Dien and L. Halás

Published In: Thermal Analysis and Calorimetry

ISSN 1388-6150 **Impact Factor** 1.63

Abstract :

Zinc is structural and catalytic component of proteins and enzymes. It was found that zinc forms chelates with ligands containing O- and N-donors [1].Heterocyclic compounds play a significant role inmany biological systems, e.g. N-donor compounds with hexagonal (six-membered) ring being a component of several vitamins and drugs. Moreover, someof the aromatic carboxylic acids (benzoic acid and salicylic acid) are known to have anti-bacterial andanti-fungal properties. Benzoic acid is used in combination with salicylic acid in dermatology as the agent for a fungicidal treatment (Whitfield's ointment) in the case of fungal skin diseases (ringworm) [2, 3].Benzoate compounds of bivalent cations such as calciumand zinc also offer possibilities for corrosion inhibition. Their application is of particular interest because of their safe use and high solubility in water4-9]. Moreover, it has been found that benzoates ofmetallic elements can be used to reduce 'flash rusting' in water-borne paints [10]. It has been our interestto study zinc(II) benzoates with bioactive ligands. In our previous works we described the preparation, thermal and spectral properties of zinc(II) acetates[11], salicylates [12] and halogenosalicylates [13] with bioactive organic ligands. In this study, novelcomplex compounds of zinc(II) benzoates with organicligands such as caffeine and urea (Scheme 1) were synthesized and characterized by elementalanalysis and infrared spectroscopy. Thermal behavior of the newly benzoate complex compounds was prepared zinc(II) investigated by thermogravimetry.

Keywords:

Caffeine; IR spectroscopy; Thermal stability; Thermogravimetry; Urea; Zinc(II) Benzoate Complexes.

Faculty of Science

Dep. : Chemistry

Name : Fathy M. Abdelrazek



Title : A Novel Synthesis of N- arylpyrrole, pyrrolo[1,2-a]quinazoline and pyrrolo[3,4-d]pyridazine derivative

Authors: F. M. Abdelrazek and N. H. Metwally

Published In: Synthetic Communications

ISSN 0039-7911 **Impact Factor** 0.981

Abstract :

Phenacyl-malononitrile derivatives 1a,b react with DMFDMA in refluxing toluene to afford the enaminones 2a,b respectively. Compounds 2a and 2b react with the aromatic amines (aniline, *p*-toluidine, *p*-anisidine,) in refluxing ethanol to afford the pyrroles 4a-f, and with (anthranilonitrile and methyl anthranilate) to afford the pyrrolo[1,2-a]quinazolines 5a,b and 6a,b respectively. The pyrrole derivatives 4a-f react with hydrazine hydrate and phenyl hydrazine in refluxing ethanol to afford the pyrrolo[3,4-d] pyridazine derivatives 7a-f and 8a-f respectively.

<u>Keywords:</u>

Phenacyl-malononitrile; DMFDMA; Enaminones; Pyrrole derivatives; Pyrrolo [1,2-*a*]quinazoline derivatives.

Faculty of Science

Dep. : Chemistry

Name : Fathy M. Abdelrazek



Title : About the Reaction of β -dimethylamino- α , β -enones with Active Methylene Nitriles

Authors: F. M. Abdelrazek and A. N. Elsayed

Published In: Journal of Heterocyclic Chem

ISSN 0022-152X **Impact Factor** 0.899

<u>Abstract :</u>

The reaction of 3-dimethylamino-1-arylpropenone derivatives with active methylene nitriles was reinvestigated and a plausible mechanism to account for the results is suggested. X-ray crystallographic study supported the suggested mechanism. Based on these findings the reaction of 3-acetylamino-4-dimethylaminobut-3-en-2-one with malononitrile was also reinvestigated and the correct structures verified.

<u>Keywords:</u>

 β -Dimethylamino- α , β -enones; Dimethylformamide-dimethylacetal; Active methylene nitriles; Pyridones.

Faculty of Science

Dep. : Chemistry

Name : Fathy M. Abdelrazek



- *Title* : A Novel Synthesis of some 1,4-phenylene-*bis*-heterocyclic Carboxamide Derivatives
- Authors: F. M. Abdelrazek, N. H. Metwally, N. A. Kassab and N. A. Sobhy

Published In: Journal of Heterocyclic Chem

ISSN 0022-152X **Impact Factor** 0.899

Abstract :

N,N'-(1,4-phenylene)bis(3-oxo-3-phenylpropanamide) 1 reacts with N,N'-(1,4-phenylene)bis(2-benzoyl-3-DMFDMA afford to (dimethylamino)acrylamide) 2. Compound 2 reacts with the active methylene reagents 3a-c to afford the pent-2-enediamide derivatives 7 and 8a,b respectively. Compounds 7 and 8a were cyclized to afford the same compound N,N'-(1,4phenylene)bis(5-cyano-6-oxo-2-phenyl-1,6-dihydropyridine-3-carboxamide) 9a while 8b was cyclized to afford the 6-thioxo analogue 9b. Compound 2 reacts also with hydrazine derivatives afford the hydrazinylacrylamide derivatives 11a,b which were cyclized to the corresponding N,N'-(1,4-phenylene)bis(1H-pyrazole-4-carboxamide) derivatives 12a,b respectively. Compound 2 reacts with urea derivatives to afford the open structures N,N`-(1,4-phenylene)bis(2-benzoyl-3substituted-acrylamide) derivatives 14a-c which could be cyclized into N,N'-(1,4phenylene)bis(6-phenyl-1,2-dihydropyrimidine-5-carboxamide)-2-oxo; thioxo or imine derivatives 15a-c respectively.

<u>Keywords:</u>

1,4-Phenylene diamine; Ethyl benzoylacetate; Dimethylformamidedimethylacetal; 1,4-phenylene-bis-heterocyclic carboxamide.

Dept. : Chemistry

Name : Fawzy A. Attaby



Title : Chemistry and Biological Activities of 6-pyridin-3-yl-1*H*-pyrazolo[3,4-*b*]pyridin-3-amines I

Authors: F. A. Attaby and A. M. Abdel Fattah

Published In : Afinidad

ISSN : 0001-9704

Impact Factor : 0.245

<u>Abstract :</u>

2,3'-Bipyridine-5-carbonitriles reacted with either iodomethane followed by hydrazine hydrate or hydrazine hydrate directly to give the corresponding 6-pyridin-3-yl-1*H*-pyrazolo[3,4-*b*]pyridin-3-amines. These compounds were used as the starting materials of the present study via their reaction with nitrous acid to give the corresponding diazonium salts. The latter compounds reacted further via their coupling with several active $-CH_2$ - containing reagents aiming to synthesize several derivatives of pyrido[2',3':3,4]pyrazolo[5,1-*c*][1,2,4]triazines. The structures of all newly synthesized heterocyclic compounds were elucidated as well as their biological evaluation as anti-Alzheimer and anti-cox2 reagents were tested and exhibit promising results.

Keywords:

Iodomethane; Hydrazine hydrate; Bipyridine-5-carbonitriles; Pyrazolopyridin-3-amines; Pyridopyrazolotriazines.

Faculty of Science

Dept. : Chemistry

Name : Fawzy A. Attaby



Title : Reactions, Anti-Alzheimer and Anti Cox-2 Activities of the Newly Synthesized 2-Substituted Thienopyridines

Authors: F. A. Attaby and A. M. Abdel Fattah

Published In : Current Organic Chemistry

ISSN: 1385-2728 *Impact Factor*: 3.184

<u>Abstract :</u>

Pyridine-2-carboxamides and Thieno[2,3-*b*]pyridine-2-carbo-nitriles used as the starting materials aiming to obtain the newly synthesized pyridothienopyrimidines, pyridothienotriazines and pyridothien-oxazines via their reactions with several reagents. These newly synthesized heterocyclic compounds tested as anti-Alzheimer and anti COX-2 agents and their structures elucidated by considering the data of IR, ¹H NMR, mass spectra as well as that of elemental analyses.

Keywords:

Pyridothienopyrimidinone; Pyridothienotriazinone; Pyrido thienopyrimidinedithione; Pyridothienopyrimidinethione.

Faculty of Science

Dep. : Chemistry

Name : Kamal M. Dawood



- *Title* : Convenient Synthesis and Antimicrobial Evaluation of some Novel 2-substituted-3-methylbenzofuran Derivatives
- Authors: Hatem A. Abdel-Aziz, Amal A. I. Mekawey and Kamal M. Dawood

Published In: Eur. J. Med. Chem

ISSN 0223-5234 **Impact Factor** 2.882

Abstract :

The reaction of 3-methylbenzofuran-2-carbohydrazide (1) with 1-phenyl-2bromoethanone (2a) or 2-chloro-1-(4-chlorophenyl)ethanone (2b) afforded (Z)-1,2-di[(3-methylbenzofuran-2-carbohydrazido]-1-arylethenes 5a and 5b. respectively. Single crystal X-ray analyses of compound 5a proved that the reaction proceeds in 2:1 molar ratio and ruled out the other possible structures 1,3,4-oxadiazine derivative 6 or E-isomer 7. Furthermore, both of 3-(3methylbenzofuran-2-yl)-3-oxopropanenitrile (9) and 3-methyl-2-benzofuranoyl chloride (15) were used as starting materials for the synthesis of several compounds, such as pyrazoles 10 and 14, oxime 11, hydrazones 12a, b and 3,1bezoxazine 19. The newly synthesized compounds were tested for their antimicrobial activity against five fungal species and four bacterial species also their minimum inhibitory concentration (MIC) against most of test organisms was performed. Some of these compounds exhibited a significant antimicrobial activity.

<u>Keywords:</u>

Benzofurans; Pyrazoles; 3,1-Benzoxazine; Antimicrobial activity; X-ray single crystal.

Faculty of Science

Dep. : Chemistry

Name : Kamal M. Dawood



Title : Synthesis of Some New Indolizine and Pyrrolo[1,2-a]quinoline Derivatives via Nitrogen Ylides

Authors: Nabila A. Kheder, Elham S. Darwish and Kamal M. Dawood

Published In : Heterocycles

ISSN 0385-5414 **Impact Factor** 0.980

<u>Abstract :</u>

The pyridinium bromides 2a,b reacted with dimethyl acetylene- dicarboxylate (DMAD) to give the indolizine derivatives 6a,b. Bromide salts 2a,b reacted also with β -nitrostyrene, ethyl acrylate and with acrylamide to give the corresponding indolizine derivatives 8a,b and 10a-d. Reaction of the quinolinium salts 12a,b with DMAD, β -nitrostyrene and with ethyl acrylate as dipolarophiles furnished the corresponding pyrrolo[1,2-a]quinoline derivatives 16a,b, 18a,b and 20a,b, respectively. Bromide salts 2b and 22 underwent intramolecular cyclization via elimination of water and hydrogen bromide molecules when heated at reflux condition to give the angularly fused indolizine and pyrrolo[1,2-a]quinoline structures 21 and 23, respectively.

Keywords:

Chromene; Benzofuran; Indolizine; Pyrrolo[1,2-a]quinoline; Cycloaddition.

Faculty of Science

Dep. : Chemistry

Name : Kamal M. Dawood

- *Title* : New Domino Reactions with Sultones
- *Authors*: Ashraf M. M. Ewas, Kamal M. Dawood, Katrin Spinde, Yuzhou Wang, Anne Jäger and Peter Metz

Published In : Synlett

ISSN 0936-5214 **Impact Factor** 2.659

<u>Abstract :</u>

Hydroxyl-containing α,β -unsaturated δ -sultones undergo a diastereoselective conjugate reduction by Red-Al. This transformation can be extended to a domino elimination/1,4-hydride addition of a tricyclic sultone substrate that is readily available via intramolecular Diels–Alder reaction. Bicyclic γ -keto δ -sultones are converted into diastereomerically pure oxabicyclic ketones in a domino desulfurization/oxy-Michael addition using DBU.

<u>Keywords:</u>

Sultones; Conjugate additions; Reductions; Desulfurizations; Domino reactions.

Faculty of Science

Dep. : Chemistry

Name : Magda A. abdallah



- *Title* : Synthesis, Structure and Antimicrobial Evaluation of New Derivatives of Theophylline Sugar Hydrazones
- Authors: Mosselhi A. Mosselhi, Magda A. Abdallah, Nadia H. Metwally, Ibrahim A. El-Desoky and Laila M. Break

Published In : Arkivoc

ISSN 1424-6376

Impact Factor 1.377

<u>Abstract :</u>

Condensation of 7-ethyl-8-hydrazinotheophylline 1 with aldohexoses 2-4 and aldopentoses 5,6 by heating in an aqueous ethanolic solution and in the presence of a catalytic amount of acetic acid gives the corresponding hitherto unknown aldehydo-sugar (7-ethyl-8-theophyllinyl)hydrazones 7-11. The structures of the sugar hydrazones 7-11 were confirmed by their elemental analyses and spectral (IR, 1H NMR and FAB-MS) data. Acetylation of the sugar hydrazones 7-11 with acetic anhydride in pyridine at room temperature gave the corresponding poly-O-acetyl derivatives 12-16. Attempted dehydrogenative cyclization of the products 7-11 and 12-16 using various conditions did not afford the corresponding acyclo C-nucleosides (R= sugar or R`= acetylated sugar) 18. On the other hand, the reaction of 7-11 or 12-16 with bromine in acetic acid and sodium acetate afforded 8-bromo-7-ethyltheophylline 17. The structural elucidation of products is reported and also some of the products were screened for their antimicrobial activity.

<u>Keywords:</u>

Theophylline; Aldohexoses; Aldopentoses; Condensation; Sugar hydrazones.

Dep. : Chemistry

Name : Magda A. Ameer



Title : the Electrochemical Behavior of Sn–Ag binary Alloys in Sulfate Solutions

Authors: Magda Ameer, Amany Fekry and Azza Ghoneim

Published In : Materials and Corrosion

ISSN 0947-5117 **Impact Factor** 0.6

<u>Abstract :</u>

The corrosion and passivation behavior of four binary $xSn-Ag(x^{1/2}26, 50, 70, 10)$ and 96.5 wt%) alloys and their pure metal components was investigated in sodium sulfate solutions using electrochemical techniques. The influence of two different electrolytic parameters, namely, concentration (0.01–1.0 M) and pH (3.0–11.0) were studied while the specimens were potentiodynamically polarized between 1000 and 500mV versus saturated calomel electrode (SCE). The results showed that the corrosion current density (i_{corr}) increases with increasing either the tin content in the alloy or the SO2 4 ions concentration in the electrolyte. Increasing the pH value of a constant composition sulfate solution was found to improve the corrosion resistance of the tin-richer alloys ($x^{1/4}$ 50–96.5 wt%), and decreases a little the stability of the silver-rich one (74wt% Ag). Impedance measurements at the free corrosion potential (E_{corr}) give good support for these results, where a small addition of tin to silver up to the intermetallic ratio ($x^{1/4}26$ wt%) gives an alloy with better corrosion resistance to the aggressive sulfate medium. In terms of the tin ratio, the order of surface film stability on the tested samples generally follows the ranking: 26>96.5>50>Ag>70>Sn. The good corrosion resistance of the tin-rich alloy ($x^{1/4}96.5$ wt%), surpassing those for the pure constituents tin and silver can be attributed to the homogenous phase structure of this eutectic mixture.

Keywords:

Impedance; Corrosion; Sn-Ag alloys; pure Ag; pure Sn; Na₂SO₄ solutions.

Faculty of Science

Dep. : Chemistry

Name : Magda A. Ameer



Electrochemical Behavior of Sn-Ag Alloys in Alkaline

Title : Solutions

Authors: Magda Ameer, Amany Fekry and Azza Ghoneim

Published In : Corrosion NACE

ISSN 0010-9312 **Impact Factor** 0.821

Abstract :

The behavior of four Sn-Ag alloys and their individual metal components in NaOH solutions was studied by using open-circuit potential, potentiondynamic polarization and electrochemical impedance spectroscopy (EIS). The results reveal that each of the initial open-circuit potential at zero time, E_{i} , and final open-circuit potential after 60 minutes, E_{f} , (at concentrations < 0.30M) shifts towards more negative values indicating a relatively higher rate of dissolution during the spontaneous oxide-growth / oxide dissolution process under the currentless conditions. While at concentrations, $\geq 0.30M$ there is no significant change in potential. The two corrosion parameters (E_{corr} and i_{corr}) show a linear relation with both the solution concentration and alloy composition. EIS results show that each of R_T and C^{-1} values decreases with increase in the tin content up to 50%. After that, there is a little change in their values.

Keywords:

Electrochemical impedance; Open-circuit potential; Polarization; semiconductors; Tin-silver alloys.

Faculty of Science

Dep. : Chemistry

Name : Magdy S. W. Sabaa



- *Title* : Synthesis, Characterization and Antimicrobial Activity of Poly (N-vinyl imidazole) Grafted Carboxymethyl Chitosan
- Authors: Magdy W. Sabaa, Nadia A. Mohamed, Riham R. Mohamed, Neveen M. Khalil and Soliman M. Abd El Latif

Published In: Carbohydrate Polymers

ISSN 0144-8617 **Impact Factor** 2.644

<u>Abstract :</u>

Poly(N-vinyl imidazole) (PNVI) has been grafted onto carboxymethyl chitosan in aqueous solution using potassium persulfate (KPS) as initiator. The effect of the monomer and initiator concentration, the reaction temperature and time on the grafting yield have been investigated. The maximum grafting yield was achieved at [KPS] = 8 x 10^{-2} mol/L., [M] = 1 mol/L., at reaction temperature = 60°C within reaction time 2.5 h. The grafted products were characterized by FTIR, elemental analysis, SEM photographs, solubility tests, thermal analysis and antibacterial activity. Grafted products have improved the antimicrobial activity of carboxymethyl chitosan.

<u>Keywords:</u>

Carboxymethyl chitosan; N-Vinyl imidazole; Grafting efficiency; Characterization; Antimicrobial activity.

Faculty of Science

Dep. : Chemistry

Name : Magdy S. W. Sabaa



0.0

Title : Photo- and bio-degradation of poly(ester-urethane)s Films Based on poly[(R)-3-hydroxybutyrate] and poly(ε -caprolactone) Blocks

Authors: Gamal R. Saad,, Tamer M. Khalil, Magdy W. Sabaa

Published In : Polymer Research

ISSN 1572-8935 Impact Factor

<u>Abstract :</u>

Biodegradable segmented poly(ester-urethane)s derived from telechelic dihydroxy-poly[(R)-3-hydroxybutyrate], acting as hard segments, and poly(Ecaprolactone)-diols, acting as soft segements, using 1,6-hexamethylene diisocyanate as non toxic connecting agent, were synthesized. The copolymers were characterized with regard to their molecular weights by GPC and their main thermal transitions by DSC. These copolymers as well as PHB were exposed to UV-irradiation for different time intervals and the changes in the chemical structure were analyzed by FTIR spectroscopy. Under our experimental conditions, it was found that the increase of irradiation time was accompanied by increase of the proportion of the gel fraction and the decrease of the intrinsic viscosity of the soluble fraction of the investigated copolymers. The biodegradability of PHB and poly(ester-urethane) sample containing $\sim 40 \text{ wt\%}$ PHB before and after UV-irradiation was investigated under soil burial. The results showed that the photolysis in air prior to biodegradation increased the rate of degradation.

Keywords:

Biodegradable poly(ester-urethane)s; Poly[(R)-3-hydroxybutyrate]; Poly(ε-caprolactone); Photodegradation; Biodegradation.

Faculty of Science

Dep. : Chemistry

Name : Magdy S. W. Sabaa



Title : Vanillin-Schiff's Bases as Organic Thermal Stabilizers and co-Stabilizers for Rigid Poly(Vinyl Chloride)

Authors: Magdy W. Sabaa, Riham R. Mohamed and Emad H. Orab

Published In : European Polymer

ISSN 0014-3057 **Impact Factor** 2.143

<u>Abstract :</u>

Vanillin-Schiff's bases (VSB) were examined as thermal stabilizers and costabilizers for rigid poly(vinyl chloride) (PVC) in air at 180oC. Their high stabilizing efficiency were shown by their high thermal stability value (Ts), which is the time elapsed for the detection of HCl gas, if compared with dibasic lead carbonate and cadmium -zinc soap reference stabilizers used industrially, with better extent of discoloration. Blending these derivatives with reference stabilizers in different ratios greatly lengthens the thermal stability and the extent of discoloration of the PVC.Condensation products of Vanillin with amines are very active biologically, besides having good complexation ability with metal ions. The Ni2+ and Co2+ complexes of VSB derivatives gave better thermal stability and less discoloration than the parent organic stabilizer. Also, blending these complexes with either of the used reference stabilizers in different ratios gave better thermal stability and lower extent of discoloration. Thermogravimetric analysis confirmed the improved stability of PVC in the poresence of the VSB derivatives, compared to blankPVC, PVC stabilized with reference stabilizers and PVC stabilized with binary mixture of VSB derivatives with reference stabilizer.

The stabilizing efficiency of Vanillin-Schiff's base (VSB) derivatives is attributed to the replacement of the labile chlorine atoms on the PVC chains by a relatively more stable moiety of the organic stabilizer.

<u>Keywords:</u>

PVC; Vanillin-Schiff's base; Organic stabilizers; Co-stabilizers; Discoloration.

Faculty of Science

Dep. : Chemistry

Name : Mohamed R. Shaaban

- *Title* : Electroorganic Synthesis of Gem-2,2-difluoro-3-aryl-2H-1,4-Benzothiazine Derivatives

Authors: Mohamed R. Shaaban, Shinsuke Inagi, Toshio Fuchigamia

Published In : Electrochimica Acta

ISSN 0013-4686 **Impact Factor** 3.078

<u>Abstract :</u>

Anodic fluorination of 3-aryl-2*H*-1,4-benzothiazine derivativeswas investigated by the conventional electrolytic method in acetonitrile (MeCN) or dimethoxyethane (DME) containing various hydrogen fluoride (HF) salts as supporting electrolytes and fluorine sources. Itwas found that the fluorination proceeded via the formation of dehydrodimers of benzothiazines followed by the anodic fluorination of the dimeric product.

Anodic fluorination of benzothiazine dehydrodimers as starting materials in Et3N·3HF/DME provided 2,2-difluorobenzothiazine derivatives in moderate to good yields depending on 3-aryl substituents.

Keywords:

Anodic fluorination; *gem*-Difluoromethylene compounds; Dimerization; Benzothiazine.

Faculty of Science

Dep. : Chemistry

Name : Mohamed S. El-Deab



- Electrocatalysis by Nanoparticles: Oxidation of Formic Acid at **Title** : Manganese Oxide Nanorods-modified Pt Planar and Nanohole
 - arrays
- Authors: Mohamed S. El-Deab

Published In: Advanced Research

ISSN 2090-1232

Impact Factor 3.00

<u>Abstract :</u>

The electro-oxidation of formic acid (an essential reaction in direct formic acid fuel cells) is a challenging process due to the deactivation of anodes by the adsorption of the poisoning intermediate carbon monoxide (CO). Pt electrodes in two geometries (planar and in a nanohole-array) were modified by the electrodeposition of manganese oxide nanorods (nano-MnOx). The modified Pt electrodes were then tested for their electrocatalytic activity through the electrooxidation of formic acid in a solution of pH 3.45. Two oxidation peaks (Ipd and Ipind) were observed at 0.2 and 0.55 V, respectively; these were assigned to the direct and indirect oxidative pathways. A significant enhancement of the direct oxidation of formic acid to CO2 was observed at the modified electrodes, while the formation of the poisoning intermediate CO was suppressed. Ipd increases with surface coverage (θ) of nano-MnOx with a concurrent depression of Ipind. An increase of the ratio Ipd $\frac{1}{2}$ with decreasing potential scan rate (v) indicates that the oxidation process proceeds via a catalytic mechanism. The modification of Pt anodes with manganese oxide nanorods results in a significant improvement of the electrocatalytic activity along with a higher tolerance to CO. Thus nano-MnOx plays a crucial role as a catalytic mediator which facilitates the charge transfer during the direct oxidation of formic acid to CO2.

Keywords:

Nanostructures; Nanohole-arrays; Manganese oxide nanorods; Modified surfaces; Electrocatalysis.

Faculty of Science

Dep. : Chemistry

Name : Mohamed S. El-Deab



TitleNovel Procedure for the Fabrication of Gold Nanostructures
Enriched in Au (110) Facet OrientationAuthors:Sameh H. Othman, Mohamed S. El-Deab, Takeyoshi Okajima
and Takeo Ohsaka

Published In: Electrochemistry Communications

ISSN 1388-2481 **Impact Factor** 4. 194

<u>Abstract :</u>

This study describes a novel procedure for the fabrication of gold nanoparticles (nano-Au) atop of carbon substrates. The positively charged amino $(-NH_3^+)$ groups (grafted at the carbon substrate) act as anchoring antennae for the negatively charged $[AuCl_4]^-$ ions which are electrochemically reduced to produce the nano-Au honeycomb. Atomic force microscope (AFM) imaging provided a direct evidence for the successful fabrication of the nano-Au structures. Electrochemical measurements revealed the enrichment of the thus-prepared nano-Au in Au (110) facet orientation.

Keywords:

Nanostructures; Amino grafted GC; Crystallographic orientation; ORR; XPS.

Faculty of Science

Dep. : Chemistry

Name : Mohamed S. El-Deab



Title : Electrocatalytic Oxidation of Methanol at γ -MnOOH Nanorods Modified Pt Electrodes

Authors: Mohamed S. El-Deab

Published In : Electrochemical Science

ISSN 1452-3981 **Impact Factor** 0.00

<u>Abstract :</u>

The current study addresses the electro-oxidation of methanol in 0.1 M NaOH at Pt electrodes modified with electrodeposited manganese oxide nanorods. Morphological and phase characterizations were performed by SEM, TEM and XRD techniques, respectively, and revealed the electrodeposition of manganese oxide in nanorod morphology with a highly crystalline nature (γ -MnOOH). A significant enhancement of methanol oxidation has been observed at the nano-MnOOH/Pt electrodes as evident from the increase of the oxidation peak current (Ip). The enhancement factor and Ip for methanol electro-oxidation depends on the surface coverage of MnOOH indicating its essential role in the oxidation process of methanol with an optimum surface coverage of ca. 30% under the present experimental conditions. The MnOOH nanorods are believed to act as a catalytic mediator that enhances the electro-oxidation of methanol by facilitating the oxygen supply through a reversible redox system of Mn(III)/(IV) oxides.

Keywords:

Nanoparticles; Electrocatalysis; γ -MnOOH; Methanol oxidation; Modified electrodes.

Faculty of Science

Dep. : Chemistry

Name : Mohamed S. El-Deab



Title : on the Preferential Crystallographic Orientation of Au Nanoparticles: Effect of Electrodeposition Time

Authors: Mohamed S. El-Deab

Published In : Electrochimica Acta

ISSN 0013-4686

Impact Factor 3.078

<u>Abstract :</u>

The crystallographic orientation of Au nanoparticles electrodeposited at glassy carbon (nano-Au/GC) electrodes (prepared by potential step electrolysis) is markedly influenced by the width of the potential step. The oxygen reduction reaction (ORR) and the reductive desorption of cysteine have been studied on nano-Au/GC electrodes. Furthermore, electron backscatter diffraction (EBSD) technique has been used to probe the crystallographic orientation of the electrodeposited Au nanoparticles. That is, Au nanoparticles prepared in short time (5-60 s) have been found rich in the Au(111) facet orientation and are characterized by a relatively small particle size (ca. 10-50 nm) as well as high particle density (number of particles per unit area) as revealed by SEM images. Whereas Au nanoparticles prepared by longer electrolysis time (> 60 s) are found to be much enriched in the Au(100) and Au(110) facets and are characterized by a relatively size (>100 nm). EBSD patterns provided definitive information about the crystal orientations mapping of Au nanoparticles prepared at various deposition times.

Keywords:

Electrodeposition; Preferential orientation; ORR; Nanostructures; Electron backscatter diffraction (EBSD).

Dep.	:	Chemistry
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Name : Mohamed A. Zayed

Spectroscopic Study of Molecular Structures of Novel Schiff

Title : Base Derived from o-phthaldehyde and 2-aminophenol and its Coordination Compounds together with their Biological Activity

Authors: Mohamed A. Zayed

Published In: Spectrochem. Acta Part A

ISSN 1386-1425 **Impact Factor** 1.510

<u>Abstract :</u>

New Schiff base (H₂L) ligand is prepared via condensation of o-phthaldehyde and 2-aminophenol. The metal complexes of Cr (III), Mn (II), Fe (II), Fe (III), Co (II), Ni (II), Cu (II) and Zn (II) with the ligand are prepared in good yield from the reaction of the ligand with the corresponding metal salts. They are characterized based on elemental analyses, IR, solid reflectance, magnetic moment, electron spin resonance (ESR), molar conductance, ¹H NMR and thermal analysis (TGA). From the elemental analyses data, the complexes were proposed to have the general formulae $[M(L)(H_2O)n]$ ·vH₂O (where M = Mn (II) (n = 0, y = 1), Fe (II) (n = y = 0), Co (II) (n = 2, y = 0), Ni (II) (n = y = 2), Cu (II) (n = 0, y = 2) and Zn (II) (n = 0, y = 2)y = 0, and [MCl(L)(H₂O)]·yH₂O (where M = Cr (III) and Fe (III), y = 1-2). The molar conductance data reveal that all the metal chelates are non-electrolytes. IR spectra show that H₂L is coordinated to the metal ions in a bi-negatively tetradentate manner with ONNO donor sites of the azomethine-N and deprotonated phenolic-OH. This is supported by the ¹H NMR and ESR data. From the magnetic and solid reflectance spectra, it is found that the geometrical structures of these complexes are octahedral (Cr (III), Fe (III), Co (II) and Ni (II) complexes), tetrahedral (Mn (II), Fe (II) and Zn (II) complexes) and square planar (Cu (II) complex). The thermal behaviour of these chelates is studied and the activation thermodynamic parameters, such as, E*, Δ H*, Δ S* and Δ G* are calculated from the DrTGA curves using Coats-Redfern method. The parent Schiff base and its eight metal complexes are assayed against two fungal and two bacterial species. With respect to antifungal activity, the parent Schiff base and four metal complexes inhibited the growth of the tested fungi at different rates. Ni (II) complex is the most inhibitory metal complex, followed by Cr (III) complex, parent Schiff base then Co (II) complex. With regard to bacteria, only two of the tested metal complexes (Mn (II) and Fe (II)) weakly inhibit the growth of the two tested bacteria.

6594

Keywords:

Schiff base; Transition metal complexes; IR, 1H NMR, ESR, Solid reflectance, Magnetic moment; Molar conductance; Thermal analysis; Biological activity.

Dep. : Chemistry

Name : Mohamed A. Zayed

Biological Potential Study of Metal Complexes of Sulphonyl Urea Glibenclamide on the House Fly, Musca Domestica

Title : Orea Onceretainide on the House Fry, Musea Domestica (Diptera-Muscidea): Preparation, Spectroscopic and Therma Characterization

Authors: G. G. Mohamed, S.M. Abdallah, M.A. Zayed and M.M.I. Nassar

Published In: Spectrochimica Acta Part A

ISSN	1386-1425	Impact Factor	1.510

<u>Abstract :</u>

The ligatation behaviour of sulphonylurea glibenclamide drug is studied in order to give an idea about its potentiality towards some transition metals in vitro systems.Metal complexes of glibenclamide (GCA;H3L) drug are prepared and characterized based on elemental analyses, IR, diffused reflectance, magnetic moment, molar conductance and thermal analysis (TG and DTG) techniques. From the elemental analyses data, the complexes are proposed to have the general formulae $[M(H3L)Cln(H2O)m] \cdot yH2O$ (where M= Cr(III) (n=3, m=1, y = 3); Mn(II) (n=2, m=0, y=1); Fe(III) (n=3, m=1, y=0), Co(II) (n=2, m=2, y=0); Ni(II) (n=2, m=2, y=3); Cu(II) (n=2, m=2, y=2) and Zn(II) (n=2, m=0, y=0). The molar conductance data reveal that all the metal chelates are non-electrolytes. IR spectra show that GCA is coordinated to the metal ions in a neutral bidentate manner with OO donor sites of the amide-O and sulphone-O. From the magnetic and solid reflectance spectra, it is found that the geometrical structures of these complexes are octahedral except Mn(II) and Zn(II) complexes which have tetrahedral structure. The thermal behaviour of these chelates is studied using thermogravimetric analysis (TG and DTG) technique. activation The thermodynamic parameters are calculated using Coats-Redfern method. The GCA drug, in comparison to its metal complexes also is screened for its biological activity against house fly, Musca domestica (Diptera-Muscidae). Dose of 5 g/insect of GCA is topically applied against 3 days old larval instar of M. domestica. Survival of pupal and adult stages has been affected by the complexes of GCA more than larval instars. Morphogenic abnormalities of larvae, pupae and adults are studied. On the other hand pupation and adult emergence program is deteriorated by the effect of different chemicals.

Keywords:

Glibenclamide; Metal complexes; Spectroscopy; Molar conductance; Magnetic moment; Thermal analysis; Biological activity.

Dep. : Chemistry

Name : Mohamed A. Zayed Metal Complexes of Gliclazide: Preparation, Spectroscopic and Thermal Characterization. Biological Potential Study of Sulphonylurea Gliclazide on the House fly, *Musca Domestica* (Diptera – Muscidae) G. G. Mohamed, S. M. Abdallah, M.M.I. Nassar and M. A.
Authors: Zaved

Published In : Arabian Journal of Chemistry

ISSN 0000-0000

Impact Factor 0.000

Abstract :

Metal complexes of gliclazide (GLZ; HL) drug are prepared and characterized based on elemental analyses, IR, diffused reflectance, magnetic moment, molar conductance and thermal analyses (TG and DTG) technique. From the elemental analyses data, the complexes are proposed to have the general formulae $[M(HL)Cl_3(H_2O)]$ ·3H₂O (M = Cr(III) and Fe(III)), $[M(HL)Cl_2(H_2O)_2]$ ·yH₂O (M = Co(III), Ni(II) and Cu(II), y = 0-2) and $[M(HL)Cl_2] \cdot yH_2O$ (M = Mn(II) and Zn(II), y=0-1). The molar conductance data reveal that all the metal chelates are non-electrolytes. IR spectra show that GLZ is coordinated to the metal ions in a neutral bidentate manner with ON donor sites of the amide-O and sulphonamide-OH. From the magnetic and solid reflectance spectra, it is found that the geometrical structures of these complexes are octahedral (Cr(III), Fe(III), Co(II), Ni(II) and Cu(II)) and tetrahedral (Mn(II) and Zn(II)). The thermal behaviour of these chelates is studied using thermogravimetric analysis (TG and DTG) techniques. The results obtained show that the hydrated complexes lose water molecules of hydration followed immediately by decomposition of the anions and ligand molecules in the successive unseparate steps. The activation thermodynamic parameters are calculated using Coats-Redfern method. The GLZ drug, in comparison to its metal complexes also is screened for their biological activity against house fly, Musca domestica (Diptera - Muscidae). Dose of 5 μ g/insect of gliclazide is typically applied against 3 days-old larval instar of M. domestica. Survival of pupal and adult stages has been affected by the complexes of gliclazide more than larval instars. Morphogenic abnormalities of larvae, pupae and adults are studied. On the other hand, pupation and adult emergence program is deteriorated by the effect of different chemicals.

Keywords:

Gliclazide; Metal complexes; Spectroscopy; Magnetic moment; Thermal analyses; Biological activity.

Dep. : Chemistry

Name : Mohamed A. Zayed

Spectroscopic Study of the Reaction Mechanism of Buspirone

Title : Interaction with Iodine and Tetracyanoethylene Reagents and its Applications

Authors M.A. Zayed and A. A. El-Habeeb Published In Drug and Testing Analysis ISSN 1942- 7603 II

Impact Factor 0.000

Abstract :

The reactions between buspirone drug (busp) in the base form and the iodine amphoteric reagent (n-donor and / or σ -acceptor) and tetracyanoethylene as a π -acceptor reagent (TCNE) have been spectrophotometrically studied at different conditions of reactant concentrations, time intervals, temperatures, solvents and different wavelengths aiming to select the most suitable conditions to give the most suitable molar extinction coefficients. This study aims chiefly to threw lights on the nature of these reactions and consequently to select the most probable conditions for spectrophotometric application of these reagents to determine this biologically active drug used to remedy different diseases. The reaction mechanism involves the formation of busp-I₂ outer and inner sphere complexes. The obtained busp-I₂ separated solid product is critically investigated by elemental analyses, FT-IR, thermal analyses (TA), electron ionization mass spectrometry (EI-MS) and found to be biologically active. The reaction mechanism of busp-TCNE involves the formation of charge transfer (CT) complex. The analytical parameters of the suggested spectrphometric procedures have been calculated. The values of the Sandell sensitivity, SD, RSD and recovery % refer to the high sensitivity of these procedures applied in analysis of busp in its formulations as an important drug used in remedy of psychiatric and schizophrenic diseases. It also presents a new busp-I₂ promising drug derivative that can be used more efficiently for the same purposes than its parent. It finally gives clear idea about the possible metabolites and metabolic pathways of busp and its derivative in vitro system that may occurs in vivo system.

Keywords:

Spectrophotmetric study; Buspirone drug; Iodine and tetracyanoethylene reagents; Inner- and outer- sphere complexes and CT-complexes; Applications.

6597

Faculty of Science

Dep. : Chemistry

Name : Mohamed Fathy Shibl



Title : Quantum Mechanical Studies of the Protonation and N Br Bond Dissociation of the Biologically Important N-bromosuccinimide

Author: Shabaan Elroby, Mahmoud Noamaan and Mohamed Shibl

Published In: J. Mol. Str. (Theochem)

ISSN 0166-1280

Impact Factor 1.167

<u>Abstract :</u>

N-Bromosuccinimide (NBS) is a brominating and oxidizing agent that is used as a source of bromine. The proton affinities, the tautomeric forms and NABr bond dissociation of NBS have been computed using the B3LYP functional as implemented in the density functional approach. The electronic structures of all possible tautomeric forms of NBS have been thoroughly investigated. The keto form of NBS has been shown to be more stable than any other tautomeric forms. The geometries and relative energies for various stationary structures were determined. The results indicate clearly that O-site protonation is strongly favored over N-site protonation for the studied compound in case of mono- and diprotonation. The bond dissociation energies (BDEs), involving the formation of the bromine radical, cation, and anion, of the NABr bond have been investigated. The NABr BDE of the Br radical formation is lower than that of the Br anion or cation. These conclusions are in good agreement with the experimental results.

<u>Keywords:</u>

NBS; DFT; Proton affinity; NBO; BDE.1.167

Faculty of Science

Dep. : Chemistry

Name : Mohamed M. Omar



- *Title* : Spectral, Thermal and Biological Activity Studies on Ruthenium (II) Complexes with some Pyridyl Amines
- Authors: Mohamed M. Omar

Published In: Thermal Analysis and Calorimetry

ISSN 1388-6150 **Impact Factor** 1.63

<u>Abstract :</u>

Complexes resulted from the interaction of [Ph3P]3RuCl2 with 2aminoethylpyridine (aepy), 2-hydrazinopyridine (hzpy) and dipicolylamine (dpa) with KPF6 have been isolated from ethanol. The structures of the complexes were investigated using elemental analyses, IR, magnetic moment, UV-Vis and ¹H NMR spectroscopy. The complexes have been isolated as [Ru(hzpy)₃](PF6)₂, $[Ru(hzpy)_2(aepy)](PF_6)_2,$ $[Ru(hzpy)(aepy)_2](PF_6)_2,$ $[Ru(dpa)_2](PF_6)_2$ in an octahedral geometry. The thermal decomposition of complexes was discussed in terms of their structures and the thermodynamic parameters were evaluated. The metal complexes were screened for their antibacterial activity against bacterial species, Escherichia coli, Staphylococcus aureus, as well as fungus (Candida). The activity data show the metal complexes have potent antibacterials against one ore more bacterial species.

Keywords:

Bacterial activity; 1H NMR; IR; Magnetic moment; Pyridylamines complexes; Thermal analysis; UV-Vis.

Faculty of Science

Dep. : Chemistry

Name : Mohamed M. Omar



Title : Spectroscopic Characterization of Metal Complexes of Novel Schiff base. Synthesis, Thermal and Biological Activity Studies

Authors: Mohamed M. Omar, Gehad G. Mohamed and Amr A. Ibrahim

Published In: Spectrochimica Acta (Part A)

ISSN 1386-1425 **Impact Factor** 1.510

Abstract :

Novel Schiff base (HL) ligand is prepared via condensation of 4aminoantipyrine and 2-aminobenzoic acid. The ligand is characterized based on elemental analysis, mass, IR and 1HNMRspectra.Metalcomplexes are reported and characterized based on elemental analyses, IR, 1HNMR, solid reflectance, magnetic moment, molar conductance and thermal analyses (TGA, DrTGA and DTA). The molar conductance data reveal that all the metal chelates are nonelectrolytes. IR spectra show that HL is coordinated to the metal ions in a uninegatively tridentate manner with NNO donor sites of the azomethine N, amino N and deprotonated caroxylic-O. From the magnetic and solid reflectance spectra, it is found that the geometrical structures of these complexes are octahedral. The thermal behaviour of these chelates shows that the hydrated complexes losses water molecules of hydration in the first step followed immediately by decomposition of the anions and ligand molecules in the subsequent steps. The activation thermodynamic parameters, such as, E*, H*, S* and G* are calculated from the DrTG curves using Coats-Redfern method. The synthesized ligands, in comparison to their metal complexes also were screened for their antibacterial activity against bacterial species, Escherichia Coli, Pseudomonas aeruginosa, Staphylococcus Pyogones and Fungi (Candida). The activity data show that the metal complexes to be more potent/antibacterial than the parent Shciff base ligand against one or more bacterial species.

Keywords:

4-Aminoantipyrine; 2-Aminobenzoic acid; Transition metal complexes; IR; Molar conductance; Solid reflectance; Magnetic moment; Thermal analyses; Biological activity.

Dep. : Chemistry

Name : Mohammed W. Eldeen Badawy



Cairo University

Electrochemical and Biological Behaviors of Porous Titania : (TiO2) in Simulated body Fluids for Implantation in Human

Bodies

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

Published In: J. Alloys and Compounds

ISSN 0925-8388

Impact Factor 1.510

<u>Abstract :</u>

Title

Porous titania, TiO₂, films on Ti substrates were prepared electrochemically. The adsorption of compatible ions, like calcium and phosphate ions, on the formed TiO₂ films was investigated by electrochemical impedance spectroscopy, EIS, and electron diffraction X-ray, EDX, techniques. The morphology of the formed oxide films and the adsorbed layers on their surfaces was investigated by the electron microscopy, SEM. The experimental impedance data were fitted to theoretical data according to proposed equivalent circuit models. The impedance data fitting enabled the explanation of the structure of the oxide film and the adsorption phenomena occurred on its surface. The film characteristics under different conditions were discussed and the adsorption $ofCa^{2+}$ and PO_4^{3-} was explained. The results have shown that the oxide films formed potentiostatically on Ti in H_2O_2 containing H_2SO_4 are capable to adsorb biologically compatible ions. The adsorbed layer thickness was found to increase with the increase of concentration of calcium ions present in the ambient electrolyte. The biocompatibility of these materials depends essentially on the apatite-forming ability of TiO₂ due to calcium ion incorporation in the adsorbed films. The formed oxide films with the relatively thick apatite-like adsorbed layer are good implants for bone surgeries and dental applications.

<u>Keywords:</u>

Adsorption; Biological compatibility; Bone implants; Calcium phosphate; Dental applications; Titanium oxide.

Faculty of Science

Dep. : Chemistry

Name : Mohammed W. Eldeen Badawy



Title : the Influence of the copper/nickel ratio on the Electrochemical Behavior of Cu–Ni Alloys in Acidic Sulfate Solutions

Authors: W. A. Badawy, K. M. Ismail and A. M. Fathi

Published In: J. Alloys and Compounds

ISSN 0925-8388 **Impact Factor** 1.510

Abstract :

The electrochemical behavior of Cu–Ni alloys with different Ni contents (5– 65mass %) in acidic sulfate solutions was investigated. The effects of working conditions e.g. concentration of sulfate ions, immersion time and temperature were studied and discussed. In this respect, open-circuit potential measurements, polarization techniques and electrochemical impedance spectroscopy (EIS) were used. Potentiodynamic measurements Revealed that the increase in the Ni content improves the stability of the Cu–Ni alloys. The polarization measurements were confirmed by EIS experiments. The stability of the alloys with higher Ni contents is due to the increased amount of Ni in the surface film. The corrosion process of the cupronickels in the acidic sulfate solution was found to be diffusion controlled. The experimental impedance data were fitted to theoretical data according to an equivalent circuit model representing the electrode/electrolyte interface.

Keywords:

Copper; Nickel; Cupronickels; EIS; Polarization; Acid corrosion; Sulfate.

Faculty of Science

Dep. : Chemistry

Name : Mohammed W. Eldeen Badawy



- Carbon Paste- and PVC Membrane Electrodes as Sensitive
- *Title* : Sensors for the Determination of Antidiabetic Drugs of type 2 Diabetic Patients

Authors: W. A.Badawy, M. A. El-Ries and I. M. Mahdi

Published In : Analytical Sciences

ISSN 0910-6340 **Impact Factor** 1.735

Abstract :

Carbon paste- and polyvinyl chloride membrane electrodes are simple, precise, rapid and selective sensors for the determination of antidiabetic drugs for type 2 diabetic patients. These electrodes were successfully used for the potentiometric determination of rosiglitazone, pioglitazone, glimepiride and glyburide in their standard forms and also as pharmaceutical preparations. The preparation of these ion-selective electrodes for the potentiometric determination of the drug is based on the construction of a 10% standard drug ion pair with reineckate or tungstophosphate imbeded as an electro-active material in the carbon paste or in the polyvinylchloride membrane. The prepared ion-selective electrodes showed a Nernstian response with a limit of detection amounting to 10-6 M in a pH range of 3 to 5. A good selectivity coefficient and long term stability could be achieved. The developed potentiometric method based on the CPE and PVC sensors is economic and less time consuming compared to the conventionally used high performance liquid chromatography, HPLC, methods.

Keywords:

Carbon-paste; Rosiglitazone; Pioglitazone; Glimepiride; Glyburide; PVC.

Faculty of Science

Dep. : Chemistry

Name : Mohammed W. A. Badawy



Title : Corrosion and Passivation Behaviors of Cu-10Al-5Ni Alloy in Chloride-Sulfate Electrolytes

Authors: W. A.Badawy, R. M.El.Sherief and H. Shehata

Published In : Electrochim. Acta

ISSN 0013-4686 **Impact Factor** 3.078

<u>Abstract :</u>

The electrochemical behavior of Cu-10Al-5Ni Alloy in simulated electrolytes like those used in the industrial processes under normal working conditions was investigated. Conventional electrochemical techniques including open circuit potential measurements, polarization techniques, and electrochemical impedance spectroscopy were used. The alloy was found to be more stable against corrosion when the chloride–sulfate solution had a pH of 7–9. A sulfate concentration of 0.1M in the chloride–sulfate electrolyte leads to the passivation of the alloy surface. The activation energy of the corrosion process was found to be 8kJmol–1 assigning a diffusion controlled reaction. The impedance measurements and impedance data fitting to equivalent circuit models have shown that the passive film posses a duplex nature.

Keywords:

Cu-Al alloys; Corrosion; Cyclic voltammetry; Impedance; Passivation.

Faculty of Science

Dep. : Chemistry

Name : Mahmoud M. Saleh



Effects of Gas Bubbles on the Concentration Profiles and

Title : Conversion Efficiency of Three-Dimensional Packed-Bed Electrodes

Authors: M. M. Saleh

Published In: J Solid State Electrochemistry

ISSN 1432-8488 **Impact Factor** 1.597

Abstract :

The effects of evolving gas bubbles on the concentration profile and conversion efficiency of three-dimensional packed-bed electrode was simulated for the first time taking account of material balance, bubble, ohmic, kinetic and mass transfer effects. The model produced different dimensionless groups and parameters that control the behavior of the packed-bed electrode under potentiostatic conditions. The effects of the different groups on the conversion efficiency, concentration, polarization and current profiles were studied. Higher conversion efficiency were

obtained at higher values of $\omega (\omega = \frac{I_o L}{nFDC_b})$, lower values of $\delta (\delta = \frac{\upsilon L}{D})$ and

higher values of the bubble group, $\xi \ (\xi = \frac{\nu \gamma}{I_o})$. Gas bubble formation retarded

the operation at higher conversion efficiency. In presence of gas bubble, lower values of δ were required to obtain as much as conversion efficiency obtained when the gas bubble formation is absent. Also the bubble formation retard the operation at lower flow rates as it causes lower obtainable current and non-uniform distributions of the currents. A case study was introduced for understanding the separate important operating conditions e.g., flow rate. Account of gas bubble effects on the concentration profiles for such system is crucial.

<u>Keywords:</u>

Gas bubbles; Packed-bed electrode; Gas bubble formation; Potentiostatic condition; Flow rate.

Dep. : Chemistry

Name : Mahmoud M. Saleh



Title : Water Softening using Packed bed of Polypyrrole from flowing Solutions

Authors: M. M. Saleh

Published In : Desalination

ISSN 0011-9164

Impact Factor 1.155

<u>Abstract :</u>

Packed bed of polypyrrole/polystyrene sulfonate (PPy/PSS) electrodeposited porous carbon electrode was prepared and used for continuous water softening from flowing artificial hard water solutions. Careful preparation of the packed bed was performed in order to obtain the greatest possible degree of uniformity of the PPy/PSS⁻ within the porous carbon matrix. The porous carbon electrode was of the type, reticulated vitreous carbon (RVC) of grades 20, 45 and 80 PPI. Cyclic voltammetry and scanning electronmicroscopy (SEM) were used to characterize the prepared electrodes. The porous electrode was used in removal of Ca²⁺ ions from flowing 0.0125 M CaCl₂ solution at different conditions. Removal efficiencies of about 10 % were obtained at some conditions. This low conversion per pass calls for using multi-electrode systems or recirculation of the solution (filters) to obtain the desired Ca²⁺ and water softening levels. The energy consumption and coulombic efficiency of the overall removal process was determined at a given set of experimental conditions. Regeneration of the PPy bed was affected by the presence of dissolved oxygen in the flowing solutions.

Keywords:

Softening; Porous; Carbon electrode; Calcium; Polypyrrole.
Faculty of Science

Dep. : Chemistry

Name : Mahmoud M. Saleh



Title : Experimental and Theoretical Investigation of Sorption Kinetics of Beryllium on Amberlite-IR-120 Sorbent

Authors: S. H.Othman, M. Shabaan, M. Demerdash and M. M. Saleh

Published In: Nuclear Materials

ISSN 0022-3115 **Impact Factor** 1.501

Abstract :

Experimental and theoretical studies of the sorption kinetics of beryllium cation from its synthetic solution on amberlite IR-120 (Amb-IR-120) sorbent was achieved at different temperatures. The dependence of the sorption kinetic parameters on the temperature of the solution has been investigated. The pH of solution and agitation speed had dramatic effects on the uptake of Be by Amb-IR-120. It was found that pH in the range of 3-3.5 and agitation speed of 150 rpm are proper conditions of Be sorption at the present experimental set. The fit of experimental data with the homogeneous diffusion model (HDM) equations demonstrated the possibility of using this model for adequate description of the beryllium sorption kinetics on the Amb-IR-120 sorbent. Two stages of adsorption with different controlling processes were proposed. Liquid film diffusion controls the process at the early stage of the adsorption followed by matrix diffusion which controls the process in the final stage. Two different equations were used to express each stage.

