Kafrelsheikh University Prizes For

Discretionary, Incentive And
Published Research Articles
In International R eviewed Journals

10th Edition 2015-2016

PROF.DR.MAGED EL-KAMARY

President, Kafrelsheikh University

Dearv Faculty member

It is our pleasure to express our congratulations to the authors of the papers published in the impacted international Journals, and I invite them with the rewarded colleagues for the incentive and appreciation University prizes to celebrate and receive their awards in the 7th annual university ceremony. Actually, we extend our hands to all researchers in the university and promise them that we will stand and support anyone who has the willing to conduct a useful and valuable research deals and contributes for solving the existing problems. Our university needs your efforts and contributions in order to satisfy the quality standards in education and research and occupy remarkable position among the world wide universities. Finally, I wish for all great success and more achievements to enhance the higher education in Egypt.

PROF.DR.EL SAYED MOHAMED HEGAZI

Vice-President Postgraduate Studies & Researches

Dear Colleagues

It's well known that the University Scientific Research is the backbone of any community development. So, the main objective of the University post graduate and research sector is inspiring their staffs who are able to invent and perform distinguished research proposals could compete globally.

Kafrelsheikh University will be aspiring, remarkable and could be ranked among highly recognition through the efforts of their honest personnel.

Congratulations for the rewarded colleagues the international scientific contribution, appreciation and encouragement incentive University prizes, hoping continuous illustrious achievement for them .

CONTENT

Award of Kafrelsheik University

DISCRSTIONARY AWARDS

10th Edition 2015-2016

للأستـاذ الدكتـور/ إبراهيـم محمـد أمــان

الأستاذ بكلية الطب البيطرى ونائب رئيس الجامعة السابق

	البيانات الشخصية :

أمــــان	إسـم العائلــة :
إبراهيم محمد إبراهيم أمان	الاســـم :
1955/8/4م	تاريـخ الميـلاد :
البحيــرة	مـحل الميــلاد :
مصـرى	الجنسيــة :
متزوج ويعول	الحالة الاجتماعية :
25 شارع الرصافة محرم بك الإسكندرية	الإقامــة :
جامعة كفر الشيخ	عنـوان العمـل :
0473213750	العمـل : ☎
03/4957079	المنـزل : ☎
01225065526	محمول :
iaman@vet.kfs.edu.eg	البريد الإلكـتروني :
أستاذ مراقبة الأغذية بكلية الطب البيطرى	الوظيفة الحاليــة :
الإنجليزية والألمانية	اللغات الأجنبيــة :

الدرجات العلمية

التاريخ	الدرجة	الكلية/الجامعة	المدة/ سنة	التاريخ
1979	بكالوريوس العلوم الطبية البيطرية	الطب البيطرى/القاهرة	5	1974-1979
1985	ماجستير فى الرقابة الصحية على الألبان ومنتجاتها	الطب البيطرى/القاهرة	3	1982-1985
1990	دكتوراة فى الرقابة الصحية على الألبان ومنتجاتها	الطب البيطرى/القاهرة	5	1985-1990

التدرج الوظيفى (من الأحدث الى الأقدم)

الأعمال المنوطة بالوظيفة	الوظيفــة	المكـــــان	التاريخ
العمل على زيادة موارد الجامعة والتواصل مع المجتمع المدنى لتقديم خدمات لهم وحل مشكلاتهم .	نائب رئيس الجامعة لشئون خدمة المجتمع وتنمية البيئة	جامعة كفرالشيخ	61/10/2012 - 6/10/2014
ادارة الشئون المالية والإدارية والعلمية بالجامعة من خلال رئاسة مجلس الجامعة	نائب رئيس الجامعة لشئون الدراسات وقائم بعمل رئيس الجامعة	جامعة كفرالشيخ	1/8/2011- 1/11/2011
الدراسات العليا والبحوث بالجامعة وشئون أعضاء هيئة التدريس	نائب رئيس الجامعة للدراسات العليا والبحوث	جامعة كفر الشيخ	7/10/2006- 15/10/2012
العمل على زيادة موارد الكلية والتواصل مع المجتمع المدنى لتقديم خدمات لهم وحل مشكلاتهم .	وكيل الكلية لشئون خدمة المجتمع وتنمية البيئة جامعة طنطا	كلية الطب البيطري بكفر الشيخ جامعة طنطا	09/2005 – 06/10/2006
- تدريس الجزء النظرى والعملى للطلاب ـ تدريس مقررات الدراسات العليا بالقسم (دبلوم-ماجستير-دكتوراة) ـ الأشراف على رسائل الماجستير والدكتوراه	أستاذ ورئيس قسم مراقبة الأغذية- جامعة طنطا	كلية الطب البيطري بكفر الشيخ جامعة طنطا	2000-2005

- تدريس الجزء النظرى والعملى للطلاب - تدريس مقررات الدراسات العليا بالقسم (دبلوم-ماجستير-دكتوراة) - الأشراف على رسائل الماجستير والدكتوراة	- أستاذ مساعد وقائم بعمل رئيس قسم مراقبة الأغذية- جامعة طنطا	كلية الطب البيطري بكفر الشيخ جامعة طنطا	1995-2000
- تدريس الجزء النظرى والعملى للطلاب - تدريس مقررات الدراسات العليا بالقسم (دبلوم-ماجستير-دكتوراة)	مدرس بقسم مراقبة الأغذية جامعة القاهرة	كلية الطب البيطري بكفر الشيخ جامعة القاهرة	1991-1995
- تدريس الجزء العملى لطلاب الفرقة الرابعة بالكلية	مدرس مساعد بقسم مراقبة الأغذية- جامعة القاهرة	كلية الطب البيطري ببنى سويف جامعة القاهرة	1985-1991
- تدريس الجزء العملى لطلاب الفرقة الرابعة بالكلية	معيد بقسم مراقبة الأغذية جامعة القاهرة	كلية الطب البيطري ببنى سويف جامعة القاهرة	1982-1985

Award of Kafrelsheik University

Incentive AWARDS

10th Edition 2015-2016

الدكتور محسن محمد عبد الرحمن عبد الله الشرقاوى

مدرس ـ قسم النبات الزراعى ـ كلية الزراعة ـ جامعة كفرالشيخ

الإسم	:	محسن محمد عبد الرحمن عبد الله الشرقاوى
تاريخ الميلاد	:	1978/10/01م
مكان الميلاد	:	كفرالشيخ **الحالة الاجتماعية** :متزوج
الوظيفة	:	مدرس ـ قسم النبات الزراعى ـ كلية الزراعة ـ جامعة كفرالشيخ
العنوان	:	قسم النبات الزراعى ـ كلية الزراعة ـ جامعة كفرالشيخ ـ 33516
تليفون	:	01065772170 **البريد الالكترونى:-** elsharkawy007@gmail.com

المؤهلات العلمية:

1-بكالوريوس العلوم الزراعية (أمراض نبات) ـ كلية الزراعة ـ جامعة طنطا ـ فرع كفرالشيخ ـ يونيو 1999.

2-ماجستير العلوم الزراعية (أمراض نبات) كلية الزراعة ـ جامعة طنطا ـ فرع كفرالشيخ ـ أغسطس 2005.

عنوان رسالة الماجستير: "دراسات بيولوجية وسيرولوجية على بعض الفيروسات التى تصيب المحاصيل البقولية".

3-دكتوراه فلسفة العلوم الزراعية (أمراض نبات) ـ جامعة جيفو- اليابان سبتمبر 2012.

عنوان رسالة الدكتوراه: "استخدام الفطريات المحفزة للنمو لإحداث المقاومة المستحثة فى نباتات الأرابيدوبسيس والدخان والخيار ضد فيروس تبرقش الخيار".

الوظائف والتدرج الوظيفي:

الوظيفـــة	المكـــان	الزمـــان
معيد بقسم النبات الزراعى	قسم النبات الزراعى ـ كلية الزراعة بكفرالشيخ ـ جامعة طنطا	2000/11/12
مدرس مساعد	قسم النبات الزراعى ـ كلية الزراعة ـ جامعة كفرالشيخ	2005/9/28
أجازة دراسية للحصول على الدكتوراة من اليابان 2008/10/3 الى 2012/10/4		
مدرس	قسم النبات الزراعى ـ كلية الزراعة ـ جامعة كفرالشيخ	2012/10/22

المهمات العلمية:

1. مهمة علميه لدراسات ما بعد الدكتوراة ممولة من البعثات الى اليابان- جامعه جيفو من 2013/9/19 الى 2014/4/20

الإعارات : لا يوجد

وقد استخرجت هذه البيانات بناءا على طلب سيادته وذلك لتقديمها الى الجامعة ضمن المستندات المطلوبة للتقدم للحصول على جائزة الجامعة التشجيعية في العلوم الزراعية.

Award of Kafrelsheik University

Incetive State Awards

10th Edition 2015-2016

Professor Dr. Al y Soliman Derbalah

Professor of Pesticides Chemistry and Toxicology

1. Personal details

Name : Aly Soliman Hamed Derbalah

Title: Professor of Pesticides Chemistry and Toxicology

Work address: Pesticides Chemistry and Toxicology Department, Faculty of Agriculture, Kafr-El-Shiekh University, 33516 Egypt

Mobile: 01004819474

Email : aliderbalah@yahoo.com -   ali.derbala@agri.kfs.edu.eg

 Date of birth : 23 /7/1972

2. Academic qualifications

B S$_C$. In Agricultural Sciences (Pesticides) Tanta University, Kafr El-Shiekh Egypt 1994

M Sc In Agricultural Sciences (Pesticides) Tanta University Kafr El-Shiekh Egypt 1999

PhD in Agricultural Sciences (Pesticides) Hiroshima University, Japan 2004

3. Employment History

1. Demonstrator in Pesticides Chemistry and Toxicology Department, Faculty of Agriculture Kafr-Elshiekh, Tanta University , Egypt September 1994

2. Assistant lecturer in Pesticides Chemistry and Toxicology Department, Faculty of Agriculture Kafr-Elshiekh, Tanta University , Egypt June 1999

3. Assistant professor in Pesticides Chemistry and Toxicology Department, Faculty of Agriculture Kafr-Elshiekh, Tanta University , Egypt December 2004

4. Associate professor in Pesticides Chemistry and Toxicology Department, Faculty of Agriculture, Kafr-Elshiekh University, Egypt January 2010

5. Professor in Pesticides Chemistry and Toxicology Department, Faculty of Agriculture, Kafr-Elshiekh University, Egypt January 2015

4. Field of interest

 Analysis and remediation technologies of pesticide residues in different environmental matrixes-Alternatives of pesticides to control agricultural pests

5. Publications

Published over 60 papers in international and local journals in the field of environmental pollution and pest control. Published four books in English and Arabic languages

6. Awards

1.Kafr-El-Shiekh University award for international publication 2009-2015

2. Faculty of Agriculture award for the best applied research in the environmental sciences 2009.

3.Selected in biographical record in the 27th (2010) edition of Who's Who in the World (publication date November 18, 2009), inclusion in which is limited to those individuals who have demonstrated outstanding achievement in their own fields of endeavor and who have, thereby, contributed significantly to the betterment of contemporary society.

4. Dr. Ibrahim El-Assiouti Prize for the development of water resources, one of the individual prizes awarded by Egyptian Academy of Sciences and Technology 2010.

5. The best young Arab scientist prize in Sustainable Management of Water Resources in the Arab Region from Italian Academy for the development of sciences in the third world country 2012

6. Kingdom of Saudi Arabia international prize in environmental management 2012.

7. Incentive State Prize in Agricultural Sciences 2014 from Egyptian Academy of Sciences and Technology,2014.

7. Other activities

1.Reviewer and editorial board in more than 15 International Journals in the field of environmental sciences and crop protection

2.Coordinated by the Ministry of Agriculture for the training course of agricultural engineers working in the field of pesticides trading

3.Principle investigator and research team member in several research projects from Ministry Agriculture and Kaf El-Sheikh University

Award of Kafrelsheik University

The Best MS.C AWARDS

10th Edition 2015-2016
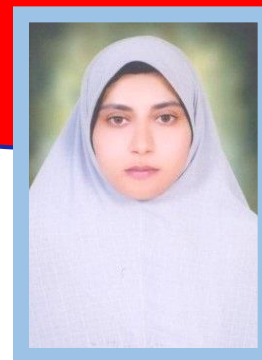
الذاتية السيرة

أولا :بيانات عامة

الاسم   :ابتسام محمد ابراهيم ابوالجلاجل
الوظيفة الحالية :مدرس مساعد بقسم الكيمياء/ كلية العلوم/ جامعة كفرالشيخ.
تاريخ الميلاد. 20/2/1982   :
العنوان : نشرت – قلين - كفرالشيخ.
البريد الالكترونيebtisam_mi@yahoo.com :

ثانيا :المؤهلات العلمية :

الجامعة / المؤسسة التعليمية	سنة الحصول على الدرجة	الدرجة العلمية
جامعة طنطا	**2015**	**1-الماجستير**
جامعة طنطا -كلية التربية – فرع كفرالشيخ	بكالوريوس علوم و تربية مايو2003	**3-البكالوريوس**
جامعة المنوفية-كلية العلوم	بكالوريوس علوم -شعبة -كيمياء خاصة مايو2009	

ثالثا : " (التدرج الوظيفي الأكاديمي) الداخلي والخارجي:

اسم المؤسسة	سنة الالتحاق بها	الوظيفة
جامعة طنطا – كلية التربية فرع كفر الشيخ	2004	معيدة بقسم الكيمياء والفيزياء) كيمياء (
جامعة كفر الشيخ -كلية العلوم	2009	معيدة بقسم الكيمياء
جامعة كفر الشيخ -كلية العلوم	2016	مدرس مساعد بقسم الكيمياء

رابعا :"الدورات التدريبية فى مجال نظم إدارة الجودة :

- نظام الساعات المعتمدة**.**

- استخدام التكنولوجيا في التدريس**.**

- الجوانب المالية في الجامعات**.**

- الجوانب القانونية في الأعمال الجامعية**.**

- الرخصة الدولية لقيادة الحاسب الآلي**.(ICDL)**

- التقويم الذاتي لمؤسسات التعليم العالي**.**

- النشر العلمى الولى •

خامسا :الأنشطة المختلفة في مجال النانوتكنولوجى /مشروعات بحثية /رسائل علمية:
عنوان الرسالة" تحضير ودراسة مواصفات بوليمرات مطعمة بأكاسيد المعادن ذات الأبعاد النانومترية"

سادسا :الأبحاث المنشورة

-N.Salahuddin, M.El-Kemary, E.M.Ibrahim. Synthesis and characterization of ZnO nanotubes by hydrothermal method. International Journal of Scientific and Research Publications 2015; 5(9):1-4.