Keywords:

Beryllium; Adsorption; HDM; Amberlite-IR-120.

Faculty of Science

Dep. : Chemistry

Name : Nadia E. El-Gamel



Cairo University

Title : The Interactions of Metal Ions with Nonsteroidal Antiinflammatory Drugs (oxicams)

Authors: M. R. Shehata, M. M. Shoukry, F. M. H. Nasr and R. van Eldik

Published In: J. Coordination Chemistry

ISSN 0095-8972 **Impact Factor** 0.732

Abstract :

Much work has been focused on interactions of metal ions with nonsteroidal anti-inflammatory drugs (oxicams). Numerous attempts to synthesize several metal complexes have been published. This review highlights the synthesis and properties of the synthesized metal complexes. Different physico-chemical methods (IR, UV–Vis, measurement, thermal analysis and NMR spectroscopy) as well as the bioactivity of the metal compounds are mentioned.

<u>Keywords:</u>

Oxicams; Piroxicam; Tenoxicam; Meloxicam; Lornoxicam; Isoxicam; Crystal structures, Spectroscopy; Bioactivity.

Faculty of Science

Dep. : Chemistry

Name : Nadia E. El-Gamel



Title : Metal Chelates of Ampicillin Versus Amoxicillin: Synthesis, Structural Investigation, and Biological Studies

Authors: Nadia E. El-Gamel

Published In: Coordination Chemistry

ISSN 0095-8972 **Impact Factor** 0.732

Abstract :

Solid chelates derived from some alkaline earth and transition metal complexes with ampicillin (Hamp, a) and amoxicillin (Hamox, b) were synthesized and characterized using elemental analysis, molar conductivity, IR, magnetic susceptibility, and thermogravimetric studies. Both drugs behave as tetradentate ligands coordinating to metal through amino, imino, and carboxylate as well as through-lactamic carbonyl. All chelates have octahedral geometry except Cu(II) complexes which have square planar structure and uranium has pentagonal bipyramidal coordination. 1H- and 13C-NMR of the Zn(II) and UO2(VI) chelates are compared with the free ligands. The antimicrobial activity of the prepared chelates was determined.

<u>Keywords:</u>

Ampicillin (Hamp); Amoxicillin (Hamox); IR; Thermal behavior; 1H– and 13C-NMR spectra; Antimicrobial activity.

Faculty of Science

Dep. : Chemistry

Name : Nadia A. Mohamed



Synthesis and Characterization of Novel Wholly Para-Oriented

Title : Aromatic Polyamide-hydrazides Containing Sulfone-Ether Linkages

Authors: N. A. Mohamed and M. M. Fahmy

Published In: Applied Polymer Science

ISSN 0021-8995

Impact Factor 1.187

<u>Abstract :</u>

Four novel wholly para-oriented aromatic polyamide-hydrazides containing flexibilizing sulfone-ether linkages in their main chains have been synthesized 4-amino-3-hydroxy benzhydrazide (4A3HBH) with either from 4.4'sulfonyldibenzovl chloride (SDBC), 4,4'-[sulfonylbis(1,4phenylene)dioxy]dibenzoyl chloride (SODBC), 4,4'-[sulfonylbis(2,6-dimethyl-1,4phenylene)dioxy]dibenzoyl (4MeSODBC), 4,4'-(1,4chloride or phenylenedioxy)dibenzoyl chloride (ODBC) via a low temperature solution polycondensation reaction. A polyamide-hydrazide without the flexibilizing linkages is also investigated for comparison. It was synthesized from 4A3HBH and terephthaloyl chloride (TCl) by the same synthetic route. The intrinsic viscosities of the polymer ranged from 2.85 to 4.83 dlg⁻¹ in N.N-dimethvl acetamide (DMAc) at 30 °C and decreased with introducing the flexibilizing linkages into the polymer. All the polymers were soluble in DMAc, N,N-dimethyl formamide (DMF), and N-methyl-2-pyrrolidone (NMP) and their solutions could be cast into films with good mechanical strengths. Further, they exhibited a great affinity to water sorption. Their solubility and hydrophilicity increased remarkably by introducing the flexibilizing linkages. The polymers could be thermally cyclodehydrated into the corresponding poly(1,3,4-oxadiazolyl-benzoxazoles) approximately in the region of 295-470 ¹⁰C either in nitrogen, or in air atmospheres. The flexibilizing linkages improve the solubility of the resulting poly(1,3,4-oxadiazolyl-benzoxazoles) when compared with poly(1,3,4oxadiazolyl-benzoxazoles) free from these linkages.

Keywords:

Polyamide-hydrazides; Sulfone-ether linkages; Synthesis; Viscosity; Solubility; Moisture regain; Mechanical properties; Thermal and thermo-oxidative stability.

Faculty of Science

Dep. : Chemistry

Name : Nadia A. Mohamed



Title : Thermal Degradation Behaviour of Poly (vinyl chloride) in the Presence of Poly (N'-acryloyl benzhydrazide

Authors: N. A. Mohamed and M. M. Fahmy

Published In: Polymer Degradation and Stability

ISSN 0141-3910 **Impact Factor** 2.320

<u>Abstract :</u>

The thermal degradation behavior of poly(vinyl chloride), PVC, in the presence of poly(N'-acryloyl benzhydrazide), PABH, has been studied using continuous potentiometeric determination of the evolved hydrogen chloride gas from the degradation process and by measuring the extent of discoloration of the degraded samples. Blending this polymeric additive with dibasic lead carbonate, DBLC, reference stabilizer in different ratios had synergistic effects on both the thermal stability and the extent of discoloration of PVC.

<u>Keywords:</u>

Poly(vinyl chloride); Poly(N'-acryloyl benzhydrazide); Thermal dehydrochlorination; Discoloration; Costabilizer.

Faculty of Science

Dep. : Chemistry

Name : Nadia A. Mohamed



Title : Thermal Degradation Behaviour of Novel Wholly Para-oriented Aromatic Polyamide-hydrazides Containing Sulfone- ether Linkages

Authors: N. Y. Al-mehbad and N. A. Mohamed

Published In: Polymer Degradation and Stability

ISSN 0141-3910 **Impact Factor** 2.320

<u>Abstract :</u>

Thermal stability and degradation behaviour of a series of novel wholly paraoriented aromatic polyamide-hydrazides containing flexibilizing sulfone-ether linkages in their main chains have been investigated in nitrogen and in air using differential scanning calorimetry (DSC), thermogravimetry (TG), infrared spectroscopy (IR) and elemental analysis. All of these polymers have similar structural formula except for the presence of sulfone, ether, or sulfone-ether linking groups between appropriate aromatic nuclei in their main chains. The influence of incorporation of these linkages on the thermal stability and degradation behviour of these polymers has also been studied. The polymers were prepared by a low temperature solution polycondensation reaction of 4-amino-3hydroxybenzhydrazide (4A3HBH) and an equimolar amount of either 4, 4'sulfonyl dibenzoyl chloride (SDBC), 4, 4'-[sulfonyl bis (1, 4-phenylene)dioxy] dibenzoyl chloride (SODBC), 4, 4'-[sulfonyl bis (2, 6-dimethyl- 1, 4phenylene)dioxy] dibenzovl chloride (4MeSODBC). 4 or 4'-(1 4phenylenedioxy)dibenzoyl chloride (ODBC) in anhydrous N,N-dimethyl acetamide (DMAc) as a solvent at -10 °C. A related polyamide-hydrazide without the flexibilizing linkages is also investigated for comparison. It was synthesized from 4A3HBH and terephthaloyl chloride (TCl) by the same synthetic route. The results clearly reveal that these polymers are characterized by high thermal stability. Their weight loss occurred in three distinctive steps. The first was small and was assigned to the evaporation of absorbed moisture. The second was appreciable and was attributed to the cyclodehydration reaction of the o-hydroxy corresponding polyamide-hydrazides into the poly (1,3,4-oxadiazolylbenzoxazoles) by losing water. This is not a true degradation, but rather a thermochemical transformation reaction. The third was relatively severe and sharp, particularly in air, and corresponded to the decomposition of the resulting poly(1,3,4-oxadiazolyl-benzoxazoles).

There is a slight shift of the decomposition temperature of these polymers to a lower temperature as the sulfone-ether linkages were introduced into the polymer chains. The decomposition seems to start by breaking the sulfonyl groups as confirmed from DSC measurements. The results also indicate that the incorporation of the flexibilizing linkages into the polymer main chains did not seem to significantly influence the thermal stability of these polymers in comparison with that of the polymer free from these linkages.

<u>Keywords:</u>

Polyamide-hydrazides; Sulfone-ether linkages; Differential scanning calorimetry; Thermogravimetric analysis; Poly(1,3,4-oxadiazolyl-benzoxazoles).

Faculty of Science

Dep. : Chemistry

Name : Nada F. Atta



Title : Palladium Nanoclusters-coated Polyfuran as a Novel Sensor for Catecholamine Neurotransmitters and Paracetamol

Authors: N. F. Atta, M. F. El-Kady and A. Galal

Published In : Sensors and Actuators B

ISSN 0925-4005 **Impact Factor** 3.122

<u>Abstract :</u>

promising electrochemical biosensor was developed bv А electrodeposition of palladium nanoclusters on polyfuran film modified platinum electrode. This biosensor electrode was used to determine some catecholamines, namely dopamine, epinephrine and norepinephrine, ascorbic acid and paracetamol. The method of formation of the polymer film and deposition of Pd particles plays a key role in the electroactivity of the resulting hybrid material. This sensor effectively resolved the overlapping anodic peaks of ascorbic acid (AA), dopamine (DA) and paracetamol (ACOP) into three well-defined voltammetric peaks in differential pulse voltammetry analysis. The detection limit of DA in the absence and presence of AA and ACOP are eventually the same which indicates that the oxidation processes of DA, AA and ACOP are independent and that the simultaneous measurements of the three analytes are possible without electrodeposition polyfuran interference. The of Pd on improved exceptionally the detection limit about four decades. Moreover, diffusion coefficient measurements confirmed the fast electron transfer kinetics of the electrochemical oxidation of the analyte molecules at the sensor/solution interface. It is very interesting to note that the electrocatalytic effect of PF/Pd composite has been increased to be sometimes 21 times that of the pristine PF which has been considered for a long time to be of low conductivity and attracted low attention as a result of the difficulty of its formation and poor conductivity.

<u>Keywords:</u>

Polyfuran; Pd nanoclusters; Sensor; Catecholamine; Neurotransmitter: Paracetamol; Ascorbic acid.

Faculty of Science

Dep. : Chemistry

Name : Nada F. Atta



Novel poly(3-methylthiophene)/Pd, Pt Nanoparticle Sensor: Synthesis, Characterization and its Application to the

Title : Synthesis, Characterization and its Application to the Simultaneous Analysis of Dopamine and Ascorbic Acid in Biological Fluids

Authors: N. F. Atta and M. F. El-Kady

Published In : Sensors and Actuators B

ISSN 0925-4005

Impact Factor 3.122

<u>Abstract :</u>

A promising modified electrode was fabricated by distributing Pt or Pd nanoparticles into conductive polymer matrix of poly(3-methylthiophene) (PMT). Electrochemical investigation of the resulting films was achieved using cyclic voltammetry and differential pulse voltammetry. Several factors affecting the electrocatalytic activity of the hybrid material were studied. Some are related to the polymer such as film thickness, method of its formation and dedoping the polymer film before loading metal particles, other factors are related to the metal particles such as type of metal deposited, method of its deposition, its amount and deposition voltage. EDX analysis was employed to confirm the loading of metal particles to the polymer film. The results suggest that the hybrid film modified electrode combining the advantages of PMT and metal nanoparticles exhibits dramatic electrocatalytic effect on the oxidation of dopamine (DA) and results in a marked enhancement of the current response. The proposed method was applied to the simultaneous determination of ascorbic acid (AA) and dopamine (DA) in physiological pH 7.4 PBS. It was observed that in the presence of AA at millimolar level (0.1 mM), the Pd nanoparticle-modified PMT electrode can sense the increase of DA at micromolar concentration (0.05–1 M) which is typical of the physiological conditions. The interference study shows that the modified electrode exhibits excellent selectivity in the presence of AA and uric acid (UA) and glucose. It has been shown that this modified electrode can be used as a sensor with high reproducibility, sensitivity, and stability. The method was applied to urine and healthy human blood serum samples and excellent results were obtained.

Keywords:

Poly(3-methylthiophene); Pd/Pt nanoparticles; Electrocatalysis; Sensor; Biological fluids.

Faculty of Science

Dep. : Chemistry

Name : Nada F. Atta



Title : Smart Electrochemical Sensor for some Neurotransmitters using Imprinted sol–gel Films

Authors: N. F. Atta and A. M. Abdel-Mageed

Published In : Talanta

ISSN 0039-9140

Impact Factor 3.206

<u>Abstract :</u>

A hybrid sol-gel material formed by acid hydrolysis of a mixture of tetraethylorthosilicate (TEOS) and phenyltriethylorthosilicate (PTEOS) as functional monomers was imprinted by tyramine and dopamine as template molecules for the purpose of molecular recognition. Imprinted materials were spin coated as thin films on the surface of glassy carbon electrodes and then were characterized using cyclic voltammetry (CV). After extraction of the encapsulated molecules, imprinted films were tested in solutions of their templates and other molecules. Rebinding experiments were followed by electrochemical characterization using square wave voltammetry (SWV). Imprinted films showed higher affinities toward their template molecules compared to other structurally similar molecules especially for tyramine imprinted film. With the exception of tyramine and norepinephrine, the interference level did not exceed 5% for all compounds studied for dopamine-imprinted films. Tyramine-imprinted films however showed high affinity to tyramine with dopamine 40% interference. Some factors related to the rebinding ability process like pH of solution, concentration of template were studied. The sensing surface lifetime extended to 2 weeks with decay in response signal that ranged from 22%, 40% to 60% for tyramine and norepinephrine, respectively. The standard dopamine, deviation from the mean of measurements for the repeated experiments is 7.4%. Electrochemical impedance spectroscopy (EIS) measurements electrochemical confirmed the results obtained by measurements. Morphological characteristics of the imprinted thin films and their thickness were investigated using scanning electron microscope (SEM).

Keywords:

Molecular imprinting; Recognition; Surface template; Thin films; Spin coating; Neurotransmitters; EIS.

Faculty of Science

Dep. : Chemistry

Name : Nada F. Atta



Poly(3-methylthiophene)/palladium sub-micro-modified Sensor
Electrode. Part II: Voltammetric and EIS Studies, and Analysis
of Catecholamine Neurotransmitters, Ascorbic Acid and Acetaminophen

Authors: N. F. Atta and M. F. El-Kady

Published In : Talanta

ISSN 0039-9140

Impact Factor 3.206

<u>Abstract :</u>

Title

Promising voltammetric sensors based on the modification of Pt and poly(3-methylthiophene) (PMT) electrodes with Pd nanoparticles were achieved for the determination of catecholamine neurotransmitters, ascorbic acid and acetaminophen. Electrochemistry of the indicated compoundswas studied at these electrodes and interesting electrocatalytic effects were found. Furthermore, simple, easily prepared one electrochemical step Pdmodified Pt electrode (Pt/Pd) is reported for the first time. Cyclic voltammetry (CV) and chronocoulometry (CC) were used for the determination of the apparent diffusion coefficients in different electrolytes at these electrodes and the values are in the range from 10^{-4} to 10^{-5} cm² s⁻¹. Furthermore, it was found that the method of polymer formation had a substantial effect on the synergism between the polymer film and the loadedmetal particles towards the oxidation of dopamine (DA) in different supporting electrolytes. This was confirmed by the CV, CC and EIS (electrochemical impedance spectroscopy) aswell asSEM(Scanning Electron Microscopy) results. Pt and PMT electrodes modified with Pd nanoparticles showed excellent results for the simultaneous determination of tertiary and quaternary mixtures of the studied compounds.

<u>Keywords:</u>

Poly(3-methylthiophene); Pd nanoparticles; Electrochemical impedance spectroscopy; Catecholamine neurotransmitters; Ascorbic acid; Acetaminophen (paracetamol).

Faculty of Science

Dep. : Chemistry

Name : Nour T. Abdel-Ghani



Title : Factorial Experimental Design for Biosorption of Iron and Zinc using Typha Domingensis Phytomass

Authors: N. T. Abdel-Ghani and S. H. Hussein

Published In : Desalination

ISSN 0011-9164 **Impact Factor** 1.055

<u>Abstract :</u>

Typha domingensis phytomass was used as a biosorbent for metal ions removal from wastewater. A full 23 factorial design of experiments was used to obtain the best conditions of biosorption of Fe3+ and Zn2+ from water solutions. The three factors considered were temperature, pH, and biosorbent dosage. Two levels for each factor were used; pH (2.5 and 6.0), temperature (25 and 45 °C), and phytomass loading weight (0.5 and1 g/50 ml). Batch experiments were carried out using 50 ml solutions containing 10 mg/l Fe3+ and 4 mg/l Zn2+ simulating the concentration of those metals in a real wastewater effluent. The removal percentages of iron and zinc after 120 min of contact time were then evaluated. The results were analyzed statistically using the Minitab 15 statistical software to determine the most important factors affecting the metals removal efficiency. The pH was found to be the most significant factor for the two studied metal ions.

<u>Keywords:</u>

Biosorption; Iron; Zinc; Typha domingensis; Factorial design; Industrial wastewater.

Faculty of Science

Dep. : Chemistry

Name : Nour T. Abdel-Ghani



Typha Domingensis Leaf Powder for Decontamination of

Title : Aluminium, Iron, Zinc and Lead: Biosorption Kinetics and Equilibrium Modeling

Authors: N. T. Abdel-Ghani, A. K. Hegazy, G. A. El-Chaghaby

Published In: Int. J. Environ. Sci. Tech

ISSN 1735-1472 **Impact Factor** 0.0

Abstract :

The present study explores the effectiveness of *Typha domingensis* leaf powder for simultaneous removal of aluminium, iron, zinc and lead ions from aqueous solution. Batch experiments were carried out in laboratory at room temperature and at initial ions concentrations simulating the concentrations of these cations in real wastewater samples. The sorption process was examined applying the first and second order kinetic mechanisms. The results were best described by the second order rate kinetics. The applicability of the three equilibrium isotherm models was investigated. The obtained data follow the three investigated isothermal models in the following order: Langmuir > Freundlich > Temkin, for all the studied metal ions. The infrared spectra of native and exhausted Typha leaf powder confirmed ions-biomass interactions responsible for sorption. The results showed that *Typha domingensis* leaf powder can easily be envisaged as a new low cost natural biosorbent for metal clean up operations in aquatic systems.

<u>Keywords:</u>

Batch experiments; Contact time; Infrared spectra; Isotherm mode.

Faculty of Science

Dep. : Chemistry

Name : Nour T. Abdel-Ghani



Differential Pulse Voltammetric Determination of

Title : Chlorphenoxamine Hydrochloride and its Pharmaceutical Preparations using Platinum and Glassy Carbon Electrodes

Authors: N. T. Abdel-Ghani, G. Abu-Elenien and S. H. Hussein

Published In: Applied Electrochemistry

ISSN 0021-891X **Impact Factor** 1.540

<u>Abstract :</u>

Voltammeter for methods have been used the determination of chlorphenoxamine hydrochloride (Ch-Hcl) in raw material and in its pharmaceutical preparations (Allergex and Allergex caffeine tablet). It was found that Ch-HCl gives a characteristic cyclic voltammetric (CV) and differential pulse voltametric (DPV) peak in acetonitrile using platinum and glassy carbon working electrodes. The Ip of the DPV peak increases linearly within the concentration range from 4.5 x 10^{-4} to 1.0 x 10^{-2} mol L⁻¹ of the investigated drug. The concentration of Ch-Hcl in raw drug material and in its pharmaceutical preparations was determined using the standard addition method. Randles-Sevcik equation and indirectly via its complexation with sodium tetraphenylborate (NaTPB). The obtained over all average recoveries were 101.44 and 100.49% with SD 0.45 and 0.38 (n=4) for platinum and glassy carbon electrodes, respectively. The effect of scan rate, sample concentration, and supporting electrolyte on the *Ip* and *Ep* was also investigated.

<u>Keywords:</u>

Chlorphenoxamine hydrochloride (Ch-Hcl); Cyclic voltammetry; Differential pulse voltammetry; Acetonitrile; Platinum electrode; Glassy carbon electrode.

Faculty of Science

Dep. : Chemistry

Name : Nour T. Abdel-Ghani

Differential Pulse Voltammetric and Conductimetric

Title : Determination of Diphenylpyraline HCl in Raw Material and Pharmaceutical Preparation.

Authors: N. T. Abdel-Ghani and S. H. Hussein

Published In: The Open Electrochemistry

ISSN 1876-505X **Impact Factor** 0.00

Abstract :

Diphenylpyraline hydrochloride (Di-HCl) has been determined in raw material and its pharmaceutical preparation Eskornade capsule (5mg/capsule) using differential pulse voltammetry (DPV) and conductimetric determination. It was found that Di-HCl gives a characteristic cyclic voltammetric (CV) and differential pulse voltammetric (DPV) peak in acetonitrile using platinum and glassy carbon sensors as working electrodes. The peak current (Ip) of the DPV peak increases linearly within the concentration range 4.5 x 10-4-1x10-2 mol/L of the investigated drug. The concentration of Di-HCl in raw drug material and in its pharmaceutical preparations was determined using standard addition method, Randles-Sevcik equation and indirectly via its complexation with sodium tetra phenylborate (NaTPB), the obtained average recoveries were 101.44 and 100.49 with standard deviation (SD) 0.45 and 0.38 (n = 4) for platinum and glassy carbon electrodes respectively. The effect of scan rate, sample concentration and supporting electrolyte on the peak current (Ip) and peak potential (Ep) was investigated. In addition a simple and sensitive conductimetric method was used for determination of Di-HCl based on its ion association with sodium tetraphenylborate (NaTPB). The effect of solvent, reagent concentration, temperature and molar ratio was studied. The obtained average recovery was 101.44 with SD 0.45 (n = 4).

<u>Keywords:</u>

Diphenylpyraline hydrochloride (Di-HCl); Cyclic voltammetry; Differential pulse voltammetry; Acetonitrile; Platinum; Glassy carbon; Sodium tetraphenylborate; Conductimetry.

Faculty of Science

Dep. : Chemistry

Name : Hala F. Naguib



Title : Polymerization Kinetics of Indene, Methyl Methacrylate and Acrylonitrile and Characterization of their Terpolymer

Authors: H. F. Naguib, N. Z. Khalil and M. Z. Elsabee

Published In : Polymer Research

ISSN 1022-9760 **Impact Factor** 1.032

Abstract :

The free radical terpolymerization of indene (In), methyl methacrylate (MMA) and acrylonitrile (AN) has been investigated. The rate of polymerization of all the binary systems involved has been measured dilatometrically for the homogeneous polymerization. The reactivity ratios of the three binary systems were calculated and were found to be equal to 0.031 and 0.397 for In/AN copolymers and 0.02 and 3.82 for In/MMA copolymers and finally 0.152 and 1.20 for AN/MMA copolymers. The rate of terpolymerization in bulk has been measured as well as the relationship between the monomer mixture composition and the obtained terpolymer in order to construct the compositional triangle. Also the effect of initiator concentration on the rate of terpolymerization was investigated. The activation energy of terpolymerization was determined. The terpolymers were characterized by spectral and thermogravimetric analyses. The data indicates that polyindene improves the thermal stability of the prepared terpolymers.

Keywords:

Indene; Methyl methacrylate; Acrylonitrile; Terpolymers; Kinetics; Reactivity ratios; Activation energy; Thermogravimetric analyses.

Faculty of Science

Dep. : Chemistry

Name : Hanaa B. Hassan



Title : Titanium and Platinum Modified Titanium Electrodes as Catalysts for Methanol Oxidation

Authors: M. A. Abdel Rahim and H. B. Hassan

Published In: Thin Solid Films

ISSN 0040-6090 **Impact Factor** 1.884

Abstract :

Electro-oxidation of methanol was studied on titanium and platinum modified titanium electrodes (Pt/Ti). Platinum was electro-deposited on Ti by potentiostatic and galvanostatic techniques. Electrodes prepared by the galvanostatic technique showed enhanced catalytic activity towards methanol oxidation in NaOH solution compared to those prepared by the potentiostatic method. Scanning electron microscopy and energy dispersive X-ray analysis were used to characterize the surface morphology and percent composition of Pt to Ti on the electrode surface. The catalytic activity of Pt/Ti electrode is much higher than that of Pt/Pt, bulk Ti and of pure Pt, in addition to minimizing the poisoning effect. In 3.0 M NaOH and in the presence of 2.0 M MeOH, the oxidation peak current density value of methanol after the 50th cycles reached 99.4% of its value at the first cycle for electrodes prepared by the galvanostatic method compared to 94.7% for electrodes prepared by the potentiostatic method. Polarizing the modified electrode at the hydrogen evolution potential region for a certain time was found to enhance the catalytic oxidation of methanol, while the presence of thick Ti-oxide as well as Tihydride inhibited the process.

Keywords:

Methanol; Electro-oxidation; Fuel cells; Modified electrodes; Pt/Ti.

Faculty of Science

Dep. : Chemistry

Name : Hanaa B. Hassan



Title : Electrodeposition of CoMoP thin Film as Diffusion Barrier Layer for ULSI Applications

Authors: Z. Abdel Hamid, A. Abdel Aal, A. Shaaban and H.B. Hassan

Published In: Surface and Coatings Technology

ISSN 0257-8972 **Impact Factor** 1.86

<u>Abstract :</u>

CoMoP thin films were fabricated by electrodeposition technique from citrate based bath onto Cu sheets for the application as diffusion barriers and metal capping layers in the copper interconnect technology. The study focused on the effect of (NH₄)₆Mo₇O₂₄·4H₂O concentrations in the plating solution on the plating rate and chemical composition of the deposited layer. It was found that the Mo wt.% in the deposited layer increased from 13 to 22 wt.% with increasing (NH₄)₆Mo₇O₂₄·4H₂O concentration. The influence of deposition current density, solution pH and deposition temperature at certain (NH₄)₆Mo₇O₂₄·4H₂O concentration in the plating bath on the plating rate and chemical composition was studied. Polarization behavior of induced codeposition of CoMoP at various electrolvte pH values was studied using cyclic voltammetrv and chronoamperometry to estimate the current efficiency (CE%) of the plating solutions and the optimum pH for the plating process. Scanning electron microscopy (SEM) and energy dispersive X-ray (EDX) techniques have been applied to characterize the morphology and chemical composition of the deposited layer. CoMoP alloys of high P wt.% as-deposited films showed irregular microcracks amorphous structure and of low wt.% showed Р amorphous/nanocrystalline structure while, after annealing at 400 °C for 1 h, the films deposited with low and high P wt.% converted into polycrystalline structure. The results of oxidation property showed that, the Co-13.2 wt.% Mo-10.3 wt.% P alloy has highest stability against oxidation and lowest electrical resistance values (100–150 $\mu\Omega$). The ferromagnetism nature of coated materials has been studied by hysteresis loop measurements. The electrochemical corrosion results were calculated from polarization studies for as-plated and annealed CoMoP coatings in 3.5% NaCl solution.

Keywords:

Electrodepostion CoMoP; Barrier layers; Capping layers; Thin films; Ferromagnetic; Corrosion.

Faculty of Science

Dep. : Chemistry

Name : Hanaa B. Hassan



Title : Electrodeposited Pt and Pt-Sn Nanoparticles on Ti as Anodes for Direct Methanol Fuel Cells

Authors: H. B. Hassan

Published In: J. Of Fuel Chemistry And Technology

ISSN 1872-5813 **Impact Factor** 0.00

<u>Abstract :</u>

Electro-oxidation of methanol was studied on titanium supported nanocrystallite Pt and Ptx-Sny catalysts prepared by electrodeposition techniques. Their electro-catalytic activities were studied in 0.5 mol/L H2SO4 and compared to those of a smooth Pt, Pt/Pt and Pt-Sn/Pt electrodes. Platinum was deposited on Ti by galvanostatic and potentiostatic techniques. X-ray diffractometer (XRD) and energy dispersive X-ray (EDX) techniques were applied in order to investigate the chemical composition and the phase structure of the modified electrodes. Scanning electron microscopy (SEM) was used to characterize the surface morphology and to correlate the results obtained from the two electrochemical deposition methods. Results show that modified Pt/Ti electrodes prepared by the two methods have comparable performance and enhanced catalytic activity towards methanol electro-oxidation compared to Pt/Pt and smooth Pt electrodes. Steady state Tafel plots experiments show a higher rate of methanol oxidation on a Pt/Ti catalyst than that on a smooth Pt. Introduction of a small amount of Sn deposited with Pt improves the catalytic activity and the stability of prepared electrode with time as indicated from the cyclic votlammetry and the chronoamperometric experiments. The effect of variations in the composition for binary catalysts of the type Ptx-Sny/Ti towards the methanol oxidation reaction is reported. Consequently, the Ptx-Sny/Ti (x:y (8:1), molar ratio) catalyst is a very promising one for methanol oxidation

Keywords:

Electrodeposition; Methanol; Electro-oxidation; Fuel cells; Electro-catalysis.

Faculty of Science

Dep. : Chemistry

Name : Hanaa B. Hassan



Title : Electro-Oxidation of Ethanol and Propanol at Pt and Ti Modified Nanoparticle Substrates for Direct Alcohol Fuel Cells (DAFCs)

Authors: H. B. Hassan

Published In: J. of Open Electrochemistry

ISSN 1876-505X **Impact Factor** 0.00

Abstract :

Modified Pt and Ti substrates were prepared by electrodeposition of nanocrystallite Pt and Ptx-Sny catalysts for electro-oxidation of ethanol, 1propanol and 2-propanol. The chemical composition, the phase structure and the surface morphology of the Pt and Ptx-Sny electrodeposits were studied by X-ray diffractometer (XRD), energy dispersive X-ray spectroscopy (EDX) and scanning electron microscope (SEM). Their electro-catalytic activities were studied in 0.5 M H₂SO₄ by cyclic votlammetry and chronoamperometric techniques. It was found that, the nature of the substrate significantly affects the performance of the prepared catalyst towards electro-oxidation of different alcohols. Accordingly, the modified Pt substrates display enhanced catalytic activity and a higher stability towards alcohols electro-oxidation compared to the modified Ti substrates. Steady state Tafel plots experiments showed smoother and higher rate of alcohols oxidation on the modified Pt substrates than that on the modified Ti. High anodic Tafel slopes >200 for 1-propanol and 2- propanol electro-oxidation were obtained on Ti modified substrates indicating the complexity of the oxidation reaction on such electrodes.

Keywords:

Electrodeposition; Ethanol; 1-propanol; 2-propanol; Electro-oxidation; DAFCs; Electrocatalysis.

Faculty of Science

Dep. : Chemistry

Name : Hanaa B. Hassan

- *Title* : Electrodeposited Nanocomposite Coatings for Fuel Cell Application

Authors: A. Abdel Aal and H.B. Hassan

Published In: Alloys and Compounds

ISSN 0925-8388 **Impact Factor** 1.510

<u>Abstract :</u>

Ni–TiO₂ nanocomposite coatings were prepared by the co-deposition of Ni and nanoparticles of TiO₂ powder onto the surface of commercial carbon for fuel cell application, in particular the electro-oxidation of methanol. The influences of the TiO₂ powder concentration and applied current density on the composition of nanocomposite coatings were investigated. The chemical composition and phase structure of coatings were studied by X-ray diffractometer (XRD) and energy dispersive X-ray spectroscopy (EDX), respectively. The surface morphology of deposited Ni and Ni–TiO₂ coatings was studied using scanning electron microscope. The performance of the prepared electrodes towards electro-oxidation of methanol as a function of co-deposited TiO₂ content up to 9 wt.%. The chronoamperometric data showed that the stability of the fabricated electrodes towards the electro-oxidation process was improved with the content of co-deposited TiO₂

Keywords:

Surface coatings; Nanocomposite; Electrodeposition; Electrocatalysis; Fuel cell.

Faculty of Science

Dep. : Chemistry

Name : Yousry M. Issa



Cathodic Adsorptive Stripping Voltammetry of Drotaverine

Title : Hydrochloride and its Determination in Tablets and Human Urine by Differential Pulse Voltammetry

Authors: S.I.M. Zayed and Y. M. Issa.

Published In: Bioelectrochemistry

ISSN 1567-5394 **Impact Factor** 2.444

Abstract :

The stripping voltammetric behaviour of drotaverine hydrochloride (DvCl) was studied using a hanging mercury drop electrode (HMDE). The adsorptive stripping response has been evaluated with respect to pH, accumulation time, accumulation potential, scan rate and other variables. Differential pulse DP mode; over the potential range -400 to -1200 mV, is used in the presence of 0.04 M Britton–Robinson buffer pH 2. Cyclic voltammetric study indicates that the reduction process is irreversible and controlled by adsorption. The response of DP technique is linear over the concentration range 21.70-257.34 ng/ml. Limit of detection and limit of quantification were 3.15 and 10.50 ng/ml, respectively. The proposed method was successfully applied for the determination of the drug in commercial tablets and spiked human urine samples.

<u>Keywords:</u>

Drotaverine hydrochloride; Adsorptive stripping voltammetry; HMDE Pharmaceutical dosage form; Human urine.

Faculty of Science

Dep. : Chemistry

Name : Yousry M. Issa



Title : Electrical Conductivity Studies on some Dibenzoyl-methane Arylhydrazones (DBMAH)

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

Published In: J. Therm. Anal. Colorim

ISSN 1388-6150 **Impact Factor** 1.63

<u>Abstract :</u>

Electrical conductivity of some dibenzoylmethane arylhydrazones (DBMAH) were measured during heating and reheating runs. The observed variation of the conductance of the polycrystalline sample during thermal agitation was found to depend on the ordering and disordering of molecules which in turn cause the lattice dipole to distort. A semiconducting behavior was detected for these systems as it was deduced from their conductance values $(1.7 \times 10^{-6} - 8.25 \times 10^{-7} \text{ ohm}^{-1} \text{ cm}^{-1})$. The presence of substituents affects markedly the measured electrical conductivity and calculated activation energy values.

Keywords:

Hydrazones; Dibenzoylmethane; Electrical conductivity; Activation energy.

Faculty of Science

Dep. : Chemistry

Name : Yousry M. Issa



Title : Flow Injection Determination of Ketotifen Fumarate using PVC Membrane Selective Electrodes

Authors: M.M. Khater, Y.M. Issa and S.H. Mohamed

Published In: Bioelectrochemistry

ISSN 1567-5394 **Impact Factor** 2.444

Abstract :

In this study a PVC membrane electrode for determination of ketotifen fumarate is reported, where ketotifen tetraphenylborate (Keto-TPB) was used as ion exchanger. The electrode has linear range of $5.6 \times 10^{-6} - 1.0 \times 10^{-2}$ and $1.0 \times 10^{-5} - 1.0 \times 10^{-2}$ mol/L, with detection limits 2.37×10^{-6} and 4.60×10^{-6} mol/L in batch and flow injection analysis (FIA), respectively. The electrodes show a Nernstian slope value (58.40 and 61.50 mV/decade in batch and FIA, respectively), and the response time is very short (≤ 10 s). The potential is nearly stable over the pH range 2.0–8.0. Selectivity coefficient values towards different inorganic cations, sugars and amino acids reflect high selectivity of the prepared electrodes. These are used for determination of Ketotifen using potentiometric titration and standard addition methods in pure samples and its pharmaceutical preparations (Zaditen tablets and syrup). The average recovery values are 99.5 and 99.2% with RSD 1.4 and 1.2% for potentiometric titrations and standard addition methods, respectively. The electrode response at different temperatures was also studied.

<u>Keywords:</u>

Ketotifen; Flow injection analysis; Ion-selective electrodes; PVC membrane.

Faculty of Science

Dep. : Chemistry

Name : Yousry M. Issa



Title : ¹H NMR, ¹³C NMR and mass Spectral Studies of some Schiff Bases Derived from 3-amino-1,2,4-triazole

Authors: Y.M. Issa, H.B. Hassib and H.E. Abdelaal

Published In: Spectrochimica Acta A

ISSN 1386-1425 **Impact Factor** 1.51

<u>Abstract :</u>

Heterocyclic Schiff bases derived from 3-amino-1,2,4-triazole and different substituted aromatic aldehydes are prepared and subjected to ¹H NMR, ¹³C NMR and mass spectral analyses. ¹H NMR spectra in DMSO exhibit a sharp singlet within the 9.35–8.90ppm region which corresponds to the azomethine proton. The position of this signal is largely dependent on the nature of the substituents on the benzal moiety. It is observed that the shape, position and the integration value of the signal of the aromatic proton of the triazole ring (5C) are clearly affected by the rate of exchange, relaxation time, concentration of solution as well as the solvent used. ¹³C NMR is taken as substantial support for the results reached from ¹H NMR studies. The mass spectral results are taken as a tool to confirm the structure of the investigated compounds. The base peak (100%), mostly the M-1 peak, indicates the facile loss of hydrogen radical. The fragmentation pattern of the unsubstituted Schiff base is taken as the general scheme. Differences in the other schemes result from the effect of the electronegativity of the substituents attached to the aromatic ring.

<u>Keywords:</u>

NMR; Mass spectra; 1,2,4-Triazole; Schiff bases; Substituent effect.

Faculty of Science

Dep. : Chemistry

Name : Yousry M. Issa



Mixed ion-exchanger Chemically Modified Carbon Paste ion-

Title : Selective Electrode for Determination of Triprolidine Hydrochloride

Authors: Y.M. Issa, F.M. Abu Attia and N.S. Ismail

Published In: J. Advanced Research

ISSN 2009-1232 **Impact Factor** 3.00

<u>Abstract :</u>

Triprolidine hydrochloride (TpCl) ion-selective carbon paste electrodes were constructed using Tp-TPB/Tp-CoN (I), Tp-TPB/Tp-PTA (II) as ion-exchangers. The two electrodes reveal Nernstian response with slopes of 58.4 and 58.1 mV decade⁻¹ at 25°C in the ranges $6x10^{-6}$ - $1x10^{-2}$ and $2x10^{-5}$ - $1x10^{-2}$ M for I and II, respectively. The potentials of these electrodes are independent of pH in the ranges of 2.5-7.0, and 4.5-7.0, detection limits are 6×10^{-6} , and 1×10^{-5} M for I and II. respectively. The electrodes showed a very good selectivity for TpCl with respect to a large number of inorganic cations and compounds. The standard addition, potentiometric titration methods and FIA were applied to the determination of TpCl in pure solutions and pharmaceutical preparations. The results obtained are in good agreement with those found by the official method. The mean recovery values were 100.91, and 97.92% with low coefficient of variation values of 0.94, and 0.56% in pure solutions, 99.82, and 98.53% with coefficient of variation values of 2.20, and 0.73% for Actifed tablet and Actifed syrup, respectively using electrode (I), and 98.85, and 99.18% with coefficient of variation values of 0.48, and 0.85% for Actifed tablet and Actifed syrup, respectively using electrode II.

<u>Keywords:</u>

Chemically modified carbon paste ion-selective electrode; Triprolidine hydrochloride; Potentiometeric determination; Flow injection analysis.

Faculty of Science

Dep. : Chemistry

Name : Yousry M. Issa



Title : Application of Conductimetric Methods for the Quality Control of Verapamil Hydrochloride

Authors: Y.M. Issa, M.A. El-Ries and M.M. Abd-El-Moety

Published In: Sensing in Electroanalysis

ISSN

Impact Factor 0.00

<u>Abstract :</u>

Five reagents phosphotungstic (PTA), phosphomolybdic (PMA), silicotungstic acid (STA), silicomolybdic acid (SMA), sodium tetraphenylborate (NaTPB) were used as titrants for the conductimetric determination of verapamil hydrochloride (VpCl) through ion-associate formation. The effect of the reagent concentration, the temperature, the molar combining ratio, and the solubility products of the form ion-associates were studied and calculated. The suggested method has been applied to the determination of verapamil in its pure state and pharmaceutical preparations with mean recovery values of 98.37-100.04% and relative standard deviations 0.45-0.73%. the accuracy of the method is indicated by excellent recovery and low standard deviation. The results are compared with the pharmacopoeial or the official methods.

<u>Keywords:</u>

Verapamil hydrochloride; Ion-association; Conductimetric titration; Phosphotungstic; Phosphomolybdic; Silicotungstic acid; Silicomolybdic acid; Sodium tetraphenylborate.

Faculty of Science

Dep. : Chemistry

Name : Yousry Moustafa Issa



0.0

Title : Flow Injection Potentiometric Sensor for Determination of Phenylpropanolamine Hydrochloride

Authors: Y.M. Issa, M.M. Khalil, S.I.M. Zayed and A. Hussein

Published In: Arabian Journal Chemistry

ISSN 0-0 Impact Factor

<u>Abstract :</u>

A new polymeric membrane electrode has been constructed for the determination of phenylpropanolamine hydrochloride. The electrode was prepared by solubilizing the phenylpropanolamine-phosphomolybdate ion associate into a polyvinyl chloride matrix plasticized by dibutylphthalate as a solvent mediator. The electrode showed near-Nernstian response over the concentration range of 1 x $10-5-1 \times 10-2$ M with low detection limit of $6.3 \times 10-6$ M. The electrode displays a good selectivity for phenylpropanol-amine with respect to a number of common inorganic and organic species. The electrode was successfully applied to the potentiometric determination of phenylpropanolamine ion in its pure state and its pharmaceutical preparation in batch and flow injection conditions.

Keywords:

Phenylpropanolamine; Hydrochloride; Ion selective electrodes; Flow injection analysis; Potentiometry.

Faculty of Science

Dep. : Entomology

Name : Taha T. M. Bassal



Specificity and Developmental Changes in Dhemagglutinating

Title : Activity of Serum of the Desert Locust Schistocerca Gregaria (Orthoptera: Acridiae)

Authors: T. H. Ayaad, M. A. Dorrah, A. A. Mohamed and T. T.M. Bassal

Published In : Orthoptera research

ISSN 1082-6467

Impact Factor 0.00

<u>Abstract :</u>

Hemagglutinating activity (HA) of the serum of the 5th instar desert locust Schistocerca gregaria was detected against a range of vertebrate red blood cells (RBCs). Serum strongly agglutinates RBCs of rabbit. In contrast, no agglutination was observed for RBCs from guinea pig or horse; and a very low level was observed for human, sheep, and rat RBCs. HA is Ca²⁺- dependent, heat-labile, and α -linked-D-galactosides inhibited bv and strongly rhamnose. was Developmentally, a relatively low level of HA (\leq 32) is present in the extracted fluids from centrifuged homogenate of 1 to 12 day-old eggs. Also, a limited level of HA was observed in the 2nd and 3rd instars. However, prominent and cyclical patterns were observed in the 4th and 5th instars. In each of these cycles, HA starts low (64), maximizes (128, 512, in the two instars respectively) at about midstadium, then declines again prior to ecdysis to the next stage. On the other hand, adult stage HA starts at a low value (512), then maximizes and is sustained at a fairly constant value (1024), without any difference in the sexes throughout the period of measurements (up to day 73 of the life cycle). HA is independent of sex and season but conspicuously and reproducibly varies with stadium, stage and age.

Keywords:

Lectins; Sugar specificities; Hemagglutination; Hemimetabolous insects; S. gregaria.

Faculty of Science

Dep. : Entomology

Name : Taha T. M. Bassal



Title : Isolation and Characterization of Multiple-lectins from Serum of the Desert Locust Schistocerca Gregaria (Orthoptera: Acrididae)

Authors: M. A. Dorrah, T. H. Ayaad, A. A. Mohamed and T. T.M. Bassal

Published In : Orthoptera research

ISSN 1082-6467

Impact Factor 0.00

<u>Abstract :</u>

Three lectins, designated as Sg₁, Sg₂ and Sg₃, were identified in the serum of the desert locust *Schistocerca gregaria*. With the use of $(NH_4)_2SO_4$ fractionation, ion-exchange chromatography on DEAE-cellulose, and affinity chromatography on CNBr–activated Sepharose 4B, three pools, each containing one of the putative lectins, were obtained. IEF, native PAGE and SDS/PAGE revealed that the three pools contained Sg₁, Sg₂ and Sg₃, respectively, with pI = 6.39, 8.11 and 6.8; native PAGE Rm = 0.44, 0.32 and 0.32; SDS/PAGE subunits approximate molecular weights = 21.5, 44.5, and 43.9 kDa, respectively. Under reducing conditions, SDS/PAGE has separated each of Sg₂ and Sg₃ into two bands that indicate the presence of covalent interactions between their subunits, which are not present in Sg1. The three lectins are more highly specific for rabbit RBCs than for those of other vertebrates. The HA of lectins are Ca²⁺–dependent, heat-labile, and are inhibited strongly by α -linked-D-galactosides, followed by L-(+)-rhamnose.

Keywords:

Multiple lectins; Isolation; Serum; Hemagglutination; Sugar inhibition; α -linked-D-galactosides; Rhamnose; *S. gregaria*.

Faculty of Science

Dep. : Entomology

Name : Fatma K. Adham



- *Title* : Detection of Tick Blood Parasites in Egypt using PCR Assay I—Babesia Bovis and Babesia Bigemina
- Authors: F. K. Adham, E. M. Abd-El-Samie, R. M. Gabre and H. El. Hussein

Published In : Parasitology Research

ISSN 0932-0113 **Impact Factor** 1.473

<u>Abstract :</u>

Babesia bovis and Babesia bigemina are distributed all over the world; the etiologic agents of the animal babesiosis are considered the most important tickborne disease. The present research work was the first attempt to determine the prevalence of *B. bovis* and *B. bigemina* infection in ticks, in Egypt, by using polymerase chain reaction (PCR). Questing 5,243 hard and soft ticks were collected from different localities throughout the Giza Governorate. Furthermore, DNA from 500 different individual tick species was extracted and PCR was performed. Primers verified from the sequence of *B. bovis* and *B. bigemina*, respectively, were generated. Fragments of the pathogens were recovered with PCR and sequenced. The prevalence of B. bovis and B. bigemina in Boophilus annulatus ticks were 55% and 66%, respectively. Also, presence of 12% dual infection with *B. bovis* and *B. bigemina* was observed. Sequence analysis of PCR product of these pathogens shares a high degree of similarity in sequence compared to similar species found in GenBank.

<u>Keywords:</u>

Ticks; Babesia bigemina; Babesia bovis; PCR; Primers.

Faculty of Science

Dep. : Geology

Name : Mohamed A. ElKashouty



Title : Hydrogeology, Hydrogeochemistry, and Groundwater Modeling of the Zilitan Area Northwestern Libya

Authors: M. El Kashouty and A. Abdel-Lattif

Published In : Environmental Hydrology

ISSN 1058-3912 **Impact Factor** 0.0

<u>Abstract :</u>

The management of the limited arid groundwater resource in the Zilitan area, northwestern Libya, is critical. A combined analysis of hydrogeology and hydrogeochemistry is carried out to develop a comprehensive picture of the groundwater basin. There is concern with TDS increases in the north due to intrusion. component identified seawater Principal analysis distinct hydrogeological processes in the system. Dedolomitization was common in the aquifer. The groundwater samples are found to be unsuitable for drinking purposes but they are suitable for irrigation. The Processing Modflow for Windows model estimates a 5 m drop in potentiometric level in the southwest over 10 years at today's pumping rates. We recommend no increase in pumping rate, otherwise seawater intrusion can contaminate the groundwater system even with a small drop in potentiometric level.

Keywords:

Groundwater; Hydrogeology; Hydrogeochemistry; Hydrochemical modeling; Libya.

Faculty of Science

Dep. : Geology

Name : Mohamed A. ElKashouty



Title : Statistical Investigation Of The Groundwater System In Darb El-Arbaein, Southwestern Desert, Egypt

Authors: A. S. Shawali, Nevien A. Samy and M. A. ElKashouty

Published In : Earth Sciences Research

7ISSN 1794-6190 Impac

Impact Factor 0.00

Abstract :

In Darb El Arbaein, the groundwater is the only water resources. The aquifer system starts from Paleozoic-Mesozoic to Upper Cretaceous sandstone rocks. They overlay the basement rocks and the aquifer is confined. In the present research, the performance of the statistical analyses to classify groundwater samples depending on their chemical characters has been tested. The hydrogeological and hydrogeochemical data of 92 groundwater samples was obtained from the GARPAD authority in northern, central, and southern Darb El Arbaein. A robust classification scheme for partitioning groundwater chemistry into homogeneous groups was an important tool for the characterization of Nubian sandstone aquifer. We test the performance of the many available graphical and statistical methodologies used to classify water samples. R-mode, Q-mode, correlation analysis, and principal component analysis were investigated. All the methods were discussed and compared as to their ability to cluster, ease of use, and ease of interpretation. The correlation investigation clarifies the relationship among the lithology, hydrogeology, and anthropogenic. Factor investigation revealed three factors namely; the evaporation process-agricultural impactlithogenic dissolution, the hydrogeological characteristics of the aquifer system, and the surface meteoric water that recharge the aquifer system. Two main clusters that subdivided into four sub clusters were identified in groundwater system based on hydrogeological and hydrogeochemical data. They reflect the impact of geomedia, hydrogeology, geographic position, and agricultural wastewater. The groundwater is undersaturated with respect to most selected minerals. The groundwater was supersaturated with respect to iron minerals in northern and southern Darb El Arbaein. The partial pressure of CO₂ of the groundwater versus saturation index of calcite shows the gradual change in PCO₂ from atmospheric to the present aquifer pressures.
Faculty of Science

Dep. : Geology

Name : Yasser M. Abd El-Rahman



Geochemistry and Tectonic Evolution of the Neoproterozoic

- *Title* : Incipient Arc-Forearc Crust in the Fawakhir Area, Central Eastern Desert, Egypt
- *Authors*: Y. Abd El-Rahman, A. Polat, Y. Dilek, B. J. Fryer, M. El-Sharkawy and S. Sakran

Published In : Precamrian Research

ISSN 0301-9268

Impact Factor 3.7

<u>Abstract :</u>

The geodynamic origin of the Neoproterozoic ophiolites of the Arabian-Nubian Shield exposed in the Eastern Desert of Egypt remains controversial. In this study, we present new geochemical and field data from the Fawakhir ophiolite and from some mélange blocks along the Qift-Qusier Road in order to constraint the tectonic evolution of this part of the Central Eastern Desert. The Fawakhir ophiolite contains most lithological units of a Penrose-type ophiolite sequence, and includes ultramafic rocks in the west overlain by isotropic gabbro, sheeted dikes and pillow basalt in the east. These ophiolitic units are enriched in LREE (light rare earth elements) and LILE (large ion lithophile elements) but depleted in high field strength elements (La/Smcn = 0.40–1.22, Th/Nbpm = 1.7–10.9, La/Nbpm = 1.4-6.6). Their magmas appear to have been derived from a depleted (N-MORBlike) mantle source, and their geochemical characteristics are comparable to those of the Izu-Bonin-Mariana forearc oceanic crust formed during the initiation of an intra-oceanic subduction zone. Pillow lava blocks in the eastern mélange have geochemical signatures similar to those of oceanic crust generated in back-arc basins. The decrease in the magnitude of mantle depletion and the change of the geochemical signature along the Qift-Qusier Road from a forearc in the west to a back-arc in the east suggest the formation of the Fawakhir intra-oceanic arc system over an east-dipping subduction zone. With continued subduction and arc migration, this intra-oceanic arc system finally collided with the passive margin of the West Gondwana (the Saharan craton), resulting in the accretion of the Fawakhir arc-forearc units. Following its tectonic accretion onto the West Gondwana continental margin, the Fawakhir ophiolite was intruded by calcalkaline dikes, whose magmas were derived partly from partial melting of the subcontinental lithospheric mantle.

These dikes have geochemical characteristics similar to those of modern active continental margin (Andean-type) rocks (La/Smcn = 2.13-2.48, Gd/Ybcn = 2.04-4.25, Th/Nbpm = 3.2-5.8, La/Nbpm = 2.5-4.9), suggesting that the West Gondwana passive margin (Atlantic-type) was converted to an Andean-type margin subsequent to the arc-continent collision. The inferred conversion of the Atlantic-type margin to an Andean-type margin resulted from the collision-induced reversal of the subduction direction.

Keywords:

Subduction initiation; Ophiolite; Active continental margin; Neoproterozoic; Arabian-Nubian Shield; Egypt.

Faculty of Science

Dep. : Geology

Name : Yasser M. Abd El-Rahman



- *Title* : Geochemistry and Tectonic Evolution of the Neoproterozoic Wadi Ghadir Ophiolite, Eastern Desert, Egypt
- *Authors*: Y. Abd El-Rahman, A. Polat, Y. Dilek, B. J. Fryer, M. El-Sharkawy and S. Sakran

Published In : Lithos

ISSN 0024-4937

Impact Factor 3.3

<u>Abstract :</u>

We report new geochemical data from the Neoproterozoic ophiolite in the Wadi Ghadir area, Eastern Desert, Egypt. The Wadi Ghadir ophiolite (WGO) is composed of layered and isotropic gabbros and amygdaloidal to porphyritic pillow lavas. Both the gabbroic rocks and the pillow lavas are intruded by dike swarms with different chemical affinities and spatial orientations. The WGO occurs in an ophiolitic mélange (Wadi Ghadir mélange, WGM), and both the WGO and WGM are intruded by granitic rocks to the west.

On the basis of Zr and Y variations, units of the WGO are classified as tholeiites (e.g., gabbros, amygdaloidal pillow lavas, D1, and D3 dikes). The latestage D4 dikes show a calc-alkaline affinity, whereas porphyritic pillow lavas and D2 dikes have a transitional character. All ophiolitic units display subduction zone trace element signatures characterized by the enrichment of LILE over HFSE and negative Nb–Ta anomalies. Tholeiitic rocks are further divided into LREE-depleted (gabbros, D3 dikes) and LREE-enriched (amygdaloidal pillow lavas, D1 dikes) groups. Light REE-depleted tholeiitic rocks were derived from melting of a slightly depleted mantle source, whereas the LREE-enriched tholeiitic rocks were derived from a fertile N-MORB source. Calc-alkaline D4 dikes are characterized by steep REE patterns and have low Zr/Nb ratios (23–29), indicating melt contribution from an enriched mantle source, such as sub-continental lithospheric mantle and/or garnet peridotite. The transitional group has LREE-enriched patterns, but its degree of REE enrichment and Zr/Nb ratios are intermediate between the tholeiitic and calc-alkaline groups.

The WGO is interpreted to have formed in a back-arc setting behind the Nugrus volcanic arc developed above a NE-dipping subduction zone. The collision of this arc-back-arc system with the passive margin of the Nubian shield (Hafafit dome)

resulted in the accretion of the Nugrus arc and the WGO onto the Nubian continental margin and in the initiation of a new subduction zone dipping SW beneath the newly accreted arc–back-arc crust and Hafafit dome.

The establishment of this new Andean-type continental margin produced the calc-alkaline D4 dikes, leucogabbros and granitoid plutons intrude the Hafafit dome, the WGO, and the ophiolitic mélange.

<u>Keywords:</u>

Ophiolites; Ophiolitic mélange; Back-arc basin; Active continental margin; Arabian–Nubian Shield; Egypt.

Faculty of Science

Dep. : Geophysics

Name : El-Sayed M. Abdelrahman

A Least-Squares Minimisation Approach to Depth

Title : Determination from Numerical Second Horizontal Self-Potential Anomalies

Authors: E. M. Abdelrahman, K. Soliman, K. S. Essa, E. R. Abo-Ezz and T. M. El-Araby

Published In: Exploration Geophysics

ISSN 0812-3985 **Impact Factor** 0.10

<u>Abstract :</u>

This paper develops a least-squares minimisation approach to determine the depth of a buried structure from numerical second horizontal derivative anomalies obtained from self-potential (SP) data using filters of successive window lengths. 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 centre of the source in the plane of the measurement points with a free parameter (graticule spacing). The problem of depth determination from second derivative SP anomalies has been transformed into the problem of finding a solution to a non-linear equation of the form f(z) = 0. Formulas have been derived for horizontal cylinders, spheres, and vertical cylinders. Procedures are also formulated to determine the electric dipole moment and the polarization angle.

The proposed method was tested on synthetic noisy and real SP data. In the case of the synthetic data, the least-squares method determined the correct depths of the sources. In the case of practical data (SP anomalies over a sulfide ore deposit, Sariyer, Turkey and over a Malachite Mine, Jefferson County, Colorado, USA), the estimated depths of the buried structures are in good agreement with the results obtained from drilling and surface geology.

Keywords:

least-squares method; Second derivative method; SP interpretation; Simple models.

Faculty of Science

Dep. : Geophysics

Name : El-Sayed M. Abdelrahman



Title : Shape and Depth Determinations from Second Moving Average Residual Self-potential Anomalies

Authors: E. M. Abdelrahman, T. M. El-Araby and K. S. Essa

Published In: Geophysics and Engineering

ISSN 1742-2132 **Impact Factor** 0.62

<u>Abstract :</u>

We have developed a semi-automatic method to determine the depth and shape (shape factor) of a buried structure from second moving average residual selfpotential anomalies obtained from observed data using filters of successive window lengths. The method involves using a relationship between the depth and the shape to source and a combination of windowed observations. The relationship represents a parametric family of curves (window curves). For a fixed window length, the depth is determined for each shape factor. The computed depths are plotted against the shape factors, representing a continuous monotonically increasing curve. The solution for the shape and depth is read at the common intersection of the window curves. The validity of the method is tested on a synthetic example with and without random errors and on two field examples from Turkey and Germany. In all cases examined, the depth and the shape solutions obtained are in very good agreement with the true ones.

Keywords:

SP interpretation; Shape and depth solutions; Second moving average method; Window curves method.

Faculty of Science

Dep. : Geophysics

Name : El-Sayed M. Abdelrahman



- *Title* : Quantitative Interpretation of Self-Potential Anomalies of some Simple Geometric Bodies
- *Authors*: E. M. Abdelrahman, K. Soliman, E. R. Abo-Ezz, K. S. Essa and T. M. El-Araby

Published In: Pure and Applied Geophysics

ISSN 0033-4553 **Impact Factor** 1.004

<u>Abstract :</u>

We have developed a new numerical method to determine the shape (shape factor), depth, polarization angle, and electric dipole moment of a buried structure from residual self-potential (SP) anomalies. The method is based on defining the anomaly value at the origin and four characteristic points and their corresponding distances on the anomaly profile. The problem of shape determination from residual SP anomaly has been transformed into the problem of finding a solution to a nonlinear equation of the form q = f(q). Knowing the shape, the depth, polarization angle and the electric dipole moment are determined individually using three linear equations. Formulas have been derived for spheres and cylinders. By using all possible combinations of the four characteristic points and their corresponding distances, a procedure is developed for automated determination of the best-fit-model parameters of the buried structure from SP anomalies. The method was applied to synthetic data with 5% random errors and tested on a field example from Colorado. In both cases, the model parameters obtained by the present method, particularly the shape and depth of the buried structures are found in good agreement with the actual ones. The present method has the capability of avoiding highly noisy data points and enforcing the incorporation of points of the least random errors to enhance the interpretation results.

Keywords:

SP data; Shape and depth solutions; Numerical methods; Noise.

Dep. : Geophysics

Name : El-Sayed M. Abdelrahman



Title : A Least-squares Standard Deviation Method to Interpret Magnetic Anomalies Due to thin Dikes

Authors: E. M. Abdelrahman, K. Soliman, E. R. Abo-Ezz, T. M. El-Araby and K. S. Essa.

Published In : Near Surface Geophysics

ISSN 1569-4445 **Impact Factor** 0.805

<u>Abstract :</u>

We have developed a least-squares to determine simultaneously the depth and the horizontal position (origin) of a buried thin dike that extends in both strike direction and down dip (2D) and in which the depth is much greater than the thickness from horizontal gradients obtained numerically from magnetic data using filters of successive window lengths. The method involves using a relationship between the depth and the horizontal position of the source and a combination of windowed observations. The method is based on computing the standard deviation of the depths determined from all horizontal gradients anomalies for each horizontal position. The standard deviation may generally be considered as a criterion for determining the correct depth and the horizontal position of the buried dike. When the correct horizontal position value is used, the standard deviation of the depths is less than the standard deviation using incorrect horizontal position values. This method can be applied to residuals as well as to the observed magnetic data. The method is applied to synthetic examples with and without random errors. The present method was able to provide both the depth and horizontal position of the source accurately. The practical utility of the method is tested on an outcropping dike in Canada.

Keywords:

Least-squares method; Magnetic anomalies; Thin dikes; and numerical gradients.

Faculty of Science

Dep. : Geophysics

Name : Walid M. Mabrouk



Title : Compressional and Shear Wave Velocity in Terms of Petrophysical Parameters in Clean Formations

Authors: W. M.Mabrouk and W. D. Pennington

Published In : Petroleum Science and Engineering

ISSN 0920-4105 **Impact Factor** 0.824

Abstract :

This paper is aimed to introduce an approach for evaluating compressional and shear wave velocities via the neutron, density, gamma ray logs and poissons ratio (σ) in a very simple way for different types of lithologies provided that this approach assumed matrix to be known from any one of the sources employed for such objectives.

The approach taken in this present study based on the well known Dresser Atlas [Dresser Atlas, 1979: Log Interpretation Charts. Dresser Industries Inc., Houston, Texas, 107p.] equations for computing porosity. This can be achieved by merging such equations with the well known effective porosity equation in order to end up with a formula for both compressional and shear wave velocities as a function of neutron, density, shale volume poissons ratio; taking into account the effect of both matrix and fluid nature.

A number of measurements, including compressional, shear and all elastic moduli, are used to test the proposed approach and compare its results with those obtained. The success of such comparison give us the opportunity to apply the suggested formula to real field data in the northern part of the Gulf Of Suez basin. The results of both test and application came in a good agreement and the small existing error can be negligible.

Keywords:

Seismic wave velocity; Vp and Vs; Compressional and shear wave velocity.

Faculty of Science

Dep. : Mathematics

Name : Eid H. Doha



Title : Numerical Treatments for Volterra Delay Integro-Differential Equations

Authors: F. A. Rihan, E. H. Doha, M. I.Hassan, and N. M.Kamel

Published In : Computational Methods in Applied Mathematics

ISSN 0045-7825 **Impact Factor** 2.129

<u>Abstract :</u>

This paper presents a new technique for numerical treatments of Volterra delay integro-differential equations that have many applications in biological and physical sciences. The technique is based on the mono-implicit Runge-Kutta method (described in [12]) for treating the differential part and the collocation method (using Boole's quadrature rule) for treating the integral part. The efficiency and stability properties of this technique have been studied. Numerical results are presented to demonstrate the effectiveness of the methodology.

Keywords:

Mono-implicit RK method; Boole's quadrature rule; Volterra delay integrodifferential equation; Stability, time-lag.

Faculty of Science

Dep. : Mathematics

Name : Eid H. Doha



Title : Explicit Formulae for the Coefficients of Integrated Expansions of Laguerre and Hermite Polynomials and their Integrals

Authors: E. H. Doha, H. M. Ahmed and S.I. El-Soubhy

Published In : Integral Transforms and Special Functions

ISSN 1065-2469 **Impact Factor** 0.564

<u>Abstract :</u>

Two new formulae expressing explicitly the integrals of Laguerre (Hermite) polynomials of any degree and for any order in terms of the Laguerre (Hermite) polynomials themselves are proved. Another two new explicit formulae relating the Laguerre (Hermite) coefficients of an expansion for an infinitely differentiable function that has been integrated an arbitrary number of times in terms of the coefficients of the original expansion of the function are also established. An application of these formulae for solving ordinary differential equations with varying coefficients is discussed.

<u>Keywords:</u>

Laguerre and Hermite polynomials; Spectral methods; Expansion coefficients.

Faculty of Science

Dep. : Mathematics

Name : Eid H. Doha



Title : Jacobi Spectral Galerkin Method for Elliptic Neumann Problems

Authors: E. H. Doha, A. H. Bhrawy and W.M. Abd-Elhameed

Published In : Numerical Algorithms

ISSN 1017-1398 **Impact Factor** 0.61

<u>Abstract :</u>

This paper is concerned with fast spectral-Galerkin Jacobi algorithms for solving one- and two-dimensional elliptic equations with homogeneous and nonhomogeneous Neumann boundary conditions. The paper extends the algorithms proposed by Shen (SIAM J Sci Comput 15:1489– 1505, 1994) and Auteri et al. (J Comput Phys 185:427–444, 2003), based on Legendre polynomials, to Jacobi polynomials $P_n^{(\alpha,\beta)}(x)$ with arbitrary α and β . The key to the efficiency of our algorithms is to construct appropriate basis functions with zero slope at the endpoints, which lead to systems with sparse matrices for the discrete variational formulations. The direct solution algorithm developed for the homogeneous Neumann problem in two-dimensions relies upon a tensor product process. Nonhomogeneous Neumann data are accounted for by means of a lifting. Numerical results indicating the high accuracy and effectiveness of these algorithms are presented.

<u>Keywords:</u>

Helmholtz equation; Neumann boundary condition; Spectral-Galerkin method; Fast elliptic spectral solver; Tensor product; Jacobi polynomials.

Faculty of Science

Dep. : Mathematics

Name : Eid H. Doha



- Efficient Spectral Ultraspherical-dual-Petrov–Galerkin
- *Title* : Algorithms for the Direct Solution of (2n+1)th-order Linear Differential Equations

Authors: E. H. Doha and W. M. Abd-Elhameed

Published In : Mathematics and Computers in Simulation

ISSN 0378-4754 **Impact Factor** 0.930

<u>Abstract :</u>

Some efficient and accurate algorithms based on the Legendre dual- Petrov Galerkin method are developed and implemented for solving (2n+1)th- order linear differential equations in one variable subject to homogeneous and nonhomogeneous boundary conditions using a spectral discretization. The key idea to the efficiency of the algorithms is to use trial functions satisfying the underlying boundary conditions. The method leads to linear systems with specially structured matrices that can be efficiently inverted. Numerical results are presented to demonstrate the efficiency of the proposed algorithms.

<u>Keywords:</u>

Dual-Petrov–Galerkin method; Ultraspherical polynomials; Nonhomogeneous Dirichlet conditions.

Faculty of Science

Dep. : Mathematics

- Name : Mohamed Asaad
- *Title* : on Minimal Subgroups of Finite Groups

Authors: M. Asaad

Published In : Glascow Mathematical Journal

ISSN 0017-0895 **Impact Factor** 0.28

<u>Abstract :</u>

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Let G be a finite group. A minimal subgroup of G is a subgroup of prime order. A subgroup of G is called S-quasinormal in G if it permutes with each Sylow subgroup of G. A group G is called an M S-group if each minimal subgroup of G is S-quasinormal in G. In this paper, we investigate the structure of minimal non-MS-groups (non-MS groups all of whose proper subgroups are M-S-groups).



Faculty of Science

Dep. : Mathematics

- Name : Mohamed Asaad
- *Title* : On the Solvability of Finite Groups

Authors: M. Asaad

Published In : Communications in Algebra

ISSN 0092-7872 **Impact Factor** 0.337

<u>Abstract :</u>

Let M be a subgroup of a finite group G. We define the core of M in G by CorG (M) = $\cap g \in G Mg$. Clearly, CorG (M) is the largest normal subgroup of G contained in M. We determine the structure of a finite group G if G possesses a maximal subgroup with core I and all maximal M of G with = 1 satisfy certain property.

Keywords:

Nilpotent group; Solvable group; Super solvable group.



Faculty of Science

: **Mathematics** Dep.

Name : Mohamed A. Helal



Title : Non-linear Internal waves.

Authors: M. S. Abou-Dina and M. A. Helal

Published In :	Encyclopedia of C 2009, Volume IV,	Complexity and pp. 6206-6214	System	Science	Springer
ISBN	978-0-387-75888-	6 Im	oact Fac	tor 0	.0

ISBN Impact Factor 978-0-387-75888-6

Abstract :

The objective of the present work is to study the generation and propagation of nonlinear internal waves in the frame of the shallow water theory.

These waves are generated inside a stratified fluid occupying a semi infinite channel of finite and constant depth by a wave maker situated in motion at the finite extremity of the channel. A distortion process is carried out to the variables and the nonlinear equations of the problem using a certain small parameter characterizing the motion of the wave maker and double series representations for the unknown functions is introduced. This procedure leads to a solution of the problem including a secular term, vanishing at the position of the wave maker. This inconvenient result is remedied using a multiple scale transformation of variables and it is shown that the free surface and the interface elevations satisfy the well known KdV equation. The initial conditions necessary for the solution of the KdV equations are obtained from the results of the first procedure.

Kevwords:

Nonlinear; Internal; Secular term; KdV equation; Shallow water.

Faculty of Science

Dep. : Mathematics

Name : Mohamed A. Helal



Title : Variational Method for the Derivative Nonlinear Schrodinger Equation with Computational Applications

Authors: M. A. Helal and A. Seadawy

Published In: Physica Scripta doi:10.1088/0031-8949/80/03/035004

ISSN 0031-8949 **Impact Factor** 0.97

<u>Abstract :</u>

The derivative nonlinear Schrödinger equation (DNLSE) arises as a physical model for ultra-short pulse propagation. In this paper, the existence of a Lagrangian and the invariant variational principle (i.e. in the sense of the inverse problem of calculus of variations through deriving the functional integral corresponding to a given coupled nonlinear partial differential equations) for two-coupled equations describing the nonlinear evolution of the Alfvén wave with magnetosonic waves at a much larger scale are given and the functional integral corresponding to those equations is derived. We found the solutions of DNLSE by choice of a trial function in a region of a rectangular box in two cases, and using this trial function, we find the functional integral and the Lagrangian of the system without loss. Solution of the general case for the two-box potential can be obtained on the basis of a different ansatz where we approximate the Jost function using polynomials of order n instead of the piecewise linear function. An example for the third order is given for illustrating the general case.

Keywords:

Variational principle; Magnetosonic waves; Shrodinger equation; Nonlinear evolution; Inverse problem.

Dep. : Mathematics

Name : W. M. Abd-Elhameed



Cairo University

Title : Efficient Spectral Ultraspherical-Galerkin Algorithms for the Direct Solution of 2nth-order Linear Differential Equations

Authors: E. H. Doha, W.M. Abd-Elhameed and E.H. Bhrawy

Published In: Applied Mathematical Modelling

ISSN 0307-904X **Impact Factor** 0.931

<u>Abstract :</u>

Some efficient and accurate algorithms based on the ultraspherical Galerkin method are developed and implemented for solving 2nth-order linear differential equations in one variable subject to homogeneous and nonhomogeneous boundary conditions using a spectral discretization. We extend the proposed algorithms to solve the two-dimensional 2nthorder differential equations. The key to the efficiency of these algorithms is to construct appropriate base functions, which lead to linear systems with specially structured matrices that can be efficiently inverted, hence greatly reducing the cost and roundoff errors.

<u>Keywords:</u>

Spectral-Galerkin method; Ultraspherical polynomials; 2nth-order equations; Nonhomogeneous Dirichlet conditions; Poisson's and biharmonic equations.

Faculty of Science

Dep. : Physics

Name : Ahmed M. Osman



Title : Density Dependent Nucleon–Nucleus Optical Potential in the (p, n) Reaction

Authors: A. M. Osman

Published In: Acta Physica Polonica

ISSN 0587-4254 **Impact Factor** 0.767

Abstract :

The quasielastic (p, n) reactions are studied for different incident proton energies. Transitions to isobaric analog states are obtained for different target nuclei with masses $13 \le A \le 208$. The nucleon–nucleus interactions are considered to be density dependent in the optical model potential. Microscopic and macroscopic distorted-wave Born approximation (DWBA) calculations with the optical model potential are introduced. Differential cross-sections and angular distributions are calculated for different (p, n) reactions. The present theoretical calculations are in good agreement with the experimental data.

Keywords:

Nuclear Reactions; Quasielastic (p,n) reactions; ¹³C, ⁷⁰Zn, ⁹⁶Zr, ¹¹²Sn, ¹²⁴Sn and ²⁰⁸Pb targets; $E_p=23$ MeV, 26 MeV and 35 MeV; DWBA, Isobaric analog states; Calculated angular distributions.

Faculty of Science

Dep. : Physics

Name : Ahmed M. Osman



Title : Heavy Ion Reactions Producing A Heavier Deformed Nucleus and Free Nucleons

Authors: A. M. Osman

Published In: Turkish Journal of Physics 33: 281(2009)

ISSN 1300-0101	Impact Factor	0.583
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<u>Abstract :</u>

Carbon induced heavy ion reactions on the heavy 197Au target are considered. The statistical scission model is used to calculate this fission process. In the present considered reactions, the process leads to the fragmentation of only one deformed heavy fragment and few nucleons. Angular distributions of the fission fragments are numerically calculated for different values of the incident energies in the range 64– 104 MeV. The present theoretical calculations of the differential cross-sections are in good agreements with experimental data for the carbon incident energy 84 A MeV. The effective variance of this fission process is also calculated. The present numerically calculated values of the variance and angular distributions are in good agreement with previously calculated values.

Keywords:

Fission reactions; Charged particle induced fission; Mulifragmentation, ¹²C+ ¹⁹⁷Au reactions; Calculated angular distributions and variances.

Faculty of Science

Dep. : Physics

Name : Tarek Abd El-Azim



Title : Production Cross-Sections of Charged Goldstones Bosons in (e+ ,e-) Collider

Authors: T. A. El-Azim and H.T.I. Abdel-Karim

Published In : International Review of Physics 156 (2009)

ISSN 1971-680X **Impact Factor** 0.0

Abstract :

The total cross-sections for the charged Goldstones and H0 -bosons production have been calculated by assuming that the interactions occur through different propagators. The production cross-sections have been studied in the minimal super symmetric standard model (MSSM), via $e^+e^- \rightarrow G^+G^-H^0_{i}$. At an incoming energy s=290 GeV, the process $e^+e^- \rightarrow Z^0 \rightarrow G^+G^-H^0_i$ could be detected with a reasonable cross-section of about 10⁵ fb for i = 2 and 10⁴ fb for i =1.

Keywords:

Goldstones Bosons; Production Cross-Sections; Broken symmetry; Standard model.

Faculty of Science

Dep. : Physics

Name : Adel M. B. Shehap



Title : Judd-Ofelt Analysis of Luminescence Spectra of an Erbium Chloride-doped Carboxy Methyl Cellulose Film

Authors: A M Shehap, K Atef, K H Mahmoud and Farid M.

Published In: Philosophical Magazine

ISSN 1478-6445 **Impact Factor** 0.0

Abstract :

Optical absorption and photoluminescence properties of ErCl₃ doped carboxy methyl cellulose film have been studied. From measured intensities of various absorption bands of Film, the Judd-Ofelt parameters Ω_2 , Ω_4 and Ω_6 have been calculated. The Judd-Ofelt theory has been applied to characterize the photoluminescence spectra of the investigated film. From this theory, various radiative properties, such as transition probability A_T , branching ratio β_r , radiative life time τ_r , and emission cross section σ_p^E , for various emission levels, have been determined and reported.

<u>Keywords:</u>

Fluorescence; Branching ratio; Judd-Ofelt analysis; Erbium chloride.

Faculty of Science

Dep. : Physics

Name : Ezeldain Shafee



Title : Annealing of Poly (trimethylene terephthalate)/polycarbonate Blends

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

Published In: Journal of Polymer Research

ISSN 1022-9760 **Impact Factor** 1.032

Abstract :

A blend of poly(trimethylene terephthalate) (PTT) and polycarbonate with a weight ratio of 50/50 was studied by means of differential scanning calorimetry (DSC) and dielectric spectroscopy (DS) after melt annealing that enables transesterification. The DSC results show that with increasing the residence time in the melt, the melting temperature and the heat of fusion of PTT crystals decrease. Prolonged thermal treatment at 300 °C gives rise to a copolymer that no longer reveals melting or crystallization. Additional annealing of such samples below the melting temperature of PTT results in restoration of the crystallization ability. The amorphous phase dynamics is studied by means of DS demonstrating that the glass transition relaxations are very sensitive to the crystallinity changes. The random copolymer is characterized by only one α -relaxation indicating a more or less homogeneous amorphous phase. In contrast to this, the physical blend and the block copolymers show two α -relaxation processes attributed to the existence of two amorphous fractions. Analysis of the relaxation process in terms of Vogel -Fucher - Tammann - Hesse model reveals a correlation between the fragility parameter and the extent of transreaction. The crystallization kinetics of the blocky copolymer determined from the changes of the dielectric constant with time are discussed and compared with pure PTT.

Keywords:

Blend; Transesterification; Crystallization; Fragility.

Faculty of Science

Dep. : Physics

Name : Fawzy H. Abd El-Kader



- *Title* : Electrical Conduction in (Polyvinyl Alcohol/Glycogen Blend Films
- Authors: F. H. Abd El-kader, S. A. Gaafer, K. H. Mahmoud, S. I. Mohamed and M. F. H. Abd El-kader

Published In : Polymer Composites

ISSN 0272-8397 **Impact Factor** 1.054

<u>Abstract :</u>

Cast thin films of polyvinyl alcohol/glycogen blends of different compositions have been prepared and subjected to the electrical measurements of both current-time and current-voltage characteristics as well as d.c. conductivity as a function of temperature. The conduction mechanisms operative in the films at different temperature and voltage ranges are estimated from the behavior of log I versus V1/2 plots. For individual polymers, the conduction mechanism appears to be essentially a Poole–Frenkel type. On blending, at lower temperature the charge conduction mechanism is Poole–Frenkel. In addition, the deviation of the plots at lower voltages indicates the existence of space charge contribution in conduction mechanism. The obtained results made it possible to determine several conduction parameters including activation energy, carrier mobility, and carrier concentration.

<u>Keywords:</u>

PVA / Glycogen; Poole-frenkl emission; Schottky emission; Carrier mobility; Activation energy.

Dep. : Physics

- Name : Mohamed A. Ahmed
- *Title* : Effect of Annealing Time, Weight Pressure and Fe Doping on the Electrical and Magnetic Behavior of Calcium Titanate

Authors: M. A. Ahmed

Published In: Materials Chemistry and Physics

ISSN 0254-0584 **Impact Factor** 1.799

Abstract :

CaFe_xTi_{1-x}O₃; $0.05 \le x \le 0.6$ perovskites were synthesized by the standard ceramic technique at different annealing times. XRD analysis clarified the presence of two types of crystal structure, orthorhombic for x = 0.05 and 0.2 and monoclinic for x = 0.4 and 0.6. The annealing time increases the crystal size without any change in the crystal structure. The first order phase transition is the common character. These compounds behave like semiconductor materials characterized by more than one conduction mechanism as it was found from the results of activation energy. This type of perovskite has a piezoelectric like behavior. The variation of resistivity with time due to load increases with increasing Fe content as well as with increasing Fe content and decreases with increasing annealing time. The obtained results indicate that these compounds can be use in wide range of applications.

<u>Keywords:</u>

Ca titanate; Pressure effect; Magnetization; Dielectric properties.

Dep. : Physics

- Name : Mohamed A. Ahmed
- *Title* : Could Mg Content Control the Conduction Mechanism of Ba Co Zn-W-type Hexagonal Ferrites?

Authors: M. A. Ahmed

Published In: Magnetism and Magnetic Materials

ISSN 0304-8853 **Impact Factor** 1.283

<u>Abstract :</u>

Electrical properties as a function of composition, frequency and temperature for a series of W- type hexagonal ferrites with the general formula BaCoZn₁. _xMg_xFe₁₆O₂₇; $0 \le x \le 0.6$ prepared by the conventional ceramic method were studied. These prepared samples are semiconductor like materials, where ac conductivity increases with increasing temperature. The results show that conduction mechanism depends on Mg²⁺ substitution. Transition temperature (T σ) increases with increasing Mg content and gives a hump at x = 0.5 after that T σ decreases again. Both ac conductivity and dielectric constant vary with Mg content and reach the highest value at x = 0.5, due to highest value of the Fe2+/Fe3+ at x = 0.5. The peak value of dielectric constant depends on the Mg content x.

Keywords:

W-type hexaferrite; XRD; Transition temperature; Conductivity; Dielectric property.

Dep. : Physics

- Name : Mohamed A. Ahmed
- *Title* : Role of Cu²⁺ Concentration on the Structure and Transport Properties of Cr–Zn Ferrites

Authors: M. A. Ahmed

Published In: Magnetism and Magnetic Materials

ISSN 0304-8853 **Impact Factor** 1.283

Abstract :

The influence of Cu concentration on the transport and microstructure characteristics of $Cu_yZn_{1-y}Cr_{0.8}Fe_{1.2}O_4$ with $0.2 \le y \le 1$ ferrite was studied. X-ray, EDAX diffraction and infrared spectra (IR) were carried out to assure the formation of the sample in the proper form. The dielectric constant (ϵ) and ac conductivity were measured at different frequencies ranging from 600 kHz to 5MHz from room temperature up to 800K. The obtained data reveals that, a single phase cubic spinel structure for all the concentrations. From the results of IR spectra mainly, two bands were observed. The dielectric constant and the dielectric loss tangent decrease with increasing frequency and Cu concentration. The dielectric constant shows a dispersion peak (ϵ ' max) which shifts to higher frequency with increasing the temperature. The results are explained as due to the fact that the dielectric polarization process is similar to that of conduction. The appearance of the dispersion peak is related to the contribution of two types of charge carriers.

<u>Keywords:</u>

Cu-Cr-Zn ferrites; X-ray and EDAX analyses; FTIR; SEM; Dielectric; Ac conductivity.

Dep. : Physics

- Name : Mohamed A. Ahmed
- *Title* : Extraordinary Role of Rare-earth Elements on the Transport Properties of BariumW-type Hexaferrite

Authors: M. A. Ahmed

Published In: Journal of Materials Chemistry and Physics

ISSN 0254-0584 **Impact Factor** 1.799

Abstract :

The influence of R₂O₃ substitution on the electrical properties and the thermoelectric power on the W- type hexa ferrite Ba_{0.95}R_{0.05} Mg_{0.5} Zn_{0.5} Co Fe₁₆ O_{27;} $R = Y^{3+}$, Er^{3+} , Ho^{3+} , Sm^{3+} , Nd, Gd^{3+} , and Ce^{3+} ions as a function of the absolute temperature and frequency in the ranges 300 - 750 K and 100 kHz - 4 MHz respectively have been studied. The results obtained reveal that, by introducing a relatively small amount of R2O3 instead of Fe2O3, an important modification of both structure and physical properties can be obtained. The dielectric constant $\dot{\epsilon}$, the dielectric loss factor ε'' and AC conductivity σ of the investigating samples have highest values in the case of Sm³⁺. The values of the calculated activation energy varied between (0.335 and 0.553 eV) and (0.106 and 0.232 eV), above and below the transition temperature respectively which indicate the semiconducting properties of the prepared samples. The conduction mechanism for Ho³⁺ sample is associated with the small polaron whereas the hopping conduction mechanism is predominant mechanism for the samples doped with the rest of rare earth ions. The thermoelectric power measurements indicated that the samples are n-type semiconductors except Er^{3+} and Y^{3+} samples, where the thermoelectric power of them is positive at low temperature but nearly above 480 and 375 K respectively transits to negative. The charge carriers concentration n increases with slightly increasing RE ionic radius to critical value (≈ 1.04 °A), after that n becomes nearly constant.

<u>Keywords:</u>

Hexaferrites; Dielectric behavior; Thermoelectric power; Rare-earth substitution.

Dep. : Physics

- Name : Mohamed A. Ahmed
- *Title* : Enhancement of the crystal size and magnetic properties of Mg-substituted Co ferrite

Authors: M. A. Ahmed

Published In : Journal of Magnetism and Magnetic Materials

ISSN 0304-8853 **Impact Factor** 1.283

Abstract :

Standard ceramic technique was used to prepare the ferrite $Co_{1-x}Mg_xFe_2O_4 0.0 \le x \le 1$. FTIR and X- ray diffraction were performed to assure the formation of the sample in the proper form. The obtained lattice parameter was interpreted on the basis of cation distribution. The replacement of Co^{2+} instead of Mg^{2+} on B sites expands slightly the size of the lattice. The sample $MgFe_2O_4$ does not exhibit high thermal stability. The general trend of χ_M with Mg content is the decrease in its values by decreasing x from 1 to ≈ 0.6 . The obtained data was interpreted also on the basis of redistribution of iron ions between the two sublattices.

<u>Keywords:</u>

Co-substituted Mg ferrite; Structure; Magnetic properties.

Dep. : Physics

- Name : Mohamed A. Ahmed
- *Title* : Effect of Annealing time, Weight Pressure and Fe Doping on the Electrical and Magnetic Behavior of Calcium Titanate

Authors: M. A. Ahmed

Published In: Materials Chemistry and Physics 114 (2009) 446–450

ISSN 0254-0584	Impact Factor	1.799
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<u>Abstract :</u>

CaFexTil-xO3; $0.05 \le x \le 0.6$ perovskites were synthesized by the standard ceramic technique at different annealing times. XRD analysis clarified the presence of two types of crystal structure, orthorhombic for x = 0.05 and 0.2 and monoclinic for x = 0.4 and 0.6. The annealing time increases the crystal size without any change in the crystal structure. The first order phase transition is the common character. These compounds behave like semiconductor materials characterized by more than one conduction mechanism as it was found from the results of activation energy. This type of perovskite has a piezoelectric like behavior. The variation of resistivity with time due to load increases with increasing Fe content as well as with increasing Fe content and decreases with increasing annealing time. The obtained results indicate that these compounds can be use in wide range of applications.

<u>Keywords:</u>

Ca titanate; Pressure effect; Magnetization; Dielectric properties.

Faculty of Science

Dep. : Physics

Name : Mohamed Y. Farag



- *Title* : Elastic Scattering and Breakup Effect Analysis of 11Be + 12C at 38.4 MeV/nucleon
- Authors: M. Y. M. Hassan, M. Y. H. Farag, E. H. Esmael and H. M. Maridi

Published In : Physical Review C

ISSN 0556-2813

Impact Factor 3.124

<u>Abstract :</u>

11Be + 12C elastic-scattering data at 38.4 MeV/nucleon has been analyzed using the optical model. The optical potential is calculated in the framework of the double folding model using M3Y effective nucleon-nucleon interaction. Different models of 11Be density are tested and the model that does not include the halo structure gives poor fitting with data. The breakup effect is studied by introducing a complex dynamical polarization potential (DPP) that is added to the "bare" potential. The DPP is taken in different forms that have been obtained from simple phenomenological, semiclassical approximation, and microscopic methods.

The simple phenomenological DPP is related to the semiclassical approximation method. The sensitivity of the differential and reaction cross sections to these polarization potentials is tested. The microscopic DPP that has been constructed from the derivative of the folding potential describes the breakup effect well. It gives an explicit justification for the long range of the polarization potential.

Faculty of Science

Dep. : Physics

Name : Mohamed Y. H. Farag



- *Title* : Microscopic Model Analysis of 11Li + p elastic Scattering at 62, 68.4, and 75 MeV/nucleon
- Authors: M. Y. M. Hassan , M. Y. H. Farag, E. H. Esmael, and H. M. Maridi

Published In : Physical Review C

ISSN 0556-2813

Impact Factor 3.124

<u>Abstract :</u>

11 Li + p elastic scattering data at three energies, 62, 68.4, and 75 MeV/nucleon, are analyzed with density dependent M3Y and KH effective nucleon-nucleon (NN) interactions in the framework of the single folding model. The parameters of the density-dependent term are adjusted to fulfill saturation of nuclear matter. The optical potentials (OP's) and cross sections are calculated using four model densities of 11Li,G(one-parameter Gaussian), GG(Gaussian-Gaussian), GO(Gaussian- oscillator), and the COSMA(cluster orbital shell model approximation). Comparative studies are performed for real, imaginary, and spinorbit potentials with the phenomenological and microscopic forms. The microscopic volume and surface imaginary potentials are constructed from both the renormalized folded potentials and their derivatives. The sensitivity of the differential cross section to the four densities is tested. It is found that the 11Li + pelastic scattering cross sections depend strongly upon the behavior of the corresponding potentials. The GG and GO densities obtained from analyzing the data, using Glauber multiple scattering theory at high energies, give good results at energies below 100 MeV/nucleon in the framework of the folding model. The OP's calculated in the microscopic form using few parameters give good agreement with the data. Thus, it is not necessary to introduce a large number of arbitrary fitting parameters as done in the phenomenological and semimicroscopic OP's. The KH effective interaction successfully describes 11Li + p elastic scattering as the popular M3Y interaction. The obtained results of the reaction cross section are in good agreement with previous calculations.

Faculty of Science

Dep. : Zoology

Name : Ibrahim M. El-Agousa



Title : Possible Ameliorative Effect of Antioxidant (Taurine) in Pregnant Toxemic Female Rats

Authors: I. M.A. El-Agousa, D. E. El-Nashar, S. S. Eissa and M. N. Sharoud

Published In: The Open Hypertension Journal

ISSN 1876-5262 **Impact Factor** 0.00

<u>Abstract :</u>

The present study was designed to investigate the possible effects of the antioxidant taurine on pregnant adriamycin (ADR) induced toxemic female rats. ADR was injected intraperitoneally to 50 pregnant female rats (5 groups) to induce toxemia. the first is Frank control group injected only with saline; the second group is the Taurine group that determined the effect of taurine alone; the third group is the Toxemic group that showed the toxicity of Adriamycin; the fourth group is the Therapeutic group (Adriamycin followed by Taurine) and the fifth group is the Protective group (Taurine followed by Adriamycin) that showed the amelurative effect of taurine in these groups.

Blood pressure, liver and kidney function, lipid profile, taurine concentration in plasma, serum cortisone, T3 &T4 were measured for all animals. Furthermore, histopathological examination and morphometric study for liver, kidney and cardiac muscle were done for all groups.

The results showed that, the Protective group has marked improvement in most biochemical parameters than the Therapeutic group compared to Toxemic group.

Morphometric study revealed a significant decrease in the nuclear area in the tissues of toxemic rats. Also, marked disturbances were observed in the histopathological architecture of the kidney, liver and heart in all toxemic rats. However, a marked improvement in morphometrical parameters and histopathological architecture was observed in protective group. The results support the ameliorative effect of taurine in the protection against toxemia during pregnancy in experimental animals.

Keywords:

Hypertension; Pregnant toxemia; Antioxidant taurine.

6561

Faculty of Science

Dep. : Zoology

Name : Rashika El Ridi



Schistosoma Mansoni ex Vivo Lung-stage Larvae Excretory-

Title : secretory Antigens as Vaccine Candidates Against

Schistosomiasis

Authors: R. El Ridi

Published In: Vaccine

ISSN 0264-410X

Impact Factor 3.3

Abstract :

Schistosoma mansoni lung-stage larvae are known to be the major target of innate and acquired immunity to schistosomiasis. Lung schistosomula cytosolic or surface membrane antigens are hidden, entirely inaccessible to the host immune system, and hence are not particularly important as vaccine candidates. Conversely, excretory-secretory (E-S) products released from intact, viable, elongated, and contractile schistosomula are ideal potential vaccines, as such molecules can readily play a central role in the induction of local primary and memory immune response effectors that would directly target, surround, and pursue the larvae while negotiating the lung capillaries. Therefore, 6-day-old ex vivo larvae were isolated from mouse or hamster lung cells and used for generation of E-S products, which were shown to elicit strong immune responses and significant (P < 0.05) protection against challenge infection in BALB/c mice. Proteomic analysis of E-S molecules following 10× concentration and sodium dodecyl sulfate-polyacrylamide gel electrophoresis identified peptides related to innumerable host and about 15 S. mansoni-specific proteins. Selected S. mansonispecific E-S peptides prepared in a multiple antigen peptide (MAP) or recombinant form were shown to stimulate considerable specific antibody response and peripheral blood mononuclear cell expression of mRNA for several cytokines in immunized C57BL/6 and BALB/c mice. However, highly significant (P < 0.05 to < 0.005) reduction in challenge infection worm burden and egg load was recorded only when the immunization conditions in test mice provided the S. mansoni antigen-specific T helper (Th) type response milieu favorable for each immunogen. That was polarized Th1 for S. mansoni aldolase and thioredoxin peroxidase 1 MAPs, polarized Th2 for recombinant 14-3-3-like protein, mixed Th1/Th17 for calpain MAP, and mixed Th1/Th2 for recombinant p18 protein. The findings together indicated that the immune responses issue is as critical as the nature and source of the antigen for the development of vaccine against schistosomiasis.

<u>Keywords:</u>

Schistosoma mansoni; Lung-stage schistosomula; Excretory–secretory products Multiple antigen peptides; Vaccine antigens; T helper responses

Faculty of Science

Dep. : Zoology

Name : Rashika El Ridi



Title : Transforming growth factor- β and Th17 responses in resistance to primary murine schistosomiasis mansoni

Authors: H. Tallima, M. Salah, F. R. Guirguis and R. El Ridi

Published In: Cytokine

ISSN 1043-4666

Impact Factor 2.214

<u>Abstract :</u>

Discovery of the T-helper (Th) 17 cell lineage and functions in immune responses of mouse and man prompted us to investigate the role of transforming growth factor-beta (TGF-B) and interleukin (IL)-17 in innate resistance to murine schistosomiasis mansoni. Schistosoma mansoni-infected BALB/c and C57BL/6 mice were administered with recombinant TGF- ß or mouse monoclonal antibody to TGF- β to evaluate the impact of this cytokine on host immune responses against lung-stage schistosomula, and subsequent effects on adult worm parameters. Developing schistosomula elicited increase in peripheral blood mononuclear cells (PBMC) mRNA expression and/or plasma levels of IL-4, IL-17 and interferon gamma (IFN- γ), cytokines known to antagonize each other, resulting in impaired Th1/Th2, and Th17 immune responses and parasite evasion. Mice treated with TGF- β showed elevated PBMC mRNA expression of IL-6, IL-17, TGF- β and TNF- α mRNA and increased IL-23 and IL-17 or TGF- β plasma levels, associated with significantly (P < 0.02 - < 0.0001) lower S. mansoni adult worm burden compared to controls in both mouse strains, thus suggesting that TGF- β led to heightened Th17 responses that mediated resistance to the infection. Mice treated with antibody to TGF- β showed increase in PBMC mRNA expression and plasma levels of IL-4, IL-12p70, and IFN- γ , and significantly (P < 0.02 and < 0.0001) reduced worm burden and liver worm egg counts than untreated mice, indicating that Th1/Th2 immune responses were potentiated, resulting in significant innate resistance to schistosomiasis. The implications of these observations for schistosome immune evasion and vaccination were discussed

<u>Keywords:</u>

Schistosoma mansoni; Murine primary schistosomiasis;TGF- β ; IL-17; Cytokine response.

6581
Faculty of Science

Dep. : Zoology

Name : Salwa A. Hamdi



Title : Curative Effect of Dietary Freshwater and Marine Crustacean Extracts on Carbon Tetrachloride-induced Nephrotoxicity

Authors: Sohair R. Fahmy; Salwa A.H. Hamdi and Hala A. Abdel-Salam

Published In: Australian Journal of Basic and Applied Scicence

ISSN 1991-8178 **Impact Factor** 0.00

<u>Abstract :</u>

The freshwater crustacean Procombarus clarkii and marine Erugosquilla massavensis are edible crustacean species that have a small yet growing economic importance in our markets. However, their therapeutic effects as antioxidant remain unclear. So, the present work aims to throw the light for the first time in Egypt on their antioxidant effects. Carbon tetrachloride (CCl) is established hepatotoxin and also induces acute and chronic renal injuries. The present study was designed to establish the curative effects of both freshwater crustacean extract (FCE) from Procombarus clarkii and marine crustacean extract (MCE) from Erugosquilla massavensis on CCl induced oxidative stress and resultant dysfunction of kidney. Rats were randomly divided into 4 groups, (I) control, (II & III) administered orally FCE and M CE (250 mg/kg) respectively for 9 days and (IV) administered (CCl) (2.5 ml/kg b.wt. p.o) for 2 days and then subdivided into 8 subgroups, the animals of these subgroups treated for 7 days as follow, subgroup (I) distilled water, (II) silymarin, (III, IV, V) administered 50, 100 and 250 mg/kg. FCE and (VI,VII, VIII) administered 50,100 and 250 mg/kg. MCE, respectively. CCl challenge caused a significant increase in malondialdehyde (MDA) (II) and decrease in reduced glutathion (GSH) levels, catalase (CAT) activity and total antioxidant capacity (TAC) as compared to control group. Treatment with all tested doses of both FCE and MCE attenuated the CCl -toxicity, furthermore restore the control condition, hence the dose dependant effect study was unnecessary and the present study recommended the treatment with two studied extracts at a dose of 50 mg/kg. In conclusion, the present study demonstrated the curative effect of FCE and MCE on CCl4 induced oxidative stress in kidney. The curative effect of FCE and MCE can be correlated to their direct antioxidant effect which may be related to their contents of sulphur-containing amino acids and taurine.

Keywords:

Crustacea; *Procambarus clarkia*; *Erugosquilla massavensis*; Kidney injury; Oxidative stress; CCl.

Faculty of Science

Dep. : Zoology

Name : Abdel-Rahman M. E. Bashtar



Ultrastructure and host parasite relationships of Kudoa pagrusi*Title* : (Myxozoa) infecting the heart muscles of sea bream Pagrus pagrus (L.) from the Red Sea

Authors: F. Abdel-Ghaffar, A. Bashtar, H. Mehlhorn, K. Al-Rasheid, I. Al-Olayan, A. Abdel-Baki and K. Morsy

Published In: Parasitol. Res

ISSN 0932 – 0113 **Impact Factor** 1.473

<u>Abstract :</u>

The present study is a part of a continuous investigation of myxosporean parasites-infecting fish of the Red Sea using light and electron microscopy. Out of 120, 80 (67%) Pagrus pagrus fish were found to be naturally infected with Kudoa pagrusi. The infection was intensive and appeared as clusters of ovoid to ellipsoidal plasmodia being restricted to the cardiac muscles. Histological studies elaborated tissue distortion at the sites of infection and the adjacent layers. The development of the plasmodia reduced the functional area of the heart muscle. Ultrastructural analysis showed that the plasmodia were surrounded by single-unit membrane with numerous projections and pinocytotic channels extended toward the host cell. The generative cells and the different developmental stages were arranged at the periphery of the plasmodia while immature and mature spores were centrally arranged. The present study showed the main criteria of this genus: the spores possess four polar capsules with four shell valves.

Keywords:

Kudoa pagrusi; Fheart muscles; Pagrus pagrus; Ultrastructure.

Faculty of Science

Dep. : Zoology

Name : Abdel-Rahman M. E. Bashtar

electron microscopic study

F. Abdel-ghaffar, H. Mahlhorn, A. Bashtar, K. Al-Rasheid, T. Authors: Sakran and Hoda El- Fayoumi

life Cycle of sarcocystis camelicanis infecting the camel : (camelus dromedarius) and the dog (canis familiaris), light and

Published In: Parasitol. Res

ISSN 0932 - 0113Impact Factor 1.473

Abstract :

Title

In the present study, the heteroxeneous life cycle of sarcocystis sp. Infecting camels were studied. A total of 180 slaughtered camels collected from different localities in Egypt were inestigated for sarcocysts. Only 116 animals were found to be infected (the infection rate was 64%). Muscle samples of esophagus, diaphragm, tongue, skeletal, and heart muscles were examined.

Exclusively, microscopic, sarcocysts were detected in all examined organs.

The infection rates of the esophagus, diaphragm, tongue, skeletal, and heart muscles were 60%, 50%, 40%, 40% and respectively .By means of transmission electron microscopy, details of the ultrastructure of the sarcocysts were studied. The specific architecture and ornaments of the cyst wall, its protrusions, and the cyst interior were recorded. Unique of protrusions of primary cyst wall, the knob - like Structures, arise around each protrusion. Experimental infection of carnivores by feeding heavily infected camel muscles revealed that the dog, Canis familiaris, is the only final host of the present sarcocystis species. Gamogony, sporogonic stages, and charactertistics of sporulated oocysts were also investigated.

Keywords:

Sarcocystis camelicanis; Life cycle; Light and EM.

Cairo University

Faculty of Science

Dep. : Zoology

Name : Fathy A. Abdel-Ghaffar



- *Title* : Ultrastructure, development, and host–parasite relationship of a new species of the genus Pleistophora—a microsporidian parasite of the marine fish Epinephelus chlorostignei
- Authors: F. Abdel-Ghaffar, A. Bashtar, H. Mehlhorn, K. Al-Rasheid, E. Al-Olayan, E. Koura and K. Morsy

Published In: Parasitol. Res

ISSN 0932-0113

Impact Factor 1.473

<u>Abstract :</u>

The life cycle of a new microsporidian of the genus Pleistophora is described. This parasite infects the epithelial cells of the gut and the peritoneal cavity of the Red Sea fish, Epinephelus chlorostignei. All stages develop within a special structure, the sporophorocyst, which is covered by a thick dense wall. This wall grows along with the growth of the parasites inside. Meronts are uni- to binucleate, which divide and constantly give rise to sporonts. During transition to sporonts, the cell border of the meronts increases its thickness, temporarily featuring thick irregular projections. Eventually, a uniform thick sporont wall is formed; then, the sporont cells detach themselves from the wall (future wall of the sporophorous vesicle, SPV) and start a series of divisions to produce sporoblasts. The SPV wall is compact, has no pores, and consists of two layers. Mature spores measure about 2.0×1.8 µm. They possess a polar filament with 20-28 coils, a posterior vacuole, and a polaroplast made up of an outer part of dense and closely spaced lamellae encircling an inner part of widely spaced lamellae. All morphological and ultrastructural features indicate that the described microsporidian parasite belongs to the genus Pleistophora.

Keywords:

Sarcocystis turcicii nov. sp.; Hemidactylus turcicus; K.SA.