-N.Salahuddin, M.El-Kemary, E.M.Ibrahim. Synthesis and characterization of ZnO nanoparticles via precipitation method: effect of annealing temperature on particle size. Nanoscience and Nanotechnology 2015, 5(4): 82-88.

- N.Salahuddin, M.El-Kemary, E.M.Ibrahim. High-Performance Flexible Epoxy/ZnO Nanocomposites with Enhanced Mechanical and Thermal properties. Submitted.

-M.El-Kemary, N.Salahuddin, E.M.Ibrahim. Reinforcement of polymethyl methacrylate denture base resin with ZnO nanostructures. Submitted.

-N.Salahuddin, M.El-Kemary, E.M.Ibrahim. Highly Dispersed Nanotubes Zinc Oxide/Epoxy Resins with Improved Thermal and Mechanical Properties. Submitted.

Award of Kafrelsheik University

Administration Excellence Awards

10th Edition 2015-2016

الاستاذ / أيمن السعبد السيد أحمد عبد الله

مدير إدارة مكتب نائب رئيس الجامعة لشئون الدراسات العليا والبحوث

الاستاذ / محمد فتحي رزق أحمد نجم

رئيس قسم رعاية الشباب ومنسق الكتروني للقبول بالمدن الجامعية

الأستاذ / مصطفى محمود هراس

أمين كلية الطب البشري

الأستاذ/ شعبان محمد الخطيب

أمين كلية الصيدلة والتصنيع الدوائي

Kafrelsheikh University Staff Members Who Published Their Articles In International Scientific Journal 2015/2016

10th Edition 2015-2016

LIST OF ACCEPTED PAPERS

	Faculty of Agricultural			
No.	**Title**	**Authors**	**Title Journals**	**Impact Factor**
1	Performance of forest tree Khaya senegalensis (Desr.) A. Juss. under sewage effluent irrigation	Hayssam M. Ali , Manzer H. Siddiqui, Mohamed H. Khamis, Fatma A. Hassan, Mohamed Z.M. Salem, **El- Sayed M. El-Mahrouk**	Ecological Engineering 61 (2013) 117– 126, ISSN: 0925-8574	**2.58**
2	Usage of sewage effluent in irrigation of some woody tree seedlings. Part 3: Swietenia mahagoni (L.) Jacq.	Hayssam M. Ali **EL-Sayed M. EL-Mahrouk** , Fatma A. Hassan , Mohamed A. EL-Tarawy	Saudi Journal of Biological Sciences (2011) 18, 201–207, ISSN: 1319-562X	**1.257**
3	Bacteriocin-producing Enterococcus faecalis KT2W2G isolated from mangrove forests in southern Thailand: Purification, characterization and safety evaluation	Aran H-Kittikun , Vanessa Biscola , **Shady El-Ghaish** , Emmanuel Jaffres , Xavier Dousset ,Guillaume Pillot , Thomas Haertl, Jean-Marc Chobert Noraphat Hwanhlem	Food Control 54 (2015) 126e134,ISSN: 0925-8574	**2.806**

LIST OF ACCEPTED PAPERS

Faculty of Agricultural

4	Kitchen Bio-Wastes Management by Vermicomposting Technology	**Said Elshahat Abdallah,** Wael Mohamed Elmessery	AMA-Agricultural Mechanization in Asia Africa and Latin America.VOL.46 NO.3 2015;ISSN: 0084-5841	**0.009**
5	Evaluation of Selected Cucumis sativus Accessions for Resistance to Pseudoperonospora cubensis in Egypt	**Elmahdy Ibrahim METWALLY** and Mohamed Tawfik RAKHA	*Czech J. Genet. Plant Breed., 51, 2015 (2): 68–74*	**0.364**
6	Bacteriocin production and safety evaluation of non-starter Enterococcus faecium IM1 and Enterococcus hirae IM1 strains isolated from homemade Egyptian dairy products	**S. El-Ghaish · A. El-Baz · N. Hwanhlem · M. Zommara ·** **E. Ayad · Y. Choiset · T. Haertlé · J.-M. Chobert**	Eur Food Res Technol (2015) 240:1211–1223,ISSN: 1438-2377	**1.559**
7	Chemical Composition And Amounts Of Mineral Elements In Honeybee-Collected Pollen In Relation To Botanical Origin	**El-Kazafy Abdou Taha**	J. APIC. SCI. Vol. 59 No. 1 2015,ISSN:1643-4439	**1.000**
8	Morphometric studies on dwarf honey bee Apis florea F. workers in Saudi Arabia	Saad N. AL-Kahtani **EL-Kazafy A. Taha**	J. APIC. SCI, Vol. 58 No. 1 2014, Pages 127–134,, ISSN:1643-4439	**1.000**
9	Effect of photosynthetic photon flux density on growth,photosynthetic competence and antioxidant enzymes activity during ex vitro acclimatization of Dieffenbachia cultivars	**M. E. El-Mahrouk** • Y. H. Dewir • H. N. Murthy • H. Z. Rihan H. S. Al-Shmgani • M. P. Fuller	Plant Growth Regulation ISSN: 0167-6903, (**Pub. On line)**	**1.672**

LIST OF ACCEPTED PAPERS

Faculty of Agricultural

10	Genetic Analysis Of Growth Traits In The Progeny Of Rabbit Does From A Diallel Cross	MÍNGUEZ C, SÁNCHEZ J.P, BRUN J.M**., RAGAB, M**., EL NAGAR, A.G. $, BASELGA, M.$	World Rabbit Sci. 2015, 23: 211-224, ISSN: 1257-5011	**0.821**
11	Genetic Analysis Of Slaughter And Carcass Quality Traits In Crossbred Rabbits Coming From A Diallel Cross Of Four Maternal Lines	MÍNGUEZ C., SÁNCHEZ J.P., **RAGAB M**., EL NAGAR A.G.§ , BASELGA M.§	World Rabbit Sci. 2015, 23: 225-239,, ISSN: 1257-5011	**0.821**
12	Growth traits of four maternal lines of rabbits founded on different criteria: comparisons at foundation and at last periods after selection	C. M_inguez[1], J.P. Sanchez, A.G. EL Nagar, **M. Ragab**, & M. Baselga	J. Anim. Breed. Genet. ISSN 0931-2668 (**Pub. On line**)	**1.566**
13	Fasciation in Crassula argentea: molecular identification of phytoplasmas and associated antioxidative capacity	Yaser Hassan Dewir & **Ayman Faisal Omar** & Yaser Mohamed Hafez & Mohammed El-Sayed El-Mahrouk & Rasha Yousef Mourad	Phytoparasitica, ISSN: 0334-2123, February 2016, Volume 44, Issue 1, pp 65-74	**0.901**
14	Biochemical, Histological and Molecular Changes in Susceptible and Resistant Wheat Cultivars Inoculated with Stripe Rust Fungus Puccinia striiformis f. sp. tritici	**Abdelaal, Kh. A**. A.; Y. M. Hafez; M. M. Badr; W. A. Youseef and Samar M. Esmail	Egyptian Journal of Biological Pest Control, 24(2), 2014, 421-429, ISSN: 1110-1768	**0.273**
15	Impact of Non-traditional Compounds and Fungicides on Physiological and Biochemical Characters of Barely Infected with Blumeria graminis f. sp. hordei under Field Condtitions	Hafez, Y. M.; R. Y. Mourad; M. Mansour and **Kh. A. A. Abdelaal**	Egyptian Journal of Biological Pest Control, 24(2), 2014, 445-453, ISSN: 1110-1768	**0.273**

LIST OF ACCEPTED PAPERS

Faculty of Agricultural

16	Role of non-traditional treatments in inducing resistance against wheat leaf rust caused by Puccinia triticina	Omara, R.I.; S.M. Kamel; **Y. M. Hafez**, and S.Z. Morsy	Egyptian Journal of Biological Pest Control ISSN: 1110-1768	**0.273**
17	Staying alive e is cell death dispensable for plant disease resistance during the hypersensitive response?	Andr_as Künstler , Ren_ata Bacs , G_abor Gullner **, Yaser Mohamed Hafez,** L_or_ant Kir_aly	Physiological and Molecular Plant Pathology 93 (2016), ISSN: 0885-5765	**1.407**
18	Micropropagation of Cattleya: Improved In Vitro Rooting and Acclimatization	**Yaser Hassan Dewir,** Mohammed Elsayed El-Mahrouk, Hosakatt , Niranjana Murthy, and Kee Yoeup Paek	Hort. Environ. Biotechnol. 56(1):89-93. 2015. ISSN: 2211-3452	**0.725**
19	Hyperhydricity In African Violet (Saintpaulia Ionantha H. Wendl) – Biochemical Aspects Of Normal Versus Hyperhydric Shoots Regenerated Via Direct Adventitious Shoots Formation	**Yaser Hassan Dewir**, Mohammed El-Sayed El-Mahrouk, Yaser Mohamed Hafez, Jaime A. Teixeira da Silva, and Yougasphree Naidoo	Propagation of Ornamental Plants, Vol. 15, № 2, 2015: 53-62,ISSN: 1311-9109	**0.346**
20	In vitro propagation and preliminary results of Agrobacterium-mediated genetic transformation of Cordyline fruticosa	**Y.H. Dewir** , M.E. El-Mahrouk , A.N. El-Banna	South African Journal of Botany 98 (2015) 45–51	**0.978**
21	Photosynthetic and biochemical characterization of in vitro-derived African violet (Saintpaulia ionantha H. Wendl) plants to ex vitro conditions	**Yaser Hassan Dewir**, Mohammed El-Sayed El-Mahrouk, Hanady Salim Al-Shmgani, Hail Z. Rihan, Jaime A. Teixeira da Silvaf & Michael P. Fuller	Journal of Plant Interactions, 2015, Vol. 10, No. 1, 101–108,	**0.865**

LIST OF ACCEPTED PAPERS

Faculty of Agricultural

22	Improving Fruit Set, Yield and Fruit Quality of Date Palm (Phoenix dactylifera, L. cv. Mnifi) Through Bunch Spray With Boron and Zinc	**Alaa El-Din K. Omar**, M. A. Ahmed, and R.S. Al-Obeed	Journal of Testing and Evaluation,Vol. 43 / No. 4 / July 2015,ISSN: 0090-3973	**0.379**
23	Determining pesticide residues in honey and their potential risk to consumers	Fawzy Eissa1, Sanaa El-Sawi and **Nour El-Hoda Zidan**	The Polish Journal of Environmental Studies, 23(5): 1573-1580, ISSN: 1230-1485	**0.871**
24	Giant reed for selenium phytoremediation under changing climate	Hassan R. El-Ramady ·Neama Abdalla, ·Tarek Alshaal, · **Ahmed S. Elhenawy** Mohamed S. Shams ·Salah E.-D. A. Faizy	Environ Chem Lett (2015) 13:359–380, ISSN: 1610-3653	**2.573**
25	Recent Trends for Bio-Controlling the Tomato Late Blight under Field Conditions	**A.M. Hamza**; A.A.A. Mohamed, A. S. Derbalah	Egyptian Journal of Biological Pest control 25(1) 2015 145-151, ISSN: 1110-1768	**0.273**
26	Observed-Predicted Shifts in Thermodynamic Functions of Water Adsorption by Smectite at Nanoscale	Adel Elprince, **Mohamed Saffan**, Mohammed Zabidi	Soil Science Society of America Journal, ISSN: 0361-5995, **Pub. On line**	**1.721**
27	Selenium and nano-selenium in plant nutrition	**Hassan El-Ramady** ·Neama Abdalla ·Hussein S. Taha ·Tarek Alshaal ·Ahmed El-Henawy ·Salah E.-D. A. Faizy ·Mohamed S. Shams	Environ Chem Lett, ISSN: 1610-3653. (2016) 14:123–147	**2.573**
28	Copper Uptake Efficiency and Its Distribution Within Bioenergy Grass Giant Reed	N. Elhawat, • **T. Alshaal, E.** Domokos-Szabolcsy • H. El-Ramady,G. Antal• L. Ma´rton	Bull Environ Contam Toxicol (2015) 95:452–458, ISSN: 0007-4861	**1.255**

LIST OF ACCEPTED PAPERS

Faculty of Agricultural

29	Distribution coefficients of cadmium and zinc in different soils in mono-metal and competitive sorption systems	**Sabry M. Shaheen**, Christos D. Tsadilas, Holger Rupp, Jo¨ rg Rinklebe, and Ralph Meissner	J. Plant Nutr. Soil Sci. 2015, 178, 671–681,ISSN: 1436-8730	**1.459**
30	Miscellaneous additives can enhance plant uptake and affect geo- chemical fractions of copper in a heavily polluted riparian grassland soil	Jörg Rinklebe , **Sabry M.Shaheen**	Ecotoxicology and EnvironmentalSafety119(2015)58–65,ISSN: 0147-6513	**2.762**
31	Amendment of biochar reduces the release of toxic elements under dynamic redox conditions in a contaminated loodplain soil	Jorg Rinklebe , **Sabry M. Shaheen ,** Tina Frohn	Chemosphere 142 (2016) 41–47, ISSN: 0045-6535	**3.34**
32	Phytoextraction of potentially toxic elements by Indian mustard, rapeseed, and sunflower from a contaminated riparian soil	**Sabry M. Shaheen** . Jo¨rg Rinklebe	Environ Geochem Health ,ISSN: 1573-2983, **Pub. On line**	**2.566**
33	**Redox effects on release kinetics of arsenic, cadmium, cobalt, and vanadium in Wax Lake Deltaic freshwater marsh soils**	**Sabry M. Shaheen**, Jörg Rinklebe, Tina Frohne, John R. White, Ron D. DeLaune	Chemosphere, ISSN: 0045-6535,150(2016)740-748.	**3.340**
34	Fractionation and Mobilization of Toxic Elements in Floodplain Soils from Egypt, Germany, and Greece: a Comparison Study1	**Sabry M. Shaheen**, Jörg Rinklebeb, and Christos D. Tsadilas	Eurasian Soil Science, 2015, Vol. 48, No. 12, pp. 1317–1328و ISSN 1064-2293	**0.628**
35	Exploiting biogeochemical and spectroscopic techniques to assess the geochemical distribution and release dynamics of chromium and lead in a contaminated floodplain soil	J€org Rinklebe a,, **Sabry M. Shaheen** , Felix Schr€oter , Thilo Rennert	Chemosphere 150 (2016) 390e397	**3.340**