Faculty of Science

Dep. : Zoology

Name : Fathy A. Abdel-Ghaffar



1.473

Impact Factor

Sarcocystis Infecting reptiles in Saudi-Arabia 1- Light and
electron microscopic study on Sarcocystis turcicii sp. Nov. infecting the gecko Hemidactylus turclus Linnaeus

Authors: F. Abdel-Ghaffar, A.Bashtar, S. Al-Quraishy, I. Al Nasr and H. Mehlhorn

Published In: Parasitol. Res

ISSN 0932-0113

Abstract :

Title

In the present study, sarcocysts of a Sarcocystis species infecting the gecko Hemidactylus turcicus was investigated by light and transmission electron microscopy. Six out of 26 (23%) H. turcicus were found to be infected with cysts of Sarcocystis. Examined muscle samples of different sites showed high intensity of infection in the tail and hind limb skeletal muscles. Microscopically visible cysts reached a mean size of 80×720 µm. These cysts are characterized by a light microscopically thick cyst wall and inner prominent septa dividing their interior into a large number of compartments enclosing the different zoites. Ultrastructural characteristics of the primary cyst wall and its long, mostly not upright protrusions were investigated. Two widely differentiated zoites (metrocytes and cyst merozoites) were clearly identified; they all showed the characteristic architecture of the Apicomplexa and especially that of the genus Sarcocystis. The about 5-7µm sized cyst merozoites seemed to be differentiated into those being either poorly or richly supplied with reserve materials (amylopectin, lipids). This finding may indicate the existence of different developmental stages. Events of endodyogeny represented the only mode of reproduction inside the cysts. While comparing the morphology of these cysts with other descriptions of cysts in reptiles, they were described as a new species (Sarcocystis turcicii).

Keywords:

Sarcocystis turcicii nov. sp.; Hemidactylus turcicus; K.SA.

Faculty of Science

Dep. : Zoology

Name : Nasr M. Radwan

6

Effect of Infrared Laser Irradiation on Amino Acid

Title : Neurotransmitters in an Epileptic Animal Model Induced by Pilocarpine

Authors: N. M. Radwan, N. A. Ahmed, K. M. Ibrahim, M. E. Khedr, M. A. El Aziz, and Y. A. Khadrawy

Published In : Photomedicine and Laser Surgery

ISSN 1549-5418 **Impact Factor** 1.785

<u>Abstract :</u>

OBJECTIVE: The aim of the present study was to investigate the effect of daily laser irradiation on the levels of amino acid neurotransmitters in the cortex and hippocampus in an epileptic animal model induced by pilocarpine. BACKGROUND DATA: It has been claimed that at specific wavelengths and energy densities, laser irradiation is a novel and useful tool for the treatment of peripheral and central nervous system injuries and disorders. MATERIALS AND METHODS: Adult male albino rats were divided into three groups: control rats, pilocarpinized rats (epileptic animal model), and pilocarpinized rats treated daily with laser irradiation (90 mW at 830 nm) for 7 d. The following parameters were assayed in cortex and hippocampus: amino acid neurotransmitters (excitatory: glutamic acid and aspartate; and inhibitory: gamma-aminobutyric acid [GABA], glycine, and taurine) by high-performance liquid chromatography (HPLC), glucose content, and the activity of alanine aminotransferase (ALT) and aspartate aminotransferase (AST), using a spectrophotometer. RESULTS: Significant increases in the concentrations of glutamic acid, glutamine, glycine, and taurine were recorded in the cortices of pilocarpinized rats, and they returned to initial levels after laser treatment. In the hippocampus, a moderate increase in aspartate accompanied by a significant increase in glycine were observed in the epileptic animal model, and these dropped to near-control values after laser treatment. In addition, a significant increase in cortical AST activity and a significant decrease in ALT activity and glucose content were obtained in the pilocarpinized animals and pilocarpinized rats treated with laser irradiation. In the hippocampus, significant decreases in the activity of AST and ALT and glucose content were recorded in the epileptic animals and in the epileptic animals treated with laser irradiation.

Conclusion: Based on the results obtained in this study, it may be suggested that nearinfrared laser irradiation may reverse the neurochemical changes in amino acid neurotransmitters induced by pilocarpine.

<u>Keywords:</u>

Laser; Amino acid neurotransmitters; Cortex; Hippocampus; Rat.

- *Dept.* : Agricultural Botany
- Name : Essam M. Darwish



- *Title* : Phospholipid Signaling Responses in Salt-Stressed Rice Leaves
- *Authors* : Essam Darwish, Christa Testerink, Mohamed Khalil, Osama El-Shihy and Teun Munnik

Published In: Plant and Cell Physiology

ISSN: 0032-0781 **Impact Factor:** 3.542

<u>Abstract :</u>

Salinity is one of the major environmental factors limiting growth and productivity of rice plants. In this study, the effect of salt stress on phospholipid signaling responses in rice leaves was investigated. Leaf cuts were radiolabeled with 32P-orthophosphate and the lipids extracted and analyzed by thin-layer chromatography, autoradiography and phosphoimaging. Phospholipids were identified by co-migration of known standards. Results showed that 32P(i) was rapidly incorporated into the minor lipids, phosphatidylinositol bisphosphate (PIP2) and phosphatidic acid (PA) and, interestingly, also into the structural lipids phosphatidylethanolamine (PE) and phosphatidylglycerol (PG), which normally label relatively slowly, like phosphatidylcholine (PC) and phosphatidylinositol (PI). Only very small amounts of PIP2 were found. However, in response to salt stress (NaCl), PIP2 levels rapidly (<30 min) increased up to 4-fold, in a time- and dose-dependent manner PA and phosphorvlated its product. diacylglycerolpyrophosphate (DGPP), also increased upon NaCl stress, while cardiolipin (CL) levels decreased. All other phospholipid levels remained unchanged. PA signaling can be generated via the combined action of phospholipase C (PLC) and diacylglycerol kinase (DGK) or directly via phospholipase D (PLD). The latter can be measured in vivo, using a transphosphatidylation assay. Interestingly, these measurements revealed that salt stress inhibited PLD activity, indicating that the salt stress-induced PA response was not due to PLD activity. Comparison of the 32P-lipid responses in salttolerant and salt-sensitive cultivars revealed no significant differences. Together these results show that salt stress rapidly activates several lipid responses in rice leaves but that these responses do not explain the difference in salt tolerance between sensitive and tolerant cultivars.

Keywords:

Lipid signaling; Phosphatidic acid; Phosphoinositides; Phospholipase; Rice; Salt stress.

Dept. : Agricultural Botany

Name : Essam M. Darwish



6.49

Cairo University

- *Title* : Heat stress activates phospholipase D and triggers PIP2 accumulation at the plasma membrane and nucleus
- Authors : Michael Mishkind, Joop E.M. Vermeer, Essam Darwish and Teun Munnik

Published In : The Plant

ISSN: 0960-7412 **Impact Factor**

<u>Abstract :</u>

Heat stress induces an array of physiological adjustments that facilitate continued homeostasis and survival during periods of elevated temperatures. Here, we report that within minutes of a sudden temperature increase, plants deploy specific phospholipids to specific intracellular locations: phospholipase D (PLD) and a phosphatidylinositolphosphate kinase (PIPK) are activated, and phosphatidic acid (PA) and phosphatidylinositol 4,5-bisphosphate (PIP2) rapidly accumulate, with the heat-induced PIP2 localized to the plasma membrane, nuclear envelope, nucleolus and punctate cytoplasmic structures. Increases in the steady-state levels of PA and PIP2 occur within several minutes of temperature increases from ambient levels of 20-25°C to 35°C and above. Similar patterns were observed in heat-stressed Arabidopsis seedlings and rice leaves. The PA that accumulates in response to temperature increases results in large part from the activation of PLD rather than the sequential action of phospholipase C and diacylglycerol kinase, the alternative pathway used to produce this lipid. Pulse-labelling analysis revealed that the PIP2 response is due to the activation of a PIPK rather than inhibition of a lipase or a PIP2 phosphatase. Inhibitor experiments suggest that the PIP2 response requires signalling through a G-protein, as aluminium fluoride blocks heat-induced PIP2 increases. These results are discussed in the context of the diverse cellular roles played by PIP2 and PA, including regulation of ion channels and the cytoskeleton.

<u>Keywords:</u>

Heat stress; Phospholipid signaling; Phosphatidylinositol 4,5-bisphosphate; Phosphatidic acid.

- **Dept.** : Agricultural Botany
- Name : Kassem F. El-Sahhar



Title : Phytosociological Attributes of Wadi Gaza Area, Gaza Strip, Palestine

Authors: M. M. Abou Auda, Kassem F. El-Sahhar and N. Y. Deeb

Published In : International Journal of Botany

ISSN 1811-9700 **Impact Factor** 0.00

<u>Abstract :</u>

Wadi Gaza area, Gaza Strip, Palestine was subjected to a phytosociological study through 24 trips in the period from March to September 2007. This area has a characteristic semi-arid climate and locates in a transitional zone between Mediterranean, Negev and Sinai regions. Nine quadrats (10x10 m) at buttom, bank and open field wadi in six locations; namely, Al-Brikat, Al-Nabaheen, Al-Saoud, Al-Bahr, Al-Rabowa and Abu-Malaa representing the entire area of Wadi Gaza, Gaza Strip were chosen to study the vegetation, including species coverabundance, species frequency, relative frequency, community similarity, in addition to soil analysis. Some quadrats were pure stand of one species; e.g., Tamarix nilotica in Al-Rabowa and Arundo donax in Abu-Malaa. Some species like Cynodon dactylon were restricted only to one place (wadi bank) of the location (Al-Brikat) due to the lower degree of animal grazing and the moisture availability. Alhagi graecorum and Silvbum marianum recorded the highest species frequency in the studied area. Unique occurrence of some salinity tolerant species were observed in Al-Bahr (a coastal location). The highest similarity was found between Al-Brikat wadi bank and Al-Nabaheen wadi open field. In contrast to the dissimilarity between both of Abu-Malaa and Al-Rabowa wadi buttom and other locations as they were pure stands and more or less unique locations. Physical and chemical structure of soil varied according to soil texture, pH values, salinity, moisture, sewage water, urban effect and bordering agricultural fields.

Keywords:

Community similarity; Cover-abundance, frequency; Gaza Strip; Palestine; Phytosociology; Relative frequency; Soil and Wadi Gaza.

- Dept. : Animal Production
- Name : Ahmed Y. Abdel Moneim



- *Title* : Flock dynamics of desert Barki sheep in relation to age structure
- *Authors*: A. Y Abdel Moneim ; A. M. Ahmed ; Mona M. Ibrahim and M. M. Mokhtar
- **Published In :** Tropical Animal health and Production
- **ISSN:** 0049-4747 **Impact Factor:** 0.559

<u>Abstract :</u>

Reproduction data of 8689 ewe records spread over 40 years (from 1960 to 2000) representing 2952 breeding Barki ewes were used in this study. The flock belonged to the Desert Research Center in Egypt. Flock dynamics of nine age groups (2–10 yrs) were assessed. Two parameters were used to evaluate flock dynamics, net reproduction rate (R_o) (number of ewe- lambs reaching joining age and produced by each ewe during its lifetime in the flock) and intrinsic rate of increase (r_m) (flock growth when no resource is limiting). Age of ewe had a highly significant (P < 0.01) effect on number of ewes lambing per ewe joined (E_{PJ}), number of lambs born per ewe joined (L_{BJ}), number of lambs weaned per ewe joined (L_{eJJ}). All estimates tended to increase with dams age up to four years and decreased thereafter. The results of R_o and r_m showed that the studied flock must consist of 5 age groups to maintain its size and replace itself. It may be recommended to cull the breeding ewe at the age of 6 years to accelerate genetic improvement.

Keywords:

Barki sheep; Flock dynamics; Intrinsic rate of increase (r_m) ; Net reproduction rate (R_o) .

- **Dept.** : Animal Production
- *Name* : Ehab El-Haroun



High Dietary Incorporation Levels of Rendered Animal ProteinTitle: Ingredients On Performance of Rainbow Trout Oncorhynchus
Mykiss

Authors : Ehab El-Haroun, Paula Azevado and Dominique Bureau

Published In : Aquaculture

ISSN : 0044-8486

Impact Factor: 1.678

<u>Abstract :</u>

Two growth trials were conducted using spray-dried blood meal (BM), feather meal (FEM), meat and bone meal (MBM) and poultry by-product meal (PBM) as major protein sources in the diet of rainbow trout. In the first trial, five diets were formulated to examine the nutritive value of spray-dried BM and PBM. Increasing levels of BM (6, 12%) or PBM (10, 20, and 30%) replaced fish meal and corn gluten meal in the diet. For the second trial, eight diets were formulated to contain the following combinations: FEM+MBM, FEM+PBM or MBM+PBM. The diets containing FEM+MBM and FEM+PBM were supplemented with either L-lysine or DL-methionine, the amino acids predicted to be the two most limiting in these diets. Each experimental diet was allocated to three tanks of fish and fed for 20 weeks in the first trial or 16 weeks in the second trial. All the experimental diets were readily consumed by the fish and high growth and good feed efficiency ratio (FER) were achieved for all diets. In the first trial, there were no significant differences (PN0.05) in weight gain or FER of fish fed the five experimental diets, suggesting that BM and PBM had high nutritive values for rainbow trout. In the second trial, growth of the fish fed the diet containing the FEM+PBM combination was not statistically different from growth of fish fed the control diet. Growth of fish fed diets with FEM+MBM or PBM+MBM combinations were slightly lower than that of fish fed the control diet. Supplementation of diets with either L-lysine or DL methionine had no effect on the performance of the fish. The results from this study show that feather meal, poultry by-product meal, blood meal and meat and bone meal have good potential for use in rainbow trout diets at high levels of incorporation.

<u>Keywords:</u>

Blood meal; Meat and bone meal; Poultry by-product meal; Feather meal; Growth; Rainbow trout.

Dept. : Animal Production

Name : Hosam M. Safaa



Title	:	Effects of Main Cereal of the Diet And Particle Size of the Cereal on Productive Performance and Egg Quality of Brown Egg-Laying Hens In Early Phase of Production
Author	s :	H. M. Safaa, E. Jiménez-Moreno, D. G. Valencia, M. Frikha, M. P. Serrano and G. G. Mateos
Publish	ied	In : Poultry Science 88: 608 – 614 - 2009

ISSN: 0032-5791 **Impact Factor**: 1.668

<u>Abstract :</u>

A total of 960 Lohmann Brown laying hens were used to study the effects of the main cereal of the diet and geometric mean diameter (GMD) of the cereal on productive performance and egg quality from 20 to 48 wk of age. The experiment was a completely randomized design with 6 treatments arranged factorially with 2 cereals (dent corn vs. durum wheat) and 3 GMD of the cereal (hammer-milled to pass through 6-, 8-, or 10-mm screens). Each treatment was replicated 8 times (20 hens per replicate). All diets were formulated to be isonutritive and contained 50% of either corn or wheat. Productive traits were recorded every 4 wk and egg quality was measured at 48 wk of age. The only significant effect detected was for feed intake (P < 0.05) that was greater for hens fed coarse-ground cereals (10-mm screen) than for hens fed medium and fine ground cereals (8- or 6-mm screen). None of the egg quality parameters studied were influenced by dietary treatment. We conclude that neither type of cereal nor GMD affected productive performance or egg quality of young brown hens, except for feed intake that increased with the coarser particle size.

<u>Keywords:</u>

Corn; Durum wheat; Particle size; Laying hen performance; Egg quality.

Dept. : Animal Production

Name : Hosam M. Safaa



Cairo University

Influence of the Main Cereal and Feed form of the Diet on

Title : Performance and Digestive Tract Traits of Brown-Egg Laying Pullets

Authors: M. Frikha, H. M. Safaa, M. P. Serrano, X. Arbe and G. G. Mateos

Published In: Poultry Science 88:994-1002 (2009)

ISSN: 0032-5791 **Impact Factor:** 1.668

<u>Abstract :</u>

The influence of the main cereal and feed form of the diet on performance and digestive tract traits was studied in 576 brown-egg laying pullets from 1 to 120 d of age. From 1 to 45 d of age, 4 diets arranged factorially with 2 cereals (corn vs. wheat) and 2 feed forms (mash vs. pellets) were used. Each treatment was replicated 6 times (24 pullets per replicate). From 46 to 120 d of age, all diets were offered in mash form and the only difference among diets was the cereal used. Cumulatively, pullets fed the corn diets had higher BW gain (P < 0.05) but similar feed conversion ratio as pullets fed the wheat diets. From 1 to 45 d of age, pullets fed pellets consumed more feed (P < 0.001) and had higher BW gain (P < 0.001) than those fed mash. Most of the beneficial effects of pelleting on productive performance were still evident at 120 d of age. At 45 d of age, gizzard weight (g/kg of BW) was higher (P < 0.01) in pullets fed corn than in pullets fed wheat diets. Feeding pellets reduced the relative weight of the digestive tract and the gizzard (P < 0.001) as well as the length (cm/kg of BW) of the small intestine (P < 0.001) as well as the length (cm/kg of BW) of the small intestine (P < 0.001) as well as the length (cm/kg of BW) of the small intestine (P < 0.001) as well as the length (cm/kg of BW) of the small intestine (P < 0.001) as well as the length (cm/kg of BW) of the small intestine (P < 0.001) as well as the length (cm/kg of BW) of the small intestine (P < 0.001) as well as the length (cm/kg of BW) of the small intestine (P < 0.001) as well as the length (cm/kg of BW) of the small intestine (P < 0.001) as well as the length (cm/kg of BW) of the small intestine (P < 0.001) as well as the length (P < 0.001). 0.01) at both ages. The pH of gizzard contents at 120 d of age was not affected by cereal but was lower in pullets that were fed mash from 1 to 45 d of age (P < 0.01). We conclude that wheat can be used in substitution of corn in pullet diets with only a slight reduction in BW gain and that feeding pellets from 1 to 45 d of age increased BW gain and pH of the gizzard and reduced the relative weight of the gizzard and the length of the gastrointestinal tract at 120 d of age.

<u>Keywords:</u>

Corn; Wheat; Feed form; Pullet performance; Digestive organ.

Dept. : Animal Production

Name : Hosam M. Safaa



1.882

- *Title* Influence of energy concentration and feed form of the diet on *Title* : growth performance and digestive traits of brown egg-laying
 - pullets from 1 to 120 days of age

Authors: M. Frikha, H. M. Safaa, E. Jiménez-Moreno, R. Lazaro, and G. G. Mateos

Published In: Animal Feed Science and Technology 153:192-302(2009)

ISSN: 0377-8401 **Impact Factor**:

<u>Abstract :</u>

A total of 1152 one-day-old Hy-Line Brown pullets were used to study the influence of energy content of the diet and feed form on productive performance and digestive tract traits. From 1 to 45 days (d) of age, there were six diets arranged factorially with three Apparent metabolizable Energy (AMEn) concentrations (low, medium and high) and two feed forms (mash and pellets). From 45 to 120 d all diets were fed in mash form and therefore, the only difference was the energy content. Each of the 6 treatments was replicated 8 times and the experimental unit was formed by 24 pullets housed in 2 adjacent cages. For the entire experiment, body weight (BW) gain and feed to gain ratio improved as the AMEn of the diet increased (P < 0.001). Pullets fed pellets from 1 to 45 d of age had higher feed intake and BW gain (P<0.001) in this period and higher BW gain (P<0.01) cumulatively, than pullets fed mash. At 45 d of age, the relative weight (RW; g/kg BW) of all the segments of the gastrointestinal tract (GIT) was lower for pullets fed with the high than for pullets fed the medium- or low-energy diets. At 120 d of age the RW of the gizzard was higher (P<0.01) for pullets fed the low energy diets than for pullets fed the other diets. The relative length (RL; cm/kg BW) of the GIT was not affected by the energy content of the diet. Feeding pellets reduced the RW of the proventriculus (P<0.05), the gizzard (P<0.001) and the digestive tract (P<0.001), and the RL of the small intestine (P<0.05) and the ceca (P<0.001) at 45 d of age. The effects of feeding pellets on RW of gizzard and proventriculus were still evident at 120 d of age. We concluded that feeding pellets from 1 to 45 d of age improved feed intake and BW of pullets at 120 d of age, and that an increase in the energy content of the diet increased pullet performance at all ages but reduced the RW of the proventriculus and gizzard.

Keywords:

Pullet growth; Metabolizable energy; Pelleting; Digestive organ development.

- **Dep.** : Animal Production
- Name : Essam A. El-Gendy



Cairo University

- A Model for the Genetic Employment of Chickens Local to
- *Title* : Warm Climate 1. Crossing with a Fast Growing Strain and Growth Patterns of the Crossbreds
- Authors: Essam A. El-Gendy

Published In: International journal Poultry Science 8(3): 299–306 (2009)

ISSN 1682-8356 **Impact Factor** 0.0

Abstract :

A breeding program aims to develop a chicken population inherent for heat tolerance and fast growth was started using a naked-neck local breed in Egypt that performs heat tolerance. The local breed was crossed with the sire line of a normally feathered commercial broiler strain. The crossbreds were raised in a heating treatment $(35^{\circ}C \text{ from hatch to } 6 \text{ weeks, then reduced to } 24^{\circ}C \text{ })$ or a nonheating treatment (35°C from hatch to 3 days, and reduced gradually to reach 24°C). Body weights of the crossbreds, across ages, were significantly around twofold heavier than those of the locals. The crossbreds weighed 641.8 g at 6 weeks of age versus 303.0 g for the locals. The 2-4 week growth rate was 73.7% for the crossbreds versus 60.2% for the locals. The Na/na crossbreds were significantly heavier than na/na crossbreds when heated, and the differences were not significant when non-heated. The spread of 6-week body weights of the crossbreds was remarkably different from that of the locals and the difference was mainly attributed to the variation brought in through the flow of genes. The heterotic effects on body weights were significant in both heated and non-heated crossbreds and expressed a large source of non-additive genetic variation. Heterosis estimates in body weights and growth rates were age and environment specific, and were significantly higher for the heated than for non-heated crossbreds, indicating the flow of genes influence growth and heat tolerance. The results demonstrate remarkable changes in the frequencies of non-allelic genes that influence growth and propose the genetic selection for increased 6-week body weight in the naked-neck and normally feathered crossbreds.

Keywords:

Gene flow; Growth performance; Heterosis; Local breeds; Warm climate.

Dept. : Animal Production

Name : Essam A. El-Gendy



Developmental Stability in Chickens Local to Warm Climate 1.

- *Title* : Variation in Internal Organs and Bilateral Traits of Lines Selected Short-Term for Growth
- Authors : Essam A. El-Gendy

Published In: International journal of Poultry Science 8/3:299-306(2009)

ISSN: 1682-8356 **Impact Factor**: 0.0

<u>Abstract :</u>

This study aimed at adopting the developmental changes in the internal organs and bilateral traits of growing chickens selected five generations for increased 6week body weight and genotyping for normal feathering (line F) or naked-necks (line N), compared to their corresponding genetic controls (lines CF and CN). Line N had the smallest weight percentages of total lungs and liver (0.54 and 2.38%) and biggest weight percentages of right and left shanks (2.46 and 2.48%). Line F had the smallest spleen weight percentage (0.20%) and tallest right and left shanks (8.50 and 8.57 cm) and widest right and left shanks (3.74 and 3.75 cm). Gizzard weight percentages of lines N and CN (3.37 and 3.55%) were significantly more than those of lines F and CF (2.74 and 3.00%). The results indicated that neither short-term selection nor Na allele have influenced the development of heart. Na allele showed variable pleiotropic effects, where the weight percentages of lungs and liver were decreased and the weight percentages of gizzard and spleen were increased. A reduction in lung and liver weight percentages characterized the naked-neck selected line, revealing an interaction between selection and Na allele. The pressure of short-term selection for body weight was early noticeable on the development of liver and spleen that could initiate possible metabolic disorders or susceptibility to disease infection later with the continuity of selection scheme. Short-term selection albeit boosted the bilateral shank measurements, but did not influence the bilateral developmental stability. The developmental stability characterized the bilateral characters in chickens carrying Na allele, suggesting a role of Na allele in the developmental stability of the birds pertaining the natural heating waves. The results of correlation coefficients indicated that the bilateral asymmetries of different characters are not significantly associated.

Keywords:

Bilateral asymmetry; Developmental stability; Selection; Na allele.

Dept. : Biochemistry

Name : Ahmed M. Aboul-Enein



- *Title* : Nitric oxide triggers specific and dose-dependent cytosolic calcium transients in Arabidopsis
- Authors: Mourad A.M. Aboul-Soud, Ahmed M. Aboul-Enein and Gary J. Loake
- Published In: Planr Signaling & Behavior
- **ISSN**: 1559-2316 **Impact Factor**: 0.00

<u>Abstract :</u>

Calcium (Ca^{2} +) transients have been shown to take place in response to diverse developmental and physiological cues. Also, it is involved in biotic and abiotic stress signaling. Nitric oxide (NO) is an important signaling molecule that plays a crucial role in plant growth and development, starting from germination to flowering, ripening of fruit and senescence of organs. Moreover, it plays a pivotal role in several biotic and abiotic stress signaling processes. In the present work, the ability of NO to trigger increases in cytosolic calcium concentration ([Ca²+]cvt) was investigated. For this purpose, transgenic Arabidopsis seedlings constitutively expressing the luminescent Ca^{2+} -sensitive protein apoaequorin (35S::APOAEQUORIN) was employed. In chemiluminescence and in vivo Ca^{2+} imaging assays, the NO-donor sodium nitroprus-side (SNP) triggered a strong, instantaneous, reproducible, and dose-dependent rise in $[Ca^2+]p'$ Moreover, the observed rise in $\lceil Ca^2 + \rceil$ was shown to be NO-specific and not associated with cyt decomposition products of SNp, as the NO-scavenger 2-4-carboxy -phenyl-4.4.5.5-tetramethylimidazoline-l-oxyl-3 oxide (C-PTIO) significantly blunted the observed NO-mediated spike in [Ca²+]cyt' Interestingly, preincubation of 35S:: APOAEQUORIN Arabidopsis seedlings with the plasma membrane channel blocker lanthanum chloride resulted in partial concentration-dependent blocking of the NO-specific Ca^{2+} transient. This observation indicates that, in addition to the mobilization of $[Ca^{2}+]$, as an external source in cyt response to NO treatment, there also exists an appreciable contri -bution of an as yet unidentified internal pool.

Keywords:

Nitric oxide; Calcium transienrs; Apoaequorin; Arabidopsis thaliana.

Faculty of Agriculture

Dept.	:	Biochemistry





0.00

Title : Modulatory Effect of Vitamins A, C and E mixtures Against Tefluthrin Pesticide Genotoxicity in Rats

Authors : Salah S.H., Abdou H.S. and Abdel Rahim E.A.

Published In: Research Journal of Agriculture and Biological Sciences

ISSN : 1816-1561 *Impact Factor* :

Abstract :

The experiments to be reported were focused on the effect of three antioxidant vitamins (A, C and E) mixtures on some hematologic parameters, liver and testes nucleic acid system, blood immuno-system, chromosomal aberration and sperm-shape of tefluthrin ($\frac{1}{20}$ LD50) intoxicated rats. A total of 90 male albino rats were

used in the present study which divided into 6 groups (15 rats each) to evaluate the effect of technical tefluthrin ingestion and treatment with mixtures of vitamins A and E, vitamins E and C, vitamins C and A and vitamins A, C and E. Oral ingestion of technical tefluthrin significantly decreased the count of RBCs, Hb content and stimulated plasma LDH activity, also reduced the levels of blood immuno globulins (IgG, IgA and IgM). Under the effects of tefluthrin liver and tests nucleic acids (RNA and DNA) contents were decreased and the activities of nucleases (RNAase and DNAase) were also inhibited relative to these values of normal healthy control group. Chromosomal aberrations and sperm shape abnormalities were significantly increased after ingestion of tefluthrin, compared to the control group. Mitotic index (MI) and sperm count was decreased significantly due to the potential cytotoxicity of tefluthrin. Treatment of intoxicated rats with antioxidant vitamins (A,C and E) mixtures reduced the harmful influences of tefluthrin. Blood IgG, IgA and IgM levels, RBCs count and Hb content were improved relative to normal healthy animal group. The frequency of chromosome aberrations in bone marrow cells of intoxicated rats treated with vitamins as well as the frequency of sperm abnormalities were decreased and readjusted near to that of the healthy control animals, also MI and sperm counts were increased significantly near to the control group after vitamins ingestion as treatments.

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http://gsrs.cu.edu.eg

It is interesting to note that, the ingestion of vitamins mixtures readjusted and normalized the hematologic parameters around those of normal healthy control. In case of liver and tests nucleic acids system, the disturbed effects of the pesticide induction of RNA and DNA contents as well as RNAase and DNAase activities were alleviated by the treatments with the present antioxidative vitamins mixtures, in which the nucleic acids contents and nucleases activities of liver and testes of tefluthrin intoxicated rats were ameliorated and normalized compared with those of normal control

Keywords:

Vitamin A; Vitamin C; Vitamin E; Tefluthrin.

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http://gsrs.cu.edu.eg

Dept.	:	Biochemistry
Name	:	Emam A. Abdel-Rahim



Cairo University

Title : The Ability of Vitamins A, C and E as Antioxidants Against The Genotoxic Potential of Tefluthrin

Authors: Abdou H. S., Salah S. H. and Abdel Rahim E. A.

Published In : Australian Journal of Basic and Applied Sciences

ISSN: 1991-8178 *Impact Factor*: 0.00

Abstract :

Antioxidants are believed to be beneficial for a whole host of medical conditions and for good health. Vitamins C, A and E as antioxidants protect the cells from endogenous oxidative DNA damage. Tefluthuin, a pyrethroid insecticide, is widely used in agriculture because of its high activity against a broad spectrum of insect pests. The aim of this study was to investigate the modulatory effects of vitamins A, C and E against the toxicity induced by tefluthrin in male albino rats. Results showed that tefluthrin ($\frac{1}{20}$ of the LD₅₀)

oral administration to male rats sub-acutely caused strong toxic effects. This toxicity includes significant increase in chromosomal aberrations, sperm abnormalities mitotic activity and sperm counts. Also, the results of biochemical analysis showed that the immunoglobulins (IgG, IgA and IgM) content in serum was decreased significantly in tefluthrin intoxicated rats. In case of nucleic acids system; (total soluble protein, RNA and DNA content) of liver and testes tissues was decreased. Also the activity of RNAase and DNAase was inhibited. The Hb content and RBCs count were significantly decreased in contrast, the LDH activity was stimulated, but WBCs count was significantly changed under the teflurthrin toxicity conditions. Concurrently, administration of vitamin C,A and E with tefluthrin to rats for 15 consecutive days modulated the cytotoxicity induced by tefluthrin and markedly decreased the number of chromosome aberrations and sperm abnormalities. It also induced significant alleviations of the toxic effects in all biochemical parameters (immunosystem, nucleic acid system, RBCs, Hb and LDH activity). It can conclude that vitamins C, A and E can protected the animals from tefluthrin toxicity but not completely.

<u>Keywords :</u>

Vitamin A;	Vitamin C; Vitamin E; Tefluthrin.	
6724	-225-	http://gsrs.cu.edu.eg

Dept. : Biochemistry

Name : Gamal S. El-Baroty



Phenolics from Spirulina Maxima: Over-production and in Vitro

Title : Protective Effect of its Phenolics on CCl4 Induced Hepatotoxicity.

Authors: Abd El-Baky H. Hanaa, El Baz F. K. and El-Baroty, G. S.

Published In: Advance in food sct 31(1):8-16(2009)

ISSN: 1996-0875 **Impact Factor**: 0.400

<u>Abstract :</u>

The purpose of this study was to illustrate the enhancing process of phenolics' synthesis in Spirulina maxima grown in Zarrouk's medium supplemented with different concentrations of NaNO₃ and/or combined with phenylalanine (L-PA). Also, the protective efficacy of Spirulina polyphenolic (SPP) extracts against CCI4-induced microsomal lipid peroxidation and scavenging of hydroxyl radical formation were performed. The results revealed that the levels of NaNO3 and L-PA in growth medium have positive effects on the production of biomass (34-64 mgday⁻¹), total phenolics (4.51-16.96 mgg⁻¹ d.w) and flavonoids (1.32- 5.12 mgg⁻¹ d.w). The highest levels of these compounds were obtained in Zarrouk's medium containing 3.77 gL-1 NaNO3 and 100 mgL⁻¹ L-PA. The HPLC-DAD profile of all phenolic extracts of Spirulina showed the presence of a large number of phenolic acids and flavonoids, in variable levels. Gallic, chlorogenic, cinnamic, pinostrobin and p- OH-benzoic acids were found as the most abundant constituents among different extracts. Polyphenolic compounds of Spirulina exhibited antioxidant effects on CCI4-induced lipid peroxidation (inhibition %) in liver homogenate and on DPPH radical scavenging activity (with IC50 values ranging between 23.22 -35.62 µgmL⁻¹), in dose-dependent manner. Their protective potential was comparable to that of standard phenolic antioxidants (BHT, BHA and α tocopherol, with IC₅₀ values of 13.22 - 23.62 μ gmL⁻¹). Thus, Spirulina maxima can be regarded as potent natural source of nutraceutical and functional ingredients.

<u>Keywords:</u>

Spirulina maxima; Antioxidant activity; Carbon tetrachloride; Hepatoprotective effects.

Dept. : Biochemistry

Name : Gamal S. El-Baroty



Cairo University

Title : Potential Biological Properties of Sulphated Polysaccharides Extracted from the Macroalgae Ulva Lactuca L.

Authors: Abd El-Baky H. Hanaa, El Baz F. K. and El-Baroty G. S.

Published In: Acad. J. Cancer Research

ISSN: 1995-8943 **Impact Factor**: 0.0

<u>Abstract :</u>

Two sulphated polysaccharides extracts (SPS) were obtained from the macroalgae Ulva lactuca L grown in both artificial and natural seawater media, by hot water and 85% ethanol extraction followed by ethanol absolute precipitated and its chemical characteristic and biological activities were investigated. The results demonstrated that all Ulva SPS extracts display significant radical scavenging activity toward DPPH and ABTS radicals. In cytotoxicity assay, all SPSs extracts showed potential activity against both cancer cell lines tested (Human breast adenocarcinoma cells, MCF-7 and hepatocellular carcinoma cells, HepG2), with IC50 value ranged from 0.40 to 99 μ g/ml. Moreover, all SPS had high levels of antiviral activity against herpes simple virus 1, and showed prominent anticoagulant effect.

The different Ulva SPS extracts were characterized by HPLC and IR spectroscopy, and show to be contains the similar SPSs, with the compositional of five mono-saccharides: xylose, glucouronic acid, mannose, and rhamnose as well as sulphates groups. IR spectra of Ulva SPS extracts typical specific absorbance of ulvan type polysaccharides.

Keywords:

Ulva lactuca; Sulfated polysaccharides; Ulvan; Bioactivity.

Dept. : Biochemistry

Name : Gamal S. El-Baroty



Title : Natural preservative ingredient from marine alga Ulva lactuca L.

Authors: Abd El-Baky H. Hanaa, El Baz F. K. and El-Baroty G. S.

Published In: International Journal of Food Science and Technology

ISSN: 0950-5423 **Impact Factor**: 1.065

<u>Abstract :</u>

The contents of total chlorophyll (T-Chl), carotenoids and phenolics compounds were quantified in the biomasses of Ulva lactuca grown either in normal or artificial sea water under indoor onditions. The antioxidant and antibacterial activities of U. lactuca crude organic extracts (Ulva-COEs) were determined. Thirty-four compounds in Ulva-COEs were characterized by thin layer chromatography and high performance liquid chromatography. The major compounds were chlorophyll a (Chl a) (15.60-30.90%) and b (Chl b) (12.20-14.89%), 9-cis β-carotene (13.12–14.47%), α-carotene (11.44–11.47%) and alltrans β carotene (6.16–29.70%, of total carotenoids). The Ulva-COEs exhibited remarkable antioxidant activity, with an IC_{50} (concentration which causes a 50%) of DPPH radical scavenging activity) values ranged from 16.5 and 18.7 μ g mL⁻¹, which could be compared with the synthetic antioxidants: a-tocopherol (14.4 μ g mL⁻¹), butylated hydroxyanisol (13.1 μ g mL⁻¹) and butylated hydroxyltoluene (13.1 µg mL⁻¹). Also, Ulva-COEs exhibited great potential antibacterial activities against six bacterial strains, with minimal inhibitory concentration values ranged from 0.40 to 0.35 mg mL⁻¹).

Keywords:

Antibacterial activity; Antioxidant activity; Ulva lactuca.

Dep. : Biochemistry

Name : Gamal S. El-Baroty



Enhancing Antioxidant Availability in grains of Wheat plants

Title : grown under seawater-stress in response to microalgae extracts treatments

Authors: Abd El-Baky H. Hanaa, El Baz F. K. and El-Baroty G. S.

Published In : . J Sci Food Agric

ISSN 0022-5142 **Impact Factor** 1.333

Abstract :

Background: The present study was designed to investigate the enhanced antioxidant capacity of whole grains from wheat plants grown under seawater stress in response to microalgae extract treatment. Results: The total carotenoid (TCAR), tocopherol (TOC), phenolic (TPC), and protein (PC) contents in whole grains of wheat plants irrigated with 10% and 20% (v/v) seawater (SW) in response to water extracts of microalgae Spirulina maxima (SME) and Chlorella ellipsoida (CEE) as well as exogenous plant growth enhancers of ascorbic acid and benzyladenine treatments were measured. The results showed that the levels of enhanced TCAR (range 0.08–0.14 g kg-1), TOC (range 0.05–0.12 g kg-1), TPC (range 0.80-2.96 g kg-1) and PC (range 93.4-137.9 g kg-1) in wheat grains of plants irrigated with 10% and 20% SW were significantly increased in response to SME and CEE treatments. Evaluation of antioxidant activity of ethanolic extracts of grains of SW-stressed plants indicated that DPPH and TBAS radical scavenging activity was significantly increased in response to SME and CEE treatments and coincided with the increase in levels of antioxidant compounds present in each extract. The electrophoretic profiles of the grains of proteins of treated samples exhibited quite different patterns from those in control samples.

Conclusion: The results suggest that the application of algal extracts to wheat plants irrigated with SW is useful for improvement of salinity tolerance. This effect can be triggered by the stimulation of antioxidant components and protein content.

<u>Keywords:</u>

Microalgae; Antioxidant activity; Phenolics; Proteins; Seawater.

Dept. : Biochemistry

Name : Hazem M. Hassan



- *Title* : Inhibitory Activities of Some Mucilages and Gums Against Certain Intestinal Disaccharidases
- Authors: Hazem M. Hassan

Published In: Australian Journal of Basic and Applied Sciences

ISSN: 1991-8178 **Impact Factor**: 0.00

<u>Abstract :</u>

The inhibitory activities of some plant mucilages (taro, okra, Jew's mellow and aloe vera mucilages) and some gums (arabic, tragacanth, olibanium and mastic gums) were tested on certain intestinal disaccharidases *in vitro*. Different concentrations (50, 100, 150 and 200 ppm) of each mucilage and gum were employed to evaluate their potentials on intestinal disaccharidases after pre-incubation with enzyme. The obtained data showed that the mucilages and gums under investigation possessed inhibitory activities for certain intestinal disaccharidases (i.e. intestinal invertase, maltase or lactase). The inhibitory activities of mucilages and gums were very varied each to other. The inhibitory activities of mucilages and gums were proportioned with the concentration of polysaccharide. In conclusion, the mucilages and gums under investigation can be used in medical and pharmaceutical fields as an adjunct to the dietary management of obesity and diabetes.

<u>Keywords:</u>

Inhibitory activities; Mucilages; Gums; Intestinal disaccharidases.

Cairo University

Dept. : Biochemistry

Name : Hossam El-Din S. El-Beltagi



Cadmium Stress Induced Change in some Hydrolytic Enzymes,

- *Title* : Free Radical Formation and Ultrastructural Disorders in Radish Plant
- Authors: Amal, A. Mohamed, Hossam, S. El-Beltagi and Mohamed, M. Rashed

Published In : Electronic Journal of Environmental, Agricultural and Food Chemistry

ISSN: 1579-4377 **Impact Factor**: 0.00

<u>Abstract :</u>

Pot experiment was carried out to study the effect of different cadmium levels on several metabolic reactions in the radish plant. Varied concentrations of $CdCl_2$ ranging from 1.0 - 50 ppm were applied in the growth media for 40 days. Cadmium concentration in both roots and leaves increased with increasing external Cd supply. However, Cd concentration in roots was much higher than in leaves. Also, the concentration of micronutrients such as Fe, Zn, Mn and Cu declined in leaves compared with roots. Cd treatments induced changes in some enzymes activity such as acid phosphatase (AP), esterase (EST) and polyphenol oxidase (PPO) in leaves and roots of radish plant. Cd stress also induced several changes in AP, EST and PPO isozyme profiles. Results of the electron spin resonance (ESR) determination showed a decrease in unstable free radical level in the roots, followed by a significant increase with increasing Cd concentrations. The results of transmation electron microscopy (TEM) showed a clear disorder in the Cd treated radish plant.

Keywords:

AP: Acid phosphatase; ESR: Electron spin resonance; EST: Esterase; PPO: Polyphenol oxidase; TEM: Transmation electron microscopy.

Dept. : Biochemistry

Name : Hossam El-Din S. El-Beltagi

- *Title* : Effect of Fe Deficiency on Antioxidant System in Leaves of Three Flax Cultivars
- Authors : Zeinab A. Salama, Hossam S. El-Beltagi and Dardiri M. El-Hariri

Published In : Natural Fibers

ISSN: 1842-4309

Impact Factor: 0.00

<u>Abstract :</u>

The potential role of antioxidant enzymes as well as antioxidant compounds in protecting plant from the deleterious effect of iron deficiency was examined in different flax Linum usitassimum L. cultivars. Three flax cultivars (Sakha 1, Sakha 2 and Giza 8) were grown in water culture with (Fe-sufficient plants, +Fe) or without (Fe-deficient plants,-Fe) iron supply for 40 days. The obtained results showed that, iron deficiency severely decreased dry weight and concentration of iron in all cultivars leaf tissue. Besides this, to verify whether iron deficiency could induce alteration in reactive oxygen species, high concentration of lipid peroxidation (TBARS) and H₂O₂ content in leaves of flax cultivars were detected under (-Fe) compared to (+Fe) treatments. Iron deficiency can also modulate the content of glutathione (GSH) level, which were significantly increased in Fe deficient treatment compared to Fe-sufficient treatment among cultivars. Activity of superoxide dismutase (SOD) was increased under deficient treatment. In contrast, significant differences were observed between cultivars in the activity of Fe containing enzymes such as ascorbate peroxidase (APX), peroxidase (POD) and catalase (CAT) that was greater under Fe sufficient treatment, suggesting higher amounts of physiological iron in leaf tissue of all cultivars. In addition, some changes in POD isoenzyme profile was detected under iron stress. These results suggested that, these antioxidant compounds are the key compounds to protect cell from oxidative injury.

<u>Keywords:</u>

Antioxidant enzymes; Flax; Fe-deficiency; lipid peroxidation; Peroxidase isoenzyme.



Dept. : Biochemistry

Name : Ramy M. Romeilah

Title : Anticancer and Antioxidant Activities of *Matricaria chamomilla* L. and *Marjorana hortensis* Essential Oils

Authors: Ramy M. Romeilah

Published In: Research J. Medicine and Medical Sciences

ISSN : 1816-272X	Impact Factor :	0.00
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<u>Abstract :</u>

The anticancer activity of hydro distilled essential oils obtained from flowers of Matricaria chamomilla L. and the dried leaves of Marjorana hortensis cultivated in Egypt against leukemia HL-60 and NB4 cells were tested invitro. HL-60 and NB4 cells were incubated with different levels of two essential oils 25, 50, 75, 100, 200 ppm for viability test and the percentages of dead HL-60 cells after 24h were 22.8, 36, 46.2, 67.5, 78.4% respectively by treated with chamomile oil and 17.55, 21.11, 27.55, 39.2, 52.59% respectively by treated with marjoram oil, while the percent ages of dead NB4 cells were 17.1, 26.67, 55.86, 76.1, 86.03% respectively by treated with chamomile oil a n d 21.3, 29.61, 36.23, 57.9, 67.88% respectively by treated with marjoram oil. On the other hand the antioxidant activity of essential oils against DPPH radical was determined in vitro by treated with different concentrations of two essential oils 25, 50, 75, 100, 200 ppm and the percentages of DPPH' inhibition were 19.57, 34.41, 45.39, 63.11, 94.03% respectively by treated with chamomile oil, whereas treated with marjoram oil the percentages of DPPH' inhibition were 20.5, 35, 39.79, 49.52, 76.37% respectively. Chemical compositions of essential oils were examined by gas chromatographymass spectrometry (GC/MS). Chamomile oil was found to contain 47 compounds, the major components being bis abolol oxide A, B (37.85%), chamazulene (14.77%), guaiazulene (12.42%), α-bisabolol (9.81%) and bisabolone oxide A (4.12%), while marjoram oil analysis reached 23 compounds, the major components being terpinen-4-ol (35.33%), α -terpinene (15.0%), α -terpinene (10.72%), α -terpineol (5.89%) and linalool (3.81%). The essential oils of Matricaria chamomilla and Marjorana hortensis could be used as a potential natural antioxidant and anticancer agents.

Keywords:

Matricaria chamomilla L.; Marjorana hortensis; Essential oils; antioxidant; anticancer.

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Dept. : Biochemistry

Name : Ramy M. Romeilah

Effects of Rosmarinus Officinalis Extract on Induced Nitric

Title : Oxide and Stimulated Proinflammatory Mediators Via- Bacterial Lipopolysaccharide (LPS)

Authors: Osama, K. Ahmed, Gaber, M.G. Shehab and Ramy M. Romeilah

Published In: Australian Journal of Basic and Applied Sciences

ISSN: 1991-8178 **Impact Factor**: 0.00

<u>Abstract :</u>

The effect of Rosemary (Rosmarinus officinalis) ethanolic extract on inflammatory mediators stimulated by bacterial lipopolysaccharide (LPS) has been investigated in vivo and in vitro studies. When the administration of various Rosemary ethanolic extract significantly suppressed various proinflammatory mediators, the highly phytochemical mixtures specially phenolic compounds reflected an inhibitory effect on Cyclooxygenase-2 (Cox₂) activity and oxidative burst induced via LPS administration, since Rosemary extract significantly decrease Nitric oxide (NO), prostaglandin-E2 (PGE2) and malonaldehyde (MDA) contents, the crude extract also acted as a cytoprotective agent when reflected a Free radical - scavenging activity that elicited widespread damage to cell constituents such as membrane lipids and significantly increased the normal cells viability and the antioxidant enzymes activity superoxide dismutase (SOD) and Glutathione reductase (GR) combined with a significant increase in the reduced (glutathione GSH) contents throw attenuation of the induced inflammation and NO dependent signaling mediators via-lipopolysaccharide-activated macrophages. Supplementation with these natural extracts may prove valuable in limiting the pathophysiology of numerous disorders associated with oxidative damage and inflammation.

Keywords:

Rosemary extract; Inducible nitric oxide synthase; Proinflammatory mediators and antioxidant enzymes.

Dept. : Biochemistry

Name : Ramy M. Romeilah

Title : Energy and Methionine Utilization in Laying Hen Diets Supplementation with Folic Acid

Authors : Islam I. Omara and Ramy M. Romeilah

Published In: Research Journal of Agriculture and Biological Sciences

ISSN: 1816-1561 **Impact Factor**: 0.00

<u>Abstract :</u>

In this experiment, the factors were control and low energy concentration (2800 vs. 2600 kcal ME/kg), control and deficiency methionine concentration (0.40 vs. 0.35%), and control and excess folic acid concentration (0, 10 and 20 mg/kg) in a $2 \times 2 \times 3$ factorial arrangement design. This experiment lasted 20 week. Lohmann Brown (L.B.) laying hens, 25 weeks of age (n=1800) were randomly assigned into 12 treatments (10 replicates of 15/treatment). Hen-day egg production percentage increased when methionine and folic acid added to any energy levels. Increasing energy, methionine and folic acid up to 2800 kcal ME/kg, 0.40% and 20 mg/kg, respectively did not affected egg weight and egg mass. The hens fed 2600 kcal ME/kg diets consumed the highest (P<0.05) amount of feed, while those fed the diets 2800 kcal ME/kg consumed the least amount of feed. Increasing dietary methionine and folic acid levels in the diets slightly decreased the amount of feed intake, without any significant differences. Feed conversion ratio improved when added 0.35 and 0.40% methionine and folic acid up to 20 mg/kg to low energy diets. Live body weight gain significantly affect by energy levels, but not affected by methionine and folic acid levels. In general, the diet containing 2600 kcal ME/kg diet within methionine and folic acid proved to be adequate for good external (egg shell percentage and shell thickness) and internal (yolk and albumen weight, Haugh units and egg yolk color) egg quality, while the decline in egg yolk color could be overcome by xanthophyll pigmentation. However, the diets containing 2600 kcal ME/kg tends to increase yolk total lipids and cholesterol compared to diets containing 2800. Methionine and folic acid levels did not affect on average yolk total lipids and cholesterol values. Moreover, serum total immunoglobulin titres was significantly affected by energy levels, but little affected by methionine and folic acid supplementation in the diet.
The nutrients digestibility coefficient values improved with diets containing 2600 kcal ME/kg and supplementation methionine and folic acid did not appear any effect. The results of the study indicate that improving the laying hens performance, egg quality and immune response when fed these on diets containing the low dietary levels of energy and methionine by increasing the right amount from folic acid supplementation.

<u>Keywords:</u>

Laying hens; Dietary energy; Methionine deficiency; Folate; Performance; Egg quality; Immunity; nutrients digestibility.

Cairo University

Faculty of Agriculture

Dept. : Biochemistry

Name : Radwan S. Farag



Title : Improvement in the Quality of Used Sunflower Oil by Organic and Inorganic Adsorbents

Authors: Radwan S. Farag and Amany M. M. Basuny

Published In: Int. J. Food Sci. and Technol.

ISSN: 0950-5423 **Impact Factor**: 1.065

Abstract :

The objective of the present work was to improve the quality of used sunflower oil. Inorganic (normal and modified silica gel) and organic (normal and modified cellulose powder) adsorbents were used as regeneration agents. Sunflower oil was heated at 180 ± 5 °C, 4 h every day for five consecutive days. The adsorbent materials were individually added to use sunflower oil at 2% level (w/v). Some physico-chemical characteristics were measured to assess the quality of treated-used sunflower oil. The results indicated that all adsorbents under study were effective in improving the overall quality of used sunflower oil. Normal silica gel with small particle size permitted high adsorbing capacity and close to that induced with Magnesol XL which is used commercially in a large scale to improve oil quality. The polarity of the adsorbent substance had a remarkable effect on removing the secondary oxidation products of used sunflower oil. The mode of adsorbents action is discussed.

<u>Keywords:</u>

Frying; inorganic and organic adsorbents; oil quality tests; sunflower oil.

Dept. : Biochemistry

Name : Radwan S. Farag



Title : Nutritional Benefits of Pollen Grains of Some Medicinal and Classical Plants on Elderly Rat Health

Authors: Radwan S. Farag and Hala A. Thabet

Published In: Advances in Food Sciences

ISSN: 1431-7737 **Impact Factor**: 0.0

<u>Abstract :</u>

Some biochemical (sera contents of total cholesterol, triglycerides, high-density and low-density lipoproteins and the activities of alanine and aspartate aminotransferases) and histological experiments were conducted on adult and elderly rats administered sunflower, palm, chamomile and coriander pollens by stomach tube, in addition to the usual basal diet, to elucidate their beneficial effects. Cholesterol and triglyceride contents of elderly rats were much higher than that in adult rats. The administration of pollens under study at various levels exhibited gradual decrease in above-mentioned parameters. Elderly rats had lower and higher levels of HDL- and LDL-cholesterol than adult rats, respectively. Supplementation of various pollens at different levels induced non-significant increase and lowering effects on HDL- and LDL-cholesterol, respectively. The data for aminotransferase activities demonstrated that elderly rats had higher enzyme activities, compared with adult rats. The administration of various pollens at different levels caused significant lowering effect on aminotransferase activities. Microscopical examinations revealed that pollens improved to a great extent the liver tissue integrity of elderly rats.

<u>Keywords:</u>

Pollen; Rats; Liver function tests; Microscopical and examination.

Dep. : Biochemistry

Name : Radwan S. Farag



- *Title* : Use of some agricultural waste hull ashes for the regeneration of fried sunflower oil
- Authors: Radwan S. Farag, Amany M. M. Basuny, Shaker M. Arafat and Sahar A. Arafa

Published In: Advances in Food Sciences

ISSN 0950-5423 **Impact Factor** 1.065

Abstract :

The present study was aimed at improving the quality of fried sun.ower oil. Synthetic (Magnesol XL), natural (diatomaceous earth) and hull ashes of rice, wheat and barley (agriculture plant wastes) were used to adsorb the oxidation products of fried sunflower oil. The mineral pattern (Si, Mg, Ca, Fe, Al, Mn and Cu) of the aforementioned substances were determined. The physico-chemical properties [refractive index, viscosity, colour, smoke point, acid value, peroxide value, thiobarbituric acid (TBA) value, conjugated dienes and trienes, polar content, polymer content and oxidised fatty acids] of non-fried, fried and friedtreated sunflower oil were determined. The frying process was carried out at 180 C \pm 5 C for 20 h, 4 h heating cycle per day for five consecutive days. The fried sunflower oil was treated with synthetic, natural and agricultural hull ashes at 105 C for 15 min. The results indicate that Magnesol XL, diatomaceous earth, rice hull ash, wheat hull ash and barley hull ash contained Si+Mg+Mn, Si+Mn+Ca, Si+Mn, Si +Mn and Mn+Si as the basic metals, respectively. Frying of sunflower oil led to significant increase in refractive index, viscosity, colour, smoke point, acid value, peroxide value, TBA value, conjugated dienes and trienes, polar content, polymer content, and oxidised fatty acids and decrease in iodine value. Treatments of fried sunflower oil with the aforementioned substances greatly improved the quality of fried oil. Under the present experimental conditions all adsorbing substances performed similarly in removing the fried sunflower oil oxidation products.

<u>Keywords:</u>

Frying process; hull ashes; oil quality; regeneration; sunflower oil.

Dept. : Biochemistry

Name : Radwan S. Farag



- *Title* : Chemical Composition and Biological Evaluation of Vitex Agnus-castus L.
- Authors : Nabawya Ibrahim, Ahmed Shalaby, Radwan Farag, Gamal El baroty and Emad Hassan

Published In: Medicinal and Aromatic Plant Science and Biotechnology

ISSN: 00-00 **Impact Factor**: 0.0

<u>Abstract :</u>

The chemical composition of the essential oil (EO) of chaste tree (Vitex agnuscastus) leaves, Verbenaceae, was identified by GC/MS analysis. The oil contained hydrocarbons (62.77%) and oxygenated compounds (36.38%) as the main chemical groups. Mono-, sesquiand diterpenoid compounds represented 47.37, 49.12 and 2.69%, respectively. T-caryophyllene (18.76%) was the major constituent, followed by 1.8-cineole (17.38), sabinene (15.38%) and germacrene B (13.72%). The unsaponifiable matter (USM) content of chaste tree fruits was 65%. The most predominant hydrocarbons identified by GLC were: tricosane (9.99%), heptadecane (7.76%), dotriacontane (7.74%), eicosane (7.45%), hexadecane (7.28%), E-sitosterol (5.56%), campesterol (1.01), and stigmasterol (1.32%). GLC of fatty acid methyl esters revealed that oleic acid (26.11%) and linoleic acid (24.76%) were the major unsaturated fatty acids, while palmitic acid (21.01%) was the major saturated fatty acid. Crude proteins of chaste tree fruits amounted to 6.65%. The protein hydrolysate was analyzed with an amino acid analyzer. Seventeen amino acids were detected; the major essential ones were leucine (7.85%), phenylalanine (6.09%) and threonine (5.83%); the non-essential ones were glutamic acid (15.95%), aspartic acid (14.61%) serine (11.99%), glycine (7.38%) and alanine (6.62%). The mucilage hydrolysates, analyzed by HPLC, were characterized by the presence of a high concentration of galacturonic acid and rhamnose. The antimicrobial activity of the EO was performed and the minimum inhibitory dilution; the growth of Candida albicans (yeast) and Aspergillus niger (fungus) were completely inhibited at 19 mg/ml. Also, the ethanolic extract (70%) of fruits showed antioxidant and antidiabetic activities.

<u>Keywords:</u>

Antidiabetic; antimicrobial; antioxidant; chaste tree; chemical constituents.

Dep. : Biochemistry

Name : Sayed A. Fayed



Antioxidant and Anticancer Activities of Citrus reticulate

- *Title* : (Petitgrain Mandarin) and *Pelargonium graveolens* (Geranium) Essential Oils
- Authors: Sayed A. Fayed

Published In: Research Journal of Agriculture and Biological Sciences

ISSN 1816-1561 **Impact Factor** 0.00

Abstract :

The essential oils isolated by hydro-distillation from Pelargonium graveolens (geranium) and Citrus reticulate (petitgrain mandarin) were analyzed by GC/MS and assessed for antioxidant and anticancer activities. Twenty five components of petitgrain mandarin essential oil were identified and the major components were γ terpinene (47.89%), methyl N-methyl anthranilate (13.17%), α-terpinene (7.40%), β -phellandrene (6.26%) and trans-isolimonene (5.87%). On the other hand, Thirty two compounds constituting 99.23% of geranium essential oil have been identified. The major components were citronellol (29.90%), trans-geraniol (18.03%), 10-epi- γ -eudesmol (8.27%), isomenthone (5.44%) and linalool (5.13%). The DPPH free radical scavenging activities of petitgrain mandarin and geranium essential oils at various concentrations ranging from 25 to 200 µg/ml were determined. The essential oils of both plants reduced the concentration of DPPH free radical with an efficacy near to that of standard antioxidant (ascorbic acid). 50% effective concentration (EC_{50}) of petitgrain mandarin essential oil (79.84 μ g/ml) was higher than geranium essential oil (66.45 μ g/ml). It was indicated that the antioxidant activity of the geranium essential oil was higher than that of the petitgrain mandarin essential oil. In addition to the antioxidant activity, the anticancer activity of the two essential oils on two human promyelocytic leukemia cell lines (HL-60 and NB4) using trypan blue assay were investigated in vitro. HL-60 and NB4 cell lines were treated with the essential oils samples at different concentrations ranging from 25 to 200 µg/ml. Geranium essential oil showed the highest anticancer activity with the LC₅₀ values of 62.50 µg/ml in NB4 cell line and 86.5 µg/ml in HL-60 cell line, whereas petitgrain mandarin essential oil gave the LC₅₀ values of 85.05 μ g/ml in NB4 cell line and 105.73 μ g/ml in HL-60 cell line. The results demonstrated the potential of the two essential oils for cancer treatments.

<u>Keywords:</u>

Citrus reticulate; Pelargonium graveolens; Essential oils; antioxidant; anticancer.

Cairo University

Faculty of Agriculture

Dep. : Biochemistry

Name : Sayed A. Fayed



Title : Response of Layer Performance to Iron and Copper Pathway and their Interactions

Authors: El-Husseiny, O., Fayed, S. A. and Omara, I.I.

Published In: Australian Journal of Basic and Applied Sciences

ISSN 1991-8178 **Impact Factor** 0.00

<u>Abstract :</u>

In this study, hens received experimental diets in a 3×3 factorial arrangement of three levels of supplemental dietary iron (15, 30 and 60 mg Fe/kg) and three levels of supplemental dietary copper (5, 10 and 20 mg Cu/kg). The basal diet, without iron and copper supplementation, was considered as a control diet. Accordingly, a total of 10 experimental diets were formulated $(3 \times 3 = 9 + \text{control})$ diet = 10 diets). One thousand and five hundred White Lohmann Selected Leghorn (LSL) laying hens of 27-week-old were randomly assigned to 10 dietary treatments of 150 hens in 5 replicates of 30 hens each. Hen-day egg production percentage was the highest when added Fe with Cu at levels of 30 and 20 mg/kg, respectively. Fe with Cu combination did not affect egg weight. Significant effects on feed intake and conversion ratio (FCR) due to Fe levels, but not with Cu levels were noticed. Increasing Cu level from 0 to 20 mg/kg within each Fe level up to 60 significantly had affected body weight gain. Increasing dietary Fe and Cu did not affect yolk and albumen weight, except the significant effect of Fe up to 30 mg/kg on Haugh unit score. The addition of 30 mg Fe/kg and 20 mg Cu/kg to basal diet improved egg shell thickness and serum total immunoglobulin titres (STIT) compared to control diet. Blood haemoglobin, serum iron and ferritin were increased in almost Cu/Fe formulated diets; the highest increase was observed by the moderate concentration of dietary copper (10 mg/kg diet). Negative correlation between phosvitin-Fe and either transferrin or transferrin-Fe were observed. Moreover, egg iron significantly increased in formulated diets containing 10 mg Cu/kg. However, egg copper slightly increased in diets containing 20 mg Cu/kg. The balance between the consumption of dietary copper and iron may give excellent response in laving performance, egg quality, iron turnover and utilization.

Keywords:

Laying hen; Iron; Copper; Performance; Egg quality; Ferritin; Transferring; phosvitin.

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Dept. : Biochemistry

Name : Adel Sayed Afify



Title : Phenolic Compounds and COD Removal from Olive Mill Wastewater by Chemical and Biological Procedures *Authors* : Afify, A.S, Mahmoud, M.A., Emara, H.A. and Abdelkreem, Khadega I.

Published In: Australian Journal of Basic and Applied Sciences

ISSN: 1991-8178 **Impact Factor**: 0.00

Abstract :

In this study biological and chemical treatments were applied to olive mill wastewater (OMW) to reduce its phenolic compounds and chemical oxygen demand (COD) contents in order to reduce its toxicity. The biological treatment was carried out by using two fungal isolates (Aspergillus wentii and Aspergillus niger) isolated from the OMW and compared with Pleurotus ostreatus. A. wentii was more efficient than A. niger and Pleurotus ostreatus in removing of COD and phenolic compounds from OMW. The optimum OMW dilution was 10%, in which the maximum COD removal (62.2%) and maximum phenolic compounds reduction (80.9%) were obtained by A. wentii. This was followed by 59.3% removal of COD and 79.6% reduction of phenolic compounds obtained by P. ostreatus at the same OMW dilution (10%). Lower biodegradation percentages of COD (28% at 40% OMW dilution) and phenolic compounds reduction (72.9% at 30% OMW dilution) were obtained by A. niger. Different chemical treatments were applied primary on tannic acid solution to select the best of them for OMW application. These treatments were UV alone and combined with H₂O₂, Diefferent Fenton systems and photocatalysis by titanium dioxide. The maximum degradation of tannic acid obtained in the first treatment was 47% at H₂O₂ concentration 0.11M at pH 9 under UV radiation. The maximum tannic acid degradation obtained by Fenton system was 70%. It was obtained at both Fe^{2+} concentrations (0.0024M and 0.0048M) and 0.11M H₂O₂ in dark and UV radiation at pH 9. While the maximum degradation obtained by photocatalysis by titanium dioxide was 35% at TiO₂ 50mg/l and pH 5. The maximum degradation of phenolic compounds (74.4%) was obtained when OMW treated with 0.55M of H_2O_2 in dark after 40 min.

Keywords: Olive mill wastewater; Fenton; Photo-Fenton; UV plus hydrogen peroxide and TiO₂

Dep.	:	Biochemistry
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Name : Abd El-Moneim M. Afify



Title : Production of Alkaline Protease and Larvicidal Biopesticides by an Egyptian Bacillus Sphaericus Isolate

Abd El-Moneim M. Afify, Mourad A. M Aboul-Soud,

Authors: Mohamed S. Foda, Mahmoud W. A. Sadik, Tarek Kahil, Amira R. Asar and Abdulaziz A. Al-Khedhairy

Published In: African Journal of Biotechnology

ISSN 1684-5315 **Impact Factor** 0.547

<u>Abstract :</u>

One strain, isolated from Egyptian soil, was identified as Bacillus sphaericus with powerful larvicidaltoxicity against C. pipiens and extra-cellular production of alkaline protease (AP) in the growth medium. The pH adjustment of the growth medium between 6.0 and 7.5 resulte dinthehighest APactivity, peaking at pH 6.5. AP crude preparations exhibited optimum activity at pH 10 and at temperature rangeof 65 - 70°C. Interestingly, the highest AP activity was observed with 3% fodder yeast, as the sole component of the medium. Moreover, optimal AP yield was attained by using strong aeration at 9:1 (air :medium) ratio. Similarly, the highest AP enzyme level was consistently achieved 3-day after aerobic growth in shake flasks at 30°C, without significant decrease in AP yield upon extended incubation periods up to 6 days. Notably, maximum proteolytic activity was achieved with casein as a substrate followed by skim milk, gelatin and bovine serum albumin. The crude AP enzyme activity exhibited quasi-linear response with enzyme concentrations up to 0.25 mg ml-1. The isolated B. sphaericus mightbe employed for the economic production of important products such as biopesticides and proteolytic enzymes.

Dep. : Biochemistry

Name : Abd El - Moneim, M. Afify



- Short and Long Term Effect of Caffeine on Liver, Kidney as
- *Title* : well as Glucose, Insulin, Triglycerides and Cholesterol on Normal Rats
- Authors: Abd El Moneim, M. Afify, Faten, M, Abou Elalla and Alia A. Hassan
- Published In: Australian Journal of Basic and Applied Sciences
- **ISSN** 1991-8178 **Impact Factor** 0.00

<u>Abstract :</u>

The present study investigated the long and short term effect of caffeine on some blood parameters in rats. In short term the rats administered caffeine at either (10, 40, 160 mg/kg body weight) for 1 month. In long term the caffeine was administered orally each day at either (5, 20, 80 mg/kg body weight) for 2 months and all analysis of long term were done after one and two months of treatment. The levels of glucose and insulin, urea, creatinin, uric acid, ALT, AST, albumin, total protein, globulin, albumin/globulin ratio, total cholesterol and triglycerides were determined in serum of these rats. The results showed that there is no significant differences between control and groups given caffeine in both short and long term except in the case of glucose, there is a significant reduction in glucose level at 5, 20 and 80 mg/kg body weight/day (after 2 months of the long term), and 160 mg/kg body weight/day (short term) caffeine in the treated groups. It was observed that there is a significant reduction in insulin level at 80 mg caffeine/kg body weight/day in the treated group (after 2 months). The concentration of urea was increased after treatment at 5 and 20 mg caffeine/kg body weight/day. The results showed that low dose of caffeine did not affect on blood parameters in both short and long term, but the high dose (80 mg caffeine/kg body weight/day) decreased serum glucose and insulin levels .

Keywords:

Caffeine; Kidney function; Liver function; Lipids; Glucose and insulin levels.

Dep. : Biochemistry

Name : Emad A. shalaby



Cairo University

Title : Antioxidant Activity of Extract and Semi- Purified Fractions of Marine Red Macroalga, *Gracilaria Verrucosa*

Authors: Faten M. Abou Elalla and Emad A. Shalaby

Published In: Australian Journal of Basic and Applied Sciences

ISSN 1991-8178 **Impact Factor** 0.00

<u>Abstract :</u>

The ethanol and its successive extracts of the marine red macroalga, *Gracilaria verrucosa*, were measured for antioxidant activity, using the á,á-diphenyl-âpicrylhydrazyl radical-scavenging assay system, and compared with those of the positive controls of butylated hydroxytoluene (BHT) and Butylated hydroxylanisole (BHA). The crude ethanolic extract was further fractionated to afford four fractions (PE, EA, BuOH and Water fractions), of which the pet.ether (PE) and ethyl acetatesoluble (EA) fraction exhibited the strongest antioxidant activity in the assay system. The EA fraction was further separated into eleven subfractions, designated as EA1–EA11, by silica gel column chromatography. In most cases, EA3 and EA4 were found to possess the strongest antioxidant activity. The total phenolic contents and reducing powers of the extract, fractions, and subfractions were also determined. Significant associations between the antioxidant potency and the total phenolic content, as well as between the antioxidant potency and the reducing power, were found for the tested fractions and subfractions.

Keywords:

Antioxidant activity; DPPH; *Gracilaria verrucosa*; Phenolic compounds; Reducing power; Seaweeds.

Dep. : Biochemistry

Name : Ghada I. Abdel Magid



Cairo University

- *Title* : Glucose, Insulin and Adiponectin Relationships in Serum of Type-2-egyptian Diabetic Patients
- Authors: Ismail, S.A., Fayed, S.A., Ghada I. Mahmoud and Dina B. Abd El-Rehim

Published In: Research J. Medicine and Medical Sciences

ISSN 1816-272X **Impact Factor** 0.00

Abstract :

Seventy six samples of blood were taken from 66 volunteers (38 male and 28 female) of type-2-diabetic patients and 10 samples from intact subjects. Serum samples were collected from the lab of French Teaching Hospital, Cairo, Egypt. The age of patients and control varied from 35 to 50 years. Serum glucose, insulin and adiponectin levels were measured at fasting and postprandial states. There were high serum glucose and insulin levels in diabetic patients comparing to control subjects. The serum adiponectin levels in all type-2-diabetic patients (10.57-15.47µg/ml) were significantly less than that present in control (23.35µg/ml). Serum adiponectin level was significantly and negatively correlated with serum glucose. In male and female diabetic patients, the adiponectin levels varied from 13.45 to 15.05µg/ml and from 7.68 to 17.10µg/ml, respectively. A negatively significant correlation was present between serum insulin and adiponectin levels in male patients. At postprandial state, the glucose level was elevated with both insignificant increase in insulin level and decrease in adiponectin level. The data suggest that blood adiponectin must be determined and increased to the normal level by medicine before treatment of type-2-diabetic patients.

Keywords:

Glucose; Insulin; Adiponectin; Diabetic patients.

: Biochemistry Dep.

Name : Ghada I. Abdel Magid



- Antioxidant Diet as Protective Agents Against Biochemical : Perturbation Effects Induced by Cypermethrin on Lipids and Title Protein Fractions as Well as Kidneys Function of Blood Rat
- Abdel-Rahim E. A., A bdel-Rahim G.A., Fayed S.A., and Ghada Authors: I. Mahmoud

Published In: Australian Journal of Basic and Applied Sciences

ISSN 1991-8178 Impact Factor 0.00

Abstract :

The toxic influences of technical and formulated cypermethrin (synthetic pyrethroid pesticide) and the attenuation treatments of mixture of dried guava and wheat germ (1:1) as an antioxidant diet (AD) which contains large amounts of vitamins C and E on albino rats metabolism were studied. Rats (60) were randomly divided into 10 groups: group I served as control rats (NC), groups II (normal rats) was fed on the antioxidant diet (AD). The other 48 rats (8 groups) were 50 induced by the pesticide. Formulated (FC) and technical (TC) cypermethrin twentieth of the LD 50 sublethal doses (1/20 LD 50) were applied orally and dermally every 48 hours for 90 days. Four groups of them fed on normal diet and the other 4 groups were fed on the present antioxidant diet. The levels of biochemical markers of blood (glucose, lipid profile, protein fractions and kidneys function) were determined. In connection, blood glucose levels were increased by the induction of both forms of cypermethrin (formulated and technical) and the highest level was observed when rats orally ingested formulated cypermethrin but the lowest effect was detected in rats inducted dermally technical cypermethrin. In intoxicated rats, the elevated blood sugar was accompanied with decrease in plasma total soluble protein and its fractions (albumin and globulin) as well as the ratio of albumin/globulin. The same trend was found in lipid profile (total lipid, cholesterol, triglyceride and phospholipids) which showed a significant decrease in these parameters. Also, the pesticide intoxication altered blood levels of lipoprotein fractions and atherogenic index (AI) where HDL-C and VLDL-C contents were decreased, but LDL-C and AI were increased. In addition, the kidneys function was changed in the cypermethrin intoxicated rats, which either technical or formulated cypermethrin administration elevated the blood content of http://gsrs.cu.edu.eg 6720

uric acid, urea and creatinine (highly significant) which was induced orally or dermally.

The highest effect was found in case of orally formulated cypermethrin but the lowest effect was detected in the administration of the dermally technical one. The treatment of antioxidant diet (normal diet supplemented with 20% dried guava and wheat germ) significantly reduced the toxic effects of cypermethrin induction of the intoxicated animals, in which blood glucose level was reduced, but total soluble protein, albumin and globulin as well as albumin/globulin ratio were improved and increased and reached near to those of the normal healthy control. Lipid profile (total lipids, cholesterol, triglycerides and phospholipids) levels were alleviated by antioxidant diet feeding which increased nearly normal control animals. In case of the lipoprotein fractions, the antioxidant diet treatments improved their contents in blood of intoxicated rats. HDL-C and VLDL-C levels were increased, but the levels of LDL-C and AI were decreased under the same conditions. On the other hand, Kidneys function was also improved by antioxidant diet feeding for cypermethrin intoxicated rats. The levels of uric acid, urea and creatinine of the intoxicated rats were decreased by feeding on the antioxidant diet. No significant changes in the above parameters were observed in the normal healthy rats fed on the present antioxidant diet compared with normal control. In conclusion, antioxidant vitamins compounds of guava and wheat germ (vitamins C and E respectively) could be used as an alleviated and improved treatment for the harmful influences in cypermethrin intoxicated animals.

Keywords:

Cypermethrin; Guava; Wheat germ; Lipids fractions; Protein fractions; Kidneys function.

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: Biochemistry Dep.

- Name : Faten M. Abou Elalla
- Molecular Identification of A Novel Thermophilic Title : Actinomycetes Isolated from Egypt

Authors: A. Aboul-Enein, F. Abou Elalla, E. Serour and T. Hussien

Published In : International Journal of Academic Research

00-00ISSN Impact Factor 0.0

Abstract :

A diversity of actinomycetes was isolated from soil samples obtained from five governorates of Egypt (El-Behira, Tanta, Giza, Kafer El-Sheekh and Alexandria). The soil samples were mainly collected during the expedition (15- 25 October 2007). A total of 12 isolate of actinomycetes, probably mostly Streptomyces, were obtained from these different areas. The cellulitic activity of these isolates was assayed. The result showed that one isolate (Sho 2) from Giza gave the highest cellulitic activity. The molecular identification of this strain was studied.

Keywords:

Actinomycetes; Isolation; Identification; Cellulose.



Cairo University

Dep. : Biochemistry

Name : Faten M. Abou Elalla



- *Title* : Molecular Characterizations and Antimicrobial Activities of Chicory and Jerusalem Artichoke Plants
- *Authors*: S.A. El Gengaihi, A.M. Aboul Enein, F.M. Abou Elalla and D.H. Abou Baker

Published In: International Journal of Academic Research

ISSN 00-00 Impact Factor 0.0

<u>Abstract :</u>

In this study the molecular characterizations of Chicory and Jerusalem artichoke plants was determined using random amplified polymorphic DNA (RAPD) technique, the protein profile using SDS- PAGE technique and isoenzymes detection. The antibacterial activity of water extract of two plants against seven different strains of bacteria was also evaluated. The results of RAPD and protein electrophoresis showed that the two plants of Asteraceae family have different genotype behaviour. From these results it was observed that Chicory and Jerusalem artichoke extracts have a potent antimicrobial activity against different bacterial strains.

Keywords:

Chicory and Jerusalem artichoke; Molecular Characterizations; Antimicrobial activity.

Cairo University

Dep. : Biochemistry

Name : Hany A. El-Shemy



Title : Modulatory role of Lipoic Acid on Lipopolysaccharide-induced Oxidative Stress in Adult Rat Sertoli Cells in Vitro

Authors: Hamdy A. Aly, David A. Lightfoot and Hany A. El-Shemy

Published In: Chemico-Biological Interactions

ISSN 0009-2797 **Impact Factor** 3.077

<u>Abstract :</u>

Infammatory reactions to microbial infections may cause male infertility. The mechanisms of inhibition of spermatogenesis can be studied in vitro using rat Sertoli cells. Bacterial lipopolysaccharides (LPS) induce acute in.ammations. So LPS treated Sertoli cells can be used to test for new therapeutic compounds. The present study aimed to investigate the protective ef.cacy of dl- -lipoic acid (LA) on lipopolysaccharide (LPS)-induced oxidative stress in adult rat Sertoli cells. Sertoli cells were divided into 4 groups. Group I served as a control incubated with water (vehicle). Groups II and IV were incubated with 100 M LA for 24 h before incubating Groups III and IV with 50 g/ml lipopolysaccharide (LPS) for 12 h. In Group III cells (LPS-treated, no LA) the lactate concentration was decreased whereas hydrogen peroxide production and lipid peroxidation were signi.cantly increased. Moreover, the activities of antioxidant enzymes such as superoxide dismutase, glutathione peroxidase, catalase, glutathione-S-transferase, glutathione reductase were reduced. The concentrations of antioxidant molecules such as reduced glutathione and vitamin C were signi.cantly decreased. The activities of enzymes normally elevated in Sertoli cells, -glutamyl transpeptidase and glucuronidase, were signi.cantly decreased. Treatment with LA (100 M) for 24 h before LPS-treatment (Group IV), prevented these changes in enzyme activities and metabolite concentrations. Therefore, LA may have a cyto-protective role during LPS-induced in.ammation in adult rat Sertoli cells.

<u>Keywords:</u>

Lipoic acid; Sertoli cells; Infammation.

Dep. : Biochemistry

Name : Hany A. El-Shemy



0.400

Title : Antileukemia Activity from Root Cultures of Vernonia Amygdalina

Authors: Mutasim M. Khalafalla, Eltayb Abdellatef, Hussein M. Daffalla, Authors: Amr A. Nassrallah, Khalid M. Aboul-Enein, David A. Lightfoot, Alan Cocchetto and Hany A. El-Shemy

Published In: Medicinal Plants Research

ISSN 1996-0875 **Impact Factor**

Abstract :

Vernonia amygdalina, Del (Compositae) is an African medicinal plant well known for producing the anticancer agents' vernodaline and vernolide. It grows wild under severe anthropogenic and environmental pressures. The roots are the principle material for herbal medicine. It is collected from the wild there is great variability in the quality and effectiveness of the root extracts. It is necessary to establish a fast-growing root culture and to test the extracts of cultured roots for activity against leukemia cells in vitro. Leaves were cultured on half-strength MS medium supplemented with different auxin types and concentrations. Basal medium supplemented with indole-3-butyric acid (IBA) at 2.0 mg/l favored induction of the highest number of roots/explant (38.3 \pm 1.1). After six weeks wellestablished roots were separated. About 100 mg of fresh root tissue was cultured in 80 ml full-strength MS liquid medium supplemented with 2.0 mg/l IBA and under continuous agitation (80 rpm). The biomass of root cultures increases by 21 fold after 5 weeks of culture. Cold water, hot water and ethanol extracts from the in vitro cultured roots were prepared and tested for their antioxidant activity and efficacy against leukemia cells. All of the extracts showed significant antioxidant activity. All the extracts could kill the majority (50-75%) of abnormal cells among primary cells harvested from 3 patients with acute lymphoblastic leukemia (ALL) and 3 with acute myeloid leukemia (AML). DNA fragmentation patterns were detected within treated cells and inferred targeted cell death by apoptosis. The metabolites within the extracts may act as tumor inhibitors that promote apoptosis. Therefore in vitro root culture can be an alternative to collection from the wild, cultivation in the field or to chemical synthesis of anticancer agents. In addition the plant extracts may be used to supplement or replace established drugs treatments.

Dep. : Biochemistry

Name : Hany A. El-Shemy



Cairo University

Title : the Nematode Resistance Allele at the Rhg1 Locus Alters the Proteome and Primary Metabolism of Soybean Roots

Ahmed J. Afzal, Aparna Natarajan, Navinder Saini, M. JavedAuthors: Iqbal, Matt Geisler, Hany A. El Shemy, Rajsree Mungur, Lothar Willmitzer, and David A. Lightfoot

Published In : Plant Physiology

ISSN 0032-0889

Impact Factor 6.110

<u>Abstract :</u>

Heterodera glycines, the soybean cyst nematode (SCN), causes the most damaging chronic disease of soybean (Glycine max). Host resistance requires the resistance allele at rhg1. Resistance destroys the giant cells created in the plant's roots by the nematodes about 24 to 48 h after commencement of feeding. In addition, 4 to 8 d later, a systemic acquired resistance develops that discourages later infestations. The molecular mechanisms that control the rhg1-mediated resistance changes, even in near isogenic lines (NILs). This study aimed to focus on key posttranscriptional changes by identifying proteins and metabolites that were increased in abundance in both resistant and susceptible NILs. Comparisons were made among NILs 10 d after SCN infestation and without SCN infestation.

Two-dimensional gel electrophoresis resolved more than 1,000 protein spots on each gel. Only 30 protein spots with a significant (P, 0.05) difference in abundance of 1.5-fold or more were found among the four treatments. The proteins in these spots were picked, trypsin digested, and analyzed using quadrupole time-of-flight tandem mass spectrometry. Protein identifications could be made for 24 of the 30 spots. Four spots contained two proteins, so that 28 distinct proteins were identified. The proteins were grouped into six functional categories. Metabolite analysis by gas chromatography-mass spectrometry identified 131 metabolites, among which 58 were altered by one or more treatment; 28 were involved in primary metabolism. Taken together, the data showed that 17 pathways were altered by the rhg1 alleles. Pathways altered were associated with systemic acquired resistance-like responses, including xenobiotic, phytoalexin, ascorbate, and inositol metabolism, as well as primary metabolisms like amino acid synthesis and glycolysis.

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The pathways impacted by the rhg1 allelic state and SCN infestation agreed with transcript abundance analyses but identified a smaller set of key proteins. Six of the proteins lay within the same small region of the interactome identifying a key set of 159 interacting proteins involved in transcriptional control, nuclear localization, and protein degradation. Finally, two proteins (glucose-6-phosphate isomerase [EC 5.3.1.9] and isoflavone reductase [EC 1.3.1.45]) and two metabolites (maltose and an unknown) differed in resistant and susceptible NILs without SCN infestation and may form the basis of a new assay for the selection of resistance to SCN in soybean.

Keywords:

Soybean; Cyst nematode; Proteome.

Dep. : Biochemistry

Name : Hany A. El-Shemy



- *Title* : Establishment of *in Vitro* Fast-growing Normal Root Culture of *Vernonia Amygdalina* a potent African Medicinal Plant
- Authors: M. M. Khalafalla, H. M. Daffalla, H. A. El-Shemy and E. Abdellatef

Published In: African Journal of Biotechnology

ISSN 1684-5315 **Impact Factor** 1.0

<u>Abstract :</u>

Fast-growing normal root culture of *Vernonia amygdalina*, a potent African medicinal plant was established from leaf explants of *in vitro* raised shoot induced from the stem nodal segments on murashige and skoog (MS) medium containing 0.5 mg l-1 6-benzylaminopurine (BA) in combination with 0.5 mg l-1 naphthalene acetic acid (NAA). *In vitro* raised plantlets were maintained on MS agar medium and sub cultured at 4 weeks interval and used as leaf explant source. Explants were cultured on halfstrength

MS medium supplemented with different concentrations of Indole-3-acetic acid (IAA), indole-3- butyric acid (IBA) and NAA. Basal medium supplemented with IBA at 0.25 and 2.0 mg l-1 and under 16 photoperiod condition favoured induction of the longest root $(2.7 \pm 1.1 \text{ cm})$ and highest number of roots/explant (38.3 ± 1.1) respectively. After 6 weeks well established roots were separated. Fresh root tissue, in amount of a 100 mg were cultured in 50 ml full-strength MS liquid medium supplemented with 2.0 mg l-1 IBA and under continuous agitation (80 rpm). The biomass of root culture was increased to 2.1949 g after 5 weeks of culture. The root culture was maintained up to 6 weeks. The protocol developed in this study provides a basis for adventitious root induction and for further investigation of medicinally active constituents of this elite medicinal plant.

Keywords:

Vernonia amygdalina; Nodal segment; Leaf explant; Root culture; Medicinal plant; Suspension culture.

Dep. : Biochemistry

Name : Hany A. El-Shemy



- Identification and Subcellular Localisation of Sl;INT7: A novel
- *Title* : Tomato (Solanum lycopersicum Mill.) Fruit ripening-related and Stress-inducible gene

Authors: Mourad A. Aboul-Soud and Hany A. El-Shemy

Published In : Plant Science

ISSN 0168-9452

Impact Factor 1.974

<u>Abstract :</u>

The key step in ethylene (C2H4) signalling during tomato fruit ripening is initialized via the direct interaction between C2H4 and specialized membranebound receptors, including Never-Ripe (NR), which is strongly induced during ripening. In order to identify novel ripening-related C2H4-dependent components, a yeast two-hybrid interaction screen has previously been employed, in which NR cDNA has been used as bait. This screen has identified a clone corresponding to interacting protein 7 (SI;INT7), through its specific and strong interaction with the NR receptor (L. Alexander, Z. Lin, R. Hackett, I. Wilson and D. Grierson, unpublished work). In this work, our objective was to identify the corresponding NRinteracting gene and subsequently characterize its expression response to various stress treatments, as well as unravelling its subcellular location in the cell. By sequencing and plant database interrogation, SI;INT7 was found to be a small gene with an open reading frame (ORF) of _243 bb encoding a protein

composed of 77 aa that shares no sequence homology with any known gene. Notably, northern analyses demonstrated that SI;INT7 gene expression is upregulated in response to various stress signaling molecules such as salicylic acid (SA), abscissic acid, jasmonic acid, nitric oxide (NO) and salt, implicating SI;INT7 in biotic and abiotic stress signalling transduction responses. To gain more insight into the possible function of SI:INT7, a construct in which SI:INT7 is C-terminally fused to the green fluorescent protein (GFP) was generated. 35S::SI;INT7::GFP-containing Subsequently, constructs were transiently expressed in both tobacco leaves and onion peels via microprojectiles bombardment. Subsequently, confocal laser microscopic examination of bombarded tobacco and onion tissues revealed that the expression of GFP-SI;INT7 was observed predominantly in the plasma membrane, compared to the location

throughout the cell observed with the control GFP construct alone. These results are discussed in the light of our present knowledge of C2H4-mediated control over fruit ripening and degree of cross-talk with other stress signalling pathways.

<u>Keywords:</u>

Ethylene; Fruit ripening; Subcellular localization; Tomato.

Cairo University

Faculty of Agriculture

Dep. : Biochemistry

Name : Hany A. El-Shemy



Title : Elevated CO₂ Concentration Alleviates Salinity Stress in Tomato Plant

Mizuki Takagi, Hany A. El-Shemy, Sachiko Sasaki, Shinichiro

- Authors: Toyama, Syunsuke Kanai, Hirofumi Saneoka and Kounosuke Fujita
- **Published In :** Acta Agriculturae Scandinavica Section B Soil and Plant Science
- **ISSN** 0906-4710 **Impact Factor** 0.407

<u>Abstract :</u>

Tomato [Solanum lycopersicum (formerly Lycopersicon esculentum) L. cv. Momotarou] plants were grown under potted conditions inside the greenhouse of Hiroshima University, Japan. The effects of salinity stress under either ambient or elevated CO₂ atmospheric conditions during the fruit-growth period were compared. Stem was the major sink organ for the carbon assimilates from the source leaves. A simple nondestructive micromorphometric technique was used to measure growth of these organs. The effect of salt stress under ambient air or elevated CO₂ concentration was studied on the apparent photosynthesis (source activity), partitioning 13C, Na content, and antioxidative enzymes. Compared with the control (without salt), salt-stress treatment severely decreased whole-plant biomass. The treatment also depressed leaf photosynthesis and transport of 13C assimilates; however, the impact of stress on these activities was alleviated under elevated CO₂ concentration and such alleviation was promoted when sink activity relative to source activity was higher, suggesting that sink activity is involved in alleviation of photosynthesis impaired from salinity. Catalase and ascorbate peroxidase activities increased by salinity stress but they decreased by elevated CO₂. These results suggested that salinity stress suppresses stem growth in tomato plants; however, the adverse effect is alleviated under elevated CO₂ concentration due not to elevation of source activity in leaves but to activation of sink activity, probably owing to improvement of oxidative stress as well as the water status through stomatal closure at high CO₂ concentration.

<u>Keywords:</u>

13C partitioning; Micromorphometry; Photosynthesis; Source_sink relation; Stem diameter; Tomato.

Dep. : Biochemistry

Name : Hany A. El-Shemy



Title : Anti-cancer and anti-oxidant Activity of some Egyptian Medicinal Plants

Amr A. Nassr-Allah, Ahmed M. Aboul-Enein, Khalid M. Aboul-Authors: Enein, David A. Lightfoot, Alan Cocchetto and Hany A. El-Shemy

Snemy

Published In: Medicinal Plants Research

ISSN 1996-0875 **Impact Factor** 0.400

<u>Abstract :</u>

Natural products from plants are rich sources of chemical diversity and most of the pharmacologically active principles currently used as drugs, including anticancer agents are plants products. Egypt, a semi- arid region has abundant plants resources, which are traditionally used for various disorders. The aim of the present study was to evaluate some Egyptian flora as anticancer agents. The materials used were leaves of Luffa aegyptiaca (sponge gourd), Solenostemma arghe (argel), Cassia italica (Senegal senna), Ocimum basillcum (basil), Colocasia antiguorum (taro), Beta vulgaris (beet) and fruit of Capsicum frutescens Antioxidant activity (chili pepper). was assayed using the 2. 2'diphenylpicrylhydrazyl (DPPH) radical method. Anticancer activity was assayed in vitro against acute myeloid leukemia (AML) and acute lymphocyte leukemia (ALL); and in vivo against Ehrlich ascites carcinoma cells (EACC). The results showed significant antioxidant activity of most of extracts in DPPH assay. Solenostemma arghel hot water extract significantly reduced EACC induced tumor growth and delayed animal death (with EACC) by 29 days. Among all the extracts S. arghel showed high cytotoxicity (66 - 90%) on ALL and AML cells from patients. DNA fragmentation patterns showed cytotoxicity may due to the induction of apoptosis. In conclusion, some natural products from Egyptian

flora have potential for use as therapeutics for diseases such as cancer.

<u>Keywords:</u>

Natural products; Anticancer; Antioxidants; Acute myeloid leukemia; Ehrlich ascites carcinoma cells.

Dep. : Biochemistry

Name : Hany A. El-Shemy



Title : Photosynthetic Acclimation to Elevated CO₂ is Dependent on N Partitioning and Transpiration in Soybean

Kenji Kanemoto, Yumiko Yamashita, Tomoko Ozawa, Naomi Imanishi, Nguyen T. Nguyen, Ryuichi Suwa, Pravat K.

Authors: Mohapatra, Syunsuke Kanai, Reda E. Moghaieb, Junki Ito, Hany El-Shemy and Kounosuke Fujita

Published In: Plant Science

ISSN 0168-9452

Impact Factor 1.974

<u>Abstract :</u>

Physiological processes that modulate photosynthetic acclimation to rising atmospheric CO₂ concentration are subjects of intense discussion recently. Apparently, the down-regulation of photosynthesis under elevated CO₂ is not understood clearly. In the present study, the response of soybean (Glycine max L.) to CO₂ enrichment was examined in terms of nitrogen partitioning and water relation. The plants grown under potted conditions without combined N application were exposed to either ambient air (38 Pa CO₂) or CO₂ enrichment (100 Pa CO₂) for short (6 days) and long (27 days). Plant biomass, apparent photosynthetic rate, transpiration rate and 15N uptake and partitioning were measured consecutively after elevated CO₂ treatment. Long-term exposure reduced photosynthetic rate, stomatal conductance and transpiration rate. In contrast, short-term exposure increased biomass production of soybean due to increase in dry weight of leaves. Leaf N concentration tended to decrease with CO₂ enrichment, however such difference was not true for stem and roots. A close correlation was observed between transpiration rate and 15N partitioned into leaves, suggesting that transpiration plays an important role on nitrogen partitioning to leaves. In conclusion existence of a feed backmechanism for photosynthetic acclimation has been proposed. Down-regulation of photosynthetic activity under CO₂ enrichment is caused by decreasing leaf N concentration, and reduced rate of transpiration owing to decreased stomatal conductance is partially responsible for poor N translocation.

Keywords:

Elevated CO2; N partitioning; Photosynthetic; Acclimation; Transpiration.

Dep. : Biochemistry

Name : Hany A. El-Shemy



- Multigeneic QTL: the Laccase Encoded within the SoybeanTitle: Rfs2/rhg1 Locus Inferred to Underlie Part of the Dual Resistance
 - to Cyst Nematode and Sudden Death Syndrome
- *Authors*: MJ Iqbal, R Ahsan, AJ Afzal, A Jamai, K Meksem, Hany A. El-Shemy and DA Lightfoot

Published In: Curr. Issue Mol. Biol

ISSN 1467-3037 **Impact Factor** 3.176

<u>Abstract :</u>

Multigeneic QTL present significant problems to analysis. Resistance to soybean (Glycine max (L) Merr.) sudden death syndrome (SDS) caused by Fusarium virguliforme was partly underlain by QRfs2 that was clustered with, or pleiotropic to, the multigeneic rhg1 locus providing resistance to soybean cyst nematode (SCN; Heterodera glycines). A group of five genes were found between the two markers that delimited the Rfs2/rhg1 locus. One of the five genes was predicted to encode an unusual diphenol oxidase (laccase; EC 1.10.3.2). The aim of this study was to characterize this member of the soybean laccase gene-family and explore its involvement in SDS resistance. A genomic clone and a full length cDNA was isolated from resistant cultivar 'Forrest' that were different among susceptible cultivars 'Asgrow 3244' and 'Williams 82' at four residues R/H168, I/M271, R/H330, E/K470. Additional differences were found in six of the seven introns and the promoter region. Transcript abundance (TA) among genotypes that varied for resistance to SDS or SCN did not differ significantly. Therefore the protein activity was inferred to underlie resistance. Protein expressed in yeast pYES2/NTB had weak enzyme activity with common substrates but good activity with root phenolics. The Forrest isoform may underlie both QRfs2 and rhg1.

<u>Keywords:</u>

Soybean; laccase; SDS resistance; Yeast expression.

Dep. : Biochemistry

Name : Hany A. El-Shemy



- *Title* : Locus Interactions Underlie Seed Yield In Soybeans Resistant to *Heterodera Glycines*
- *Authors*: U. B. Karangula, M. A. Kassem, L. Gupta, Hany A. El-Shemy and D. A. Lightfoot

Published In: Curr. Issue Mol. Biol

ISSN 1467-3037 **Impact Factor** 3.176

<u>Abstract :</u>

In soybean (*Glycine max* L. Merr.) combining resistance to cyst nematode (SCN; *Heterodera glycines* I.) with high seed yieldremains problematic. Molecular markers linked to quantitative trait loci (QTL) have not provided a solution. Sets of markers describing a collection of favorable alleles (linkats) may assist plant breeders seeking to combine both traits. The objective of this analysis was to identify linkats in genomic regions underlying seed yield and root SCN resistance QTL. Used were groups of cultivars selected from a single recombinant inbred (RIL) population derived from 'Essex' by 'Forrest' (ExF). The yield was measured at four locations. SCN resistance was determined in greenhouse assays. The mean seed yield was used to define 3 groups (each n = 30), high, medium and low. SCN resistance formed 2 groups (SCN resistant (n = 21) and SCN susceptible (n = 69)). Microsatellite markers (213) alleles were compared with seed yield and root SCN (*Hetrodera glycines*) resistance using mean analysis. The number, size and position of.

<u>Keywords:</u>

RIL; Recombinant inbred population; QTL; Quantitative trait loci. SCN; soybean cyst nematode.

Dep. : Biochemistry

Name : Hany A. El-Shemy



- Cloning of a Novel Antifungal Promoter from PhaseolusTitle: vulgaris and the Determination of its Activity in Stably
Transformed Nicotiana Tabacum Plants
- *Authors*: Eman A. Mahmoud, Solliman M. Mohei El-Din, Mourad A. M. Aboul-Soud, Ahmed M. Aboul-Enein, Ghanem A. Sobhy and Hany A. El-Shemy

Published In: Curr. Issue Mol. Biol

ISSN 1467-3037

Impact Factor 3.176

<u>Abstract :</u>

To investigate the transcriptional regulation of gene expression, chimeric fusions, between the β -glucuronidase reporter gene (GUS) and the isolated promoter regions of the *pvPDF* gene (*pvPDF-PRO: GUS*), were constructed and introduced into *Nicotiana tabacum*. Analysis of transgenic *pvPDF-PRO:GUS* tobacco plants indicated that GUS activity was observed with all the promoter constructs with the strongest being in leaf followed by stem and roots. These results clearly demonstrate that *pvPDF-PRO* is a strong inducible and near-constitutive promoter and emphasize the great application potential for plant genetic engineering studies. Interestingly, a search for putative *cis*-acting elements in the *pvPDF* promoter architecture revealed the presence of some important transcription regulatory elements (CCA1, GATA, GT-1). Taken together, these results further our understanding of the regulation of the *pvPDF* promoter activity.

<u>Keywords:</u>

Promoter isolation; Cloning; Phaseolus; Vulgaris; Defensins.

Dep. : Biochemistry

Name : Hany A. El-Shemy



Cairo University

Title : The Role of Green Fluorescent Protein (GFP) in Transgenic Plants to Reduce Gene Silencing Phenomena

Authors: Hany A. El-Shemy, Mutasim M. Khalafalla and Masao Ishimoto

Published In: Curr. Issue Mol. Biol

ISSN 1467-3037 **Impact Factor** 3.176

<u>Abstract :</u>

The green fluorescent protein (GFP) of jellyfish (Aequorea victoria) has significant advantages over other reporter genes, because expression can be detected in living cells without any substrates. Recently, epigenetic phenomena are important to consider in plant biotechnology experiments for elucidate unknown mechanism. Therefore, soybean immature cotyledons were generated embryogenesis cells and engineered with two different gene constructs (pHV and pHVS) using gene gun method. Both constructs contain a gene conferring resistance to hygromycin (hpt) as a selective marker and a modified glycinin (11S globulin) gene (V3 - 1) as a target. However, sGFP(S65T) as a reporter gene was used only in pHVS as a reporter gene for study the relation between using sGFP(S65T) and gene silencing phenomena. Fluorescence microscopic was used for screening after the selection of hygromycin, identified clearly the expression of *sGFP*(*S65T*) in the transformed soybean embryos bombarded with the pHVS construct. Protein analysis was used to detect gene expression overall seeds using SDS-PAGE. Percentage of gene down regulation was highly in pHV construct compared with pHVS. Thus, sGFP(S65T) as a reporter gene in vector system may be play useful role for transgenic evaluation and avoid gene silencing in plants for the benefit of plant transformation system.

<u>Keywords:</u>

Epigenetics; Green fluorescence protein; Gene gun; Transgenic soybean.

Dep. : Biochemistry

Name : Hany A. El-Shemy



- *Title* : The Interactions of the Largest Subunit of RNA Polymerase II with other Cellular Proteins: a Bioinformatic Approach
- *Authors*: Abhijit Shukla, Aparna Natarajan, Sukesh Bhaumik, Hany A. El-Shemy and David Lightfoot

Published In: Curr. Issue Mol. Biol

ISSN 1467-3037 **Impact Factor** 3.176

<u>Abstract :</u>

The function of a protein is governed by its interaction with other proteins inside a cell. Therefore, it is important to identify the interacting partners of a particular protein to decipher its function. The protein interaction networks are generally determined by bioinformatic as well as experimental methodologies such as yeast two hybrid, mass spectrometry, immunoprecipitation, and fluorescence resonance energy transfer assays. Here, we have analyzed bioinformatically the interactions of Rpb1p (the largest subunit of RNA Polymerase II) with other proteins in yeast, using *Cytoscape* software and *Biogrid/ Biomart* database. We find that Rpb1p interacts with a large number of proteins involved in mRNA synthesis, processing, export, and other cellular processes. These results validate the application of such bioinformatics approach to determine the interactome for other cellular proteins.

<u>Keywords:</u>

Bioinformatics; Protein interactions; Rbp1; yeast; Human.

Cairo University

Dep. : Biochemistry

Name : Hany A. El-Shemy



3.176

Title : Antisense Phenotypes Reveal a Functional Expression of *OsARF1*, an Auxin Response Factor, in Transgenic Rice

Kotb A. Attia, Amr F. Abdelkhalik, Megahed H. Ammar, Chun

Authors: Wei, Jinshui Yang, David A Lightfoot, Wagih M. El-Sayed and Hany A. El-Shemy

Published In: Curr. Issue Mol. Biol

ISSN 1467-3037 Impact Factor

<u>Abstract :</u>

OsARF1 is the first full-length member of auxin response factor (ARF) gene family to be cloned from monocot plant. Using quantitative RT-PCR this study found that, the transcript abundance of OsARF1 was significantly higher in embryonic tissues than in vegetative tissues. To investigate the effect of OsARF1 on the phenotype of rice, a cDNA fragment of OsARF1 was inserted in inverse orientation to the 35S promoter in vector pBin438 to produce an antisense (AS) construction. The ASOsARF1 construct was transferred into rice (Oryza sativa L. japonica) calli via Agrobacterium tumefaciensmediated transformation. Molecular analysis of transgenic plants showed that the functional expression of OsARF1 was inhibited at mRNA level efficiently. The AS-OsARF1 plants showed extremely low growth, poor vigor, short curled leaves and tillered but were sterile. Therefore, the OsARF1 was shown to be essential for growth in vegetative organs and seed development.

<u>Keywords:</u>

Auxin response factor 1(ARF1); Antisense technology; Gene transformation; Functional genomics; *Oryza sativa*.

Cairo University

Dep. : Biochemistry

Name : Hany A. El-Shemy



Cairo University

- *Title* : Establishment of the Regeneration System for *Vicia faba* L.
- Authors: Shimaa Bahgat, Omer A. Shabban, Osama El-Shihy, David. A. Lightfoot and Hany A. El-Shemy

Published In: Curr. Issue Mol. Biol

ISSN 1467-3037 **Impact Factor** 3.176

<u>Abstract :</u>

A reliable regeneration system for faba bean has been difficult to establish and therefore, the genetic improvement of Vicia faba L. was delayed. The paper describes a method of somatic embryo induction in callus of V. faba. Two Egyptian faba bean cultivars 'Giza 2' and '24 Hyto' were used. Callus was induced from epicotyls and shoot tips cultured on MS or Gamborg medium supplemented with 3% sucrose and 0.025% (w/v) for each of ascorbic and citric acid, 0.8% agar and different concentrations of 10 mg/l BAP, 0.5 mg/l of each NAA and 2,4-dichlorophenoxyacetic acid (M1) and 1 mg/l BAP and 0.5 mg/l NAA (M2). The media with BAP, NAA and 2,4-D were optimal for embryogenic callus induction. Somatic embryos developed after transfer of the callus to 1/2 B5 medium with no plant growth regulators. There were various stages of somatic embryo development present including globular, heart-shaped, torpedo, and cotyledonary stages. Embryos developed into plantlets and plants were regenerated. RAPD analyses were performed to investigate the genetic stability of the regenerated plants obtained from different treatments and different explants. The cultivar Giza 2 exhibited more genetic stability than cultivar 24 Hyto. In conclusion, a regeneration system was established suitable for both gene transformation and the isolation of somaclonal mutants. The regeneration system will be used in order to improve the nutritional value of faba bean

Keywords:

Faba bean; Regeneration; Transformation.