LIST OF ACCEPTED PAPERS

Faculty of Agricultural

36	Monitoring and remediation technologies of organochlorine pesticides in drainage water	Ahmed Ismail, **Aly Derbalah**, Sabry Shaheen	Polish Journal of Chemical Technology, 17, 1, 115 —Po l1. 2J2., ISSN: 1509-8117	**0.536**
37	Performance of Some Fungicide Alternatives for Controlling Powdery Mildew on Cucumber under Greenhouse Conditions	A. M. Hamza; T.A. Essa; **A.S. Derbalah** and A.A. Mohamed	Egyptian Journal of Biological Pest Control, ISSN: 1110-1768	**0.273**
38	Recent Approaches for Controlling Downy Mildew of Cucumber under Greenhouse Conditions	*Ahmed Mohamed , Amany Ham za and* **Aly Derbalah**	*Plant Protect. Sci. Vol. 52, 2016, No. 1: 1–9*, ISSN: 1212-2580	**0.597**
39	Hierarchical Nanohexagon Ceramic Sheet Layers as Platform Adsorbents for Hydrophilic and Hydrophobic Insecticides from Agricultural Wastewater	**Aly Derbalah**, Sherif A. El-Safty, Mohamed A. Shenashen, and Mohamed Khairy	ChemPlusChem 2015, 80, 1769 – 1778,ISSN: 2192-6506	**3.026**
40	Mesoporous Alumina Nanoparticles as Host Tunnel-like Pores for Removal and Recovery of Insecticides from Environmental Samples	**Aly Derbalah**, Sherif A. El-Safty, Mohamed A. Shenashen, and Nabil A. Abdel Ghany	ChemPlusChem 2015, 80, 1119 – 1126, ISSN: 2192-6506	**3.026**
41	Mechanism of induced systemic resistance against anthracnose disease in cucumber by plant growthpromoting fungi	**Mohsen Mohamed Elsharkawy**, Manchanahally Byrappa Shivanna, Manchanahally Shivanna Meerab & Mitsuro Hyakumachi	Acta Agriculturae Scandinavica, Section B — Soil & Plant Science, 2015و ISSN: 0906-4710	**0.646**

LIST OF ACCEPTED PAPERS

		Faculty of Agricultural		
42	Control of tomato bacterial wilt and root-knot diseases by Bacillus thuringiensis CR-371 and Streptomyces avermectinius NBRC14893	**Mohsen Mohamed Elsharkawy**, Mai Nakatanib, Mitsuyoshi Nishimurab, Tatsuyuki	Acta Agriculturae Scandinavica, Section B,Soil & Plant Science, 2015,Vol. 65, No. 6, 575–580, ISSN: 0906-4710	**0.646**
43	Assessment of Urban Sprawl on Agricultural Soil of Northern Nile Delta of Egypt Using RS and GIS	Adel SHALABY1, **Farahat Saad Moghanm**	Chin. Geogra. Sci. 2015 Vol. 25 No. 3 pp. 274–282, ISSN: 1002-0063	**0.877**
44	Establishment of high-efficiency Agrobacterium-mediated transformation conditions of soybean callus	**Ismael, Khatab A** Antar, El-Banna N	INDIAN JOURNAL OF BIOTECHNOLOGY, Vo;.13.2014,pp.459-463	**0.386**
45	Growth perturbation, abnormalities and mortality of oriental armyworm Mythimna separata (Lepidoptera:Noctuidae) caused by silica nanoparticles and Bacillus thuringiensis toxin.	**Mousa K.M**.; M.M. Elsharkawy; I.A. Khodeir; T.N El-Dakhakhni and A.E Youssef	Egyptian Journal of Biological Pest Control ISSN: 1110-1768,24(2),2014,pp.283-287	**0.273**
46	Estimation combining ability of some maize inbred lines using line × tester mating design under two nitrogen levels	**Mohamed M. Kamara**, Ibrahim S. El-Degwy and Hiroyuki Koyama	AJCS 8(9):1336-1342 (2014), ISSN: 1835-2693	**1.632**
47	Effect of feeding Aspergillus awamori and canola seed on the growth performance and muscle fatty acid profile in broiler chicken	**Ahmed A SALEH**, Kunioki HAYASHI, Daichi IJIRI1 and Akira OHTSUKA	Animal Science Journal (2015) 86, 305–311, ISSN: 1344-3941	**0.960**

LIST OF ACCEPTED PAPERS

	Faculty of Veterinary			
No.	Title	Authors	Title Journals	Impact Factor
48	Efficacy of Various Synchronization Protocols on the Estrus Behavior, Lambing Rate and Prolificacy in Rahmani Egyptian Ewes During the Non-Breeding Season	Essam Almadaly, Mohey Ashour, **Ismail El-Kon**, Bassiouni Heleil and El-Sayed Fattouh	Asian Journal of Animal and Veterinary Advances ISSN 1683-9919,	**0.869**
49	Sarcocystis chloropusae (protozoa: Sarcocystidae) n. sp. From the common moorhen (Gallinula chloropus) from Egypt	A. EL-MORSEY, **M. EL-SEIFY**, A.Y. DESOUKY, M.M. ABDEL-AZIZ, H. SAKA and T. YANA	Parasitology (2015), 142, 1063–1065و,ISSN:0031-1820	**2.560**
50	An epidemiological survey of bovine Babesia and Theileria parasites in cattle, buffaloes, and sheep in Egypt	Ahmed Elsify , Thillaiampalam Sivakumar , Mohammed Nayel , Akram Salam , Ahmed Elkhtam، Mohamed Rizk , OmarMosaab , **Khaled Sultan** Shimaa Elsayed, Ikuo Igarashi , Naoaki Yokoyam	Parasitology International 64 (2015) 79–85,ISSN: 1383-5769	**1.859**

LIST OF ACCEPTED PAPERS

Faculty of Veterinary

51	Effects of Nigella sativa oil and ascorbic acid against oxytetracycline-induced hepato-renal toxicity in rabbits	Mohamed M. Abdel-Daim , **Emad W. Ghazy**	*Iran J Basic Med Sci, Vol. 18, No.3, Mar 2015, ISSN: 2008-3866*	**1.228**
52	Synergistic protective role of mirazid (Commiphora molmol) and ascorbic acid against tilmicosin-induced cardiotoxicity in mice	Mohamed M. Abdel-Daim, **Emad W. Ghazy**, and Mostafa Fayez	Can. J. Physiol. Pharmacol. **93**: 45–51 (2015), 0008 ISSN:4212,	**1.770**
53	Pharmacodynamic interaction of Spirulina platensis and deltamethrin in freshwater fish Nile tilapia, Oreochromis niloticus: impact on lipid peroxidation and oxidative stress	Nevien K. M. Abdelkhalek & **Emad W. Ghazy** & Mohamed M. Abdel-Daim	ENVIRONMENTAL SCIENCE AND POLLUTION RESEARCH ISSN: 0944-1344 , 2015 Vol. 22 Issue 4 Page 3023-3031	**2.828**
54	Esophageal obstruction in water buffalo (*Bubalus bubalis*): a retrospective study of 44 cases (2006–2013)	**Mohamed MARZOK**, Alaa MOUSTAFA, Sabry EL-KHODERY, Kerstin MÜLLER	Turk J Vet Anim Sci (2015) 39: 233-240, ISSN: 1300-0128	**0.242**
55	Pinacidil and levamisole prevent glutamate-induced death of hippocampal neuronal cells through reducing ROS production	**Mustafa Shukry**, Tarek Kamal, Radi Ali, Foad Farrag, Essam Almadaly, Ayman A. Saleh Mohammed Abu El-Magd	Neurological Research 2015 VOL. 37 NO. 10, ISSN: 0161-6412.	**1.439**
56	Pathological and Immunohistochemical Findings of Natural Highly Pathogenic Avian Influenza Infection in Tufted Ducks during 2010–2011 Outbreaks in Japan	**Walied Abdo**, Mohie HARIDY, Yuki KATOU, Minami GOTO, Toshio MIZOGUCHI, Yoshihiro SAKODA	J. Vet. Med. Sci. 76(9): 1285–1290, 2014	**0.782**

LIST OF ACCEPTED PAPERS

Faculty of Veterinary

57	*Calligonum comosum* extract inhibits diethylnitrosamine-induced hepatocarcinogenesis in rats	**Walied Abdo**, Akihiro Hirata, Mostafa Shukry, Tarek Kamal, Essam Abdel-Sattar, Engi Mahrous And Tokuma Yana	Oncology Letters 10: 716-722, 2015, ISSN: 1792-1074	**1.554**
58	Melatonin reduces hepatic mitochondrial dysfunction in diabetic obese rats	Ahmad Agil, Mazen El-Hammadi, Aroa Jim_enez-Aranda, Mohamed Tassi, **Walied Abdo**, Gumersindo Fern_andez-V_azquez and Russel J. Reiter	J. Pineal Res. 2015; 59:70–79, ISSN: 0742-3098	**9.600**
59	Morphologic and molecular characteristics of *Sarcocystis atraii* n. sp. (Apicomplexa: Sarcocystidae) infecting the common coot (*Fulica atra*) from Egypt	Ahmed El-Morsey, Mahmoud El-Seify, **Abdel-Razik Y. Desouky**, Mohamed M. Abdel-Aziz، Khaled Mohamed El-Dakhly, Samy Kasem, Walied Abdo, Mohie Haridy، Hiroki Sakai and Tokuma Yanai	Acta Parasitologica, 2015, 60(4), 691–699; ISSN 1230-2821.	**0.905**
60	Toxoplasma gondii tachyzoite-infected peripheral blood mononuclear cells are enriched in mouse lungs and liver	Akihiro Unno , Seira Kachi , Tatiana A. Batanova , Tamio Ohno , **Nagwa Elhawary** , Katsuya Kitoh , Yasuhiro Takashim	Experimental Parasitology 134 (**2013**) 160–164	**1.638**

LIST OF ACCEPTED PAPERS

Faculty of Veterinary

No.	Title	Authors	Title Journals	Impact Factor
61	Observations of the rabbit pinworm Passalurus ambiguous (Rudolphi, 1819) in domestic rabbits (Oryctolagus cuniculus) in Egypt using a scanning electron microscope	Sultan, K., Elhawary, N.M., Sorour, Sh. Gh. and Sharaf, H.M.	Tropical Biomedicine 32(4): 1–8 (2015), ISSN: 0127-5720	**0.850**
62	Caseous lymphadenitis in small ruminants in Egypt Clinical, epidemiological and prophylactic aspects	A. F. Oreiby; Y. M. Hegazy; S. A. Osman; Y. M. Ghanem; M. H. Al-Gaabary	Tierärztl Prax 2014; 42 (G): 271–277,ISSN:1434-1220	**0.221**
63	Diagnosis of caseous lymphadenitis in sheep and goat	Atef .F. Oreiby	Small Ruminant Research 123 (2015) 160–166, ISSN: 0921-4488	**1.125**
64	Performance of a new carbon dioxide absorbent, Yabashi lime® as compared to conventional carbon dioxide absorbent during sevoflurane anesthesia in dogs	Kei Kondoh, Ayman ATIBA, Kiyoshi NAGASE, Shizuko OGAWA, Takashi MIWA, Teruya KATSUMATA, Hiroshi UENO and Yuji UZUKA	J. Vet. Med. Sci. 77(8): 961–965, 2015,ISSN: 1943-7218	**0.782**
65	Expression of NG2 proteoglycan in the degenerated intervertebral disc in dachshunds	Mohammed ABDEL-HAKIEM,, Ayuko YAMASHITA, Ayman Atiba, Yasuhiko OKAMURA, Masaaki Katayama,	J. Vet. Med. Sci. 78(1): 97–100, 2016, ISSN: 1943-7218	**0.782**

LIST OF ACCEPTED PAPERS

Faculty of Veterinary

No.	Title	Authors	Title Journals	Impact Factor
66	Fatal Encephalitis in Cattle Associated with Acanthamoeba Infection in Egypt	N Gomaa, **A Atiba**, N El-Habashi, E Wadeed and D Hosny	PAKISTAN VETERINARY JOURNAL, ISSN: 0253-8318 (PRINT), 2074-7764 (**ONLINE**)	**1.392**
67	Comprehensive Serology Based on a Peptide ELISA to Assess the Prevalence of Closely Related Equine Herpesviruses in Zoo and Wild Animals	**Samy Kasem**, Nikolaus Osterrieder, Alex D. Greenwood	PLOS ONE, September 17, 2015, ISSN: 1932-6203,Pub.on,line	**3.234**
68	Seroprevalence and "Knowledge, Attitudes and Practices" (KAPs) survey of endemic ovine brucellosis in Egypt	Yamen Hegazy, **Walid Elmonir**, Nour Hosny Abdel-Hamid and Essam Mohamed Elbauomy	*Acta Vet Scand (2016) 58:1* *ISSN: 0044-605X*	**1.377**
69	Systematic review of brucellosis in the Middle East: disease frequency in ruminants and humans and risk factors for human infection	I. I. MUSALLAM, M. N. ABO-SHEHADA, **Y. M. HEGAZY**, H. R. HOLT AND Q1 F. J. GUITIAN	*Epidemiol. Infect., Page 1 of 15, ISSN: 0950-2688*	**2.535**
70	Enteric parasites of Egyptian captive birds: A general coprological survey with new records of the species	El-Shahawy, I.S.1 and Abou **Elenien, F**.	*Tropical Biomedicine 32(4):– ,19(2015) ISSN: 0127-5720*	**0.85**
71	Dry Co-Digestion of Poultry Manure with Agriculture Wastes	**Fatma Abouelenien** & Yuzaburo Namba & Naomichi Nishio & Yutaka Nakashimada	APPLIED BIOCHEMISTRY AND BIOTECHNOLOGY ISSN: 0273-2289 2016 Mar;178(5):932-46	**1.735**