Dep. : Economic Entomology and Pesticides

Name : Said A. El Salamouny



0.322

- *Title* : Black Tea and Lignin as Ultraviolet Protectants for the Beet Armyworm Nucleopolyhedrovirus
- Authors: Said El Salamouny, Martin Shapiro, Kai S. Ling, and Merle Shepard

Published In: J. Entomological Science

ISSN 0749-8004 Impact Factor

Abstract :

A major constraint to the use of baculoviruses for biocontrol of insects is their sensitivity to UV (UV) degradation. In this study, we evaluated black tea (Lipton®, London, UK) and lignin (Reax 85ATM, MeadWestvaco, Charleston, SC) as potential UV protectants for beet armyworm, Spodoptera exigua (Hübner) (Lepidoptera: Noctuidae) multiple-embedded nucleopolyhedrovirus (SeMNPV). The original activity remaining (OAR%) from SeMNPV upon exposure to various lengths of time (up to 5 h) to a source of UVA and UVB was evaluated in bioassays using beet armyworm third-instar larvae under laboratory conditions. Beet armyworm mortality was measured after larvae fed on artifi cial diet treated with SeMNPV. Mortality of beet armyworm due to SeMNPV, with no UV protectants added, was reduced to 23, 11.3 and 2.1% upon UV exposure for 15, 30 or 60 min, respectively. To investigate the mechanism of reduction in the efficacy of SeMNPV when exposed to UV was due to the degradation of full-length viral genomic DNA, a modified DNA isolation technique was developed to measure levels of the full length viral genomic DNA of SeMNPV through electrophoresis on an agarose gel. The efficacy of SeMNPV on beet armyworm was lost in samples receiving more than 2 h of UV exposure, and the full-length genomic DNA also was degraded to levels that were not visible on agarose gel. However, both black tea and lignin provided nearly 100% UV protection for SeMNPV as measured in bioassays even after 5 h of UV irradiation. SeMNPV efficacy against beet armyworm in samples containing black tea or lignin resulted in no signifi cant visual reduction of the full length viral genomic DNA.

To investigate the mechanism of UV protection for *Se*MNPV from black tea and lignin, absorption spectra of both protectants were measured with a spectrophotometer. High rate of absorption in the UV range, especially at the range of UVB (280-320nm), was detected for both materials. The absorption rate was higher with lignin than with black tea. Whereas lignin was a good absorber for both UVB and UVA radiation, black tea was primarily an absorber of UVB. Therefore, both black tea and lignin are potential natural UV protectants in the formulation of baculovirusbased biopesticides.

<u>Keywords:</u>

Nucleopolyhedrovirus; *Spodoptera exigua*; Ultraviolet light; Black tea, Lignin; protectants.
- **Dep.** : Economic Entomology and Pesticides
- Name : Said A. El Salamouny



- *Title* : Tea, Coffee, and Cocoa as Ultraviolet Radiation Protectants for the Beet Armyworm Nucleopolyhedrovirus.
- Authors: El-Salamouny S., Ranwala D., Shapiro M. Shepard B.M. and Farrar R.R.
- Published In: J. Economic Entomology

ISSN 0022-0493 **Impact Factor** 1.346

<u>Abstract :</u>

The addition of 1% (wt:vol) aqueous extracts of cocoa (*Theobroma cacao* L.) (Malvales: Malvaceae), coffee (*Coffea arabica* L.) (Gentianales: Rubiaceae), and green and black tea (*Camellia sinensis* L.) (Ericales: Theaceae) provided excellent UV radiation protection for the beet armyworm, *Spodoptera exigua* (Hu⁻ bner) (Lepidoptera: Noctuidae), nucleopolyhedrovirus under laboratory conditions. Aqueous extracts of coffee, green tea, and black tea at 0.5% provided 85⁻¹100% UV protection, whereas cocoa provided 50% UV protection. Epigallocatechin gallate (EGCG), a component of green tea, and caffeine, a component of tea and coffee, also were tested as UV protectants. Both compounds were ineffective when tested alone. When EGCG and caffeine were combined, UV protection increased in a synergistic manner, but _35% of the original virus activity was maintained. This study demonstrated that coffee was comparable to green tea and black tea as aUVprotectant. Further studies should be conducted to optimize their use in biopesticide formulations.

<u>Keywords:</u>

Nucleopolyhedrovirus; Spodoptera exigua; UV radiation; Cocoa; Coffee.

Cairo University

!Unexpected End of FormulaInternational Publications Awards, Issue VI, May 2010 Cairo University

Faculty of Agriculture

- **Dep.** : Entomology and Pecticides
- Name : Adel M. Mazeed



Title : Does the Duration of the Pre Oviposition Period of Honeybee Queens Affect the Honey Production of Colonies?

Authors: Adel M. Mazeed and Kaspar Bienefeld

Published In: J. Apicultural Science

ISSN 1643 – 4439 **Impact Factor** 0.0

<u>Abstract :</u>

On the basis of data from The Breeding Evaluation Centre in Germany, data of the pre oviposition period (POP) of honey bee queens were collected from 3648 colonies over 19 years at 25 mating stations and from 64 bee breeders. Generally, the pre oviposition period of the tested queens lasted from 6 to 34 days with an average of 15.8 days. About 80.1% started egg laying 8 to 18 days after emergence. The length of POP varied significantly among years and months and among different queen bee breeders. Both, the type of mating and the mating location significantly affected POP. Artificially inseminated queens had the significant highest value (17.6 days) of POP in comparison with naturally mated queens at island- (15.4 days) and land-mating (14.9 days) stations. The relationship between POP and honey production of bee colonies was not found to be significant. Thus, the pre oviposition period is highly affected by environmental factors but provides no information concerning the potential of the queens.

<u>Keywords:</u>

Apis mellifera; Queen; Pre oviposition period; Honey production; Egg laying.

Faculty of Agriculture

Dep. : Food Science

Name : Sobhy M. mohsen



Eeffect of Substitution of Soy protein Isolate on Aroma

Title : Volatiles, Chemical Composition and Sensory Quality of Wheat Cookies

Authors: Sobhy M. mohsen and Mohamed A .Bekhit

Published In : International J. of food science and technology

ISSN 0950-5423 **Impact Factor** 1.065

Abstract :

Wheat flour was substituted with soy protein isolate (SPI) at levels of 0-20% and its effect on aroma volatiles and quality of cookies was evaluated. The chemical analysis showed that the moisture and protein content increased gradually by increasing the added levels of SPI whereas the carbohydrate and fat levels showed the opposite trend. The sensory characteristics , aroma, taste, crisipiness and overall acceptability showed significant (p<0.05) increase of up to 10% SPI substitution compared with cookies free of SPI. The gas chromatographic- mass spectronic (GC-MS) analysis of aroma volatiles revealed that sample containing 10% SPI had the highest yield (13.57%) of pyranones , the key odoourants of cookies . the results of GC-MS asnalysis were consistent with those of the aroma sensory analysis of cookies during storage

<u>Keywords:</u>

Cookies; Sensory evaluation; Soy proteinisolate; Volatiles.

Dep. : Food Science

Name : Sobhy M. mohsen



Title : Total Phenolic Contents and Antioxidant Activity of Corn Tassel Extracts

Authors: Sobhy M. Mohsen and Abdalla S. M. Ammar

Published In : Food Chemistry

ISSN 0308-8146 **Impact Factor** 2.698

<u>Abstract :</u>

Ground corn tassel, a by-product of corn were used as source if phenolic Compounds .water, ethanol, methanol, acetone, hexane, Chloroform butanol, petroleum ether and methylene chloride Were evaluated as different polarity solvents to extract these phenolic compounds. ethanol exhibited the highest extraction ability for such phenolic compounds, followed by methanol and water, where the total phenols were 0.157%, 0.1125 and 0.073% respectively . Antioxidant activity of corn tassels ranged from 83.0% 85.2%, 69.8% to 49.1% and 14.8% to 19.3% radical scavenging activity (% RSA) for ethanol, methanol . acetone, butanol, and water extracts, respectively.

The ethanolic extract of the corn tassels was successfully utilized to retard the oxidation of sunflower oil and the obtained induction period values were comparable to those of tetra-butyihydroquinone (TBHQ).

<u>Keywords:</u>

corn tassels; Phenolic compounds; Antioxidant activity; Ethanolic extract.

Faculty of Agriculture

Dep. : Genetics

Name : Haggag S. Zein



- *Title* : Monoclonal antibodies specific to Cucumber mosaic virus coat protein possess DNA-hydrolyzing activity
- Authors: Haggag S. Zein, Jaime A. Teixeira da Silva and Kazutaka Miyatake

Published In: Molecular Immunology

ISSN 0161-5890 **Impact Factor** 3.555

Abstract :

Monoclonal antibodies (mAbs) specific to Cucumber mosaic virus coat protein (CMV-CP) were designed from cDNA and deduced amino acid sequences of the light chain genes of 10 out of 14 different hybridoma cell lines. Ten of these mAbs revealed a very restricted germline family V_II, within which gene bd2 has identical amino acid sequences with VIPase and an i41SL 1-2 catalytic antibody light chain, both of which possess peptidase activity. Four out of the 14 mAbs illustrated another germline family V κ IA, within which gene bb1.1 had high homology with BV04-01 light chain mAb, which hydrolyses ssDNA. Interestingly, our mAbs showed DNA-hydrolytic activity at an optimum pH of 4–5, which is a typical pattern of autoimmune diseases in which autoantibodies hydrolyze supercoiled plasmid DNA. This is the first evidence ever that CMV-CP could stimulate catalytic antibodies, which have an identical sequence homology with autoantibodies. Furthermore, the CMV-CP-specific mAbs will be important for isolating antibodies specific to the CPs of bacteria, viruses, cancer cells, etc. that could be used for medical therapy.

<u>Keywords:</u>

Autoimmune disease; Catalytic activity; Cucumber mosaic virus; DNase like activity; Monoclonal antibodies.

Dep. : Genetics

Name : Haggag S. Zein



Cairo University

- *Title* : Antigenic Properties of the Coat of Cucumber Mosaic Virus using Monoclonal Antibodies
- Authors: Haggag S. Zein, Jaime A. Teixeira da Silva and Kazutaka Miyatake

Published In: Virological Methods

ISSN 0166-0934 **Impact Factor** 2.077

<u>Abstract :</u>

The coat protein (CP) of Cucumber mosaic virus (CMV) was characterized by antigen-capture-ELISA using a panel of monoclonal antibodies (mAbs) which were produced against Pepo-CMV-CP. Comparative analysis of three mAbs with four different strains by competitive ELISA revealed that the binding affinity of the mAb decreased about 10-fold with both MY17- and Y-CMV than with Pepo-CMV. The CP of these three strains showed high homology (~ 98%) following comparison in the GenBank database. CMV has a negatively charged loop structure, the β H– β I loop, although the amino acid at position 193 is not conserved.

In addition, an amino acid residue identified within the variable region spanning amino acids 191–198, specifically at position 194, showed significant changes in Threonine, Alanine, Alanine, and Lysine of the Pepo-, MY17-, Y-, and M2-CMV strains, respectively. Evidence from competitive ELISA and GenBank database amino acid residues, when taken together, provide strong support suggesting that the dominant epitope site of CMV-CP-specific mAbs is the β H- β I loop 191–198. The four mAbs were chosen because they represent distinct, overlapping epitopes within the group-specific determinant located on the CMV-CP and because they all recognize linear epitopes. Knowledge of specific immunoglobulin genes for a common epitope may lead to insight on pathogen–host co-evolution and may help prevent virus infection in plants.

<u>Keywords:</u>

Monoclonal antibodies; Epitope; CMV; Coat protein; Affinity; ELISA.

Faculty of Agriculture

Dep. : Genetics

Name : Haggag S. Zein



Title : Development of rapid, specific and sensitive detection of Cucumber mosaic virus

Authors: Haggag S. Zein and Kazutaka Miyatake

Published In: African Journal of Biotechnology

ISSN 1684-5315 **Impact Factor** 1.0

Abstract :

Cucumber mosaic virus (CMV) causes major losses to thousand agricultural and horticultural crops around the world. Unlike other plant pathogens, there are no direct methods available yet to control viruses and, consequently, the current measures rely on indirect tactics to manage the viral diseases. Hence, methods for detection and identification of viruses, both in plants and vectors, play a critical role in virus disease management. A rapid assay for diagnosis of CMV, which can be employed in both laboratory and field, is essential. Therefore, this study was undertaken to develop a procedure for detection of the CMV in infected plants using a monoclonal and polyclonal antibodies. Dot immunobinding assays (DIBA) are useful alternatives to microtitre plate enzyme-linked immunosorbent assay (ELISA). Nine monoclonal antibodies were readily used for detected CMV by TAS-ELISA and DIBA of infected plants. DIBA has about the same sensitivity as ELISA in microtiter plates, but it has the additional advantages of simplicity, quick completion in the field or office on large numbers of samples, economy, and can be quantified using densitometry.

<u>Keywords:</u>

Monoclonal antibodies; Polyclonal antibodies; Triple-antibody sandwich; Enzyme-linked immunosorbent assay; Dot-immunobinding assays.

1.241

Faculty of Agriculture

Dep. : Microbiology

Name : Essam Agamy

Efficient Mass-Trapping Method as an Alternative Tactic for

Title : Suppressing Populations of Leopard Moth (Lepidoptera: Cossidae)E. Hegazi, W. E. Khafagi, M. Konstantopoulou, D. Raptopoulos,

Authors: H. Tawfik, G. M. Abd El-Aziz, S. M. Abd El-Rahman, A. Atwa, E. Aggamy, and S. Showeil

Published In : Ecology and Population Biology

ISSN 0013-8746 Impact Factor

Abstract :

The leopard moth, Zeuzera pyrina (L.) (Lepidoptera: Cossidae), is a xylophagous species that has become a serious pest in the olive (Olea spp.) orchards in Egypt. Both chemical and biological control have scored poorly against this pest and additional methods are needed. A simple, but efficient UVlight-pheromone sticky trap ("Hegazi model") was devised for leopard moth mass trapping. Activity of leopard moth and efficiency of pheromone-baited, light, and pheromone and light traps were evaluated. The combination of light and sex pheromone was optimally attractive to leopard moth populations in olive orchards. A comparison between light traps baited with sex pheromone in mass-trapping method and conventional controls (insecticidal and physical removal of larvae) in heavily infested plots was carried out between 2002 and 2005. Leopard moths have long flight period starting in mid-May and lasting until early November. Females of leopard moths were rarely trapped, but all had eggs. In mass-trapping plot, the seasonal captures and active galleries diminished from one year to the next, which may indicate the effectiveness of the method. From May 2003 to October 2005 greater reduction in total counts of active galleries was observed in mass-trapping plot compared with those recorded in the control field, in which chemical sprays and manual killing were performed. Yield from trees in masstrapping field was significantly increased in comparison to control trees. The study strongly recommends the use of mass-trapping method instead of pesticides against the leopard moths, not only to control them but also to mass trap and monitor other lepidopterous pests of olive trees.

<u>Keywords:</u>

Zeuzera pyrina; sticky UV-light-pheromone trap; mass trapping; active galleries; olive yield.

Dep. : Microbiology

Name : Essam Agamy

Field Evaluation of the Egg parasitoid, Trichogramma

Title : *Evanescens* West. Against the Olive Moth Prays Oleae (Bern.) in Egypt

Authors: E. Aggamy

Published In : J Pest Sci

ISSN 1612-4758 **Impact Factor** 0.0

<u>Abstract :</u>

In Egypt, *Trichogramma evanescens* Westwood (TE) is extensively used in inundative releases against a number of lepidopterous pests of several crops. However, the wasp had not been collected from olive groves. Field trials on the use of commercially available TE against the olive moth, Prays oleae (Bern.) (OM) were carried out for three successive years (2002–2004). The objective of this study was to evaluate the efficacy of inundative releases of this wasp on damage reduction. The obtained results were encouraging since OM attacks were reduced by 42.9,71 and 69.9% and TE-treated trees yielded significantly bigger olive fruits by 10 and 12.5% than untreated trees in 2002 and 2004 olive seasons, respectively. However, parasitization levels indicated that the wasp is not well adapted to local environmental conditions of olive groves. The suggested measure to improve the quality of released wasps is to mass release of local wasps isolated during the present study, i.e., T. cordubensis Vargas and Cabello and T. euproctidis Girault.

<u>Keywords:</u>

Trichogramma evanescens; Inundative releases; T. cordubensis; T. euproctidis; Prays oleae; Olive fruit yield.

Dep. : Pesticides

Name : Ibrahim S. Abdallah



Distinct Non-target Site Mechanisms Endow Resistance to

- *Title* : Glyphosate, ACCase and ALS-inhibiting Herbicides in Multiple Herbicide-resistant Lolium Rigidum
- Authors: Qin Yu, Ibrahim Abdallah, Heping H. M. Owen and Stephen Powles

Published In : Planta

ISSN 0032-0935

Impact Factor 3.088

Abstract :

This study investigates mechanisms of multiple resistance to glyphosate, acetyl-coenzyme A carboxylase (ACCase) and acetolactate synthase (ALS)inhibiting herbicides in two Lolium rigidum populations from Australia.When treated with glyphosate, susceptible (S) plants accumulated 4- to 6-fold more shikimic acid than resistant (R) plants. The resistant plants did not have the known glyphosate resistance endowing mutation of 5-enolpyruvylshikimate- 3 phosphate synthase (EPSPS) at Pro-106, nor was there over-expression of EPSPS in either of the R populations. However, [14C]-glyphosate translocation experiments showed that the R plants in both populations have altered glyphosate translocation patterns compared to the S plants. The R plants showed much less glyphosate translocation to untreated young leaves, but more to the treated leaf tip, than did the S plants. Sequencing of the carboxyl transferase domain of the plastidic ACCase gene revealed no resistance endowing amino acid substitutions in the two R populations, and the ALS in vitro inhibition assay demonstrated herbicidesensitive ALS in the ALS R population (WALR70). By using the cytochrome P450 inhibitor malathion and amitrole with ALS and ACCase herbicides, respectively, we showed that malathion reverses chlorsulfuron resistance and amitrole reverses diclofop resistance in the R population examined. Therefore, we conclude that multiple glyphosate, ACCase and ALS herbicide resistance in the two R populations is due to the presence of distinct non-target site based resistance mechanisms for each herbicide. Glyphosate resistance is due to reduced rates of glyphosate translocation, and resistance to ACCase and ALS herbicides is likely due to enhanced herbicide metabolism involving different cytochrome P450 enzyme.

<u>Keywords</u>: ACCase; ALS; Cytochrome P450; Glyphosate resistance; Multiple resistance; Lolium rigidum.

- Dep. : Zoology and Agricultural Nematology
- Name : Mahmoud I. Mohamed



- Reproduction and Life History in the Two Land Snails Monacha : Cartusiana (Müller) and Eobania Vermiculata (Müller)
- (Helicidae: Mollusca) in the Laboratory.

Authors: M.I. Mohamed and R.F. Ali

Published In : Animal Biology

ISSN 1949-498X

Impact Factor 0.0

<u>Abstract :</u>

Title

Mating, oviposition, post-oviposition period, development. and generation period of the two land snail species Monacha cartusiana (Müller) and Eobania vermiculata (Müller) were studied in the laboratory in Egypt during the two seasons of 2003/4 and 2004/5. Data revealed that mating is essential for both snail species to lay eggs, thus it occurs when snails reached their sexual maturity (from adulthood till mating) during a period averaged 190.3 and 228.6 days for M. cartusiana and 231.6 and 568.3 days for E. vermiculata after adulthood in the two different seasons respectively. Pre-oviposition period (from mating till laying first egg) lasted an average of 2.7 and 8.2 days for M. cartusiana and 3.5 and 9.2 days for E. vermiculata during the two seasons respectively.

Oviposition period (from first laying egg till last one) averaged 22.5 and 64.1 days during which the snail of M. cartusiana deposited an average of 63.0 and 177.5 eggs during the two seasons respectively. On the other hand this period averaged 15.2 and 24.9 days for E. vermiculata during which the snail individual deposited and total average of 89.6 and 162.0 eggs during 2003/4 and 2004/5 respectively. While, post- oviposition period (from last egg till death) lasted 142.4 and 71.9 days for first snail species and 372.5 and 660.1 days for the second one during the same seasons respectively. The generation period (from egg to egg) extended an average of 369.8 and 402.6 and 481.7 and 868.7 days for both species during the same seasons respectively.

<u>Keywords:</u>

Monacha cartusiana; Eobania vermiculata; Mating; Oviposition; Generation period; Sexual maturity.

- *Dep.* : Zoology and Agricultural nematology
- Name : Mona E. Al-Shalaby



- *Title* : the Use of Garlic Extracts for Biocontrol of Meloidogyne Incognita Infecting Cucumber Plants
- Authors: Mona E. Al-Shalaby

Published In: Int. J. Nematology

ISSN 1368-8774

Impact Factor 0.0

<u>Abstract :</u>

Three preparations of Chinese garlic (Allium sativum L.) extracts: essential oil, oleoresin and garlic powder were investigated against Meloidogyne incognita infecting cucumber plants under green-house conditions. All treatments gave considerable nematicidal activity against the nematode and significantly reduced development in roots, juvenile numbers in soil, and final nematode populations in soil. The oleoresin extract of garlic was the most effective followed by the essential oil and garlic powder extracts. Rates of nematode build-up were greatly affected by the concentration levels of extracts used. Application of garlic preparations improved the plant growth, with garlic powder being the most effective. When the volatile fractions of garlic powder, essential oil and oleoresin were chemically analyzed by GC-MS, the disulfides were the major constituents found in all garlic preparations. The diallyl disulfides were the dominant constituents in all preparations and made up 16.75, 12.51 and 10.81% of the total oleoresin, essential oil and powder, respectively. Monosulfides were the second major constituents of the essential oil and powder and made up 23.12 and 14.01% of the total plant product, respectively. Trisulfides were the second main group found in oleoresin and made up 14.6% of the plant product.

Keywords:

Botanical pesticides; Control; Essential oil; Garlic; oleoresin; Root-knot nematode.

- **Dep.** : Zoology and Agricultural nematology
- Name : Mona E. Al-Shalaby



- Effects of Verticillium Chlamydosporium Combined with some
- *Title* : Organic Manures of Meloidogyne Incognita and other Soil Micro-organisms on Tomato
- Authors: E. M. Noweer and Mona E. Al-Shalaby

Published In: Int. J. Nematology

ISSN 1368-8774 **Impact Factor** 0.0

Abstract :

Application of the egg parasitic fungus, Verticillium chlamydosporium Goddard in combination with some organic amendments at two dosage levels ($\frac{1}{4}$, $\frac{1}{2}$ m3/25 m2 soil) decreased the counts of Meloidogyne incognita juveniles in soil, as well as gall formation on roots of tomato under field conditions in Egypt. The highest reduction in the nematode counts in soil and root galls was obtained with the fungus combined with chicken dung and wheat straw. The fungus combined with farmyard dung achieved the lowest reduction. Other treatments showed a variable effect depending on source of manure and dosage level. The occurrence of beneficial fungi such as Trichoderma viride, T. harzianum and Dactylaria brochopaga was detected in some treatments in the presence of which the occurrence of some phytopathogenic fungal species was reduced or diminished in the treated plots. Tomato yield was significantly increased due to the addition of the fungi combined with the organic manures, especially when applied at higher dosage levels.

Keywords:

Control; Meloidogyne incognita; organic soil amendments; tomato; Verticillium chlamydosporium.

Dep. Name	:	Biochemistry and Chemistry of NutritionImage: Chemistry of Marwa I. Ahmed	
Title	:	Cloning of Large-conductance Ca2+-activated K+ channel Subunitsin Mouse Cardiomyocytes	a-

Authors: Mohamad A. Warda and Marwa Ibrahim

Published In: Biochemical and Biophysical Research Communications

0006-291X ISSN Impact Factor 2 6 4 8

Abstract :

Large-conductance Ca2+-activated K+ (BKCa) channels are widely distributed in cellular membranes of various tissues, but have not previously been found in cardiomyocytes. In this study, we cloned a gene encoding the mouse cardiac BKCa channel a-subunit (mCardBKa). Sequence analysis of the cDNA revealed an open reading frame encoding 1154 amino acids. Another cDNA variant, identical in amino acid sequence, was also identified by sequence analysis. The nucleotide sequences of the two mCardBKa cDNAs, type 1 (mCardBKa1) and type 2 (mCardBKa2), differed by three nucleotide insertions and one nucleotide substitution in the N-terminal sequence. The amino acid sequence demonstrated that mCardBKa was a unique BKCa channel a-subunit in mouse cardiomyocytes, with amino acids 41–1153 being identical to calcium-activated potassium channel SLO1 and amino acids 1-40 corresponding to BKCa channel subfamily M alpha member 1. These findings suggest that a unique BKCa channel a-subunit is expressed in mouse cardiomyocytes.

Keywords:

Large-conductance Ca2+; Activated K+ (BKCa); Channel a-subunit; Cardiomyocytes; cloning; Expression of BKCa.



- **Dep.** : Fish Diseases and Management
- Name : Alaa Eldin A. Eissa



- Recovery of Renibacterium Salmoninarum from Naturally
- *Title* : Infected Salmonine Stocks in Michigan using a Modified Culture Protocol

Authors: Mohamed Faisal, Alaa E. Eissa and Clifford E. Starliper

Published In: Cairo University Journal of Advanced Research (JAR)

ISSN 2090-1232 **Impact Factor** 3.0

<u>Abstract :</u>

Renibacterium salmoninarum, the causative agent of bacterial kidney disease (BKD), is a fastidious and slow-growing bacterium that is extremely difficult to grow in vitro. Herein, we describe a modified primary culture protocol that encompasses a modified bacteriological culture medium and a tissue processing procedure. In order to facilitate the release of R. salmoninarum from granulomatous tissues, kidneys of infected fish were homogenized in a high speed stomacher. The kidney disease medium (KDM2), routinely used for primary culture of R. salmoninarum was modified by the addition of antibiotics and metabolites. When a relatively large inoculum of diluted kidney homogenate was streak-plate inoculated onto the modified KDM2, colonial growth of R. salmoninarum was achieved within 5-7 days, compared to the standard of two weeks or more. The modified procedure was then used to determine the prevalence of R. salmoninarum among representative captive and feral salmonid stocks in Michigan. Prevalence and clinical manifestations varied among species, strains of fish, and locations; however, R. salmoninarum isolates were biochemically homogenous. The improved primary culture procedure described in this study enabled selective and quick isolation of R. salmoninarum. Also, the isolates retrieved in this study constitute a unique biological resource for future studies of *R* salmoninarum in the Laurentian Great Lakes

Keywords:

Renibacterium salmoninarum, Bacterial Kidney Disease; Prevalence; Michigan; Great Lakes; Culture

Dep. : Fish Diseases and Management

Name : Alaa Eldin A. Eissa



3.054

- *Title* : Identification of some Skeletal Deformities in Freshwater Teleosts Raised in Egyptian Aquaculture
- *Authors*: A.E. Eissa, M. Moustafa, I.N. El-Husseiny, S. Saeid, O. Saleh and T. Borhan

Published In: Chemosphere

ISSN 0045-6535 **Impact Factor**

<u>Abstract :</u>

This study examines different forms of skeletal deformities detected in fish species collected from two Egyptian aquaculture facilities during two harvest seasons in 2008. Various patterns of skeletal deformities were observed in 19 of 959 fish collected. Deformities were diagnosed using a number of techniques including clinical, radiographic, sonographic and histopathological evaluations. Observed deformities included: lordosis and kyphosis in African catfish (Clarius gariepenius); lateral projection of the mandible, parrot-like head, scoliosis, kyphosis, lordosis and fusion of dorsal with anal fins in Nile tilapia (Oreochromis niloticus); and stump body, scoliosis and mandibular joint deformity in common carp (Cyprinus carpio).

Relative incidences of deformities in fish from a facility located in the Sharkia province were 5.12%, 2.66% and 2.85% among catfish, Nile tilapia and common carp, respectively. At a second fish farm located in the Kafr Elsheikh province, the incidences of deformities were 1.02%, 1.55% and 0% among catfish, Nile tilapia and common carp, respectively. Some of the deformities were confirmed using both sonographic and histopathological evaluations. The reasons for the observed deformities could not be definitively determined, but possible aetiologies are discussed.

Keywords:

Freshwater fishes; Deformities; Environmental Pollutants; Radiography; Sonography; Egypt.

Dep. : Fish Diseases and Management

Name : Alaa Eldin A. Eissa



Title : Diagnostic Testing Patterns of *Renibacterium salmoninarum* in Spawning Salmonid Stocks in Michigan

Authors: M. Faisal and A. E. Eissa

Published In: Chemosphere

ISSN 0090-3558

Impact Factor 1.33

<u>Abstract :</u>

Bacterial kidney disease (BKD), caused by Renibacterium salmoninarum, is a slowly progressing disease that threatens salmon conservation and restoration programs in North America. The purpose of this study was to track naturally occurring R. salmoninarum infection in representative, Michigan, USA, salmonid stocks using nested polymerase chain reaction (nPCR), quantitative enzyme-linked immunosorbent assay (Q-ELISA), and culture. The Q-ELISA test detected 67.6% infection prevalence, which is lower than culture (77.2%) or nPCR (94.2%), yet it provided semiquantitative data on infection intensity. The disagreement in results among the three assays may reflect the different phases of R. salmoninarum infection at the time of sampling. The testing results demonstrated the presence of six patterns, with each of the patterns representing a probable stage along the course of natural R. salmoninarum infection. Findings also suggest that fish stocks tested in this study were not uniform in the distribution of the diagnostic patterns and that, from studying such patterns; one can determine the course of BKD infection in a particular population.

<u>Keywords:</u>

Bacterial kidney disease; Diagnostic patterns; Renibacterium salmoninarum.

Dep. : Internal Medicine and Animal Infectious Diseases

Name : Amr A. A. El-Sayed



TitleEvaluation of Three Molecular Methods of Repetitive ElementTitleLoci for Differentiation of Mycobacterium avium subsp.
paratuberculosis (MAP).Authors:Kamelia M. Osman, Mona I El-Enbaawy, Nashwa A. Ezzeldin
and Hussein MG Hussein

Published In: J. Microbiology

ISSN 1225-8873

Impact Factor 1.385

Abstract :

The aim of the present study is to evaluate the efficiency of three methods to determine the molecular diversity of 34 Mycobacterium avium subsp. paratuberculosis (MAP) strains isolated from 17 cattle herds. The applied methods included the analysis of sequence polymorphism of the mononucleotide (G1 and G2) and trinucleotide sequences (GGT) of the Short Sequence Repeats (SSR) and the determination of size polymorphism of 9 different Mycobacterial Interspersed Repetitive Units (MIRU) and 6 Variable Number Tandem Repeats (VNTR). Sequence analysis of SSR of 34 isolates showed 4, 6, and 2 alleles of G1, G2, and GGT repeats, respectively. The amplification of the investigated 9 MIRU units revealed only two discriminatory genotyping systems (MIRU2 and MIRU3). Out of 6 VNTR PCR differentiation methods, only one method could be recommended for genotyping purposes. The profile 7g-12g-4ggt-II-b-2 of the combination systems G1-G2-GGT-MIRU2-MIRU3-VNTR1658 dominates among the examined isolates and was detected in 14.7% of the isolates. The use of certain repetitive loci of SSR, MIRU, and VNTR techniques in this study showed greater potential than others for the characterization of MAP isolates. The recommended loci can be used for the epidemiological tracing of MAP field strains and to determine the relationships between isolates in different herds.

Keywords:

Mycobacterium avium subsp. *paratuberculosis* (MAP); Short sequence repeats (SSR); Mycobacterial interspersed repetitive units (MIRU); Variable number tandem (VNTR); Johne's disease (JD).

- **Dep.** : Medicine and infectious diseases
- Name : Walid S. Awad



Title : Evaluation of different diagnostic methods for diagnosis of Lumpy skin disease in cows

Authors: Awad, W.S., Ibrahim, A.K. and Mahran K.

Published In: Tropical Animal Health and Production

ISSN 0049-4747 **Impact Factor** 0.559

Abstract :

Viral isolation, polymerase chain reaction (PCR), dot blot hybridization (DBH), and indirect enzyme-linked immunosorbent assay (iELISA) were used for the diagnosis of lumpy skin disease in clinically infected, fevered, and apparently normal dairy cows. Lumpy skin disease virus (LSDV) was isolated from skin biopsies and blood samples collected from clinically infected cows in percentages of 72% and 20%, respectively. The virus recovered from blood samples collected from fevered cows in percentage of 33.3%. Both PCR and DBH detected viral DNA in 100% of skin biopsies collected from clinically infected cows whereas the detection rates in blood samples collected from clinically infected animals were 100% and 84% using PCR and DBH, respectively. Viral DNA was detected in blood samples collected from fevered cows using PCR and DBH in percentages of 77.8% and 66.6%, respectively. Only 19.1% of blood samples collected from incontact cows was positive for both of PCR and DBH. Detection rates of antibodies against LSDV using iELISA in serum samples collected from clinically infected and fevered cows were 56% and 11.1%, respectively, whereas all in-contact cows had no antibodies against the virus.

<u>Keywords:</u>

LSDVisolation; PCR; Dot blot hybridization and iELISA.

- **Dep.** : Medicine and infectious diseases
- Name : Walid S. Awad



- Using Indirect ELISA to Assess Different Antigens for the
- *Title* : Serodiagnosis of Fasciola Gigantica Infection in Cattle, Sheep and Donkeys

Authors: Awad W. S., Ibrahim A. K., and Salib F. A

Published In: Research in Veterinary Science

ISSN 0034-5288 **Impact Factor** 1.384

Abstract :

An indirect enzyme-linked immunosorbent assay (iELISA) was evaluated for its diagnostic capability in detecting antibodies against Fasciola gigantica infection in cattle, sheep and donkeys sera using crude worm, excretory-secretory and glutathione S-transferase antigens prepared from adult liver fluke. Presence of F. gigantica worms at post-mortem examination of cattle, sheep and donkey's livers was taken as a gold standard for the evaluation of the assay. The diagnostic sensitivity, specificity and accuracy percentages of iELISA were determined for each antigen. Excretory-secretory antigen gave the best results for the serodiagnosis of F. gigantica infection in cattle, sheep and donkeys using iELISA with diagnostic sensitivity percentages of 93.3%, 94.9% and 93.3%, respectively, while the specificity percentages were 96.7%, 97.2% and 96.3%, respectively, whereas the accuracy percentages were 95%, 96% and 95.7%, respectively. The diagnostic sensitivity percentages of iELISA using crude worm antigen were 96.7%, 100% and 93.3%, respectively, while the specificity percentages were 80%, 83.3% and 85.2%, respectively, whereas the accuracy percentages were 88.3%, 86.7% and 87%, respectively. The diagnostic sensitivity percentages of iELISA using glutathione S-transferase antigen were 66.7%, 71.8% and 60%, respectively, while the specificity percentages were 70%, 77.8% and 77.8%, respectively, whereas the accuracy percentages were 68.3%, 74.7% and 73.9%, respectively. Conclusively, excretory-secretory antigen dependent iELISA can be used as a reliable serodiagnostic test for F. gigantica infection in cattle, sheep and donkeys.

Keywords:

iELISA; Fasciola gigantica; Cattle; Sheep; Donkeys; Crude worm antigen; Excretory-secretory antigen and Glutathione S-transferase antigen.

Dep. : Microbiology

Name : Ahmed Samir



Regioselective Synthetic Approaches Towards 1,2,8,9

Title : Tetraazadispiro[4.1.4.2[trideca-2,9-dien-6-ones of Potential Antimicrobial Properties

Authors: Adel S. Girgis, Flora F. Barsoum and Ahmed Samir

Published In: European Journal of Medicinal Chemistry

ISSN 0223- 5234 **Impact Factor** 2.882

<u>Abstract :</u>

Reaction of 2,5-bis(arylmethylidene)cyclopentanones **1a–d** with nitrilimines (generated in situ via triethylamine dehydrohalogenation of the corresponding hydrazonoyl chlorides **2a,b**) in 1:2 molar ratio proceeds in a high regioselective manner affording monocycloadducts 3 and dicycloadducts in the form of two isomers **4**, **5**. Single crystal X-ray diffraction studies of the isolated crystalline form of **3c** support the established structure and indicate that the formed product is 7E, 4S, 5R. Antimicrobial activity screening of the synthesized compounds **3–5**, utilizing a variety of Gram-positive (Staphylococcus aureus, Enterococcus fecalis and Streptococcus agalactiae), Gram-negative bacteria (Escherichia coli, Klebsiella pneumoniae and Proteus vulgaris) and yeast (Candida albicans), exhibited that all the prepared analogues acquire promising activities against both Gram-positive agents against Gram-positive bacteria) and 3c (antimicrobial active agent against Gram-negative bacteria)..

<u>Keywords:</u>

-1,2,8,9Tetraazadispiro[4.1.4.2]trideca-2; -9dien-6-ones; -2,5Bis(arylmethylidene) cyclopentanones; Nitrilimines; -1,3Dipolar cycloaddition reactions Antimicrobial properties.

Faculty of Veterinary Medicine

Dept.	:	Microbiology
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Name : Jakeen K. EI-Jakee



Title : Using Molecular Techniques for Characterization of Escherichia Coli Isolated from Water Sources in Egypt

Authors: J. EL-Jakee, E.I. Moussa, Kh. F. Mohamed and G. Mohamed

Published In: Global Veterinaria

ISSN: 1992-6197

Impact Factor: 0.0

Abstract :

Failure to understand the importance of water quality exposes animals and human to the risk of diseases. Microbial contamination reminds a critical risk factor in drinking water in many parts of the world. Fifty water samples were investigated to detect the occurrence of coliforms. All E. coli isolates were serotyped and screened for virulence genes (hly, fliCh7, stx1, stx2 and eae genes). The results showed that 90 % of the collected water samples were positive for coliforms. The highest coliforms detection rate was recorded among water samples collected from canals followed by drinking underground water, River Nile, agricultural drain, untreated sewage water, treated sewage water and well samples respectively. The predominant E. coli serotype isolated from the examined water samples was O128:K67 followed by O157: K-, O111:K58 and O55:K59 respectively. E. coli strains isolated from water sources were characterized by PCR and showed that 8 isolates carried stx1 gene (verocytotoxin 1) and 4 possessed stx2 gene (verocytotoxin 2). Intimin (eae), chromosomal flagellin type H7 of E. coli (fliCh7) and enterohemolysin (hly), virulence genes were detected in 21.4, 21.4 and 28.6 % of the isolates respectively. It could be concluded that water may be an important reservoir for E. coli infection and the risks of contracting enterotoxigenic (ETEC) and or enterohemorrhagic E. coli (EHEC) infections from contaminated water have been clearly established.

Keywords:

E. coli; Water; O157; Virulence genes; PCR.

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-295-

http://gsrs.cu.edu.eg

Dep. : Parasitology

Name : Hussein M. Omar



Title : A New Record for the *Lynxacarus* in the Egyptian Lesser Blind Mole (*Spalax Leucodon Egyptiacus*)

Authors: A. Tamam, O. A. and Omar H. M

Published In : European Journal of Scientific Research

ISSN	1450-216X	Impact Factor	0.00

Abstract :

The *Lynxacarus* (Acarina: Astigmata: *Listrophoridae*) is a relatively recent discovery and to date noted has been recorded before from Puerto Rico,Australia,Fiji,Florida and Texas.

Pathological lesions as itching, particularly on the posterior half and severe gingivitis has been recorded from cats. Twenty five Egyptian lesser blind mole (*Spalax leucodon Egyptiacus*) were caught from May 2006 to April 2009 by excavating their tunnels and captured manually ,from the north part of the west desert (Al dabaa-Marsa Matroh governorate).The mites recorded in all cases which suffered from intensive itching ,and hair loss. In addition,severe gingivitis and periodontitis were recorded in 7 cases only. The small (< 500 um) mite could be readily identified by its laterally compressed body and its characteristic grasping of hair shaft between the gnathosoma and palpi.Larval , numphal and adult male mites were identified. Our study is the first to provide the parasite on the wild blind mole so it is a new recorded host ,location and parasite and we give it the name *Lynxacarus egyptiacus*,According to the host location we give it the name *Spalax leucodon egyptiacus*.

Keywords:

Blind mole; Cat fur-mite; Lynxacarus; Alopecia; Gingivitis; Egypt.

Faculty of Veterinary Medicine

Dep. : Microbiology

Name : Kamelia M. Osman



- *Title* : *Salmonella* spp. Infection in Imported 1-Day-Old Chicks, Ducklings, and Turkey Poults: A Public Health Risk
- Authors: Kamelia M. Osman, Ashgan M. Yousef, Mona M. Aly and Moustafa I. Radwan

Published In: Foodborne Pathogens And Disease

ISSN	1535-3141	Impact Factor	2.442

<u>Abstract :</u>

The occurrence of Salmonella in 750 birds was assessed. The samples included the internal organs (caecal pouches, yolk sac, liver, and lung) of imported 1-dayold chicks (n=150), grandparent chicks (n=150), breeder chicks (n=150), ducklings (n=150), and turkey poults (n=150), and paper-lined boxes (n=250). Salmonellae isolated from the internal organs and paper-lined box of 1-day-old chicks, ducklings, and poults were mostly evident from the paper-lined box followed by caecal samples. Imported 1-day-old grandparent flocks were Salmonella free. Although 23.3% of the imported breeder flocks were positive for Salmonella, the imported duckling flocks and day-old turkey poults exhibited 19.3% and 12.6%, respectively. The widest diversity in isolated salmonellae was from the 1-day-old chicks where Salmonella Newport, Salmonella Kentucky, Salmonella Enteritidis, Salmonella Shubra, Salmonella Saintpaul, and Salmonella Agona were isolated. On the other hand, two Salmonella serovars were isolated from the imported breeders, Salmonella Shubra and Salmonella Shipley, and from the imported ducklings, Salmonella Shubra and Salmonella Saintpaul. The three Salmonella serovars isolated from the imported day-old turkey poults were Salmonella Shubra, Salmonella Newport, and Salmonella Saintpaul. The high percentage and diversity of Salmonella isolation from the imported birds cause concern because of the zoonotic potential of this agent and its economical importance to the local commercial poultry breeding industry. From 80 samples investigated for Salmonella, the positivity of the standard microbiological technique method was 17.5% and of the polymerase chain reaction method (Salmonella-specific invA gene) was 22.5%. The concordance between the two methods was 90% (k=0.850). Our results indicated that the polymerase chain reaction approach is better than culturing for detecting Salmonella in poultry samples when using the preenriched medium combinations used in this study.

Faculty of Veterinary Medicine

Dep. : Microbiology

Name : Kamelia M. Osman



- *Title* : Genotypic Characterization of *Pseudomonas aeruginosa* Isolated from Human and Animal Sources in Egypt
- Authors: K. M. Osman, M. S. Alabady, N. S. S. M. Ata, N. A. Ezzeldin and M. A. K. Aly

Published In: Zoonoses and Public Health

ISSN 1863-2378 **Impact Factor** 0.0

Abstract :

Two different techniques for the molecular typing of *Pseudomonas aeruginosa* were used to study the epidemiology of *P. aeruginosa* strains. Colonization with *P. aeruginosa* was studied by taking samples of human origin collected from urine, sputum samples of patients suffering from lung manifestations and patients exposed to third-degree burns. In addition, samples of animal origin were collected from mastitic milk and lung tissues of slaughtered calves and from the internal organs of diseased chickens. Typing of 18 isolates was per- formed by random amplified polymorphic DNA analysis and amplified frag-ment length polymorphism analysis. Computer-aided cluster analysis indicated that similar groups of related isolates were obtained by each method.

Dep. : Microbiology

Name : Kamelia M. Osman



Cairo University

- *Title* : Expression and Dendrogram Analysis of Heat Shock Proteins in Culture Media of *Aeromonas hydrophila*
- Authors: Kamelia M. Osman, Hany Hassan, Waleed S Soliman and einab M. Amin

Published In : Advances in Natural and Applied Sciences

ISSN 1995-0748 **Impact Factor** 0.0

Abstract :

One-dimensional SDS-P A G E of H SP s expressed from A erom onas hvdrophila (A. hvdrophila) isolated from the fish revealed protein profiles containing 11-16 discrete bands with molecular weight of 13-105 kD a. Seven bands having molecular weight range of 13–37 kDa were present in all the isolates. A high molecular weight protein band (105 kD a) was present only when the A. hydrophila was incubated at 25° C for 48 h. A. hydrophila incubated at 25°C for 24 h produced several pro teins in increased amounts compared with amounts produced at 42^o C (13 bands) and 50[°] C (12 bands). The highest level of HSP produced was when the A. hydrophila cells were exposed to a downshift of temperature to 25 C° for 48 h (16 bands). On the other hand, the least amount produced of some proteins was at the temperature of 42° C for 48 h (11 bands). Dendrogram analysis revealed that the highest similarity (84.85%) was between HSPs group expressed after exposure of A.hydrophila to 42^o C for 48 h and those expressed after exposure of A. hydrophila cells to 50° C for 24 h. The one-dimensional SDS-PAGE of HSPs expressed from A .hvdrophila isolated from the chicken re vealed protein profiles containing 13-15 discrete bands with molecular weight of 14-96 kD a. E ight bands having molecular weight range of 14–43 kD a were present in all the isolates. The highest molecular weight protein band (96 kDa) was present only when the A. hydrophila was incubated at 42° C for 24 h and the lowest (14 kDa) was when the A. hydrophila was incubated at 25^o C, 42° C and 50° C for 24 and 48 h.

A. hydrophila incubated at 25^o C and 42^o C for 24 h produced several proteins in increased amounts (15 bands) compa red with amounts produced at 42° C for 48 h and 50° C for 24 h. The dendrogramatic ana lysis of the HSPs group expressed after exposure of A.hydrophila to 25^o C for 48 h 72 % similarity with those expressed after exposure of A .hydrophila cells to 42^o C for 48 h. On the other hand, the group of H SPs produced by the A.hydrophila when exposed to 25° C for 24 h. 50° C for 24h and 48 h differed by 56.05% with the HSPs produced after exposure of A. hydrophila cells to 25° C for 48 h, 42° C for 24 h and 48 h. Dendrogram analysis revealed that the highest similarity between the expressed HSP's was between those expressed from A hydrophila isolated from fish and incubated at 25^o C for 24 h and those expressed from A. hvdrophila isolated from chicken and incubated at 42^oC for 24 h (71.54%). The least similarity recorded (56.21%) was between the HSPs expressed after the A. hydrophila isolated from chicken was incubated at 42[°]C for 48 h and those expressed from A. hydrophila also isolated from chicken after incubation at 50^OC for 48 h.

Faculty of Veterinary Medicine

Dep. : Microbiology

Name : Kamelia M. Osman



- A Rapid Screening Identification of *Clostridium perfringens* : Alpha and Epsilon Toxins Recovered from Mastitic Bovine Milk
- Title: Alpha and Epsilon Toxins Recovered from Mastitic Bovine Mill
by SDS-PAGE ElectrophoresisAuthors:Kamelia M. Osman, Mona I El-Enbaawy, Nashwa A. Ezzeldin
- and Hussein MG Hussein

Published In: Advances in Natural and Applied Sciences

ISSN 1995-0748 **Impact Factor** 0.00

Abstract :

The objective of this work was to develop an electrophoretic assay (SDS-PAGE) for the detection of *Clostridium perfringens* toxin types that correlated to mouse lethality and dermonecrotic tests. Currently, the mouse lethality and guinea pig dermonecrotic tests are two of several tests used world-wide to evaluate serological responses in animals immunised with vaccines containing toxoids in addition to toxin typing. The mouse lethality test involves injecting mice with a toxin and then determining the number of mice that survive. The mouse lethality test requires large numbers of animals and causes severe distress to the animals. Organisations world-wide are working towards alternatives to animals in the development and control of biological products for human and veterinary use. Additionally, the mouse lethality and guinea pig dermonecrotic tests are labourintensive, costly and lacks robustness and may be difficult to reproduce and interpret between different technicians. Exposure of seeded milk samples to the procedure resulted in a conclusion that SDS-PAG E is a highly reproducible, easyto-use, economical and relatively fast method which can be applied for the detection of alpha and epsilon toxins in a crude medium and thereby to the early diagnosis of anaerobic mastitis caused by C. perfringens á and å toxins.

Keywords:

C. perfringens; SDS-PAGE; Mastitis; á, å toxins.

Faculty of Veterinary Medicine

Dep. : Microbiology

Name : Kamelia M. Osman



- Title
 Nitric Oxide and Lysozyme production as an impact to Clostridium perfringens mastitis

 Kenstein Market State
 Kenstein State
- Authors: Kamelia M. Osman, Mona I El-Enbaawy, Nashwa A. Ezzeldin and Hussein MG Hussein
- **Published In :** Comparative Immunology, Microbiology and Infectious Diseases
- **ISSN** 0147-9571 **Impact Factor** 1.607

<u>Abstract :</u>

The anaerobic mastitis incidence was used to study the bovine udder response in anaerobic bacterial mastitis caused by the Gram-positive bacterial strain of *Clostridium perfringens*. Milk samples positive for *C. perfringens* were assayed for NO and lysozyme. The model produced a strong NO and lysozyme response which correlated positively with the severity and outcome of the disease (subclinical and clinical stages). This study is, to our knowledge, the first to suggest a possible link between NO and lysozyme and bovine mastitis caused by *Clostridium perfringens*. The results raise the possibility that interfering with NO production during mastitis may help to prevent tissue damage.

Faculty of Veterinary Medicine

Dep. : Microbiology

Name : Kamelia M. Osman



<i>Title</i>	: Ir	icidence and Risk Factors, in the Milk Producer in Egy	if Ignored, it Can be A (pt	Costly Drain
Authors	K aı	amelia M Osman, Mona I nd Hussein MG Hussein	El-Enbaawy, Nashwa A	Ezzeldin
Publish	ed Iı	n: OIE - World Organisa Technical Review	tion for Animal Health S	cientific and
ISSN		0253-1933	Impact Factor	0.918

<u>Abstract :</u>

Although Clostridium perfringens is recognized as an important cause of clostridial enteric diseases, only limited knowledge exists concerning the association of particular C. perfringens toxinotypes (type A to E) with mastitis in domestic animals. In the present investigation, mastitis was detected in 213/623 (34.12%) and 8/83 (9.64%) quarter milk samples collected from cases of cow and buffalo clinical mastitis respectively. The micro-organism was isolated in an incidence of 16/357 (4.48%) and 1/25 (4.0%) from milk samples from cows and buffaloes respectively. Infection in one quarter was the most typical situation found (83% and 87% in cows and buffaloes, respectively). C. perfringens infection was correlated to season of the year prevailing during spring (10.71%) and winter (7.07%). Using the classical toxin neutralization typing method, seventeen strains, isolated from cow and buffalo milk, were identified as C. perfringens Type A, and selected for molecular analyses. The PCR detected the a /cpa gene while the β -cpb, ϵ /etx genes went undetected. We believe that C. perfringens_has the potential to produce disease alone or to predispose the udder to disease caused by major mastitis and environmental pathogens.

<u>Keywords:</u>

Mastitis; C. perfringens; α toxin; α/cpa gene; Buffalo.