LIST OF ACCEPTED PAPERS

Faculty of Veterinary

No.	Title	Authors	Title Journals	Impact Factor
72	Chenodeoxycholic acid increases the induction of CYP1A1 in HepG2 and H4IIE cells	**ZEIN SHABAN IBRAHIM**	EXPERIMENTAL AND THERAPEUTIC MEDICINE ISSN: 1792-0981 .Nov; 10(5): 1976–1982 2015	**1.269**
73	Impact of aspartame and saccharin on the rat liver: Biochemical, molecular، and histological approach	Mohamed El-Sayed Alkafafy, **Zein Shaban Ibrahim**, Mohamed Mohamed Ahmed and Samir Ahmed El-Shazly	International Journal of Immunopathology and Pharmacology و 2015 (2):247-55 Jun;28	**1.617**
74	Camel Dermatophilosis: Clinical Signs And Treatment Outcomes	**Salama A. Osman**	JOURNAL OF CAMEL PRACTICE AND RESEARCH ISSN: 0971-6777و Year : 2014, Volume : 21, Issue : 2 First page : **(199)** Last page : **(204)**	**0.090**
75	Lack of Middle East Respiratory Syndrome Coronavirus ransmission from Infected Camels	**Maged G. Hemida**, Abdulmohsen Al-Naeem, Ranawaka A.P.M. Perera, Alex W.H. Chin, Leo L.M. Poon, Malik	Emerging Infectious Diseases, Vol. 21, No. 4, April 2015, ISSN: 1080-6040	**6.751**
76	Dromedary Camels and the Transmission of Middle East Respiratory Syndrome Coronavirus (MERS-CoV)	**M. G. Hemida**, A. Elmoslemany, F. Al-Hizab, A. Alnaeem, F. Almathen, B. Faye, D. K. W. Chu,	Transboundary and Emerging Diseases,Received for publication April 11, 2015,Pub.on line	**2.944**
77	Seroprevalence of Sheep and Goat Pox, Peste Des Petits Ruminants and Rift Valley Fever in Saudi Arabia	Hani Boshra, Thang Truong, Shawn Babiuk**, Maged Gomaa Hemida**	PLOS ONE Oct 13;10(10) October 13, 2015 Pub.on line ISSN: 1932-6203	**3.234**

LIST OF ACCEPTED PAPERS

Faculty of Veterinary

No.	Title	Authors	Title Journals	Impact Factor
78	Blastocysts derivation from somatic cell fusion with premature oocytes (prematuration somatic cell fusion	Islam M. Saadeldin, Candrani Khoirinaya, Su Jin Kim, Joon Ho Moon, **Essam Almadaly** and Byeong Chun Lee	Development, Growth & Differentiation,Volume 58, Issue 2, pages 157–166, February 2016	**2.420**
79	Immunohistochemical analysis of CD146 expression in canine skin tumours	**S. Abou Asa** , Sh. Anwar, T. Yanai and H. Sakai	HISTOLOGY AND HISTOPATHOLOGY, 31, 453-459 (2016)	**2.096**
80	Evaluation of serum enzyme activities and protein fractions in *Brucella*-infected cows	**Mohamed Fahmy Abou ElAZAB**	Turk J Vet Anim Sci (2015) 39: 480-484, ISSN: 1300-0128	**0.242**
81	Induction of non-specific suppression in chicks by specific combination of maternal antibody and related antigen	**Mohamed Fahmy ABOU ELAZAB**, Hiroyuki HORIUCHI1) and Shuichi FURUSAWA	*J. Vet. Med. Sci.* 77(11): 1363–1369, 2015,ISSN: 0916-7250	**0.782**
82	Effect of glucagon-like peptide-1 and ghrelin on liver metabolites in steers	**M. El-SabaghA**,B, D. TaniguchiA, T. SuginoA,C, T. ObitsuA and K. Taniguchi	*Animal Production Science, 2014,* **54**, *1732–1736, ISSN: 1836-0939*	**1.286**
83	Insulin-independent actions of glucagon-like peptide-1 in wethers	**Mabrouk EL-SABAGH,** Dai TANIGUCHI, Toshihisa SUGINO, Taketo OBITSU and Kohzo TANIGUCH	*Animal Science Journal (2015)* **86,** *385–391, ISSN: 1344-3941*	**0.960**

LIST OF ACCEPTED PAPERS

Faculty of Veterinary

No.	Title	Authors	Title Journals	Impact Factor
84	Characterisation of production, marketing and consumption patterns of farmed tilapia in the Nile Delta of Egypt	ahmond Eltholth, Kimberly Fornace, Delia Grace, Jonathan Rushton, Barbara Häsler	Food Policy 51 (2015) 131–143,FOOD POLICY ISSN: 0306-9192	1.799
85	Temporal Analysis and Costs of Ruminant Brucellosis Control Programme in Egypt Between 1999 and 2011	M. M. Eltholth, Y. M. Hegazy, W. F. El-Tras, M. Bruce1 and J. Rushton	Transboundary and Emerging Diseases, publication December 16, 2015,ISSN: 1865-1674	2.944
86	The effects of witnessing managemental procedures duringthe light versus the dark phase of the light cycle onbehaviour, performance and welfare of laboratory rats	Usama A. Abou-Ismail, Radi A. Mohamed & Sherif Z. El-kholya	Applied Animal Behaviour Science 162 (2015) 47–57	1.691

LIST OF ACCEPTED PAPERS

Faculty of Science

No.	Title	Authors	Title Journals	Impact Factor
87	Spectral characterization of the Silver nanoparticles biosynthesized using Ambrosia maritima plant	**M. El-Kemary** , M. Zahran , S. A.M. Khalifa and H. R. El-Seedi	Micro Nano Letters ISSN: 1750-0443	**0.853**
88	Cytogenetic Studies on Two Wild Species of Genus Echinochloa P. Beauv. from Saudi Arabia	**Soliman Abdelfattah Haroun** and Mohammad Kdaimes Alotaibi	Cytologia 80(1): 117–123,2015, ISSN: 0011-4545	**0.205**
89	Evaluation of the Allelopathic Effect of Aqueous Extract of Zygophyllum simplex L. on Vicia faba L. Plants	**Soliman A. Haroun** and Abdulaziz S. Abualghaith	Cytologia 80(3): 363–371, 2015,ISSN: 0011-4545	**0.205**
90	Metabolic and molecular responses in Nile tilapia, Oreochromis niloticus during short and prolonged hypoxia	**Magdy E. Mahfouz**, Mona M. Hegazi, Mohammed A. El-Magd,& Enas A. Kasema	Marine and Freshwater Behaviour and Physiology, 2015, ISSN: 1023-6244, Volume 48, Issue 5, 2015	**0.915**
91	Ameliorative Effect of Curcumin on Aflatoxin B1Induced Changes in Liver Gene Expression of Oreochromis niloticus1	**M. E. Mahfouz**	MOLECULAR BIOLOGY ISSN: 0026-8933, 2015, Vol. 49, No. 2, pp. 275–28₆	**0.718**
92	Devonian to Permian evolution of the Paleo-Tethys Ocean: New evidence from U–Pb zircon dating and Sr–Nd–Pb isotopes of the Darrehanjir– Mashhad "ophiolites", NE Iran	Hadi Shafaii Moghadama,, Xian-Hua Li , Xiao-Xiao Ling a, Robert J. Stern **, Mohamed Zaki Khedr** , Massimo Chiaradi , Ghasem Ghorbani f, Shoji Arai , Akihiro	GONDWANA RESEARCH ISSN: 1342-937X, 28 (2015) 781–799	**8.235**

LIST OF ACCEPTED PAPERS

Faculty of Science

No.	Title	Authors	Title Journals	Impact Factor
93	Arc-related harzburgite–dunite–chromitite complexes in the mantle section of the Sabzevar ophiolite, Iran: A model for formation of podiform chromitites	Hadi Shafaii Moghadama, **Mohamed Zaki Khedr** , Shoji Arai , Robert J. Sternd, Ghasem Ghorbani , Akihiro Tamura , Chris J. Ottley	Gondwana Research 27 (2015) 575–593, ISSN: 1342-937X	**8.235**
94	Population characteristics of giant reed (Arundo donax L.) in cultivatedand naturalized habitats	Ebrahem M. Eida,, **Mohamed S.G. Youssef**, Kamal H. Shaltout	Aquatic Botany 129 (2016) 1–8, ISSN: 0304-3770	**1.608**
95	Mathematical Probit And Logistic Mortality Models Of The Khapra Beetle Fumigated With Plant Essential Oils	Alhadi E. Alamir,**Gomah E. Nenaah** and Mohamed A. Hafiz	Mathematical Biosciences And Engineering Volume 12, Number 4, August 2015, ISSN: 1547-1063	**0.840**
96	Chemical composition, insecticidal activity and persistence of three Asteraceae essential oils and their nanoemulsions against Callosobruchus maculatus (F.)	**Gomah E. Nenaah** , Sahar I.A. Ibrahim , Basma A. Al-Assiuty	Journal of Stored Products Research 61 (2015) 9e16, ISSN:0022-474X	**1.683**
97	Synthesis, characterization and medical efficacy (hepatoprotective and antioxidative) of albendazole-based copper(II) complexes – an experimental and theoretical approach	Mohamed M. Ibrahim, **Abdel-Motaleb M. Ramadan**, Hamdy S. El-Sheshtawy, Mahmoud A. Mohamed, Mohamed Soliman & Sayed I.M. Zayed	Journal of Coordination Chemistry, 2015 ,Vol. 68, No. 24, 4296–4313,ISSN: 0095-8972،	**2.012**

LIST OF ACCEPTED PAPERS

Faculty of Science

No.	Title	Authors	Title Journals	Impact Factor
98	FabricationandcharacterizationoflowcostCu2O/ZnO:Al solarcells for sustainablephotovoltaicswithearthabundantmaterials	Mahmoud Abdelfatah , JohannesLedig , **Abdel hamid El-Shaer** , Alexander Wagner , Vicente Marin-Borras , Azat Sharafeev , Peter Lemmens , Mohsen Mohamed Mosaad , Andreas Waag , Andrey Bakin	Solar Energy Materials &SolarCells145(2016)454–461, ISSN: 0927-0248	**5.337**
99	Fabrication and characterization of flexible solar cell from electrodeposited Cu2O thin film on plastic substrate	Mahmoud Abdelfatah, Johannes Ledig , **Abdelhamid El-Shaer** , Alexander Wagner , Azat Sharafeev , Peter Lemmens , Mohsen Mohamed Mosaad , Andreas Waag , Andrey Bakin	Solar Energy 122 (2015) 1193–1198	**3.469**
100	Iron(II) complexes containing the 2,6-bis-iminopyridyl moiety. Synthesis, characterization, reactivity, and DNA binding	Shaban Y. Shaban, Nagi El-Shafai, **Hanaa Mansour** And Rudi Van Eldik	Journal of Coordination Chemistry, 2015, ISSN: 0095-8972,Volume 68, Issue 12,pages 2054-2064	**2.012**
101	Synthesis, Characterization, and Application of Dendrimer Modified Magnetite Nanoparticles as Antimicrobial Agent	**Samia M. El-Sigeny**, Manal F. Abou Taleb	Life Science Journal-Acta Zhengzhou University Overseas Edition ISSN: 1097-8135,2015;12(6)	**0.165**

LIST OF ACCEPTED PAPERS

Faculty of Science

No.	Title	Authors	Title Journals	Impact Factor
102	Synthesis of polyamidoamine dendrimer (PAMAM/CuS/AA) nanocomposite and its application in the removal of Isma acid fast yellow G Dye	Manal F. Abou Taleba, Amina El-Trass and **Samia El-Sigeny**	Polym. Adv. Technol. 2015, 26 994–1002, ISSN: 1042-7147	**1.757**
103	Formation of ground and excited hydrogen atoms in proton–caesium inelastic scattering	**S.A. Elkilany**	CANADIAN JOURNAL OF PHYSICS, 93: 1283–1291 (2015)	**0.964**
104	Formation of hydrogen atom in 2s state in proton–sodium inelastic scattering	**Sabbah A. Elkilany**	Chin. Phys. B Vol. 24, No. 3 (2015) 033402, ISSN:1674-1056	**1.603**
105	Topological Approach to Multivalued Information System	**R. Mareay**	Theory Comput Syst (2015) 56:406–417, ISSN:1433-0490	**0.533**
106	Energy-transfer studies on phthalocyanine–BODIPY light harvesting pentad by laser flash photolysis	**Mohamed E. El-Khouly**, Cemlb, Morad M. El-Hendawy, Serkan Yes¸ilot and Mahmut Durmus	J. Porphyrins Phthalocyanines 2015; 19: 261–269, ISSN: 1088-4246	**1.397**
107	Synthesis, photophysical and photochemical properties of novel phthalocyanines substituted with triptycene moieties	Bader S. Ghanem , Mehmet Pis kin , Mahmut Durmus, **Mohamed E. El-Khouly** , Shaya Y. Al-Raq	Polyhedron 90 (2015) 85–90, ISSN: 0277-5387	**2.011**

LIST OF ACCEPTED PAPERS

Faculty of Science

No.	Title	Authors	Title Journals	Impact Factor
108	The Diagnostic Value of 18F-FDG PET/CT in Association with Serum Tumor Marker Assays in Breast Cancer Recurrence and Metastasis	Ying Dong, Haifeng Hou, ChunyanWang, Jing Li, Qiong Yao, **Said Amer**, andMei Tian	BioMed Research International Volume 2015, Article ID 489021, 5 pages,ISSN: 2314-6133	**1.579**
109	Morphologic and Genotypic Characterization of Psoroptes Mites from Water Buffaloes in Egypt	**Said Amer**, Taher Abd El Wahab[3], Abd El aby Metwaly, YaoyuN Feng[4]*, Lihua Xiao[1]*	PLoS One. 2015; 10(10): e0141554.,ISSN:1932-6203	**3.234**
110	Assessment of elemental and NROM/TENORM hazard potential from non-nuclear industries in North Sinai, Egypt	A. F. El-Mekawy & H. M. Badran & M. K. Seddeek & **T. Sharshar** & T. Elnimr	Environ Monit Assess (2015) 187: 583,ISSN: 0167-6369	**1.679**
111	Studying the effect of nano lead compounds additives on the concrete shielding properties for c-rays	H.E. Hassan , H.M. Badran , A. Aydarous , **T. Sharshar**	Nuclear Instruments and Methods in Physics Research B 360 (2015) 81-89	**1.124**

LIST OF ACCEPTED PAPERS

Faculty of Science

No.	Title	Authors	Title Journals	Impact Factor
112	Study of chemical bonding, physical and biological effect of metformin drug as an organized medicine for diabetes patients with chromium(III) and vanadium(IV) ions	Abdel Majid A. Adama, **T. Sharshar** , Mahmoud A. Mohamed , Omar B. Ibrahim , Moamen S. Refat	Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy 149 (2015) 323‑332, ISSN: 1386-1425	**2.353**
113	The use of positron annihilation Doppler broadening spectroscopy in the characterization of radiochromic dosimetry films	N.T.S. Albogamy , **T. Sharshar** , A. Aydarous	Radiation Measurements 75 (2015) 1e5, ISSN: 1350-4487	**1.213**
114	Spectroscopic, Elemental And Thermal Analysis, And Positron Annihilation Studies On Ca(Ii), Sr(Ii), Ba(Ii), Pb(Ii), And Fe(Iii) Penicillin G Potassium Complexes	M. S. Refat and **T. Sharshar**	Journal of Applied Spectroscopy ISSN: 0021-9037, Vol. 82, No. 5, November, 2015 (Russian Original Vol. 82, No. 5, September– October, 2015)	**0.476**
115	Norfloxacin La(III)-based complex: Synthesis‹ characterization and DNA binding studies	**Shaban Y. Shaban,** Maged A. El-Kemary, Gehan Samir, Hosny El-Baradei & Ralph	*Journal of Coordination Chemistry,Volume 68, Issue 17-18, 2015, pages 3247-3258,ISSN: 0095-8972*	**2.012**

LIST OF ACCEPTED PAPERS

	Faculty of Science			
116	Spectroscopic, thermodynamic, kinetic studies and oxidase/antioxidant biomimetic catalytic activities of tris(3,5-dimethylpyrazolyl) borate Cu(II) complexes	**Shaban Y. Shaban**, Abd El-Motaleb M. amadan Mohamed M. Ibrahim, Mahmoud A	Dalton Trans., 2015, 44, 14110–14121, DALTON TRANSACTIONS ISSN: 1477-9226	**4.197**
117	Q-symmetry and conditional Q-symmetries for Drinfel'd–Sokolov–Wilson system	**Hassan A. Zedana,**, M. Alghamd and Seham Sh. Tantawy	Mathematical Methods in the Applied Sciences, Volume 38, Issue 17, pages 4357–4364, 30 November 2015, ISSN: 0170-4214	**0.918**
118	Invariance of the nonlinear generalized NLS equation under the Lie group of scaling transformations	**Hassan A. Zedan** · Seham Shapll · Amira Abdel-Malek	NONLINEAR DYNAMICS ISSN: 0924-090X, (2015) 82:2001–2005	**2.849**
119	A novel class of solutions for the (2 + 1)-dimensional higher-order Broer–Kaup system	**Hassan Zedan,** Mohamed M. Alshamrani	Computers and Mathematics with Applications 69 (2015) 67–80, ISSN: 0898-1221	**1.697**
120	Q-Symmetry and Conditional Q-Symmetries for Boussinesq Equation	**Hassan A. Zedan** and Seham Sh. Tantawy	Abstract and Applied Analysis Volume 2014, Article ID 175982, 4 pages, 3375-1085	**1.274**
121	Haar Wavelet Method for the System of Integral Equations	**Hassan A. Zedan** and Eman Alaidarous	Abstract and Applied Analysis Volume 2014, Article ID 418909, 9 pages	**1.274**

LIST OF ACCEPTED PAPERS

Faculty of Science

122	Fourth order elliptic operator-differential equations with unbounded operator boundary conditions in the Sobolev-type spaces	Eman S Al-Aidarous, Araz R Aliev, Elvin S Rzayev and **Hassan A Zedan**	*Boundary Value Problems* (2015) 2015:191,ISSN: 1687-2770	**1.014**
123	Transport properties of Ti–Ni spinelferrites	**M.R. Eraky** , S.M.Attia	PhysicaB 462(2015) 97–103, ISSN: 0921-4526	**1.319**
124	Dielectric Properties in Co-Ti Doped CaSrM Hexaferrites	**M. R. Eraky**	*Journal of Applied Physics, Volume 7, Issue 6 Ver. I (Nov. - Dec. 2015), PP 71-76, ISSN: 0021-8979*	**2.183**
125	A simplified hear and normal deformations nonlocal ltheory for bending o fnano beams in thermal environment	Ashraf M .Zenkour**, Mohammed Sobhy**	PHYSICA E-LOW-DIMENSIONAL SYSTEMS & NANOSTRUCTURESISSN: 1386-9477, 70(2015)121–128	**2.000**
126	Hygrothermal deformation of orthotropic nanoplates based on the state-space concept	**Mohammed Sobhy**	COMPOSITES PART B-ENGINEERING ISSN 1359-8368, 79 (2015) 224e235	**2.983**
127	A comprehensive study on FGM nanoplates embedded in an elastic medium	**Mohammed Sobhy**	COMPOSITE STRUCTURES ISSN: 0263-8223, 134 (2015) 966–980	**3.318**
128	Hygrothermal vibration of orthotropic double-layered grapheme sheets embedded in an elastic medium using the two-variable plate theory	**Mohammed Sobhy**	APPLIED MATHEMATICAL MODELLING ISSN: 0307-904X, 40 (2016) 85–99	**2.251**

LIST OF ACCEPTED PAPERS

	Faculty of Science			
129	Structure and optical properties of ZnO produced from microwave hydrothermal hydrolysis of tris(ethylenediamine)zinc nitrate complex	Nasser Y. Mostafa , Zein K. Heiba , **Mohamed M. Ibrahim**	JOURNAL OF MOLECULAR STRUCTURE ISSN: 0022-2860, 1079 (2015) 480–485	**1.602**
130	Insulin-like action of novel metformin-containing vanadate as a new antidiabatic drug: Synthesis, characterization and crystal structure of [Metformin-H]2[V2O6]]·H2O	**Mohamed M. Ibrahim** , Mahmoud A. Mohamed, Gaber A.M. Mersal , Salih Al-Juaid	JOURNAL OF MOLECULAR STRUCTURE ISSN: 0022-2860, 1098 (2015) 92e100	**1.602**
131	Spectroscopic, electrochemical, DNA binding and antioxidant biomimetic catalytic activities of metformin-based copper(II) complexes	Abdel Ghany F. Shoair **, Mohamed M. Ibrahimb,** Mohamed Soliman Khlood A. Abu-Melh	JOURNAL OF MOLECULAR LIQUIDS ISSN: 0167-7322,212 (2015) 865–871	**2.515**
132	Spectroscopic and Thermodynamic Properties of Some Transition Metal Complexes Derived from 2-(Hydroxyimino)-1-(2-hydroxyphenyl)butane-1,3-dione	Aisha I. Mosa· *Mohamed M. Ibrahim* · Kholood S. Abo-Melh	JOURNAL OF SOLUTION CHEMISTRY ISSN: 0095-9782,(2015) 44:2222–2235	**1.177**
133	Thermodynamic Properties of Some Lanthanide Metal Ion Complexes of Newly Mono- and Di oximes in Dioxan-water mixtures	Aisha I. Mosa, Aisha M. A. Al-Turkustani, *Mohamed M. Ibrahim* Kholood S. Abo-Melh	International Journal of Electrochemical Science ISSN: 1452-3981, 10 **(2015)** 347 – 355	**1.500**
134	STUDY OF THE INTERACTION BETWEEN MERCAPTOACETIC ACID (MAA) CAPPED CdS QUANTUM DOTS WITH DENATURED BOVINE SERUM ALBUMIN (dBSA)	M. ATIF, W.A. FAROOQ, M.S. ABD EL SADEK **, H.S. EL SHESHTAWY,** I.S. YAHIA	Chalcogenide Letters ISSN 1584-8663,Vol. 12, No. 3, March 2015, p. 91 – 97	**0.913**

LIST OF ACCEPTED PAPERS

Faculty of Science

135	SYNTHESIS, SPECTROSCOPIC INVESTIGATION, AND MOLECULAR INTERACTIONS BETWEEN ACIVICIN AND CdSe QUANTUM DOTS	S.E. ALGARNI, S.R. ALHARBI, M.S. ABD EL SADEK, **H.S. EL-SHESHTAWY**	Chalcogenide Letters ISSN 1584-8663, Vol. 12, No. 7, July 2015, p. 339 – 347	**0.913**
136	Spectroscopic and structure investigation of the molecular complexes of tris(2-aminoethyl)amine with π-acceptors	**Hamdy S. El-Sheshtawy** , Mohamed M. Ibrahima, Mohamed R.E. Aly , Maged El-Kemary	JOURNAL OF MOLECULAR LIQUIDS ISSN: 0167-7322,213 (2016) 82–91	**2.515**
137	Electrical conductivity and positron annihilation characteristics of ternary silicone rubber/carbon black/TiB2 nanocomposites	A.M. Ismail , **K.R. Mahmoud** , M.H. Abd-El Salam	Polymer Testing 48 (2015) 37e43, ISSN: 0142-9418	**2.240**
138	Positron annihilation life time studies of change sinfree volume on some biorelevant nitrogen heterocyclic compound sand their S-glycosylation	**K.R. Mahmoud**	Applied RadiationandIsotopes105(2015)303–307	**1.231**
139	State space approach for the vibration of nanobeams based on the nonlocal thermoelasticity theory without energy dissipation	**A. M. Zenkour,** A. E. Abouelrega, K. A. Alnefaie, N. H. Abu-Hamdeh, A. A. Aljinaidi and E. C. Aifantis	Journal of Mechanical Science and Technology: ISSN: 1738-494X,29 (7) (2015) 2921~2931	**0.838**
140	Effects of phase-lags in a thermoviscoelastic orthotropic continuum with a cylindrical hole and variable thermal conductivity	**A. M. ZENKOUR** A. E. ABOUELREGAL	ARCHIVES OF MECHANICS ISSN 0373-2029,67, 6, pp. 457–475, Warszawa 2015	**0.654**

LIST OF ACCEPTED PAPERS

Faculty of Science

141	NONLOCAL THERMOELASTICITY THEORY FOR THERMAL-SHOCK NANOBEAMS WITH TEMPERATURE-DEPENDENT THERMAL CONDUCTIVITY	**A. M. Zenkour,** A. E. Abouelregal, K. A. Alnefaie, X. Zhang, and E. C. Aifantis	JOURNAL OF THERMAL STRESSES ISSN: 0149-5739,38: 1049–1067, 2015	**0.992**
142	Nonlocal thermoelastic nanobeam subjected to a sinusoidal pulse heating and temperature-dependent physical properties	**Ashraf M. Zenkour ·** Ahmed E. Abouelregal	Microsyst Technol (2015) 21:1767–1776, ISSN: 0946-7076	**0.875**
143	Three-dimensional thermal shock plate problem within the framework of different thermoelasticity theories	**Ashraf M. Zenkour**	COMPOSITE STRUCTURES ISSN: 0263-8223,132 (2015) 1029–1042	**3.318**
144	Electro-magneto-thermo-elastic response of infinite functionally graded cylinders without tenergy dissipation.	**Ashraf M. Zenkou** Ibrahim A.Abbas	JOURNAL OF MAGNETISM AND MAGNETIC MATERIALS ISSN: 0304- 8853,395 (2015) 123–129	**1.970**
145	Thermo-Mechanical Bending Response of Exponentially Graded Thick Plates Resting on Elastic Foundations	**A. M. Zenkour,**M. N. M. Allam, A. F. Radwan,H. F. El-Mekawy	International Journal of Applied Mechanics ISSN: 1758-8251,Vol. 7, No. 4 (2015) 1550062 (24 pages)	**1.624**
146	Generalized magneto-thermoviscoelasticity in a perfectly conducting thermodiffusive medium with a spherical cavity	**Ashraf M Zenkour**, Ebraheem , Alzahrani and Ahmed E Abouelregal	Journal of Earth System Science ISSN 0253-4126,**124**, No. 8, December 2015, pp. 1709–1719	**1.040**
147	Nonlocal transient thermal analysis of a single-layered graphene sheet embedded in viscoelastic medium	**Ashraf M. Zenkour**	PHYSICA E-LOW-DIMENSIONAL SYSTEMS ISSN: 1386-9477,79(2016)87–97	**2.000**

LIST OF ACCEPTED PAPERS

Faculty of Science

148	Analysis of Three-Layer Composite Shells by a New Layerwise Theory and Radial Basis Functions Collocation, Accounting for Through-the-Thickness Deformations	D. A. MATURI, A. J. M. FERREIRA**, A. M. ZENKOUR** and D. S. MASHAT	*Mechanics of Advanced Materials and Structures* (2015) **22**, 722–730, ISSN: 1537-6494	**0.773**
149	Thermoelastic interaction in functionally graded nanobeams subjected to time-dependent heat flux	**Ashraf M. Zenkour** and Ahmed E. Abou elregal	Steel and Composite Structures, *Vol. 18*, *No. 4* (*2015*) *909-924,ISSN: 1229-9367*	**0.964**
150	VIBRATIONAL ANALYSIS FOR AN AXIALLY MOVING MICROBEAM WITH TWO TEMPERATURES	E. Carrera, A. E. Abouelregal, A. Abbas and **A. M. Zenkour**	JOURNAL OF THERMAL STRESSES ISSN,38: 569–590, 2015	**0.992**
151	Fractional Order Thermoelasticity Theory for a Half-Space Subjected to an Axisymmetric Heat Distribution	D. S. MASHAT, A. **M. ZENKOUR,** and A. E. ABOUELREGAL	*Mechanics of Advanced Materials and Structures,* ISSN: 1537-6494,(2015) **22**, 925–932	**0.773**
152	Generalized thermoelastic vibration of a microbeam with an axial force	Ahmed E. Abouelregal · **Ashraf M. Zenkour**	Microsyst Technol , , ISSN: 0946-7076,(2015) 21:1427–1435	**0.875**
153	Thermoelastic bending response of a laminated plate resting on elastic foundations	**A.M. Zenkour** and D.A. Maturi	Scientia Iranica Transactions A: Civil Engineering ISSN: 1026-3098,(2015) 22(2), 287{298	**1.025**