Faculty of Veterinary Medicine

Dep. : Microbiology

Name : Kamelia M. Osman



Title : *Mycoplasma gallisepticum*: an emerging challenge to the poultry industry in Egypt

Authors: Kamelia M. Osman, M. M. Aly, Z. M. S. Amin and B. S. Hasan

Published In : OIE - World Organisation for Animal Health Scientific and Technical Review

ISSN 0253-1933 **Impact Factor** 0.918

Abstract :

In this study, the technical performance of culture methodology using specific media (Mycoplasma isolation media: PPLO broth, PPLO agar), digitonin sensitivity, growth inhibition, serum plate agglutination test (SPA), a commercially available enzyme-linked immunosorbent assay (ELISA) and a commercially available simplex polymerase chain reaction (PCR) test were used in the detection of Mycoplasma gallisepticum (MG) infections in samples collected from the lung, trachea and tracheal swabs. The samples were collected from broiler breeder flocks, broiler flocks and layer flocks. In addition, genomic bacterial DNA was extracted and amplified employing a simplex PCR. Seroprevalence of *M. gallisepticum* antibodies in chicken and chicks was also investigated. The prevalence of MG in the different flocks recorded the highest percentage of 33.3% (17/51) in the layer flocks when the tracheal swab procedure was adopted. In the young birds, the results showed that the serum plate agglutination (SPA) test and ELISA assay detected MG antibodies in 320/458 (69.9%) and 267/458 (58.3%) of the chicken samples; 146/300 (48.7%) and 180/300 (60.0%) of the chick samples respectively.

<u>Keywords:</u>

Conventional culture; M. gallisepticum; Serology; PCR.

Dep. : Microbiology

Name : Kamelia M. Osman



- Comparative Proteomic Analysis on Salmonella Gallinarum and
- *Title* : Salmonella Enteritidis Exploring Proteins that May Incorporate Host Adaptation in Poultry Kamelia M. Osman, Mona M. Ali, Moustafa I. Radwan, Hyoung
- Authors: Kyu Kim and Jin Han,

Published In : Journal of Proteomics

ISSN 1874-3919 **Impact Factor** 0.0

<u>Abstract :</u>

Comparative proteomics analysis of the cytosolic proteins of *Salmonella* Gallinarum (SG) and *Salmonella* Enteritidis (SE) isolated from poultry was performed. The constantly detected spots of serovar SG with concomitant absence in SE serovar as well as those markedly over expressed in serovar SE were selected for MALDI-TOF-MS identification. The NCBI-matched proteins that show overregulation were then further confirmed on the mRNA level by quantitative real time PCR. Identified proteins were representing diverse functional activities including energy production, metabolism, and nucleic acid synthesis. Interestingly, some recognized proteins have some relevance to bacterial virulence e.g. *Salmonella* pathogenicity island 1 effector protein, T-cell inhibitor protein, response regulator protein, paratose synthetase protein (RfbS) and heat shock protein 90. The study revealed the presence of some proteins of unknown function, which raise the speculation for their importance in either host adaptation or pathogenicity among SG serovars.

<u>Keywords:</u>

Salmonella Gallinarum; Salmonella Enteritidis; Novel proteins; Proteomics; Cytosolic proteins.

Dep. : Pharmacology

Name : Ayman G. Abouzeid



Pharmacokinetics and Milk Distribution Characteristics of

- *Title* : Orbifloxacin Following Intravenous and Intramuscular Injection in Lactating Ewes
- Authors: A. Goudah, H. J. Cho, S. S. Shin, H. C. Shim, N. L. Regmi, M. Shimoda and Abd El-Aty A. M

Published In: Veterinary Pharmacology and Therapeutics

ISSN 0140- 7783 **Impact Factor** 1.581

<u>Abstract :</u>

The purpose of the current investigation is to elucidate the pharmacokinetic profiles of orbifloxacin (OBFX) in lactating ewes (n = 6) following intravenous (i.v.) and intramuscular (i.m.) administrations of 2.5 mg/kg. In a crossover study, frequent blood, milk, and urine samples were drawn for up to 48 h after the end of administration, and were then assayed to determine their respective drug concentrations through microbiological assay using *Klebsiella pneumoniae* as the test micro-organism. Plasma pharmacokinetic parameters were derived from plasma concentration-time data using a compartmental and non-compartmental analysis, and validated a relatively rapid elimination from the blood compartment, with a slope of the terminal phase of 0.21 ± 0.02 and 0.19 ± 0.06 per hour and a half-life of 3.16 ± 0.43 and 3.84 ± 0.59 h, for i.v. and i.m. dosing, respectively. OBFX was widely distributed with a volume of distribution V(d(ss)) of 1.31 ± 0.12 L/kg, as suggested by the low percentage of protein binding (22.5%). The systemic body clearance (ClB) was 0.32 ± 0.12 L/h/kg. Following i.m. administration, the maximum plasma concentration (C_{max}) of 1.53 ± 0.34 µg/mL was reached at t_{max} 1.25 \pm 0.21 h. The drug was completely absorbed after i.m. administration, with a bioavailability of $114.63 \pm 11.39\%$. The kinetic milk AUC_{milk} /AUC_{plasma} ratio indicated a wide penetration of orbifloxacin from the bloodstream to the mammary gland. OBFX urine concentrations were higher than the concurrent plasma concentrations, and were detected up to 30 h post-injection by both routes. Taken together, these findings indicate that systemic administration of orbifloxacin could be efficacious against susceptible mammary and urinary pathogens in lactating ewes.

<u>Keywords:</u>

Orbifloxacin; Ewes; Pharmacokinetic disposition; Milk; Bioavailability.

6784

Faculty of Veterinary Medicine

Dep. : Pharmacology

Name : Ayman G. Abouzeid



Title : Pharmacokinetics and Tissue Residues of Moxifloxacin in Broiler Chickens

Authors: A. Goudah

Published In : British Poultry Science

ISSN	0007-1668	Impact Factor	1.134
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Abstract :

In this study I investigated the disposition kinetics and plasma availability of moxifloxacin in broiler chickens after single intravenous (i.v.), intramuscular (i.m.) and oral (p.o.) administrations of 5 mg/kg b.wt. Tissue residue profiles (liver, kidney, lung and muscle) and plasma were also studied after multiple intramuscular and oral administration of 5 mg/kg b.wt, once daily for five consecutive days.

The concentrations of the drug in the plasma and tissues were measured using high-performance liquid chromatography (HPLC) with fluorescence detection on samples collected at frequent intervals after drug administration. Following intravenous injection, plasma concentration-vs-time curves were best described by a two compartment open model. The decline in plasma drug concentration was biexponential with half-lives of $(t_{1/2\alpha})$ 0.26 h and $(t_{1/2\beta})$ 2.27 h for distribution and elimination phases, respectively. After intramuscular and oral administration of moxifloxacin at the same dose the peak plasma concentrations (C_{max}) were 2.23 and 1.99 µg/ml and attained at 1.56 and 1.90 h (T_{max}), respectively, and the elimination half-lives $(T_{1/2el})$ were 2.24 and 1.69 h, respectively. The systemic bioavailabilities were 97.11 and 90.01 %, respectively. In vitro protein binding percent was 37 %. The tissue level following i.m. and p.o. administration were highest in liver and kidney, respectively, and decreased in the following order: plasma, lung and muscle. No moxifloxacin residues were detected in tissues and plasma after 120h in both route of administration except in both liver and kidney, after 144 h in case of i.m. and oral administration.

Keywords:

Moxifloxacin; Pharmacokinetics; Pharmacodynamics; Protein binding; Tissue Residue; Bioavailability.

6785

Dep. : Pharmacology

Name : Ayman G. Abouzeid



Cairo University

- *Title* : Evaluation of Single-dose Pharmacokinetics of Cefepime in Healthy Bull Camels (Camelus Dromedaries)
- *Authors*: A. Goudah, S. S. Shin, J. S. Kim, B. J. Chang, H. C. Shim and A. M. Abd El-Aty

Published In: Veterinary Pharmacology and Therapeutics

ISSN 0140-7783 **Impact Factor** 1.581

<u>Abstract :</u>

The aim of the present study was to investigate the plasma disposition kinetics of cefepime in Camels (n = 8) 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 0.3 ± 0.05 and 2.00 ± 0.23 h, respectively. The volume of distribution at steady-state was 1.00 ± 0.04 L/kg, the total body clearance (Cltot) was 0.04 ± 0.01 L /h/ kg, and the areas under the concentration-time curves (AUCs) were $254.6 \pm 24.49 \ \mu g.h / mL$. Following i.m. administration, the mean $t_{1/2el}$ and AUC values were 2.5 ± 0.27 h and 246.1 ± 21.65 μ g.h/mL. The bioavailability was high (91.7% ± 12.35%), with a peak plasma mean concentration (Cmax) of 51.6 \pm 6.14 µg/mL attained at 1.00 \pm 0.02 h (Tmax). This study demonstrates that a dose of 10 mg/kg bwt results in concentrations in plasma that are higher than MIC90 for gram-positive and should be repeated at 12 h interval for gram-negative organisms for the former calculation and would be enough for the later estimation.

Keywords:

Cefepime; Camels; Pharmacokinetic disposition; MIC; Bioavailability.
Dep. : Pharmacology

Name : Ayman G. M. Abouzeid



Cairo University

Title : Pharmacokinetics of Levofloxacin in Male Camelus (Camelus Dromedarius

Authors: A. Goudah

Published In : Veterinary Pharmacology and Therapeutics

ISSN 0140-7783 **Impact Factor** 1.581

Abstract :

The target of the present study was to investigate the plasma disposition kinetics of levofloxacin in Camels (n = 8) following a single intravenous (i.v.) bolus or intramuscular (i.m.) injection at a dose rate of 4 mg/kg bwt, using a twophase 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 0.26 ± 0.21 and 2.92 ± 0.61 h, respectively. The volume of distribution at steady-state was 1.01 ± 0.36 L/kg, the total body clearance (Cltot) was 0.28 ± 0.08 L /h/ kg, and the areas under the concentration-time curves (AUCs) were $14.51 \pm 2.64 \mu g.h /mL$. Following i.m. administration, the mean $t_{1/2el}$ and AUC values were 3.47 ± 0.86 h and 13.63 ± 3.11 μ g.h/mL. The bioavailability was high (93.95% ± 8.38%), with a peak plasma mean concentration (Cmax) of $1.90 \pm 0.73 \ \mu g \ /mL$ attained at $1.51 \pm 0.61 \ h$ (Tmax). The in vitro protein binding percentage was 23.51%. Based on the calculated Cmax /MIC and AUC24 /MIC, a dosage of 5 mg /kg b.wt. is recommended to treat infections caused by bacteria with MIC $\leq 0.1 \ \mu g/ml$.

<u>Keywords:</u>

Levofloxacin; Camels; Pharmacokinetic disposition; MIC; Bioavailability

Dep. : Pharmacology

Name : Khaled A. Mahmoud



Title : Pharmacokinetics and Intramuscular Bioavailability of Difloxacin in Dromedary Camels (*Camelus Dromedarius*)

Authors: K. Abo El-Sooud and A. Goudah

Published In: The Veterinary Journal

ISSN 1090-0233 **Impact Factor** 1.802

Abstract :

Single-dose disposition kinetics of difloxacin were determined in clinically normal male dromedary camels (n=6) after intravenous (IV) and intramuscular (IM) administration of 5 mg/kg bodyweight (BW). Difloxacin concentrations were determined by high performance liquid chromatography (HPLC) with concentration-time The fluorescence detection. data were analysed bv compartmental and non-compartmental kinetic methods. Following a single IV injection, the plasma difloxacin concentration-time curve was best to follow a two-compartment open model with a distribution half-life $(t_{1/2\alpha})$ of 0.22 ± 0.02 h and an elimination half-life $(t_{1/2\beta})$ of 2.97 \pm 0.31 h. Steady-state volume of distribution (V_{dss}) and total body clearance (Cl_{tot}) were 1.02 ± 0.21 L/kg and $0.24 \pm$ 0.07 L/h/kg, respectively. Following IM administration, the absorption half-life $(t_{1/2ab})$ and the mean absorption time (MAT) were 0.44 ± 0.03 h and 1.53 ± 0.22 h, respectively. The peak plasma concentration (C_{max}) of 2.84 ± 0.34 µg/mL was achieved at 1.42 \pm 0.21 h. The elimination half-life (t_{1/2el}) and the mean residence time (MRT) was 3.46 ± 0.42 h and 5.61 ± 0.23 h, respectively. The in vitro plasma protein binding of difloxacin ranged from 28-43 % and the absolute bioavailability after IM route was $93.51 \pm 11.63\%$. Difloxacin could be useful for the treatment of many bacterial infections in camels that are sensitive to this drug.

Keywords:

Difloxacin; Pharmacokinetics; Bioavailability; Camels; High performance liquid chromatography.

Dep. : Pharmacology

Name : Khaled A. Mahmoud



Cairo University

Title : Pharmacokinetics, Urinary Excretion and Milk Penetration of Levofloxacin in Lactating Goats

Authors: A. Goudah and K. Abo El-Sooud

Published In: Veterinary Pharmacology and Therapeutics

ISSN 0140-7783 **Impact Factor** 1.581

Abstract :

The pharmacokinetic properties of levofloxacin, were investigated in six lactating goats after single intravenous (IV) and intramuscular (IM) administration at a dose of 4 mg/kg body weight (b.w.). Levofloxacin concentration was analyzed by microbiological assay using Escherichia coli ATCC 10536 as test microorganism in plasma, milk and urine samples. Plasma levofloxacin disposition after IV and IM dosing was best fitted to a bicompartmental and a monocompartmental open models with first-order elimination, respectively. Following IV administration, the distribution half-life (t1/2 α) was 0.31 ± 0.11 h and the elimination half-life (t1/2 β) was 2.95 ± 0.27 h. The volume of distribution at steady state (Vdss) was 0.73 ± 0.22 L/kg and the total body clearance (Cltot) was 0.18 ± 0.04 L/h/kg. Following IM administration, the mean Tmax, Cmax, T1/2el and AUC values for plasma data were 1.78 ± 0.32 h, 3.16 ± 0.46 µg/mL, 3.64 ± 0.42 h and 21.31 ± 1.24 µg•h/mL, respectively. The IM bioavailability was $84.91 \pm 7.52\%$ and the protein binding of levofloxacin in plasma and milk were 22% and 37%, respectively. Levofloxacin penetration from the blood into the milk was extensive and rapid, and the drug was detected for 36 h after IV after IM injections. Levofloxacin urine concentration was 10 to 18 times higher than concurrent plasma concentration and also, could be detected in urine till 36 h postinjections by both routes. Consequently, systemic administration of levofloxacin could be efficacious against susceptible mammary and urinary pathogens in goats.

<u>Keywords:</u>

Levofloxacin; Goats; Pharmacokinetics; Urine; Milk.

Dep. : Pharmacology

- *Name* : Samar M. Hafez
- *Title* : Disposition kinetics and tissue residues of danofloxacin in Muscovy ducks

Authors: A Goudah AH and S. M. Hafez

Published In : British Poultry Science

ISSN 0007-1668 Impact Factor

Abstract :

The disposition kinetics and plasma availability of danofloxacin in Muscovy ducks after single intravenous (i.v.), intramuscular (i.m.) and oral administration of 5 mg/kg body weight were investigated. Tissue residues profiles (liver, kidney and muscle) and plasma were also studied after multiple intramuscular and oral administrations of 5 mg/kg once daily for 5 concecutive days. The concentration of the drug in the plasma and tissues were measured using high performance liquid chromatography (HPLC) with fluorescence detection on samples collected at frequent intervals after drug administration. Following intravenous injection, plasma concentration vs time curves were best described by a two compartment open model. The decline in plasma drug concentration was bi-exponential with half- lives of $(t_{1/2 \alpha})$ 0.08 h and $(t_{1/2\beta})$ 3.91 h for distribution and elimination phases, respectively. After intramuscular and oral administration of danofloxacin at the same dose ,the peak plasma concentrations (C $_{max}$) were 0.89 and 0.81 ug/ml and attained at 1.17 and 1.21 h (T max) respectively, and the elimination half- lives ($T_{1/2}$) el) were 2.91 and 2.39 h, respectively . In vitro protein binding percent of danofloxacin in Muscovy ducks plasma was 17%. The tissue level following i.m.and oral administration were highest in liver and kidney respectively, and decreased in the following order: plasma and muscle .No danofloxacin residues were detected in tissue and plasma after 96 h with either route of administration except in liver and kidney after 120 h in case of oral administration.

<u>Keywords:</u>

Disposition kinetics; Tissue residues; Danofloxacin; Muscovy ducks.



1.134

Cairo University

Dep. : Pharmacology

Name : Amer Ramadan



- *Title* : Anti-Diabetic Effect of Artemisia judaica Extracts
- *Authors*: Salwa M. Nofal, Sawsan S. Mahmoud, A. Ramadan, G. A. Soliman and Rehab Fawzy

Published In: Research Journal of Medicine and Medical Sciences

ISSN 1816-272X **Impact Factor** 0.00

Abstract :

In the present investigation, toxicological and pharmacological studies were carried out on the water and alcoholic extracts of *Artemisia judaica (A. judaica)* plant which is commonly used in folk medicine in Egypt. Results obtained revealed that no mortalities in mice following oral administration of aqueous extract of *A. judaica* up to 5 g/kg, while in the alcoholic extract the LD₅₀ was 9.17 g/kg. Single and multiple doses (0.25 and 0.5 g/kg b.wt.) for the water extract, (0.5 and 1 g/kg b.wt.) for the alcoholic extract produced insignificant effect on serum cholesterol levels but there was significant decrease in serum triglycerides levels. The single and multiple doses of both water and alcoholic extracts significantly reduced the blood glucose level in experimentally diabetic rats while no significant effect was shown on normal rats.

Keywords:

Artemisia judaica; Diabetic Rats; Anti-diabetic effect.

Dep. : Pharmacology

Name : Abd El-Aty M. Abd El-Aty



Title : Protection of Rat Chromosomes by Melatonin against Gamma Radiation-Induced Damage

Authors: Assayed M. and Abd El-Aty AM

Published In: Mutation Research

ISSN 1383-5718 **Impact Factor** 2.363

Abstract :

The aim of this study was to investigate the protective effect of melatonin (2.5mg/kg/day, given to rats five times by intra-peritoneal injection) against damage in bone-marrow chromosomes induced by a single dose of gamma radiation (4.0 Gy whole-body irradiation; WBI). Ninety-six male albino rats were divided into four equal groups of 24 rats each. They were designated as I-nonirradiated, non-treated control rats, II-non-irradiated rats treated with melatonin for five successive days, III-whole-body gamma-irradiated rats and IV-rats injected with melatonin daily for five successive days, then subjected to whole-body gamma irradiation 2h after the final melatonin injection. Six rats from each group were sacrificed at days 1, 3, 7 and 10 following treatment and/or irradiation and their bone marrows were flushed out for micronuclei scoring and chromosomal analysis. WBI resulted in significant elevations in bone-marrow polychromatic erythrocytes containing micronuclei in their cytoplasm, and caused a significant decrease in the mitotic index of bone-marrow cells; in addition, there was a significant increase in the frequency of aberrant bone-marrow cells and in the different types of structural chromosomal aberration. Melatonin injection prior to WBI significantly reduced the mean frequencies of micro-nucleated polychromatic erythrocytes and of aberrant cells, as well as the incidence of structural chromosomal aberrations in bone-marrow cells; it also caused a highly significant elevation in the value of the mitotic index of bone-marrow cells. This investigation clarifies the protective and/or ameliorative role played by melatonin against deleterious effects of gamma radiation.

<u>Keywords:</u>

Whole-body gamma irradiation; Rat polychromatic erythrocytes; Melatonin; Micronucleus assay Mitotic index; Chromosomal aberrations.

Dep. : Pharmacology

Name : Abd El-Aty M. Abd El-Aty



- *Title* : An Extrapolation from Crop Classifications Based on Pesticide Residues Trial Data within Vegetables in Minor Crops
- Authors: Jong-Hyouk Park, M. I. R. Mamun, A. M. Abd El-Aty, Jeong-Heui Choi, Geon-Jae Im, Chang-Hwan Oh and Jae-Han Shim

Published In: The Korean Journal of Pesticide Science

ISSN 1226-6183 **Impact Factor** 0.00

<u>Abstract :</u>

An extrapolation of residue data of seven commonly used pesticides namely bifenthrin, chlorothalonil, cypermethrin, diazinon, fenvalerate, phenthoate, and procymidone on a total of 22 minor crops has been carried out in an experimental filed trial. The pesticides were applied to 11 leafy, 5 roots, and 6 stem-crops grown in the experimental green-house and the crops and plants were randomly collected at 1, 3, 5, and 7 days after application. The average recoveries of applied pesticides were ranged from 72.0 to 117.0% in leafy crops, from 81.3 to 105.0% in stem crops, and from 70.1 to 108.1% in the root-crops. Limits of detection (LODs) were 0.005-0.1 mg/kg in the leafy crops and 0.001-0.005 mg/kg in both the stem & root crops. Based on the results of residual dissipation pattern and their morphology, all crops were classified into high and low residual groups. The results showed that it might be possible to extrapolate residual data of stem-crops to root-crops within the same group. Crops that have currently no registered pesticide for use, would be possible to use the pesticides, which are already been registered for the same crops.

<u>Keywords:</u>

Minor Crops; Pesticide Registration; Dissipation of Pesticides; Mrls.

Dep. : Pharmacology

Name : Abd El-Aty M. Abd El-Aty



Cairo University

Title : Metabolite Analysis in *Curcuma Domestica* using Various GC-MS and LC-MS Separation and Detection Techniques

Authors: Lee S. J., Park S., Choi J.Y., Shim J.H., Shin E.H., Choi J.H., Kim S.T., Abd El-Aty A. M., Jin J. S., Bae D.W and Shin S. C.

Published In: Biomedical Chromatography

ISSN 0269-3879 **Impact Factor** 1.592

Abstract :

The metabolic profile of polar (methanol) and non-polar (hexane) extracts of Curcuma domestica, a widely used medicinal plant, was established using various different analytical techniques, including GC-FID, GC-MS, HR-GC-MS and analytical HPLC-ESI-MS/MS by means of LTQ-Orbitrap technology. The major non-volatile curcuminoids curcumin, demethoxycurcumin and bisdemethoxycurcumin were identified when their chromatographic and precursor ion masses were compared with those of authentic standard compounds. In this paper we describe for the first time a GC/MS-based method for metabolic profiling of the hydrophilic extract. We also identified 61 polar metabolites as TMS derivatives

<u>Keywords:</u>

Curcuma domestica; LTQ-Orbitrap; metabolite profile; (HR)-GC-MS; HPLC-ESI-MS/MS.

Dep. : Pharmacology

Name : Abd El-Aty M. Abd El-Aty



3.146

- Approaches for Application of Sub and Supercritical Fluid*Title* : Extraction for Quantification of Orbifloxacin from Plasma and Milk: Application to Disposition Kinetics
- Authors: Abd El-Aty A. M., Choi J. H., K. o. M. W., Khay S., Goudah A., Shin H. C., Kim J. S., Chang B. J., Lee C. H and Shim J. H.

Published In : Analytica Chimica Acta

ISSN 0003-2670 Impact Factor

Abstract :

Since its extensive development in the early 1980s, SFE has attracted considerable attention as a sample-preparation procedure. However, other different sample preparation procedures, including precipitation, liquid- and/or solid-phase extraction in biological fluids, also remain in use. In this investigation, SFE was introduced to isolate and identify orbifloxacin from plasma and milk. Four parameters, including the temperature and the pressure of supercritical fluid, modifier ratios, and dynamic extraction time, were evaluated and optimized to obtain the best yield of the analyte from the biological fluids. Determinations of the orbifloxacin (OBFX) in the extracts were carried out using HPLC-FLD. The optimum conditions of the extraction process that yielded the maximum analyte extraction efficiencies were 150 degrees C vs. 60 degrees C, 250 kg cm(-2), 30% vs. 35% methanol, and 40 min vs. 20 min, for plasma and milk, respectively. The linearity of the calibration curves as well as the instrument LODs/LOQs were evaluated. Good linearity (at least r(2) > or = 0.999) of the calibration curves was obtained over the range from 0.2 to 0.01 microg mL(-1). The method showed a good recovery rate (74.2-127.73%) and precision (RSDs: 1.64-20%). The instrumental LOD and LOQ values were 0.004 microg mL(-1) vs. 0.01 microg mL(-1) or 0.006 microg mL(-1) vs. 0.02 microg mL(-1), for plasma and milk, respectively. The method was successfully applied to estimate the pharmacokinetic variables of orbifloxacin in lactating does. To the best of our knowledge, this is the first time that SFE has been applied to isolate an antimicrobial agent from biological fluids. This method is promising for clinical applications and for pharmacokinetic studies of various pharmaceuticals in biological fluids.

Dep. : Pharmacology

Name : Abd El-Aty M. Abd El-Aty



Cairo University

Title : Simultaneous Determination of Pyrethroids from Pesticide Residues in Porcine Muscle and Pasteurized Milk Using GC

Khay S., Abd El-Aty A. M., Choi J. H., Shin E. H., Shin H. C.,

Authors: Kim J. S., Chang B. J., Lee C. H., Shin S. C., Jeong J.Y and Shim J. H.

Published In: Separation Science

ISSN 1615-9306

Impact Factor 2.746

<u>Abstract :</u>

The principal goal of this work was to develop an efficient method for the simultaneous determination of four pyrethroid (PYR) insecticides, cyfluthrin, cyhalothrin, cypermethrin, and deltamethrin, in porcine muscle and pasteurized milk using liquid-liquid extraction (LLE). Sample extraction was carried out with and without additional column cleanup procedures, and the final determination was made using GC with electron-capture detector (ECD). The pesticide identity was confirmed using GC-MS in the SIM mode. Since there were minor differences between the extraction procedures, extraction without the additional cleanup procedure was used throughout the work. The method was validated by fortifying blank samples with half, two, and four times the maximum residue limit (MRL) of each PYR. The average recoveries (n = 6) ranged from 83.5 to 99.2% and 82.9 to 109% in porcine muscle and pasteurized milk, respectively. The repeatability of measurements expressed as RSDs, was in the range of 1.7-11.9 and 1.5-10.3% in porcine muscle and pasteurized milk, respectively. The LODs ranged from 3.3 to 9 and 3 to 8.1 ppm, whereas the LOOs ranged from 10 to 27.4 and 9 to 24.6 ppm, in porcine muscle and pasteurized milk, 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 pesticides were detected in any of the samples.

<u>Keywords:</u>

Animal tissues; GC; Multiresidue; Pyrethroids; Simultaneous.

Dep. : Pharmacology

Name : Abd El-Aty M. Abd El-Aty



TitleDevelopment and Validation of a Multiresidue Method for
Determination of 82 Pesticides in Water using GCAuthors:Mamun M. I., Park J. H., Choi J. H., Kim H. K., Choi W. J., Han
S. S., Hwang K., Jang N. I., Assayed M. E., El-Dib M. A., Shin
H. C., Abd El-Aty A. M and Shim J. H.

Published In: Separation Science

ISSN 1615-9306

Impact Factor 2.746

<u>Abstract :</u>

Several methods used for the multiresidue analysis of pesticides from the environment and drinking water have been reported. However, most of these reports dealt with a small number of targeted pesticides or some special groups. A method that is simple, faster, and more cost-effective than the environmental protection agency (EPA) method has been developed for the analysis of 82 frequently used pesticides in water samples obtained from Yeongsan and Sumjin rivers, as well as rice fields located in various locations around the two rivers. The samples were extracted by dichloromethane, and the pesticides were analyzed using a GC-electron capture detector (ECD), followed by confirmation with GC-MS. Recoveries were found to be between 82 and 120.1% for most of the tested pesticides, which were in agreement with the standard values dictated by the EPA. The method was potentially applied to 66 water samples for human consumption and 90 water samples from the rice fields and irrigation ditches that were collected from June to September 2007, Oxadiazon, butachlor, and alachlor were detected in some of the river water samples collected in June, iprobenfos (IBP) was detected in samples collected in August, and no pesticide was detected in September. On the other hand, chlorpyrifos-methyl, IBP, hexaconazole, diazinon, oxadiazon, butachlor, and isoprothiolane were detected at relatively high concentrations in 48 rice paddy field water samples collected between June and September 2007. Alachlor in one sample and procymidone in some of the rice paddy field water samples were also detected in trace amounts. The results were consistent with the temporal pattern of pesticide application in Korean rice fields.

<u>Keywords:</u>

Multiresidue; Pesticides; Rice field water; River water.

Dep. : Pharmacology

Name : Abd El-Aty M. Abd El-Aty



Cairo University

Title : Risk Factors of Relinquishment Regarding Canine Behavior Problems in South Korea

Authors: Kim Y. M, Abd El-Aty A. M, Hwang S. H, Lee J. H and Lee S. M.

Published In: Berliner Und Münchener Tierärztliche Wochenschrift

ISSN 0005-9366 **Impact Factor** 0.812

Abstract :

Risk factors of dog relinquishment regarding canine behavior problem in South Korea was evaluated using the survey with 'Canine behavior problems and relinquishment'. The information of various factors regarding demonstration of the 5 common behavior problems'excessive barking: 'destructiveness, 'excessive activity', 'house-soiling', and 'aggression' and dog relinquishment was collected by 501 successfully completed questionnaires. The majority of the dogs (409, 81.6%) demonstrated undesirable behaviors, 'house-soiling' being the most frequent (167, 26.4%). There were 134 (26.7) dogs which manifested the behavior problems that were related to dog relinquishment (135, 26.9%). Young age with less than 2 years (p = 0.024) and less time which dog spent with specific activities daily (p < 0.001)were evaluated as the risk factors for demonstration of the behavior problems. Demonstration of the undesirable behaviors (p < 0.001), young age with less than 2 years (p = 0.002), less time which dog spent with specific activities daily (p < 10000.001), and having a higher frequency of the behavior problems by a dog (p < 10000.001) were evaluated as the risk factors for dog relinquishment. The demonstration of 'destructiveness (p < 0.001)', 'house-soiling (p < 0.001): and 'aggression (p = 0.006)' were also significantly associated with dog relinquishment in the 5 common behavior problems. The evaluation of risk factors of dog relinquishment might help improve animal welfare of domestic dogs through reducing dog relinquishment and abandonment by preventing undesirable behavior problems of domestic dogs in South Korea

<u>Keywords:</u>

Animal welfare; Animal behavior problem; Risk factor of relinquishment; South Korea.

Dep. : Pharmacology

Name : Abd El-Aty M. Abd El-Aty



Inert matrix and Na4EDTA Improve the Supercritical Fluid
Title : Extraction Efficiency of Fluoroquinolones for HPLC Determination in Pig Tissues
Authors: Choi JH, Mamun MI, Abd El-Aty A. M, Kim K. T, Koh H. B, Shin H. C, Kim J. S, Lee K. B and Shim J. H

Published In : Talanta

ISSN 0039-9140 **Impact Factor** 3.206

Abstract :

A supercritical fluid extraction method combined with high-performance liquid chromatography-fluorescence detection was developed for the determination of enrofloxacin, danofloxacin, and ciprofloxacin in pig muscle, lung, and kidney samples. The optimal SFE conditions were 80 degrees C, 300 kg/cm(2), 30% methanol for 40 min as a dynamic extraction time, in addition to 0.2g Na(4)EDTA and 7.0 g sea sand in the extraction vessel. The use of Na(4)EDTA and sea sand on SFE extraction resulted in improvement of the recoveries of ciprofloxacin, a polar and hydrophilic compound, as well as enrofloxacin and danofloxacin. Overall, the recoveries ranged from 86.7 to 113.1% using the Na(4)EDTA/sea sand-assisted SFE extraction method. The Na(4)EDTA/sea sand-assisted SFE-HPLC-FLD validated method was successfully carried out in pig tissues, and proved to be specific, sensitive, reliable, and accurate. The method was also applied satisfactorily for accurate quantitative residue analysis in incurred pig tissues.

Keywords:

Fluoroquinolones; Supercritical fluid extraction; Na4EDTA; Inert matrix; Pig tissues.

Dep. : Pharmacology

Name : Abd El-Aty M. Abd El-Aty



Multiresidue analysis of 47 pesticides in cooked wheat flour and

- *Title* : polished rice by liquid chromatography with tandem mass spectrometry
- Authors: Lee SJ, Park HJ, Kim W, Jin JS, Abd El-Aty AM, Shim JH, Shin SC

Published In: Biomedical Chromatography

ISSN 0269-3879 **Impact Factor** 1.592

<u>Abstract :</u>

Liquid chromatography in conjunction with tandem mass spectrometry was used to directly quantify of 47 pesticide residues from cooked wheat flour and polished rice, which are the most widely consumed cereals in the Republic of Korea. The sample clean-up was carried out according to the method established by the Korea Food and Drug Administration. The mobile phase for liquid chromatography separation consisted of water and 5 mm methanolic ammonium formate. Tandem mass spectroscopy experiments were performed in electrospray ionization positive mode and the multiple reaction monitoring mode. The matrix effects estimated for the 47 pesticides had a mean value of 99% and ranged from 45 to 147%. High recoveries (70-140%) and relative standard deviations (< or =20%) were achieved for most of the pesticides tested. The method used in this study allowed for rapid quantification and identification of low levels of pesticides in cooked wheat flour and polished rice samples. Of the screened pesticide residues, only tricyclazole and fenobucarb were found in polished rice samples. However, no samples contained residues above the MRL established by the Korea Food and Drug Administration.

<u>Keywords:</u>

tandem mass spectrometry; pesticide residues; validation; multiresidue; bioanalytical application.

: Pharmacology Dep.

Name : Abd El-Aty M. Abd El-Aty



- Multiresidue analysis of pesticides with hydrolysable : functionality in cooked vegetables by liquid chromatography Title tandem mass spectrometry Lee SJ, Park S, Choi JY, Shim JH, Shin EH, Choi JH, Kim ST, Authors: Abd El-Aty AM, Jin JS, Bae DW, Shin SC

Published In : Biomedical Chromatography

ISSN 0269-3879 Impact Factor 1.592

Abstract :

It would be preferable for pesticide residues substituted by hydrolyzable functionality to be analyzed after cooking because their structures are apt to degrade during boiling and/or heating. A liquid chromatography-tandem mass spectrometry (LC-MS/MS) method for the quantitative determination of 44 pesticide residues with hydrolyzable functional group in five typical vegetable widely consumed in Republic of Korea is described. The sample clean-up was carried out according to the method of Food Code No. 83 established by the Korea Food and Drug Administration (KFDA). Zorbox XDB-C(18) column was selected for the analysis because of the best peak separation. The LC mobile phase consisted of water and 5 mm methanolic ammonium formate, which resulted in a peak shape with good symmetry at each run. Tandem mass spectroscopic (MS/MS) experiments were performed in ESI positive mode and the multiple reaction monitoring modes. A conventional matrix effect was modified to more comprehensive form 100gamma(ij) (%). A high matrix effect (<-30%) was detected for the seven polar pesticides, namely thiamethoxam, clothianidin, acetamiprid, aldicarb, thiacloprid, pirimicarb and methabenzthiazuron. The limits of detection were in the range of 0.1-8.1 microg/kg, indicating a good sensitivity. Most of the recoveries ranged from 70 to 131% with RSDs $\langle or = 20\%$. The current method allowed rapid quantitation and identification of low pesticide levels in the cooked vegetable samples. Of the screened pesticide residues, only fluquinconazole and dimethomorph below the maximum residue levels established by the KFDA were detected in onion and cucumber samples.

Keywords:

cooked vegetables; residues; simultaneous analysis; multiclass pesticides; tandem mass; liquid chromatography.

Dep. : Pharmacology

Name : Abd El-Aty M. Abd El-Aty



Cairo University

Title : Cruciferous Plants: Phytochemical Toxicity Versus Cancer Chemoprotection

Authors: Mohamed E. Assayed and A. M. Abd El-Aty

Published In: Mini-Reviews in Medicinal Chemistry

ISSN 1389-5575 **Impact Factor** 3.132

<u>Abstract :</u>

The Cruciferae (also known as the Brassicaceae) are the family of plants that include the various familiar members of the species Brassica oleracea (e.g., broccoli, cabbage, cauliflower, kale, Brussels sprouts) as well as many other plants that are widely consumed in various parts of the world. Forage and root brassicas are widely used as winter feeds for cattle and sheep. A striking and characteristic chemical property of cruciferous plants is their high content of glucosinolates (more than 120 types), which often approaches 1% or more of their dry weight. The interest devoted to this group of natural products is caused by the appreciable biological effects of both the intact glucosinolates (GSLs) and especially the complex group of glucosinolate transformation products produced in nonenzymatic and enzymatic reactions. Depending on the concentration and structural types of these compounds, their biological effects can be toxic, anti-nutritional or beneficial to health. Most serious economic problems in livestock seem to result from rapeseed meal; arising from GSLs or their breakdown products. In contrast, GSLs and their isothiocyanate (ITC) hydrolysis products are reportedly wellknown protectors against carcinogenesis. GSLs play further protective and evolutionarily important roles in plants. These include allelopathy (suppression of growth of neighboring plants), specific positive and negative feeding cues for some insects and broad antibiotic properties including nematocidal, antimicrobial, antifungal, antiprotozoal and insecticidal activities. The controversy in the referred actions contributed to crucifers' phytochemicals has been exclusively discussed.

<u>Keywords:</u>

Brassicaceae; Cruciferae; glucosinolates; GSLs; isothiocyanate; phytochemicals, toxic; cancer chemoprotection.

Cairo University

Faculty of Veterinary Medicine

Dep. : Pharmacology

Name : Attia H. Atta



Title : Prolonged Administration of High Doses of Copper Nicotinate *Title* : to Rats: Effect on Biochemical and Cellular Constituents of Blood and on Copper Level in Serum, Liver and Muscle *Authors:* Attia H. Atta, Salah Fathy, Gohar, M., Reem Jan, Gihan Kame, Samar M. Mouneir and Soad M. Nasr *Published In* : International Journal of Medicine and Medical Sciences

Tublished In . International southar of medicine and medical sciences

ISSN 2006-9723 **Impact Factor** 0.00

Abstract :

The effect of prolonged administration of high doses of copper nicotinate on biochemical and cellular constituents of blood and on copper level in serum, liver and muscle was studied in rats. Oral administration of copper nicotinate at doses of 0.8 or 4.0 mg/kg body weight (b. wt.) for 6 weeks did not affect GOT, creatinine or cholesterol in serum of rats. When given at 4.0 mg/kg b. wt. for 8 weeks copper nicotinate significantly (P <0.05) increased GOT, GPT, urea, creatinine and cholesterol in serum of rats.

Minimal hematological changes were observed particularly when copper nicotinate was given at the high dose for 8 weeks. After administration of copper nicotinate at a dose of 0.8 and 4.0 mg/kg b. wt. copper level increased in the serum. The concentrat of copper in liver and muscle tissue initially increased through the first 2 weeks, but its level decreased within the next 2 weeks and remained almost at this level up to the 10th week. The present data indicate the safety of copper nicotinate complex when given at a high dose for 6-8 weeks. This was also confirmed by the high LD50 in mice 1104.17and 128.33 mg/kg b. wt. after oral and intraperitoneal route respectively.

<u>Keywords:</u>

Copper nicotinate; Copper complex; Copper high doses; Copper concentration; Serum biochemical changes; Hematological changes.

Dep.	:	Pharmacology
Name	:	Mohammed I. Mostafa

- *Title* : Comparative Pharmacokinetics of Florfenicol in the Chicken, Pigeon and Quail.
- Authors: Attia H. Atta, Salah Fathy, Gohar, M., Reem Jan, Gihan Kame, Samar M. Mouneir and Soad M. Nasr

Published In: British Poultry Science

ISSN 0007-1668 **Impact Factor** 1.134

Abstract :

1. The pharmacokinetics of florfenicol were investigated in chickens (n=20), pigeons (n=30) and quails (n=60) following intravenous (i.v.) and intramuscular (i.m.) administration of 30 mg kg⁻¹ body weight. The concentration of florfenicol was measured using high performance liquid chromatography with ultraviolet detection. Blood was collected via the right jugular vein into heparinized syringes before and 5, 15, 30 min, and 1, 1.5, 2, 4, 6, 8, 10, 12 h after florfenicol injection.

2. The plasma concentration versus time profile following administration of the drug by both routes were significantly lower in pigeons and quails compared to chickens for the whole sampling period.

3. Following i.v. administration, plasma concentration versus time data was best described by two-compartment open model. The elimination half-life $(t_{1/2\beta})$, mean residence time (MRT), total body clearance (Cl_B), area under the plasma concentration curve (AUC_{0-∞}) and area under the moment curve (AUMC_{0-∞}) were significantly different in chicken (3.21 h; 3.8 h; 1.63 l h⁻¹kg⁻¹; 18.0 µg h ml⁻¹, 68.6 µg h²ml⁻¹), pigeon (1.82 h, 2.1 h, 3.88 l h⁻¹ kg⁻¹; 7.54 µg h ml⁻¹, 15.7 µg h²ml⁻¹) and quail (1.24 h; 1.1 h; 5.26 l h⁻¹ kg⁻¹; 5.0 µg h ml⁻, 5.4 µg h²ml⁻¹), respectively. The distribution half-life ($t_{1/2\alpha}$) and volume of distribution (V_{dss}) were not significantly different in all species studied.

4. Plasma concentration time data after i.m. administration was adequately described by one-compartment open model. The elimination half-life $(t_{1/2el})$, mean residence time (MRT), maximum plasma concentration (C_{max}) , area under the plasma concentration curve (AUC_{0-∞}) and area under the moment curve (AUMC0-∞) were significantly different in chicken, (3.24 h; 5.2 h; 4.3 µg ml⁻¹; 17.8 µg h ml⁻¹,93.12 µg h²ml⁻¹), pigeon (2 h; 3.4 h; 2.9 µg ml⁻¹; 7.5 µg h ml⁻¹, 25.9 µg h²ml⁻¹) and quail (1.16 h; 2.5 h; 1.8 µg ml⁻¹; 4.9 µg h ml⁻¹ 12.1 µg h²ml⁻¹). Whereas, no significant difference in mean absorption time (MAT), time to

maximum concentration (T_{max}) , absorption half-life $(t_{\frac{1}{2}ab})$ or systemic bioavailability (F) was reported in all species studied.

5. The present study indicates that species differences in florfenicol elimination exist and highlights the danger of extrapolating doses and treatments from chicken to pigeon and quail without pharmacokinetic data.

<u>Keywords:</u>

Chicken; Florfenicol; HPLC; Pigeon; Pharmacokinetics; Quail.

Cairo University

Faculty of Veterinary Medicine

Dept.	:	Poultry diseases
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Name : Mohamed M. Amer



Title : Molecular Diagnosis of Eimeria and Clostridia in Simultaneously Infected Chickens.

Kutkat M. A., Shalaby R.M., El Khateeb R.M., Abu Elezz *Authors*: N.M., Zayed A.A., Abd El-Razik A.B., Nassif S.A. and Amer M.M.

Published In: Global Veterinaria

ISSN : 1992-6197

Impact Factor: 0.00

Abstract :

A total number of 95 intestinal and caecal samples were collected from chickens of 19 flocks suspected to have simultaneous infection with coccidian and clostridia. All the flocks were of local breads, reared on deep litter system and 30 to 90 days old. The study was conducted on 4 Egyptian governorates (Qalubeia, Sharkia, Fayoum and Giza) over a period of one year. The collected samples were transported on ice bags to the laboratory, each sample was divided into two parts, the first was kept on 2% potassium dichromate for preservation of the Eimeria oocysts that were detected by microscopic examination, while the second part was used for clostridial isolation. Sixty six out of ninety five samples, proved to have Eimeria oocysts, were subjected to DNA extraction that utilized in multiples PCR. E. necatrix, E. maxima, E. paraecox, E. acerviolena, E. mitis and E. tenella were detected with variable degrees. On the other hand, 65 out of 95 samples were positive for clostridia and were subjected to multiplex PCR. Only Clostridium perferingens type A was detected, out of them 57 samples were proved to have infection with Eimeria spp. It is concluded that Multiplex PCR is diagnostic assy used for the simultaneous detection of the six Eimeria species and C. perferingens type A that infect domestic fowl in Egypt.

Keywords:

Chickens; Coccidia; Clostridia; Simultaneous infection;0.0 Multiplex PCR.

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http://gsrs.cu.edu.eg

Dept.	:	Poultry diseases
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Name : Mohamed M. Amer



Title : Comparative study on the efficacy of antimycoplasma drugs on Performance of commercial broiler flocks from infected breeders.
Authors : Amer, M. M., Hanafei A. El-H. A., EL-bayomi K. M. and Zohair G. A.

Published In: Global Veterinaria

ISSN: 1992-6197

Impact Factor: 0.00

Abstract :

In this field trials 3 trials 60 000 Ross broiler chicks were used. Air sac lesion, cumulative mortality, average body weight gain, feed consumption, feed conversion rate and European efficacy factor were used to evaluate efficacy of antimycoplasma drugs on performance of commercial broiler flocks derived from Mycoplasma infected breeders. Lincospectin, Pulmotil and Tylan were administered in drinking water at 1 day old and repeated at 19 days. Mycoplasma infection in the used chicks was confirmed by clinical signs, air sac lesions, positive results to serum agglutination test for Mycoplasma gallisepticum (MG) and Mycoplasma synoviae (MS). MG antigen was detected in tracheal sections by Immuno-histochemistry. The obtained results proved that the used antimycoplasma drugs still effective in controlling of Mycoplasmosis in broilers and their efficiency varied by repeated successive use in flocks reared in the same house. Pulmotil showed stable results, followed by Lincospectin and tylan. It was concluded that antimycoplasma drug administration in broiler from infected breeders have a marked role in improvement of their performance.

Keywords:

Mycoplsmosis; Control; Prevention; Antimycoplasma drugs; Broiler chickens; Lincospectin; Pulmotil; Tylan; Broiler performance.

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http://gsrs.cu.edu.eg

Dep. : Surgery, Anesthesiology, and Radiology.

Name : Ayman A. Magdy



Cairo University

Morphometric Characteristics of the Pelvic Limbs of Labrador

- *Title* : Retrievers with and Without Cranial Cruciate Ligament Deficiency
- *Authors*: Ayman A. Mostafa, Dominique J. Griffon, Michael W. Thomas and Peter D. Constable

Published In: American Journal of Veterinary Research

ISSN 00-00 **Impact Factor** 1.280

Abstract :

Objective—To evaluate skeletal characteristics of pelvic limbs with and without cranial cruciate ligament (CCL) deficiency in Labrador Retrievers.

Animals—30 adult purebred Labrador Retrievers.

Procedures—Pelvic limbs (n = 28) of 14 dogs without CCL deficiency were classified as control limbs, whereas the limbs of 16 dogs with CCL deficiency were considered affected by (18 limbs) or predisposed to (10 contralateral limbs of dogs with 1 affected limb) CCL deficiency. Skeletal characteristics were evaluated via physical examination, radiography, and computed tomography. Radiographic and computed tomographic variables were compared among limb groups by use of a mixed-model ANOVA.

Results—The tibial plateau slope was steeper in CCL-deficient limbs but not in predisposed limbs, compared with the slope in control limbs. The angle between diaphyseal and proximal tibial axes was increased in both CCL-deficient and predisposed limbs. The relative width of the proximal portion of the tibia and the inclination of the patellar ligament did not differ among limb groups. The overall and distal femoral anteversion angles were greater in CCL-deficient and predisposed limbs, whereas the femoral condyle trochanteric angle was decreased in those limb groups, compared with findings in control limbs.

Conclusions and Clinical Relevance—Cranial angulation of the proximal portion of the tibia, excessive steepness of the tibial plateau, and distal femoral torsion appeared more likely to be associated with CCL deficiency than femoral angulation, tibial torsion, intercondylar notch stenosis, and increased inclination of the patellar ligament.

Keywords:

Morphometric; pelvic limbs; Labrador Retrievers; Cruciate ligament.

- Dep. : Veterinary Hygiene and Management
- Name : Gehan Z. Moustafa



- *Title* : A New Approach to Evaluate the Hygienic Condition of
- Commercial Hatcheries
- Authors: Z. Moustafa Gehan
- **Published In :** International Journal of Poultry Science 8 (11): 1047-1051, 2009

ISSN 1682-8356

Impact Factor 0.0

Abstract :

Hatchery hygiene was evaluated in two commercial broiler hatcheries using open-plate method, surface swabbing and microbiological examination of hatchery fluff. Air samples and surface swabs were collected from: inside the hatch unit, the corridor outside the hatch unit and the chick processing room, while, fluff samples were collected after hatching from the hatch unit and the chick processing room. After cleaning and disinfection process of the hatch, four commercial disinfectants were evaluated for their effectiveness for controlling the hatchery contaminants, TH4®(combination of glutaraldehyde + quaternary ammonium compound), Virucidal extra® (chlorine preparation), Advantage 256 ® (phenolics) and Perasan ® (per-acetic acid). The obtained results indicated that surface swabbing and microbiological examination of hatch fluff could detect higher degree of contamination than open-plate method in the two investigated hatcheries. Peracetic acid preparations and (glutaraldehyde + quaternary ammonium compound) could reduce completely hatchery contaminants after 30 min of application. Conclusively, open-plate method is easy to perform and inexpensive but may give false indication that the air is clean when it is not. So, surface swabbing and microbiological examination of hatch fluff are more reliable methods for evaluating the hygienic status of a hatchery. Moreover, Surface swabbing method is more accurate than open-plate method in evaluating the decontamination process of the hatch. Hatchery sanitation and the proper use of effective disinfectant are essential for successful operation of any commercial poultry hatchery. Per-acetic acid and (glutaraldehyde guaternary ammonium compound) proved their efficiency in controlling hatchery contaminants and can be used as safe alternatives to formalin in poultry hatcheries.

<u>Keywords:</u>

Hatchery hygiene; Open-plate methods; Fluff; TH4; Perasan.

Dep. : Zoonoses

Name : Maha A. Sabry



Title : Prevalence and Genotyping of Zoonotic *Giardia* from Fayoum Governorate, Egypt

Authors: Maha A. Sabry E.S. Taher and E.M.H. Meabed

Published In: Research Journal of Parasitology

ISSN 1816-4943 **Impact Factor** 0.00

Abstract :

The aim of the present study to investigate the possible public health significance of calves' giardiasis in the village. Faecal examination of children and their contact calves revealed infection by Giardia cysts up to 25 and 30.8 %, respectively. Protein fraction at molecular weight of 33 kDa as a giardins fraction was found to be closely related to zoonotic strain of calves' Giardia using western blot analysis. Amplification and sequencing of a 292 bp fragment of 16S-rRNA ribosomal unit from 25 calves Giardia isolates using nested PCR, revealed that 20% of these isolates were belonging to the zoonotic Giardia Assemblage A, while the rest of the isolates (80%) were in Assemblage of livestock genotype (E). This level of calve zoonotic Giardia genotype demonstrates the possible role of calves as reservoirs for human infection in this village.

Keywords:

Giardia; Human; Calve; Nested; PCR; Immunoblot; Genotype.