LIST OF ACCEPTED PAPERS

Faculty of Science

160	AXIOMATIC/ASYMPTOTIC EVALUATION OF REFINED PLATE MODELS FOR THERMOMECHANICAL ANALYSIS	E. Carrera, M. Cinefra, A. Lamberti, and **Ashraf M. Zenkour**	JOURNAL OF THERMAL STRESSES, ISSN 0149-5739, 38: 165–187, 2015	**0.992**
161	THERMOELASTIC PROBLEM OF AN AXIALLY MOVING MICROBEAM SUBJECTED TO AN EXTERNAL TRANSVERSE EXCITATION	Ahmed E. Abou elregal,**Ashraf M. Zenkour**	JOURNAL OF THEORETICAL AND APPLIED MECHANICS ،1 ،53pp. 167-178, Warsaw 2015,ISSN 1429-2955	**0.636**
162	The fractional effects of a two-temperature generalized thermoelastic semi-infinite solid induced by pulsed laser heating	**A. M. ZENKOUR, A.** E. ABOUELREGAL	ARCHIVES OF MECHANICS ISSN 0373-2029,67, 1, pp. 53–73, Warszawa 2015	**0.654**
163	The Effect of Magnetic Field on Thermal Shock Problem for a Fiber-Reinforced Anisotropic Half-Space Using Green-Naghdi's Theory	Ibrahim A. Abbas and **Ashraf M. Zenkour**	Journal of Computational and Theoretical Nanoscience, ISSN 1546-1955,Vol. 12, 438–442, 2015	**1.343**
164	A simplified four-unknown shear and normal deformations theory for bidirectional laminated plates	**A M ZENKOUR**	*Sa̅dhana̅* Vol. 40, Part 1, February 2015, pp. 215–234, ISSN 0256-2499	**0.476**

LIST OF ACCEPTED PAPERS

Faculty of Engineering

165	Design and Simulation of Meander Line Antenna For LTE Communications Based on Defected Ground Structure	**Bedir Yousif**, Mohammed Sadiq, Maher Abdelrazzak	Ciencia e Tecnica Vitivinicola ISSN: 0254-0223,Vol. 30 (n. 11, 2015)	**0.368**
166	Critical aspects on wavelet transforms based fault identification procedures in HV transmission line	Ahmed R. Adly**, Ragab A. El Sehiemy,** Almoataz Youssef Abdelaziz3 ✉, Nabil M.A. Ayad**1**	IET Generation, Transmission & Distribution ISSN: 1751-8687	**1.353**
167	Adequate Planning of Shunt Power Capacitors Involving Transformer Capacity Release Benefit	Abdullah Mohammed Shaheen**, Ragab A. El-Sehiemy,** and SobhyM. Farrag	IEEE Systems Journal (Volume:PP , Issue: 99) Page (s):, 1 – 10, ISSN : 1932-8184 **,Pub. On line**	**01.98**
168	Optimal capacitor placement in distribution systems for power loss reduction and voltage profile improvement	Adel Ali Abou El-Ela, **Ragab A. El-Sehiemy**, Abdel-Mohsen Kinawy, Mohamed Taha Mouwafi	IET Gener. Transm. Distrib., pp. 1–13,ISSN 1751-8687,ISSN: 1751-8687 Accepted on 18th November 2015, **Pub. On line**	**1.353**
169	Solving multi-objective optimal power flow problem via forced initialised differential evolution algorithm	Abdullah M. Shaheen**, Ragab A. El-Sehiemy,** Sobhy M. Farrag	IET Generation, Transmission & Distribution,,ISSN 1751-8687,ISSN: 1751-8687,	**1.353**
170	A novel adequate bi-level reactive power planning strategy	A. Shaheen**, Ragab El Sehiemy**, Sobhy Farrag	INTERNATIONAL JOURNAL OF ELECTRICAL POWER & ENERGY SYSTEMS, *ISSN:* 0142-0615,78 (2016) 897–909	**3.432**

LIST OF ACCEPTED PAPERS

Faculty of Engineering

171	Optimal power flow using an Improved Colliding Bodies Optimization algorithm	Bouchekaraa, b, A.E. Chaiba, M.A. Abidoc, **R.A. El-Sehiemy**	Applied Soft Computing, Vol. 42 (2016) 119–131	**2.810**
172	EXPERIMENTAL STUDY OF STEPPED SOLAR STILL INTEGRATED WITH REFLECTORS AND EXTERNAL CONDENSER	Y. A. F. E l-Samadony, A. S. Abdullah, and **Z. M. Omara**	Experimental Heat Transfer, 28:392–404, 2015, ISSN: 0891-6152 print/1521-0480 online	**0.979**
173	Effect of using nanofluids and providing vacuum on the yield of corrugated wick solar still	**Z.M. Omara** , A.E. Kabeel , F.A. Essa	Energy Conversion and Management 103 (2015) 965–972, ISSN: 0196-8904	**4.38**
174	Performance of vertical diffusers carrying Gas-solid flow: experimental and numerical studies	W.A. El-Askary a,⬚, K.A. Ibrahima, S.M. El-Behery a, Mofreh H. Hamedb, **M.S. Al-Agha**	Powder Technology 273 (2015) 19–32 ,ISSN: 0032-5910	**2.349**
175	Synchronous Reluctance Motor Performance Based on Different Electrical Steel Grades	**M. N. Ibrahim**, , Peter Sergeant, , and E. M. Rashad, *Senior*	IEEE TRANSACTIONS ON MAGNETICS, VOL. 51, NO. 11, NOVEMBER 2015, ISSN: 0018-9464	**1.386**
176	Techniq uesusedto improve the performance of the stepped solar still—A review	A.E.Kabeel , Z.M.Omara **, M.M.Younes**	Renewable and Sustainable Energy Reviews, 46(2015)178–188,1364-0321	**5.901**

LIST OF ACCEPTED PAPERS

	Faculty of Engineering		
177	Effect of sintering parameters on microstructure, mechanical properties and electrochemical behavior of Nb–Zr alloy for biomedical applications	**M.A. Hussein** , C. Suryanarayana , M.K. Arumugam , N. Al-Aqeeli	Materials & Design 83 (2015) 344–351, ISSN: 0261-3069	**3.501**
178	Fabrication of nano-grained Ti–Nb–Zr biomaterials using spark plasma sintering	**M.A. Hussein ,** C. Suryanarayana , N. Al-Aqeeli	Materials and Design 87 (2015) 693–700,, ISSN: 0261-3069	**3.501**
179	Wear Characteristics of Metallic Biomaterials: A Review	**Mohamed A. Hussein ,** Abdul Samad Mohammed , and Naser Al-Aqeeli	*Materials* 2015, *8*, 2749-2768, ISSN: 1996-1944	**2.651**
180	Phase evolution during high energy ball milling of immiscible Nb–Zr alloys	N. Al-Aqeeli , **M.A. Hussein** , C. Suryanarayana	Advanced Powder Technology 26 (2015) 385–391, ISSN: 0921-8831	**2.638**
181	Increasing the productivity of the wire-cut electrical discharge machine associated with sustainable production	**Ibrahem Maher** , Ahmed A.D. Sarhan , Mohsen Marani Barzani , M. Hamdi	Journal of Cleaner Production 108 (2015) 247e255,ISSN: 0959-6526	**3.844**
182	Cutting force-based adaptive neuro-fuzzy approach for accurate surface roughness prediction in end milling operation for intelligent machining	**Ibrahem Maher** & M. E. H. Eltaib & Ahmed A. D. Sarhan & R. M. El-Zahry	Int J Adv Manuf Technol ,ISSN: 0268-3768,(2015) 76:1459–1467	**1.458**
183	Review of improvements in wire electrode properties for longer working time and utilization in wire EDM machining	**Ibrahem Maher** & Ahmed A. D. Sarhan & M. Hamdi	Int J Adv Manuf Technol (2015) 76:329–351, ISSN: 0263-2241	**1.458**

LIST OF ACCEPTED PAPERS

Faculty of   Engineering

184	Investigating the Machinability of Al–Si–Cu cast alloy containing bismuth and antimony using coated carbide insert	Mohsen Marani Barzani , Ahmed A.D. Sarhan , Saeed Farahany , Singh Ramesh, **Ibrahem Maher**	Measurement 62 (2015) 170–178. ISSN: 0263-2241	**1.484**
185	Investigation of the effect of machining parameters on the surface quality of machined brass (60/40) in CNC end milling—ANFIS modeling	**Ibrahem Maher** & M. E. H. Eltaib & Ahmed A. D. Sarhan & R. M. El-Zahry	Int J Adv Manuf Technol (2014) 74:531–537,ISSN: 0268-3768	**1.458**
186	Simulation-based optimization framework for reuse of agricultural drainage water in irrigation	**A. Allam ,** A. Tawfik b, C. Yoshimura , A. Fleifle	Journal of Environmental Management 172 (2016) 82e96, ISSN: 0301-4797	**2.723**
187	Evaluation of Erythemal ultraviolet solar radiation over Saudi Arabia	Zaki A. Al-Mostafa **, Hamdy K. Elminir ,** Ahmed Abulwfa , Saad M. Al-Shehri , Fawaz A. Alshehri , Ibrahim M. Al-Rougy , Ahmed A. Bazyad	Solar Energy 113 (2015) 258–271, ISSN: 0038-092X	**3.469**
188	SignsWorld Facial Expression Recognition System (FERS)	Samaa M. Shohieb & **Hamdy K. Elminir**	Intelligent Automation & Soft Computing, ISSN: 1079-8587 (Print) 2326-005X (Online)	**0.218**
189	Mitigation of transformer-energizing inrush current using grid-connected photovoltaic system	Abdelsalam A. Ahmed , **Hany A. Abdelsalam**	INTERNATIONAL JOURNAL OF ELECTRICAL POWER & ENERGY SYSTEMS, 79 (2016) 312–321,	**3.432**
190	A New Strategy for Selection of Switching Instant to Reduce Transformer Inrush Current in a Single-phase Grid-connected Photovoltaic System	**Hany A. Abdelsalam** & Almoataz Y. Abdelaziz	*Electric Power Components and Systems*, 43(11):1297–1306, 2015, ISSN: 1532-5008 print	

LIST OF ACCEPTED PAPERS

	Faculty of Medicine			
191	Do HOXB13 and P63 have a role in differentiating poorly differentiated prostatic carcinoma from urothelial high-grade carcinoma?	HANAN ALSAEID ALSHENAWY[1] and **EMAN SAIED**	APMIS 2015; 123: 772–778., ISSN: 0903-4641	**2.042**
192	Atorvastatin and metformin administration modulates experimental Trichinella spiralis infection	Ahmad A. Othman , Dina M. Abou Rayia , Dalia S. Ashour , **Eman M. Saied,** Doaa H. Zineldeen , Ahmad A. El-Ebiary	Parasitology International 65 (2016) 105–112,ISSN:5769-1383	**1.859**

LIST OF ACCEPTED PAPERS

Faculty of Aquatic and Fisheries Sciences

194	Control of citrus molds using bioactive coatings incorporated with fungal chitosan/plant extracts composite	Ahmed A Tayel, Shaaban H Moussa, Mohammed F Salem, Khaled E Mazroua and **Wael F El-Tras**	ISSN: 0022-5142 , JOURNAL OF THE SCIENCE OF FOOD AND AGRICULTURE,2015, Mar;Volume:96 Issue:(4)Pages:1306-1312	**1.714**
195	Foodborne Pathogens Prevention and ensory Attributes Enhancement in Processed Cheese via Flavoring with Plant Extracts	Ahmed A. Tayel, Heba Hussein, Noha M. Sorour, and **Wael F. El-Tras**	Journal of Food Science _ Vol. 80, Nr. 12, 2015, ISSN: 0022-1147	**1.696**
196	Mixed rearing correlates with the existence of Trichophyton verrucosum pathogens in humans	**Wael F. El-Tras** , Ahmed A. Tayel , Radi A. Mohamed , Doaa M. El-Kordy , Nevein N. El-Kady, Ahmed Samir	DERMATOLOGICA SINICA 33 (2015) 130e133, ISSN: 1027-8117	**0.879**
197	Effect of different levels of dietary copper nanoparticles and copper sulfate on growth performance, blood biochemical profiles, antioxidant status and immune response of red sea bream (Pagrus major)	Mohammed Fouad El Basuini , Abdelaziz Mohammed El-Hais , Mahmoud A.O. Dawood , Adel El-Sayed Abou-Zeid , Saad Zaglol EL-Damrawy **, Malik Mohamed EL-Sayed Khalafalla** , Shunsuke Koshio , Manabu Ishikawa , Serge Dossou	Aquaculture 455 (2016) 32–40,ISSN: 0044-8486	**1.878**

Faculty of Agriculture

PERFORMANCE OF FOREST TREE KHAYA SENEGALENSIS (DESR.) A. JUSS. UNDER SEWAGE EFfLUENT IRRIGATION

Hayssam M. Ali [a,b] , Manzer H. Siddiqui [a,*] , Mohamed H. Khamis [b] , Fatma A. Hassan [b] , Mohamed Z.M. Salem [c] , **El-Sayed M. El-Mahrouk** [d]

[a] Department of Botany and Microbiology, College of Science, King Saud University, Saudi Arabia

[b] Department of Timber Trees Research, Sabahia Horticulture Research Station, Horticulture Research Institute, Agriculture Research, Alexandria, Egypt

[c] Department of Forestry and Wood Technology, Faculty of Agriculture, El-Shatby, Alexandria University, Egypt

[d] **Department of Horticulture, Faculty of Agriculture, Kafrelsheikh University, Egypt**

ABSTRACT

The increasing demand of water in agriculture has compelled to search alternative source of water whichcould prove more economic and effective. Therefore, this investigation was carried out to study the effectof sewage effluents on Khaya senegalensis seedlings as well as on soil properties after 6, 12 and 18 monthsof plantation. The primary effluent treatment was highly significant ($P < 0.0001$) for the growth parametersof K. senegalensis (plant height, stem diameter, leaf area, leaves number, fresh and dry weights of leaves,shoots and roots and shoot/root ratio) by improving soil properties as well as uptake of N, P, K, Na, Cd, Ni, Pband Fe in plant parts, followed by secondary effluent then tap water after 6, 12 and 18 months of plantation.Additionally, the effect of sewage effluent irrigation on the physico-chemical properties of soil was highlysignificant ($P < 0.0001$). Therefore, sewage effluent could be used as an important alternative source ofwater and nutrients for forestry production. Also, K. senegalensis could be planted as a phytoremediator insoil polluted with heavy metals for the betterment of soil properties. Thus, planting K. senegalensis as

USAGE OF SEWAGE EFFLUENT IN IRRIGATION OF SOME WOODY TREE SEEDLINGS . PART 3: SWIETENIA MAHAGONI (L.) JACQ.

Hayssam M. Ali a,b , **EL-Sayed M. EL-Mahrouk** c , Fatma A. Hassan a , Mohamed A. EL-Tarawy c

a *Timber Trees Research Department , Sabahia Horticulture Research Station , Alexandria , Horticulture Research Institute , Agriculture Research Center , Egypt*

b *Botany and Microbiology Department , College of Science , King Saud University , P.O. Box 2455 , Riyadh 11451 , Saudi Arabia*

Horticulture Department , Faculty of Agriculture , Kafrelsheikh University , Egypt

ABSTRACT

A pot experiment was investigated to study the effect of sewage irrigation treatments (primary and secondary effluents) compared with tap water on the growth and chemical constitu-ents of mahogany seedlings (*Swietenia mahagoni* (L.) Jacq.) as well as soil chemical properties. The experiment was conducted at a greenhouse in the nursery of Timber Trees Research Department of Sabahia, Horticultural Research Station in Alexandria , Egypt , from June 2003 to December 2004 for three irrigation periods (6, 12 and 18 months). The sewage effluent waters were taken from oxi-dation ponds located in New Borg EL-Arab city and used directly for irrigation.

The primary effluent treatment was superior than other treatments in improving the growth parameters (plant height, stem diameter, leaf area, leaves number , fresh and dry weights of leaves, shoots and roots and shoot/root ratio) and showed the highest concentration and total uptake of N, P, K, Cd, Ni, Pb and Fe in plant parts, followed by secondary effluent then tap water. The data revealed that soil salinity in terms of electrical conductivity of saturated paste (EC), CaCO3%, organic matter % and soluble anions and cations were influenced significantly by primary or secondary effluent treatment. The data also showed that the use of sewage effluent for irrigation increased N, P, K and DTPA-extractable-heavy metals (Cd, Cu, Ni, Pb, Fe, Mn and Zn). The effects of sewage effluent on growth parameters and elements content in plant parts and treated soil were more pronounced as water treatments were used for long period.

The results suggested that the use of sewage effluent in irrigating mahogany trees grown on cal-careous sandy loam soil was an important agriculture practice for improving soil properties, increasing fuel and timber production, and is an economic and safe way to dispose wastewaters.

BACTERIOCIN-PRODUCING ENTEROCOCCUS FAECALIS KT2W2G ISOLATED FROM MANGROVE FORESTS IN SOUTHERN THAILAND: PURIFICATION, CHARACTERIZATION AND SAFETY EVALUATION

Aran H-Kittikuna, Vanessa Biscolac, **Shady El-Ghaish[d]**, Emmanuel Jaffrese, f, Xavier Doussete, f, Guillaume Pillote, f, Thomas Haertleb, Jean-Marc Chobertb, Noraphat b,

a Department of Industrial Biotechnology, Faculty of Agro-Industry, Prince of Songkla University, Hat Yai 90112, Thailand

b UR 1268 Biopolym_eres Interactions Assemblages, _Equipe Fonctions et Interactions des Prot_eines, INRA, 44316 Nantes Cedex 03, France

c Department of Food and Experimental Nutrition, Faculty of Pharmaceutical Sciences, University of S~ao Paulo, 580, Professor Lineu Prestes, 13 B, Sao Paulo, SP 05508-000, Brazil

d Kafrelsheikh University, Faculty of Agriculture, Department of Dairy Sciences, B.P. 33516 Kafrelsheikh, Egypt

e LUNAM Universit_e, Oniris, UMR 1014 Secalim, 44307 Nantes, France ,f INRA, 44307 Nantes, France

ABSTRACT

The aim of this work to purify and characterize the bacteriocin produced by *Enterococcus faecalis* KT2W2G isolated from the mangrove forest in southern Thailand, in order to evaluate its potential as a new food protective agent. The active peptide from the cell-free supernatant of *Ent. faecalis* KT2W2G was purified in 4 steps: (i) precipitation with 70% saturated ammonium sulfate, (ii) elution on a reversed phase cartridge (Sep-Pak C8) using different concentrations of acetonitrile, (iii) cation-exchange chromatography and (iv) final purification by reversed phase-HPLC on a C8 column. Each purification step increased the specific activity and reduced the amount of contaminating non-bacteriocin proteins. The specific activity of purified bacteriocin was 13,470.53 AU/mg of protein, which corresponded to a 48.10- fold increase. Tricine-SDS-PAGE of the purified bacteriocin gave molecular weight ranging between 3.5 and 6.5 kDa. The activity of the partially purified bacteriocin was unaffected by pH (2.0-12.0) and thermostable, but was sensitive to proteolytic enzymes. This bacteriocin maintained full stability after storage at -20, 4 and 37 °C for 2 months. It was stable when incubated for 1 month at 4 °C in 0-30% NaCl. Inhibitory spectrum of this bacteriocin showed a wide range of activities against other LAB, food spoilage and food-borne pathogens. *Ent. faecalis* KT2W2G was sensitive to kanamycin, tetracycline and vancomycin but resistant to ampicillin, gentamicin and penicillin. PCR amplification demonstrated that *Ent. faecalis* KT2W2G does not harbor virulence genes *cyl*A, *cyl*B and *esp* but has virulence genes *ace, asa*1 and *efaAfs*. The bacteriocin and its producing strain may find application as bio-preservatives for reduction of food-spoilage and food-borne pathogens in food products.

KITCHEN BIO-WASTES MANAGEMENT BY VERMICOMPOSTING TECHNOLOGY

Said Elshahat Abdallah, Wael Mohamed Elmessery

Associate Professor , Department of Agricultural Engineering, Faculty of Agriculture, Kafrelsheikh University, Kafr Elsheikh 33516, EGYPT,

Lecturer, Department of Agricultural Engineering, Faculty of Agriculture, Kafrelsheikh University, Kafr Elsheikh 33516, EGYPT

ABSTRACT

Rapid urbanization has led to dumping of kitchen wastes causing a serious threat to the environment. A kitchen waste is undertaken in this study due to its majority in municipal wastes and the disposal process of it is costly. Two types of vermireactors (with and without trays) at three different areal loadings running under three different evaporative cooling vermicomposters (passive, direct active and indirect active) were operated for seven weeks experimentation period. The substrate moisture content and its temperature were monitored regularly and the vermireactors were evaluated weekly for the assessment of temporal changes of earthworms. Transformation of kitchen wastes into valuable added product, through vermicomposting process, by using Earthworms (Eisenia foetida) that were introduced at the initial stocking density of $26.45 \pm 1.77 mg/cm^3$ ($1.85 \pm 0.12 kg/m^2$). The experiment revealed that direct evaporative cooling vermicomposter reaches the optimum ambient condition; relative humidity of 70-80% and air temperatures of 20-27ºC. So both vermireactors have the highest vermicast production of 0.28-0.36g-cast/g worm/day, but the vermireactor with trays and areal loading of $743.7 cm^2/kg$ of feed was dramatically higher than the output in the corresponding vermireactors without trays. Vermicomposting results had significant differences between all treatments ($P < 0.05$).

EVALUATION OF SELECTED CUCUMIS SATIVUS ACCESSIONS FOR RESISTANCE TO PSEUDOPERONOSPORA CUBENSIS IN EGYPT

Elmahdy Ibrahim METWALLY [1] and *Mohamed Tawfik RAKHA*[1,2]

[1]*Horticulture Department, Faculty of Agriculture, University of Kafrelsheikh, Kafr El-Sheikh, Egypt;* [2]*AVRDC – The World Vegetable Center, Shanhua, Tainan, Taiwan*

ABSTRACT

Metwally E.I., Rakha M.T. (2015): Evaluation of selected *Cucumis sativus* accessions for resistance to *Pseudoperonospora cubensis* in Egypt. Czech J. Genet. Plant Breed., 51: 68–74. Downy mildew [*Pseudoperonospora cubensis* (Berk. & Curt.) Rostov] is a major destructive disease of cucumber *(Cucumis sativus* L.) worldwide. Resistant cultivars were recently introduced into Egypt, but yield losses were high if no fungicides were used. The objective of this study was to identify sources of resistance to downy mildew among Plant Introduction (PI) cucumber accessions from the U.S. National Plant Germplasm System. We evaluated 133 such accessions for downy mildew resistance under natural field epidemics during the summer 2013 at El-Beheira Governorate, Egypt. Mean ratings for downy mildew leaf damage ranged from 1 to 9 on a 0 to 9 scale. We classified 18 PI accessions (13.5%) as highly resistant (rating of 1.0–2.0), 46 (34.5%) as moderately resistant (rating 2.1–4.0), 40 (30%) as intermediate (rating 4.1–6.0), 12 (9%) as moderately susceptible (rating 6.1–7), and 17 (13%) as highly susceptible (rating > 7.1). The most resistant PI accessions were PI 432870, PI 432873, PI 432878, PI 432884, and PI 432886 with a rating of 1, which originated from China. The most susceptible PI accessions were Ames7736, PI 211979, PI 288991, PI 288992 and PI 289698 with a rating of 9. The five most resistant and five most susceptible accessions were further evaluated in replicated experiments during the summer 2014. Results from the repeated test confirmed the results from the first screening. No PI accession was found immune to downy mildew. However, high levels of resistance were observed in several PI accessions that could be useful for the breeding for resistance to *P. cubensis* in cucumber.

BACTERIOCIN PRODUCTION AND SAFETY EVALUATION OF NON-STARTER ENTEROCOCCUS FAECIUM IM1 AND ENTEROCOCCUS HIRAE IM1 STRAINS ISOLATED FROM HOMEMADE EGYPTIAN DAIRY PRODUCTS

S. El-Ghaish[1], A. El-Baz[2], N. Hwanhlem[3], **M. Zommara**[1], E. Ayad[4], Y. Choiset[5], T. Haertlé[5], J.-M. Chobert[5,*]

[1:] **Department of Dairy Sciences, Faculty of Agriculture, Kafrelsheikh University, B.P. 33516, Kafr el-Sheikh, Egypt**

ABSTRACT

This study presents the characterization of some strains of lactic acid bacteria (LAB) from traditional Egyptian dairy products. Isolated LAB (623 isolates) were studied for their antimicrobial activity against taxonomically related microorganisms. Selected LAB were identified by PCR method as *Enterococcus faecium* IM1 and *Enterococcus hirae* IM1. Partially purified enterocins showed antimicrobial activity against *Lactobacillus bulgaricus* 340, *Lb. brevis* F104 and F145, *Lb. sakei*, *Brochothrix thermosphacta* DSMZ20171[T] and DSMZ20599, *Carnobacterium maltaromaticum* CIP103135[T], *C. piscicola* S4312, *E. faecalis* JH2-2 and JH2-2rr04, *E. faecium* CTC492/t1362 and P13, *Listeria grayi* CLIP12518, *L. innocua* 1, CIP80.11[T], F and P, *L. ivanovii* ATCC and CIP78.42T, *L. monocytogenes* CIP78.35, DSM12464, EGDe, RF124, RF125, RF131, RF132, RF133, RF142, RF151 and RF152, and *Vagococcus penaei* CIP 109914[T] but have no effect against *Bacillus subtilis* 168[T], *Moellerella wisconsensis* MIP2451, *Morganella psychrotolerans* MIP2488, *Pseudomonas fluorescens* 10, *Salmonella enterica*, *Sal. montevideo*, *Sal. typhimurium* and *Serratia liquefaciens* CIP103238[T]. The inhibitory activity was not due to hydrogen peroxide for *E. hirae* IM1, but strain *E. faecium* IM1 may excrete diverse antimicrobial compounds such as hydrogen peroxide and bacteriocins. Antimicrobial activity of *E. faecium* IM1 was initially detected during exponential phase of growth, and the maximal level (1,300 AU/mL) was observed at 12 h and remained stable till the end of incubation time (48 h). Maximum of activity of *E. hirae* IM1 was observed during the logarithmic phase (6 h) and then decreased after 12 h. Bacteriocins produced by *E. faecium* IM1 and *E. hirae* IM1 were stable between pH 5 and pH 8 and stable also until 100 °C/20 min. Tested strains were free from virulence determinant genes as well as hemolytic and gelatinase activities. *E. faecium* IM1 was sensitive to penicillin, kanamycin, vancomycin, gentamicin and tetracycline but resistant to ampicillin. Otherwise, *E. hirae* IM1 was sensitive to penicillin, kanamycin, vancomycin and tetracycline but resistant to ampicillin and gentamicin. The isolated cultures with antimicrobial activities may be used as safe and useful starter cultures or co-cultures.