6751

Dep. : Zoonoses

Name : Maha A. Sabry



Authors: Maha A. Sabry

Published In: Research Journal of Microbiology

ISSN 1816-4935 **Impact Factor** 0.00

Abstract :

The present study is an attempt to clarify the role of captive dogs as a source of some zoonotic bacteria to their contacts or vice versa. Bacteriological examination of faecal swabs evidenced infection by three enteric bacteria in attendants, puppies and dogs. Salmonella (20%, 33.3% & 41.67%), Campylobacter (13.33%, 33.3% & 33.3%) and Enteroinvasive E.coli (46.66%, 46.67% & 58.33%). Serotyping of these bacteria revealed presence of S.typhimurium in dogs (60%) and attendants (66.67%), S.enteritidis in one of the worker as well as four untyped strains. Two serotypes of Campylobacter as C.jejuni in two workers and four dogs, C.coli in three dogs, while two untyped isolates were recorded in dogs. Three serotypes of E.coli (O26, O 76, O 55) and two untyped strains were isolated from workers and dogs. Moreover two isolates (O 5 & O 111) were diagnosed from dogs only. The isolates are showing high sensitivity for Gentamycin (10 μ g) and Tetracyclin (30 μ g). The study recommended some precautionary measures to minimize the role of captive dogs as a potential source of zoonotic pathogens.

<u>Keywords:</u>

Dogs; Attendants; Bacteria.



Dep. : Zoonoses

Name : Maha A. Sabry



Cairo University

Title : Captive Dogs as Reservoirs of Some Zoonotic Parasites

Authors: Maha A. Sabry and Hossein S. Lotfy

Published In: Research Journal of Parasitology

ISSN 1816-4943 **Impact Factor** 0.00

Abstract :

Groups of stray dogs were captivated for a special drug trial. After 3 months, dog's attendants complained from gastrointestinal disturbances, headache and fever. No special symptoms were observed on dogs except diarrhea in some animals. Parasitological examination of faecal swabs showed infection by five zoonotic parasites diagnosed in both dogs and their attendants. Entamoeba histolytica, Giardia (trophozoites & cysts) and Isospora species oocysts were detected in faeces of 20%, 20% and 26.6% respectively of attendants in close contact with the dogs. Anti-Toxocara canis, anti-Sarcocystis and anti-hydatid cysts antibodies were diagnosed in 20%, 33.3% and 46.66% of attendants' sera respectively using EL1SA. Puppies and dogs were infected with Toxascaris leonina (20% & 16.66 %), Dipylidium caninum (53.33% & 66.66%) and Taenia spp. eggs (26.6% & 50%). Giardia (53.33%), E. histolytica (13.33%), Toxocara canis (33.3%), Isospora (53.3%) and Cryptosporidium oocysts (20%) were diagnosed in puppies only. Two adult dogs (16.66 %) shed Sarcocystis oocysts and Ancylostoma caninum eggs in their faeces. Some precautions were recommended to minimize the role of dogs as a source of zoonotic pathogens.

<u>Keywords:</u>

Dogs; Attendants; Zoonotic; Parasites.

- **Dep.** : Mathematical Statistics
- Name : Samir Kamel Ashour



Title : Moment Generating Function of the Bivariate Generalized Exponential Distribution

Authors: Samir K. Ashour, Essam A. Amin, Hiba Z. Muhammed

Published In: Applied Mathematical Sciences

ISSN 1312-885X **Impact Factor** 0.0

<u>Abstract :</u>

Recently a new distribution, named a bivariate generalized exponential (BVGE) distribution has been introduced by Kundu and Gupta (2008). In this paper we obtain joint moments and the moment generating function for (BVGE) which is in closed form, and convenient to use in practice.

<u>Keywords:</u>

bivariate generalized exponential distribution; joint and marginal moments; moment generating function; marginal moment generating function.

Dep. : Applied Statistics and Econometrics

Name : EL-Houssainy Abd El-Bar Rady



Title : Relationships among Several Optimality Criteria

Authors: E.A.Rady, M. M. E. Abd El-Monsef, and M. M. Seyam

Published In : Interstat

ISSN 1941-689X **Impact Factor** 0.0

Abstract :

Different kinds of designs may be used in many life sciences; one may needs some optimal constraints on the design of interest. The proper meaning of 'optimal' depends on the situation, and can include: most effective, minimum variance, minimum bias, etc. Optimal design is an essential topic that deserves special attention from many researchers who are interesting in data analysis in several fields in our life such as: dynamic, kinetic, toxicity, marketing and engineering fields. In the light of the value of this subject, this paper is devoted to introduce a concise survey on the optimality criteria and its classifications. Moreover, the relationships among several optimality criteria will be derived. Finally, all the criteria and their relations are summarized in a graph to be more noticeable.

<u>Keywords:</u>

Optimal design, Optimality criteria, General equivalence theorem.

- **Dep.** : Mathematical Statistics
- Name : Abdallah M. Abdelfattah



Title : Comparison of Estimators for Stress-Strength Reliability in the Gompertz Case

Authors: Bu gra Sara, co glu_, Mehmet Fedai Kaya_ and A.M. Abd-Elfattah

Published In: Hacettepe Journal of Mathematics and Statistics

ISSN 1303-5010 **Impact Factor** 0.0

<u>Abstract :</u>

In this paper, the Bayesian and non Bayesian estimation problem of reliability, R = P(Y < X), will be considered when X and Y are two independent but not identically random variables belonging to the Gompertz distribution. The three estimation methods applied were the maximum likelihood, uniformly minimum variance unbiased, and Bayes estimators. A numerical illustration is used to compare the three different estimators.

Keywords:

Stress-strength reliability, Gompertz distribution, Minimum variance unbiased estimation, Maximum likelihood estimation, Bayes estimation, Mean square error.





- **Dep.** : Mathematical Statistics
- Name : Abdallah M. Abdelfattah



Title : Estimation of the Unknown Parameters of the Generalized Frechet Distribution

Authors: Abelfattah, A. M. and Omima, A. M.

Published In: Applied Sciences Research

ISSN 1816-157X **Impact Factor** 0.0

<u>Abstract :</u>

The extreme value distribution is becoming increasingly important in engineering statistics as a suitable model to represent phenomena with usually large maximum observations. In engineering circles, this distribution is often called the Frechet model. It is one of the pioneers of extreme value statistics. The Frechet (extreme value type II) distribution is one of the probability distributions us ed to model extreme events. In the present study the maximum likelihood estimation of the parameters of generalized Frechet (GF) distribution are derived. Asymptotic variance covariance matrix are derived and computed numerically.

Keywords:

Fisher Information, generalized Frechet distribution, maximum likelihood estimator, sampling distribution, Pearson sys tem.

Faculty of Arts

Dept. : English

Name : Shereen Abou El Naga

Title : Satirical Weapons, Egyptianized Kings

Authors : Shereen Abou El Naga

Published In: Humor in Arabic Culture

ISSN : 00-00

Impact Factor: 0.0

<u>Abstract :</u>

This research assumes that the stage is a micro-world where revenge is fully enacted, and where the powerless acquire real power through the discourse of popular culture: improvisation, jokes, proverbs, songs, and display of exaggerated obedience. A smart amalgam of these elements is bound to render authority as a farcical show of insane power, which both lacks any credibility and remains in dire need of any support. Upon the assumption that satirizing kings on stage has always been an Egyptian means of resistance the research renders an analysis of the king figure in two plays. These are: The King is the King (al-Malik huwa lmalik) by Saad Allah Wannus and The King looks for a Job (al-Malik yabhatu 'an wazifa) by Samir Sarhan.

<u>Keywords:</u>

Drama ; Egyptian theatre; Satire; Humor; Kings.



Cairo University

Faculty of Arts

Dep. : French

Name : Rania Mohamed Fathy



- *Title* : Avatars de l'épopée dans Le Musée Grévin (Aragon) et dans Et la terre se transmet comme la langue (Darwich).
- Authors : Rania M. Fathy

Published In : Désirs et débris d'épopée au XXe siècle, Berne, Peter Lang, 2009.

ISBN: 9783039116645 **Impact Factor**: 0.0

<u>Abstract :</u>

Le présent article se propose de cerner les composantes épiques dans la poésie moderne. Il cherchera surtout à mettre en relief cette continuité entre le narratif et le poétique caractérisant les poèmes objet de l'étude. Continuité que dit, dans le poème d'Aragon, une structure narrative projetant le texte vers un au-delà du tragique et renouant avec un passé glorieux fait de victoires, et que révèle dans le poème de Darwich le leitmotiv d'un retour vécu comme une évidence, une évidence qui transcende la réalité du déracinement pour ancrer le texte dans la pérennité d'une présence sur la terre de la Palestine. Cette continuité tracée par le récit narré est, en outre, rehaussée par les procédés d'une écriture poétique, ellemême fondée sur le motif du retour. L'interaction entre le poétique et le narratif, présentant un des éléments définitoires du texte épique, se trouve ainsi illustrée dans les deux poèmes.

<u>Keywords:</u>

Poésie du XXe siècle; Epopée ; Récit ; Louis Aragon ; Mahmoud Darwich.

Faculty of Arts

Dept. : Langue et Littérature françaises

Name : Chahinda E. Abdel Kader

Title : Le role éducatif du conte islamique

Authors : Chahinda E. Abdel Kader

Published In : Le français dans le monde – On line

ISSN: 0015-9395

Impact Factor: 0.0

<u>Abstract :</u>

L'étude du thème de l'identité dans le conte islamique pour enfants est une tentative permettant au jeune lecteur de s'informer sur sa religion, ses origines, de retrouver son propre moi et de s'inscrire dans sa propre lignée.

Notre corpus est essentiellement formé d'un ensemble de contes relatant la biographie du Prophète Mohammed à travers des personnages de fiction (faune et flore) qui prennent la parole non seulement pour raconter mais aussi pour transmettre certaines informations et certaines leçons de morale au lecteur.

Fiction et réalité sont inséparables , visent à créer un conte moral et sont liées à la volonté didactique de l'écrivain.

Or appréhender la problématique de l'identité ne peut se faire sans investigation du domaine de la réception . Comment est-ce que les contes peuvent agir sur "le **liseur**" qui devient à son tour "**lisant**" puis "**lectant**? "

Le lecteur eesaie de déchiffrer le message émis par le texte lui présentant des modèles à suivre et lui permettant de plonger dans son contexte culturel originaire.

La lecture devient une activité communicationnelle qui a pour but:

- la motivation du lecteur
- l'imitation d'un modèle
- le changement de son expérience à venir

<u>Keywords:</u>

Bestiaire;Conte:- conte d'animaux -conte religieux-conte moral; Dualité; Flash-back; Identité; Image; Littérature de jeunesse; Mémoire; Narrateur; Oralité; Passé; Pathos; Réactualisation; Scène; Témoins.



Cairo University

Faculty of Arts

Dept. : German

Name : Aleya Abdallah Khattab

Title : Der ägyptische Faust von Taufik Al-Hakim – ein Gott der Kunst?

Authors : Aleya A. Khattab

Published In: Cross- Cultural Communication

ISSN: 0945-9588 **Impact Factor:** 0.0

Abstract :

In der Erzählung "Der Schwur des Teufels" hat Al-Hakim Goethes Fauststoff rezipiert. Darin geht es dem ägyptischen Schriftsteller um die Problematik des tragischen Konflikts des Künstlers mit der Wirklichkeit. Al-Hakim verstand den Künstler als Genie, als Symbol für die gesetzgebende Instanz eines Schöpfers. Die wahnsinnge Besessenheit von Wissensliebe kann aber durch teuflische Macht erfüllt werden. Die tabusierte Unvereinbarkeit einer Beziehung zwischen dem Menschen und dem Satan wird dadurch eliminiert, dass das Bündnis einmal mit einem imaginären fiktionalen Teufel, nämlich dem Teufel der Kunst geschlossen wird. Al-Hakim veränderte den Stoff zu einem am arabischislamischen Publikum orientierten Text.

<u>Keywords:</u>

Taufik Al-Hakim; Goethe; Faust; Gott der Kunst; Rezeption; Gemeinsamkeiten und Unterschiede.


Faculty of Arts

Dept. : German

Name : Aleya Abdallah Khattab



Gespaltene Identität: Vermittlung oder Kampf zwischen zwei

Title : Sprachen und Kulturen: Zur Übertragung von Ibn Zayduns Gedichten ins Deutsche.

Authors : Aleya A. Khattab

Published In: Cross- Cultural Communication

ISSN : 0945-9588

Impact Factor: 0.0

<u>Abstract :</u>

Im Verlauf der Geschichte haben Denker und Gelehrte immer wieder betont, dass die Übersetzung literarischer Werke eine der anspruchvollsten und schwierigsten Künste ist. Durch Übersetzungsarbeit sollen Gemeinsamkeiten, Verflechtungen, Abhängigkeiten, aber auch Unterschiede von Orient und Okzident verdeutlicht werden. Ibn Zayduns Lyrik besitzt ein kunstvolles System von harmonischem Zusammenspiel, ein feines Gewebe aus Melodie und Begriffen insbesondere religiösen Begriffen. Darin liegt die Schwierigkeit beim Übersetzen von seinen Gedichten. Die echte dichterische Übersetzung wäre, die gefolgt ist von einer detaillierten Kommentierung und von einer Erläuterung der Kunstformen, der Topoi und der allegorischen Gestalten. Auf diese Weise könnte der Leser die zauberhafte Welt der vielschichtigen, reichen orientalischen Poesie mit ihren mannigfachen Aspekten recht genießen.

<u>Keywords:</u>

Identität; Ibn Zayduns Gedichte; literarische Übersetzung, Gegensätzlichkeit von Sprache und Inhalt; Vermischung von Liebe und Religion.

Faculty of Arts

Dept. : German

Name : Aleya Abdallah Khattab

Title : Jura Soyfer auf Arabisch: Eine Herausforderung?

Authors : Aleya A. Khattab

Published In : Jura Soyfer und die alte Welt

ISSN : 00-00

Impact Factor: 0.0

<u>Abstract :</u>

Der Beitrag beschäftigt sich mit der Rezeption der österreichischen Literatur in Ägypten. Er zeigt, dass eine arabische Übersetzung den deutsch-österreichischen Text weder ägyptisieren oder verfremden noch trivialisieren oder gar verflachen sollte, sondern sie sollte das fremde, literarische Gedankengut nach bestem Wissen und Gewissen dem arabischen Leser verständlich machen und es ihm nahe bringen. Der Übersetzungsprozess des österreichischen Stückes "Astoria" von Jura Soyfer ins Arabische ist ein komplexer Vorgang der Kommunikation von interlingualer Natur. Die fremde Szenerie des österreichischen Stückes und ihre sittlich-moralische Aussage werden dem Leser im allgemein-menschlich begründeten Verhaltensnormen einleuchten. Das Ziel der Übersetzung sollte es sein, eine optimale Äquivalenzrelation zwischen dem ausgangssprachlichen deutschen und dem zielsprachlichen arabischen Text zu erreichen.

<u>Keywords:</u>

Österreichische Literatur; Übersetzungsprozess; Herausforderung; Überforderung; Grenzfälle; das Theaterstück "Astoria" von Jura Soyfer.



Faculty of Arts

Dept. : Department of Sociology

Name : Ebtesam Sayed Allam



- *Title* : Bedouins ,Marriage ,and satellites: An Anthropogical study of Awlad Alys' tribes in Marsa Matrouh
- Authors : Ebtesam sayed allam

Published In: Waseda Journal of Islamic Sciences

ISSN : 1880 – 0769 **Impact Factor :** 0.0

Abstract :

This study aims at recognizing some social and cultural family-related features in the bedouin family (As a model of a traditional culture), recognizing the changes in these features resulting from the global effects and the communication revolution, and determining to what extent the marriage system influenced by these changes.

The current study depends on the concept of counterfeit modernity ,it hypothesis that changes experienced by the bedouin family are artificial changes that do not affect the deepness of bedouin literature. The current study will use different methods and tools including observations, interviews, team work in field, and photographing. Moreover, some vocabulary concerning the bedouin life and culture will be collected, especially those attached with marriage customs and habits.

The subject of the current study can be clarified through several elements including : first) Bedouins' marriage literature and communication revolution as a main subject, second) change mechanisms and modernization of Bedouins traditional culture, third) Bedouins' marriage system between traditional and modernity, and forth) some future expectations about the bedouin entity and modernity confrontation. Fifth) some extractions .

<u>Keywords:</u>

Faculty of Arts

Dept. : Sociology

Name : Laila K. A. Elbahnasawy



Title : Digital consumption and change of family life style: A study on a sample from Cairo city

Authors: Laila K. A. Elbahnasawy

Published In: Waseda Journal of Islamic Sciences

ISSN : 1880 – 0769 **Impact Factor :** 0.0

<u>Abstract :</u>

The research problem of the current study is represented as a trial to explore the changes of the life styles (both internally and externally) of the Egyptian family that could be attributed to the digital consumption as appeared in the satellite channels. The internal changes in the life styles, due to exposure to the satellite channels, appear in the rituals of family in roles distribution, relationships, interactions, socialization processes, time management within the family accompanied by new positive or negative behaviors that could be attributed to exposure to satellite channels. The positive behaviors appear in the increase of learning, cognitions and changing bad habits. While, the negative behaviors appear in relative isolation of individuals, violence within the family, reliance tendency, indifference among children and lack of feelings of responsibility. The external changes in the life styles, due to exposure to the satellite channels, appear in the attitudes of families towards consumptions.

<u>Keywords:</u>

Digital Consumption ; Life style.

Dept. : Conservation

Name : Mona Fouad Ali



Cairo University

Title : PIXE Analysis of Ancient Egyptian Pigments

Authors: A. Shaaban, M. F. Ali, A. Turos, A. Korman and A. Stonert

Published In : Jnano Research

ISSN : 1661-9897

Impact Factor: 1.987

<u>Abstract :</u>

Particle Proton–Induced X-Ray Emission (PIXE) is one of the most sensitive analytical methods which can be used in the study of ancient mural paintings especially pigments. It requires small samples or tiny fragments of the paint layer. It is a non-destructive technique and provides data on elemental concentrations. Analysis can be performed in vacuum or in air. The major advantage of this technique is the ability to analyze simultaneously both elements and trace elements present in the sample. Another advantage is the short data acquisition time. This research studies red, yellow, blue and green pigments used in the tomb of Ramesses III (N.11 - 1198 BC), the tomb of Tohthmous III- (N.34 - 1504 BC), both located at the Valley of the Kings Luxor, and also, Medinet Habu temple of Ramesses II (1198 -1166 BC) located at the West Bank of Luxor. The study was performed by using light Optical Microscope (LOM) and Particle Proton–Induced X-Ray Emission (PIXE).

<u>Keywords:</u>

Egyptian Wall Painting; PIXE; Optical Microscopy; Pigments.

Dept. : Conservation

- Name : Gomaa M. M. Abdel-Maksoud
- *Title* : Evaluation of Cellulose Acetate and Chitosan used for the Treatment of historical papers

Authors : Gomaa Abdel-Maksoud and Ziad al-Saad

Published In : Mediterranean Archaeology and Archaeometry

ISSN: 1108-9628 **Impact Factor:** 0.0

Abstract :

A lot of papers in museums and libraries suffer from unsuitable environmental conditions that can lead to brittleness and fragility. This study aims to evaluate the efficiency of cellulose acetate and chitosan at different concentrations for the preservation of historical papers. The untreated and treated samples were submitted to different accelerated ageing cycles. Analytical techniques used for the evaluation process were tensile strength and elongation measurement, UV-spectrophotometer, XRD, and SEM. The results revealed that heat-moist-light ageing cycle affected the properties studies more than other ageing cycles. The lower concentrations gave improvement better than the higher concentrations of cellulose acetate and chitosan.

<u>Keywords:</u>

Historical paper; ageing; polymers; tensile strength; elongation, UV-spectrophotometer; XRD; SEM.

Cairo University



Dept. : Conservation

Name : Abdel latif H. Effendi



Title : Experimental studies on some consolidants used for cellulosic manuscripts conservation

Authors: Abdel latif H. Effendi and S. S. Darwish

Published In: Papyrological Lupiensia

ISSN: 00-00 **Impact Factor:** 0.0

<u>Abstract :</u>

Four kinds of polymers solutions including methyl cellulose, Carboxy methyl cellulose, Hydroxy propyl cellulose and Acryloid (B72) were evaluated to be used in paper and papyrus conservation. The biodegradability of these polymers was investigated. Moreover, some chemical, physical and mechanical properties of treated paper and papyrus were measured. The results showed that no ideal consolidant optimized all the characteristics at the same time. So, before using a paper or papyrus consolidant it must be evaluated which of the characteristics is the most important for our conservation work, and then select the polymer that will give us the results that are expected.

Keywords:

Paper; Papyru; Manuscripts; Consolidation; Polymers; Methyl cellulose; Carboxy methyl cellulose; Hydroxy propyl cellulose ; Acryloid (B72);Benlate fungicide.

Dep. : Conservation

Name : Abdel latif H. Effendi

Il restauro del papiri del museo Egizio del Cairo:sedicesima e diciassettesima campagna (2007-2008) e il restauro del papiri

Title : diclassettesima campagna (2007-2008) e il restauro del papiri dell Universita di Ain shams (Cairo): prima e seconda campagna (2006 e 2008)

Authors: Mario Capasso, Natascia Pelle and Abdel latif Hassan Effendi

Published In: Papyrological Lupiensia

ISSN 00-00

Impact Factor 0.0

<u>Abstract :</u>

The article is a detailed report of the restoration sessions of work on Egyptian and Greek papyri kept in Cairo Egyptian Museum and on the Greek and Arabic papyri owned by center of papyrological studies and Inscriptions in Ain shams University (Cairo) during the years 2006-2008.

The team was composed by Italian Restorer and Papyrologists from the (Universita del Salento, Lecce. Italy) and by dr Abdel latif Hassan Effendi((Cairo University) They mostly did a conservative Restoration based on cleaning papyri with soft brushes, repositioning fibers that were out of order and arrange the pieces between two sheets of glass closed with strips of filmoplast along the four edges.

Some documents were glued by animal glue on a sheet of bright paper: it has been removed thanks to a solution of toluene, alcohol, distilled water and Hydroxy propyle cellulose 2% before application of these chemical solution, some small pieces of adhesive tape on the papyrus surface, used for fixing fibers in their right place, were removed.

In the contribution we describe every steps made on each papyrus.

<u>Keywords:</u>

Papyrus ; Egyptian museum; Restoration ; Arabic papyri ;Greek papyri.



Dept. : Conservation

Name : Ramadan A. Abd-Allah



Title : Solarization Behavior of Manganese-containing Glass: an Experimental and Analytical Study

Authors : Ramadan A. Abd-Allah

Published In: Mediterranean Archaeology and Archaeometry

ISSN: 1108-9628

Impact Factor : 0.0

Abstract :

This paper is an initiative study of the solarization phenomenon of archaeological glass that until now has been recorded, but not extensively studied. It also aims to reveal the fact concerning this phenomenon as a photochemical process affects the spectral and optical properties of ancient glass. Many solarized or purpled glasses found at Barsinia archaeological site in Jordan were collected and analyzed using atomic absorption spectroscopy (AAS) technique to identify the elemental composition of these glasses. Furthermore, many pieces of decolorized or colourless glasses containing reduced manganese were exposed to a concentrated ultraviolet (UV) radiation in accelerated weathering chamber for long times. A preliminary examination by light transmission microscopy and using double beam spectral photometers allowed determination of the changes in optical properties (transmittance and colour) of selected glasses. However, it is the goal of this paper to show that solarization becomes more than an aesthetic problem when it occurs on glass components of an optical system. Solarization may also permanently degrade a material's physical or mechanical properties.

<u>Keywords:</u>

Solarization; Glass; Manganese oxide; chemical Composition; UV radiation; Photo-oxidation.

Dept. : Egyptology

Name : Mahmoud Ebeid

Title : Two demotic Ostraca from al-Ashmunein magazine

Authors : Mahmoud Ebeid

Published In : Bulletin de l'Institut Français d'Archéologie Orientale

ISSN: 0255-0962 **Impact Factor:** 1.020

Abstract :

The aim of this article is to publish two demotic ostraca from Tuna al-Gebel necropolis stored now in al-Ashmunein magazine. These ostraca include accounts of certain sums of money, might be related to the religious associations in the necropolis.

<u>Keywords:</u>

Demotic ostraca; Tuna al-Gebel necropolis; al-Ashmunein magazine; religious association; late Ptolemaic period; personal names; payments.



Dept. : Egyptology

Name : Mahmoud Ebeid



Title : A Clay-bowl with demotic inscriptions from Tuna el-Gebel necropolis

Authors : Mahmoud Ebeid

Published In: Philippika Marburger Altertumskundliche Abhandlungen

ISSN: 1613-5628 **Impact Factor:** 0.00

Abstract :

The Clay-bowl which is the subject of this article belongs to a group of various objects with demotic inscriptions that were found in Tuna el-Gebel necropolis during the excavations of Cairo University, carried out by S. Gabra and others, and stored now in el-Ashmunein magazine. This clay-bowl is in a good state of preservation, slightly broken at the upper edges. It was written on both sides, the concave side bears nine lines, while the convex side comprises three columns written around the base of the bowl. The first comprises five lines, the second consists of four lines, and the third bears only one line .The handwriting is big, bold, neat, and skillful.

Keywords:

Clay-bowl ; Tuna al-Gebel necropolis; al-Ashmunein magazine; religious association; late Ptolemaic period; personal names; the payment ;The stipend-accounts.

Dept. : Egyptology

Name : Abdel-Rahman A. Mohamed

Title : The lost temples of Esna

Authors: Abdel-Rahman A. Mohamed

Published In : Bulletin de l'Institut Français d'Archéologie Orientale

ISSN: 0255-0962 **Impact Factor:** 0.00

<u>Abstract :</u>

This article deals with four lost temples at Esna. Three of them located to the north of the current temple on the west bank of the Nile, the fourth temple located on the east bank. All the four temples are disappeared now; fortunately the inscriptions of the great temple of Esna and the writings of travelers of 18th and 19th centuries left some information on these temples as well as the French Expedition scholars.

<u>Keywords:</u>

Lost temples; Esna; Text; God; Goddess; Khnum; Sahure; Nebtou; Procession; Contralatopolis.

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Cairo University



Dep. : Egyptology

Name : Abdel-Rahman A. Mohamed

Title : The dance for appeasing Menhyt-Nebtou at Esna

Authors: Abdel-Rahman A. Mohamed

Published In: Philippika Marburger altertumskundliche Abhandlungen

ISSN 1613-5628 **Impact Factor** 0.00

Abstract :

This study deals with a text and two scenes from Esna temple, the three documents explain how the king plays the role of the god Shu who brought back the distant goddess, danced and welcomed her. Here the king is appeasing and keeping the goddess calm by his ritual dancing and offerings driving away the terror and anger of the goddess, in this action, he drives away the dangerous, bad and evil things from Egypt.

<u>Keywords:</u>

Dance; king; appeasing; Menhyt; Nebtou; Esna; scene; Shou; Tefnut; Sekhmet; the Emperor Trajan; Nubia.

Cairo University



Dept. : Egyptology

Name : Zakia Zaki G. El-Deen

Title : Akhenaten's Religion: A Political View

Authors : Zakia Zaki G. El-Deen

Published In: Philippika Marburger altertumskundliche Abhandlungen

ISSN: 00-00 **Impact Factor:** 0.00

Abstract :

The present study aimed to reveal the motives behind Akhenaten's religion. This can be achieved only through examining the way political and religious events had unfolded since the beginning of the 18th Dynasty.

The study came to the conclusion that the religion Akhenaten formulated was a variant of the solar religion which had Akhenaten at its center. The driving force behind Akhenaten's religion was purely political in nature. For this reason, his religion focused solely and exclusively on the king's own person.

Akhenaten was trying to restore the king's role as mediator between god and people, he was defending the divine kingship, the king's right to control and preside over the affairs of humans.

<u>Keywords:</u>

Akhenaten; Thotmose IV; Amonhotep III; Solar Theology; 18th Dynasty; New Kingdom; Cartouche; Aton.



: Egyptology Dept.

Name : Tarek Sayed Tawfik



Narrative Elemente der Vignette zum 1. Kapitel des Title altägyptischen Totenbuchs, in

Authors: Tarek S. Tawfik and Amr El Hawary

Stephan Conermann (Edit.), Modi des Erzählens in nicht-**Published In :** abendländischen Texten, Narratio Aliena2

00 - 00**ISSN**:

Impact Factor: 0.00

Abstract :

Several criteria have been established by D. Weber 1998 for narrative analyses of texts. These criteria are set in a way that they can be well applied to texts coming from ancient cultures such as ancient Egypt. These criteria are: the addressor and the addressed, the seriality, the elaboration of the action, the action being in the past and the temporality. Here the attempt has been made to apply these criteria not to a text but to the illustrations (Vignette) accompanying the first chapter of the Book of the Dead drown on papyri witch emerged in the 18th Dyn. in the Period of the New Kingdom in ancient Egypt. The illustrations accompanying the first chapter of the Book of the Dead show the funerary procession transporting the deceased to his tomb.

The addressor in this case is the deceased or his family who order the illustrations to be made to insure the safe entry of the deceased into the realm of Osiris, the world of the Dead. The main addressed are the God Osiris and the Sun god. In the more detailed versions of the illustrations (Vignette) accompanying the first chapter of the Book of the Dead the actions clearly follow one another and in some cases the same protagonists appear again in succeeding actions achieving the seriality. The actions elaborate starting by the transport of the mummy to the tomb, then insuring that the deceased enters the Netherworld and finally that he awakens to new life to adore the raising sun and thus being resurrected. The illustrated actions have already been completed and in the seldom cases were the illustrated deceased is accompanied by a short text he is addressed already as Osiris which means that he successfully entered the realm of Osires and that he has achieved his goal to be resurrected to adore the rising sun once again. As the actions have to follow one after the other which means that the transport of the deceased can't happen before his mummification and the resurrection can't take place before the deceased has entered the realm of Osiris and successfully passed the dangers and the difficulties of the Netherworld so the temporality is also maintained. http://gsrs.cu.edu.eg 6963

Concluding it can be stated that the illustrations (Vignette) accompanying the first chapter of the Book of the dead meat all the criteria established by D. Weber for narrative analyses of texts

Keywords:

Narrative; Vignette; 1. Kapitel des altägyptischen Totenbuchs; Adressiertheit, Serialität; Elaboriertheit; Nichtaktualität; Temporalität; Papyrus; Osiris; Pyramide; Sonne; Hervortreten bei Tage; Totenbuch; Jenseits; Grab, Wiederauferstehung; Sonnengott; Mumie.

Dept. : Restoration and Conservation

Name : Abu Bakr M. A. Moussa



Title : Diagnosis of Weathered Coptic wall paintings in the Wadi El Natrun region, Egypt

Authors: Abu Bakr Moussa and Mona F. Ali

Published In: Journal of Cultural Heritage

ISSN : 1296-2074

Impact Factor: 0.854

<u>Abstract :</u>

This paper deals with the impact of soluble salts on the deterioration of wall paintings in the region of Wadi El-Natrun in Egypt, including the identification of the used building materials and pigments. For this purpose we used the XRD analysis which proved that the green pigment in the church of the Virgin-Wadi El Natrun is a mix of malachite-hydrocerussite and black is graphite. The results proved that the building materials (stones, mortars, plasters) in Wadi El-Natrun are affected by the ground water as they have the same soluble salts with different concentrations. The Wadi El Natrun lakes have been the native source of natron salt (NaCO₃.10H₂O), which has been used in mummification technique. Soda lakes represent the major types of naturally occurring highly alkaline environments. The factors leading to the formation of the alkaline, saline deposits may be divided into climatic, geological, and topographical. The influence of climate and topographical factors controls the amount of water entering the system as rainfall or surface runoff and the amount leaving by evaporation. Geochemical influences determine which ions enter the system, solutions of carbon dioxide results in the formation of a weak acid, carbonic acid, which undergoes ion exchange with the surrounding rock and archaeological buildings, leaching the minerals

<u>Keywords:</u>

Mortars; Plasters; Pigments; XRD analysis; Soluble salts' analysis.

Dep. : Restoration and Conservation

Name : Mona H. Abdel-Ghani



- *Title* : Characterization of Paint and Varnish on a Medieval Coptic-Byzantine Icon: Novel Usage of Dammar Resin
- *Authors*: Mona Abdel-Ghani, Howell Edwards, Ben Stern and Rob Janaway

Published In: Spectrochemica Acta Part A

ISSN 1386-1425

Impact Factor 1.510

<u>Abstract :</u>

A comprehensive study has been undertaken into a 13th century Coptic-Byzantine icon from the St. Mercurius Church, St. Mercurius monastery, Old Cairo, Egypt. The layered structure, pigment composition and varnish identification were revealed by means of optical and Raman microscopy and gas chromatography–mass spectrometry (GC–MS). The structure of the icon comprised six layers; wooden panel, canvas, white ground, two bole layers and a single paint layer. Azurite (2CuCO3•Cu(OH)2), cinnabar (mercuric (II) sulfide _-HgS), yellowochre (Fe2O3•H2O), hydromagnesiteMg5(CO3)4(OH)2•4H2O and lamp black (carbon, C) are the pigments identified in the icon. The green paint area is of interest as it is applied neither with a green pigment nor with a mixture of a blue and yellow pigment. Instead, a yellow layer of dammar resin was applied on top of blue azurite to obtain the green colour. Pinaceae sp. resin mixed with drying oil was used as a protective varnish.

<u>Keywords:</u>

Coptic icons; Raman microscopy; Gas chromatography-mass spectrometry; Hydromagnesite; Pinaceae sp. Resin; Dammar resin.

Dept. : Curriculum and Instruction

Name : Muhammad M. Abdel Latif



Title : Towards a New Process-based Indicator for Measuring Writing Fluency: Evidence from L2 Writers' Think-Aloud Protocols

Authors : Muhammad M. M. Abdel Latif

Published In : Canadian Modern Language Review

ISSN: 0008–4506 **Impact Factor:** 0.0

Abstract :

This article reports on a study aimed at testing the hypothesis that, because of strategic and temporal variables, composing rate and text quantity may not be valid measures of writing fluency. A second objective was to validate the mean length of writers' translating episodes as a process-based indicator that mirrors their fluent written production rather than the factors that may be related to it. The translating episode is defined as any chunk that has been written down and terminated by a pause of three or more seconds or by any composing behaviour. Data for the study were drawn from the think-aloud protocols generated by 30 Egyptian university students writing in their second language (L2) and from their retrospective interviews. To examine the validity of the three indicators, the participants' composing rates, text quantity, and translating episodes were related to their scores on an argumentative writing task and on three linguistic tests. The results of the quantitative and qualitative analyses confirm the hypothesis tested and provide evidence for the validity of this newly developed indicator of writing fluency. Implications and suggestions for further research are presented.

<u>Keywords:</u>

Writing fluency; Writing process; Translating episode length; Composing rate; Text quantity; Think-Aloud protocols; L2 writing.

Dept. : Curriculum and Instruction

Name : Muhammad M. Abdel Latif



Cairo University

Title : The Problems Identified in the Previous Coding Schemes Used for Analyzing L2/FL Writers' Think-Aloud Protocols

Authors: Muhammad M. M. Abdel Latif

Published In: LangUE 2008 Conference Proceedings

ISSN: 00–00 **Impact Factor:** 0.0

Abstract :

The think-aloud method has been extensively used by researchers investigating the composing process. The vast majority of published works on this method, if not all, have focused on issues related to the way of administering it, and to its validity and/or reliability rather than discussing the validity of the coding schemes used for analysing the protocols generated by writers. This paper tries to fill in this gap by critically reviewing the types of the previous coding schemes used for analysing L2/FL writers' think-aloud protocols. Five types of these coding schemes were identified in the literature. The weaknesses and/or strengths of each type are highlighted. In addition, the paper discusses some other problematic issues in these schemes that make the comparability of the findings of composing research more difficult, on the one hand, and raise some questions about the validity of some schemes, or at least some parts of them, on the other. The paper ends with presenting implications for researchers interested in the area of the composing process.

<u>Keywords:</u>

Think-aloud protocols; writing process; writing assessment; protocol analysis.

- *Dept.* : Curriculum and Instruction
- Name : Muhammad M. Abdel Latif
- *Title* : EFL Writers' Pausing and Composing Problems: An Introspective- retrospective Data-based Study

Authors: Muhammad M. M. Abdel Latif

Published In: Perspectives - TESOL Arabia Language Teaching Journal

ISSN: 1813-1913 **Impact Factor:** 0.0

<u>Abstract :</u>

This article reports on a study that looked at the pausing of Egyptian students while composing their texts in an EFL context and the causes of such pausing. Data sources of the study included the think-aloud and retrospective interview protocols, and linguistic knowledge and writing quality scores. The study revealed that both linguistic knowledge and text quality correlate positively with intersentential pausing and negatively with intra-sentential pausing. The article discusses these results and their implications.

<u>Keywords:</u>

Writers' pausing; composing process; writing problems.



Dept. : Curriculum and Instruction

- Name : Muhammad M. Abdel Latif
- *Title* : What Do We Mean by Writing Fluency? Proposing a New Measure for Assessing Fluent Written Language Production

Authors : Muhammad M. M. Abdel Latif

Published In: Proceedings of the 2008 BAAL Annual Meeting

ISSN: 00-00 **Impact Factor:** 0.0

Abstract :

Fluency has been given peripheral attention and it may be the term with the most varied definitions in writing research. This variance in defining writing fluency reflects the different ways researchers conceptualize it. A few researchers have addressed or referred to the issue of writers' fluency from a process-based perspective. In this study, the researcher argues for measuring writing fluency through the mean length of the translating episodes in writers' think-aloud protocols. The study drew its data from the think-aloud protocols generated by 30 Egyptian EFL university student writers.

<u>Keywords:</u>

Writing fluency; writing process; L2 writing.



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Faculty of Economics and Political Science

Dept. : Economics

Name : Alaa El-Shazly



Title : Investment Under Tax Policy Uncertainty: A Neoclassical Approach

Authors : Alaa El-Shazly

Published In : Public Finance Review

ISSN: 1091-1421

Impact Factor: 0.0

<u>Abstract :</u>

This article studies the impact of investment irreversibility, delivery lags, and adjustment costs on the firm's optimal investment policy in a world of uncertainty. The source of uncertainty is a future change in the corporate profits tax where the timing of this event and the size of associated adjustment in the tax benefit of investing are random. Such a tax uncertainty is particularly evident in reform economies whose authorities consider significant reductions in the corporate tax rate to stimulate business life. It is shown that greater transparency on tax policy promotes the firm's expected net worth and the capital accumulation process.

Keywords:

Tax policy; Uncertainty; Investment.

Faculty of Economics and Political Science

Detp. : Economics

Name : Alaa El-Shazly



Title : Designing an Early Warning System for Currency Crises: An Empirical Treatment

Authors : Alaa El-Shazly

Published In : Applied Economics

ISSN : 0003 - 6846

Impact Factor : 0.0

Abstract :

This article investigates the predictive power of qualitative response models that can serve as the basis for an early warning system for currency crises. It employs a signals framework that monitors the behaviour of key economic variables and issues a warning when their values exceed certain critical levels. The analysis is carried out for a parsimonious specification with high-frequency data. Taking Egypt as a case study, it is shown that this class of probability models captures to a good extent the turbulence in the foreign exchange market and the onset of crises.

Keywords:

Currency crises; Early warning system; Forecasts.

Faculty of Economics and Political Science

Dept. : Statistics

Name : Afaf Mahmoud Mady



- *Title* : Bayesian Procedures for Selecting the Best Population of (k+1) Normal Populations
- Authors : Afaf Mahmoud Mady

Published In: JP Journal of Biostatistics

ISSN : 00-00

Impact Factor: 0.0

<u>Abstract :</u>

Mady (2006) introduced two simple procedures for dealing with patients who arrive during the waiting period, caused by the lag, between the trial and treatment stages for designing an optimal clinical trial when a total of N patients with a disease are to be treated with one of (k + 1) medical treatments. The relative performance of the procedures in the Bayesian framework is discussed when the responses to (k + 1) treatments Π_0 , Π_1 , ..., Π_k are Normally distributed with unknown means $M_0 \ge M_1 \ge \dots \ge M_k$ and a common known variance σ^2 . We notice that when k = 1 the formulae for the expected regret function for procedures 1 and 2 performed by Mady are not equivalent with those of Langenberg and Srinivasan (2). We found that the reason for this situation is as follows. Mady expressed the expected regret function in terms of the true difference (Mo- Mi) while Langenberg and Srinivasan expressed the same function in terms of the absolute difference | M0 - Mi | That is , we must differentiate between two cases i) M0 -Mi ,ii) M0- Mi as the probability of selecting the inferior population has a different formula in each case. This paper will express the expected regret function using procedures 1 and 2 in terms of the absolute value of the true difference between the treatments |M0 - Mi| instead of (M0 - Mi), where M0 and Mi are the unknown means of treatments IIO and III respecticely. The consideration of this modification leads to major changes in the results.

Keywords:

Bayesian approach; Decision theory; Delayed observations.

Faculty of Economics and Political Science

Dept. : Statistics

Name : Afaf Mahmoud Mady



Title : Fixed and Sequential Treatment Allocation in Clinical Trials

Authors : Afaf Mahmoud Mady

Published In: Far East Journal of Theoretical Statistics

ISSN: 00-00 **Impact Factor:** 0.0

<u>Abstract :</u>

The problem of selecting the better of two exponential distributions is considered. It is assumed that there are two treatments available. A patient is given one of these treatments at a point in time, after which his remaining life length has an exponential distribution. The deaths rate θ_1 and θ_2 depend upon the treatments. One wants as few patients as possible to participate so that the number of patients receiving the inferior treatment during the trial is minimized, the trial is brought to as speedy a conclusion as possible and the results are quickly made available to aid in the treatment of other patients with the disease in question. A two stage procedure, similar to the one considered by Colton [1], is given. When a choice has to be made in favor of one of two populations the cost of sampling (experimenting) in order to obtain information on which to base the decision may be balanced against the cost of making the wrong choice. The cost of sampling is assumed to be the cost of an incorrect choice for half the sample (which is divided between the two treatments). Fixed sample size and sequential trials are considered. Bayesian approach is used for determining the optimal size of a fixed sample trial. Minimax, maximin and Bayesian approaches are used for determining the optimal position of the boundaries of a sequential trial. Comparisons of the results for the fixed and sequential trials are considered.

<u>Keywords:</u>

Bayesian approach; Maximin approach; Minimax approach; Sequential Trial.

Faculty of Economics and Political Science

Dept. : Statistics

Name : Afaf Mahmoud Mady



Title : Decision Procedures for Selecting One of Two Normal Population Variances

Authors : Afaf Mahmoud Mady

Published In: Sequential Analysis

ISSN : 00-00

Impact Factor : 0.0

<u>Abstract :</u>

The populations are usually compared with respect to their means to establish superiority of one population over the other or to check if the two populations are equivalent. In this paper we shall compare two normal populations with respect to their variances. The two populations might be two different lots of ammunition and σ_i^2 might be the (population) target dispersion of the ith lot, or the two populations might be two different measuring instruments and σ_i^2 might be the (population) variance of measurement of the ith instrument. This variance, which characterizes the reproducibility of repeated measurements of the same quantity. can be used as an index of the precision of the measuring instrument. There has been only one paper on this subject (Bechhoffer and Sobel (1954)). In this paper we introduce a new approach for choosing between two normal population variances. When a choice has to be made in favor of one of two populations the cost of sampling (experimenting) in order to obtain information on which to base the decision must be balanced against the cost of making the wrong choice. The cost of sampling is assumed to be the cost of an incorrect choice for half the sample (which is divided between the two populations). Fixed sample size and sequential experiments are considered. Bayesian approaches are used for determining the optimal of size of a fixed sample experiment and the optimal position of the boundaries of a sequential experiment.

<u>Keywords:</u>

Bayesian approach; Maximin approach; Minimax approach; Population variances.

Faculty of Economics and Political Science

Dept. : Statistics

Name : Mohamed A. Ismail



Title : Modeling capital structure decisions in a transition market: empirical analysis of firms in Egypt

Authors : Tarek I. Eldomiaty and Mohamed A. Ismail

Published In: Review of Quantitative Finance and Accounting

ISSN: 0924-865X **Impact Factor:** 0.0

<u>Abstract :</u>

It has been realized that none of the three basic theories of capital structure presents a complete answer to the actual determinants of corporate financing decisions. This study attempts to model the practice of capital structure decisions according to the basic premises of each theory of capital structure: trade-off theory, pecking-order theory and free cash flow theory. The methodology addresses modeling long-term and short-term debt financing decisions based on ten different statistical criteria using data from Egypt stock market. The empirical evidence indicates that four models of corporate financing are influenced by the trade-off theory relatively. The contributions of this paper are as follows. First, this study offers a more refined and comprehensive methodology for modeling firms' capital structure decisions. Second, the results of this study compare to those of previous studies of other developing countries and thus add an element of external validity.

<u>Keywords:</u>

Capital structure; Modeling; Subset selection; Egypt.

Faculty of Commerce

Dept. : Accounting

Name : Mohamed A. S. Elbannan



Title : Quality Of Internal Control Over Financial Reporting, Corporate Governance and Credit Ratings

Authors : Mohamed A. Elbannan

Published In: International Journal of Disclosure and Governance

ISSN : 1741-3591

Impact Factor: 0.0

<u>Abstract :</u>

Credit rating is a primary determinant of firm cost of debt capital, capital structure, and hence the range of acceptable investment opportunities. Scant research has been conducted thus far on the relation between internal controls and cost of capital, particularly post the 2002 Sarbanes-Oxley Act. However, academic researchers argue that credit ratings may be affected by internal governance mechanisms instituted by firms and that the quality of internal controls is a potential driver of cost of equity capital. This paper examines whether firm credit ratings is associated with the quality of internal control over financial reporting. Using a sample of firms disclosing internal control weaknesses during November 2003-July 2005, I find that firms with low internal control quality are more likely to have lower credit ratings, speculative-grade rating, smaller size, lower profitability, lower cash flows from operating activities, net losses in the current and prior fiscal year, higher income variability, and higher leverage than firms compared to firms with high quality controls.

Further, lower quality controls decrease the likelihood of a firm receiving an investment-grade debt rating; hence, resulting in higher cost of debt financing, lower income, and lower overall attractiveness in capital markets for these firms. Finally, results also suggest that corporate governance strength is positively related to internal control quality. Study results should be useful to a wide range of academic and business readers, since it suggests the increasing importance of firm internal controls in financing decisions and cost of capital determination, of investment in proper internal controls and of exploring the various possibilities from instituting high quality internal controls. Additionally, regulators are advised to take into consideration the potential effect of legislation on firm credit ratings and internal control quality.

Keywords:

Credit Ratings; Internal Controls; Corporate Governance; Sarbanes-Oxley Act 2002; Archival Research.

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Faculty of Commerce

Dept. : Accounting

Name : Tariq Hassaneen Ismail



0.0

Cairo University

- *Title* : Board of Directors' Governance Challenges and Earnings Management
- Authors: Tariq H. Ismail and Ruth W. Epps

Published In: Accounting and Organizational Change

ISSN : 1832-5912 **Impact Factor :**

<u>Abstract :</u>

The purpose of this paper is to examine the relationship between corporate governance and earnings management in US context and provide further insights on the effects of board of directors' characteristics on earnings management.

The paper uses a sample of three groups of US firms; where firms with relatively high negative, firms with relatively high positive, and those with low levels of discretionary accruals in the year 2004 are examined. Descriptive statistics, univariate analysis, multivariate analysis, board of directors' characteristics, and possible relationships between corporate governance variables and earnings management proxy provide the basis for discussion.

Results reveal that firms with annually elected boards, small size boards, 100 percent independent nominating committees, and 100 percent independent compensation committees have more negative discretionary accruals. However, firms with 75-90 percent independent board or firms with a board size of between nine and 12 have higher positive discretionary accruals.

In contrast to prior literature, where board composition is defined as an insiders- or outsiders-controlled board, this paper classifies board composition into seven discrete categories, using the same seven categories employed by Institutional Shareholder Services in evaluating and assigning corporate governance quotient scores to firms. The paper's major contributions to the existing literature are its findings that income-increasing and income-decreasing discretionary accruals have a different relationship with corporate governance practices and its expansion of the scope of corporate governance from board independence and audit committee independence to other corporate governance characteristics. This paper provides evidence that supports US regulators' initiatives that stronger corporate governance mechanisms provide greater monitoring of the financial accounting process and may be the important factors in improving the integrity of financial reporting.

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Keywords:

Boards of directors; Compensation; Corporate governance; Earnings; United States of America.

Faculty of Commerce

Dept. : Accounting

Name : Tariq Hassaneen Ismail



0.0

Title : Determinants of auditors' perceptions of the work needed in the audit of internet-based financial reports in Egypt

Authors: Tariq H. Ismail and Nermeen Sobhy

Published In: Applied Accounting Research

ISSN: 0967-5426 **Impact Factor**:

Abstract :

The purpose of this paper is to constitute and test a framework of factors that might affect auditors' perceptions of the work needed to audit internet-based financial reports (IBFR).

The paper conducts a questionnaire on practicing auditors from audit firms in Egypt in the year 2007 to examine their perceptions of the work needed to audit IBFR and factors that might affect their perceptions. The paper portrays total auditors' perceptions as a function of four dimensions. First, auditor personal-specific characteristics (consisting of three variables); second, audit fieldwork-specific characteristics (containing one variable); third, audit firm-specific characteristics (consisting of four variables); and fourth, environmental-specific characteristics (consisting of four variables) .

The analysis of empirical study provides evidence of a significant association between auditors' perceptions of the work needed to audit IBFR and the following factors: auditors' knowledge of inherent risks of internet reporting, quality systems, audit tenure, legal form of client, client industry group, user needs of financial information, and legislation environment.

This paper enriches the literature on internet reporting and audit tasks by exploring factors that might affect auditors' perceptions of the work needed to audit IBFR. The paper provides evidence that supports Egyptian regulators' initiatives to issue guidelines that cover IBFR, and auditors' responsibilities and the work needed in the audit of IBFR in electronic business environments in an attempt to improve the integrity of financial reporting.

Keywords:

Auditors; Perception; Personality; Internet; Financial reporting; Egypt.

Faculty of Commerce

- **Dept.** : Business Administration
- Name : Ehab M. Abou Aish



The Importance of Character Education for Tweens as

- *Title* : Consumer: A Conceptual Model with Prospects for Further Research
- Authors: Noha El-Bassiouny, Ahmed Taher and Ehab Abou Aish (6)(2) Dec. 2008

Published In: Journal of Research in Character Education

ISSN : 1543-1223 **Impact Factor :** 0.0

<u>Abstract :</u>

Tweens is a term that denotes a market segment mentality that falls between children at the lower end and teens at the upper end. Tweens marketing strategies are considered critical for most global brands. Advocates against excessive consumerism and materialism polluting innocent childhood, specifically tweens, call for values implantation through character education in the school to breed more educated consumers. In Egypt character education is a new trend that is eliciting much public interest. The effect of implanting character building programs in schools on the consumer behavior of the exposed children in the marketplace, however, has never been tested before. Such a research endeavor is, in essence, an overlap between consumer behavior and educational psychology, investigating the link between personality and behavior in the market. It falls under both positivist and interpretive consumer research, specifically the consumer socialization of children. The aim of this work is to develop a conceptual model linking character education to purchasing lifestyles and consumption patterns of the exposed children as current and potential consumers. Then, prospects for future research are highlighted.

Keywords:

Character Education; Attitudes and Lifestyles; Opinion-Leadership; Humanitarianism; Ethnocentrism; Egypt.

Cairo University, top 50 Authors,

A- According to no of publications

- B- According to total citations
- C- According to *h-index*
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B- Cairo University, Top 50 Authors, According to total citation

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Hazem Ali Attia	Faculty of Engineering, Electrical Power and Machines Department	10
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C- Cairo University, Top 50 Authors, According to h-index

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