CHEMICAL COMPOSITION AND AMOUNTS OF MINERAL ELEMENTS IN HONEYBEE-COLLECTED POLLEN IN RELATION TO BOTANICAL ORIGIN

El-Kazafy Abdou Taha

[2]Department of Economic Entomology, Faculty of Agriculture, Kafrelsheikh University,Kafrelsheikh, Egypt

ABSTRACT

This study was conducted at the apiary of the Agricultural and Veterinary Training and Research Station, King Faisal University, Al-Ahsa, Saudi Arabia. The purpose was to study the relationship between the botanical origin and chemical composition of bee-collected pollen. The amount of mineral elements present in bee-collected pollen was also studied. The composition of pollen loads showed the maximum contents of dry matter, ash, glucose, fructose, magnesium (Mg), phosphorus (P), and manganese (Mn) for the date palm; the maximum contents of protein, calcium (Ca), and zinc (Zn) for alfalfa; the maximum contents of fiber, and copper (Cu) for the sunflower; the maximum contents of the lipids and iron (Fe) for summer squash; and the maximum contents of sodium (Na), and potassium (K) for rape. Calcium was found to be correlated in a significantly (p<0.01) positive way with K, Na, Mg, P, Mn, and Zn. Copper, though, was correlated in a significantly (p<0.01) negative way with Ca, Mg, P, Mn, and Zn. The high levels of protein, ash, glucose, and fructose, and low lipid content found in bee-pollen from the date palm and from alfalfa, mean that pollen from the date palm and from alfalfa make an excellent food supplement. It was concluded, that the chemical composition of beecollected pollen can be correlated with the plant species from which pollen was collected.

MORPHOMETRIC STUDIES ON DWARF HONEY BEE APIS FLOREA F. WORKERS IN SAUDI ARABIA

Saad N. AL-Kahtani[1], **EL-Kazafy A. Taha**[1,2]*

[1] Department of Arid Land Agriculture, College of Agriculture and Food Sciences, King Faisal University, Al-Hasa, Saudi Arabia
[2] **Deptartment of Economic Entomology, Faculty of Agriculture, Kafrelsheikh University, Kafrelsheikh, Egypt**

ABSTRACT

Here we performed a morphometric analysis of dwarf honey bee (Apis florea F.) workers from Saudi Arabia, and we detected morphometric variations within the species in the Jubail and Al-Ahsa provinces of this region. Between the two provinces, Jubail is further north and is closer to sea level, and data showed that during the collection period, Jubail experienced significantly higher humidity. Compared to workers from the Jubail province, workers from Al-Ahsa province showed significantly higher body weight, measured head appendage characteristics, wing characteristics (apart from hindwing width), leg characteristics, and length and width of the 3rd abdominal sternite and 1st wax mirror. Body weight as found to be significantly positively correlated with all determined characteristics, except for flagellum length, hindwing width, 3rd tergite length, and lengths of the 4th tergite and sternite. It can be concluded that body weight and morphometric characteristics\ of dwarf honey bee workers were significantly affected by geographic origin. The morphometric measurements were within the range reported from most previously examined countries.

EFFECT OF PHOTOSYNTHETIC PHOTON FLUX DENSITY ON GROWTH ,PHOTOSYNTHETIC COMPETENCE AND ANTIOXIDANT ENZYMES ACTIVITY DURING EX VITRO ACCLIMATIZATION OF DIEFFENBACHIA CULTIVARS

M. E. El-Mahrouk[1,2] · Y. H. Dewir[1,3] · H. N. Murthy[4] · H. Z. Rihan[2,5] · H. S. Al-Shmgani[2,6]· M. P. Fuller[2]
[1] Department of Horticulture, Faculty of Agriculture, Kafr El- Sheikh University, Kafr El-Sheikh 33516, Egypt

ABSTRACT

The effects of 35, 70 and 100 lmol m-2 s-1 photosynthetic photon flux density (PPFD) were investigated on ex vitro acclimatization of micropropagated Dieffenbachia plants. Various growth characteristics, photosynthetic parameters and activities of antioxidant enzymes and dehydrins (DHN) were investigated. Fresh and dry plant biomass, plant height and root length were highest under the highest PPFD (100 lmol m^{-2} s^{-1}), but this treatment was responsible for a reduction in the number of leaves. Chlorophyll and carotenoid contents and net photosynthesis were also optimal in plants grown under the highest irradiance. Stomatal resistance, transpiration rate and Fv/Fm values decreased with the incremental light irradiance. Activities of the antioxidant enzymes superoxide dismutase, catalase and glutathione peroxidase were higher in the plants treated with 70 and 100 lmol m^{-2} s^{-1} PPFD .Accumulation of 55 kDa, 40 and 22 kDa DHN was observed in all light treatments. These results depict that lower PPFD (35 lmol m-2 s-1) was suitable for acclimatization of Dieffenbachia plants. High PPFD ([70 lmol m^{-2} s^{-1}) induced accumulation of antioxidants and accumulation of DHN in the plants which reveals enhanced stress levels.

GENETIC ANALYSIS OF GROWTH TRAITS IN THE PROGENY OF RABBIT DOES FROM A DIALLEL CROSS

MÍNGUEZ C, SÁNCHEZ J.P, BRUN J.M**., RAGAB, M**., EL NAGAR, A.G. $, BASELGA, M.

¶**Poultry Production Department, Kafer El-Sheikh Univ., Kafer El-Sheikh, 33516, Egypt**.

ABSTRACT

An experiment was carried out to estimate the genetic group effects and the crossbreeding genetic parameters of growth traits [body weight (BW), average daily gain (ADG), feed intake (FI) and feed conversion ratio (FCR)] in rabbits during fattening between 28 and 63 d. The rabbits were the progeny of does coming from a full diallel cross between 4 maternal lines (A, V, H and LP) mated to bucks of the paternal line R. On thousand fifty five rabbits were controlled and the traits were recorded weekly, with the cage as the experimental unit for FI and FCR (283 cages). The genetic group (V line) was present in all farms in order to connect records among them and to be used as reference group. Crossbreeding parameters were estimated according to the Dickerson model. Regarding dam effects between pure lines for BW at weaning, A line was the heaviest and showed significant differences with LP and V lines (61 and 30 g, respectively). Upon completion of the fattening period, the differences in favour of A line for BW at weaning were compensated. Throughout the fattening period, no significant differences were observed between the lines as dam lines. At the end of the fattening period, no significant differences were observed between the crossbred groups. Regarding the reciprocal effects, the most relevant results were the significances for FCR in favour of H as sire line. For all traits, the confidence intervals at 95% of all contrast and effects were large. The estimates of maternal heterosis were, in general, negative, which could be a consequence of the positive heterosis for litter size. The AH cross showed significant maternal heterosis for BW at 43 d (–53 g), ADG between 28 and 42 d (–3.5 g/d), FI between 28 and 63 d (–7 g/d) and FCR between 42 and 63 d (–0.15). The combination of direct and maternal effects of the V line was the worst for all growth traits, showing significant differences with the LP line for most of them, for instance 0.13 worse FCR between 28 and 63 d. Grand-maternal effects were less important than direct-maternal.

GENETIC ANALYSIS OF SLAUGHTER AND CARCASS QUALITY TRAITS IN CROSSBRED

RABBITS COMING FROM A DIALLEL CROSS OF FOUR MATERNAL LINES

MÍNGUEZ C., SÁNCHEZ J.P., **RAGAB M.**, EL NAGAR A.G.§ , BASELGA M.§

‡**Poultry Production Department, Kafer El-Sheikh Univ., Kafer El-Sheikh, 33516, Egypt.**
.

ABSTRACT

An experiment was carried out to estimate the genetic group effects and the crossbreeding genetic parameters of slaughter and carcass traits using data on the rabbits that were progeny of does coming from a full diallel cross between 4 maternal lines (A, V, H and LP) mated to bucks of the paternal line R. The rabbits of the 16 genetic groups, corresponding to the type of does of the diallel cross, were distributed in 4 Spanish farms and 1 genetic group (V line) was present in all farms in order to connect records among them and to be used as reference group. Crossbreeding parameters were estimated according to Dickerson's model. 1896 rabbits were measured for slaughter traits and 950 for carcass traits. The A and LP lines had the lowest values for dressing percentage (−1.71 and −1.98 compared with H line and −1.49 and −1.75 with the V line, respectively). The A line was the heaviest for commercial carcass weight. No relevant differences were observed between the crossbred groups for all traits. Regarding the reciprocal effects, there were significant differences in favour of A line as sire line in the crossbred AV. Regarding the combination of direct and maternal effects, the A line showed significantly higher values for cold carcass weight (133 g., 71 g. and 142 g. compared to the H, LP and V lines). For the same parameter the H line showed significantly higher averages on dressing percentages than A and LP lines, 1.44 and 2.13%, respectively. Line A also showed, in general, better direct- maternal effects than the V line. Grand-maternal effects were less important than direct-maternal ones. The estimates of maternal heterosis were, in general, negative, which could be a consequence of the positive heterosis for litter size. However, despite this relationship between growth and litter traits, it has not been common to find negative maternal heterosis in growth traits. A diminution of dressing percentage was detected in some crossbreds (AL and LV) and care must be taken if these types are used.

GROWTH TRAITS OF FOUR MATERNAL LINES OF RABBITS FOUNDED ON DIFFERENT CRITERIA: COMPARISONS AT FOUNDATION AND AT LAST PERIODS AFTER SELECTION.

C. M_ınguez, J.P. Sanchez₃, A.G. EL Nagar,, **M. Ragab** & M. Baselga₂

5 Poultry Production Department, Faculty of Agriculture, Kafr El-Sheikh University, Kafr El-Sheikh, Egypt

ABSTRACT

The objective was to compare growth traits in four maternal lines of rabbits (A, V, H and LP), with the aim of understanding the consequence of the different foundation and selection processes on the growth performance of the lines. The lines are currently in the 43th, 38th, 22th and 8th generations, respectively. Two comparisons were performed. One compared the values of the lines at their foundation, using the complete data set, the full pedigree and a two-trait analysis, including data on the selection criteria, litter size. The other comparisons were done during the last period when all the lines were housed together with the same feeding and management. The numbers of records were 323 208 for weaning weight, and 300 553 for slaughter weight and average daily Gain (from 46 708 l). The pedigree file included 346 638 animals. The second analysis used only the data corresponding to each period, and the analysis was conducted using a one-trait model. The model was the same as that defined for the comparisons at the foundation, but the additive effects were excluded. The H and LP lines showed highest values for all the traits compared. In the last periods, a good agreement was observed between the estimated differences, computed with the complete model and data set, or computed with an incomplete model and only data from the comparison period. At last periods, the differences were smaller than at foundation. The importance of the correlated response in growth after selection for litter size at weaning or the importance of a non-programmed intramating selection for the growth traits can explain the changes since foundation.

FASCIATION IN CRASSULA ARGENTEA: MOLECULAR IDENTIFICATION OF PHYTOPLASMAS AND ASSOCIATED ANTIOXIDATIVE CAPACITY

Yaser Hassan Dewir[1,2] & **Ayman Faisal Omar** [3]& Yaser Mohamed Hafez[3] & Mohammed El-Sayed El-Mahrouk[2] & Rasha Yousef Mourad[3]

[1]Plant Production Department, College of Food and Agriculture Sciences, King Saud University, Riyadh 11451, Saudi Arabia
[2]Department of Horticulture, Faculty of Agriculture, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt
**[3]Department of Agricultural Botany, EPCRS Excellence Center, Plant Pathology and Biotechnology Laboratory,
Faculty of Agriculture, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt**

ABSTRACT

The present study reports on phytoplasma induced fasciation in Crassula argintea (Crassulaceae). DNA was extracted from symptomless and fascinated tissues and amplified by nested PCR using universal primers P1/P7 followed by R16F2n/R16R2 produced amplicons of 1.2 Kb. The nucleotide sequence analyses of the amplicons indicated that fasciated plants were infected by phytoplasma. Phylogenetic analysis placed the Crassula fasciation phytoplasmas in 16SrII-D group. Histochemical staining for reactive oxygen species indicated that phytoplasma infected (PI) tissues possess significantly higher levels of hydrogen peroxide (H2O2) rather than superoxide ($O^{2 \cdot -}$) as compared with symptomless tissues. PI tissues were also associated with a significant increase in antioxidant enzyme activities (catalase, peroxidase, polyphenol oxidase, and glutathione reductase) and electrolyte leakage as compared with symptomless tissues.

BIOCHEMICAL, HISTOLOGICAL AND MOLECULAR CHANGES IN SUSCEPTIBLE AND RESISTANT WHEAT CULTIVARS INOCULATED WITH STRIPE RUST FUNGUS PUCCINIA STRIIFORMIS F. SP. TRITICI

Abdelaal, Kh. A. A.; Y. M. Hafez; M. M. Badr; W. A. Youseef and Samar M. Esmail

*Agric. Botany Dept. (Agric. Botany Branch, **Plant Pathol. Branch), Fac.Agric., Kafrelsheikh Univ., Egypt
***Wheat Dis. Res. Dept., Plant Pathol. Res. Inst., A.R.C., Sakha, Egypt.

ABSTRACT

Stripe rust, caused by *Puccinia striiformis* f. sp. *tritici*, is one of the most disturbing diseases of wheat worldwide. Resistant cultivars are the best strategy to control the disease. Importantly, the mechanisms of susceptibility and resistance are required urgently. As a result of wheat inoculation, disease severity, disease symptoms and electrolyte leakage were decreased significantly in resistant cultivars compared with susceptible ones, however, chlorophyll a and b concentrations were increased significantly in the resistant cultivars. *Yr18* resistant gene, over accumulated in resistant cultivars, resulted in a much greater of reactive oxygen species (ROS), mainly superoxide ($O_2 \cdot$-) and hydrogen peroxide (H_2O_2) accumulation and lower catalase (CAT), peroxidase (POX) and polyphenol oxidase (PPO) activities together. Susceptible wheat cultivar inoculated with *P. striiformis* was colonized extensively, produced large amount of spores, intercellular hyphae and haustoria, compared with the resistant cultivar in which the haustoria and hyphae were restricted and abnormally developed.

IMPACT OF NON-TRADITIONAL COMPOUNDS AND FUNGICIDES ON PHYSIOLOGICAL AND BIOCHEMICAL CHARACTERS OF BARELY INFECTED WITH BLUMERIA GRAMINIS F. SP. HORDEI UNDER FIELD CONDTITIONS

Hafez, Y. M.; R. Y. Mourad; M. Mansour and **Kh. A. A. Abdelaal**

∗Dept. of Agric. Botany (Plant Pathology Branch), Fac. of Agric., Kafrelsheikh Univ., Kafr-Elsheikh, Egypt.
E-mail: hafezyasser@gmail.com
∗∗Dept. of Barley, FCRI, ARC, Egypt.
∗∗∗Dept. of Agric. Botany (Agric. Botany Branch), Fac. of Agric., Kafrelsheikh Univ., Kafr-Elsheikh, Egypt

ABSTRACT

Infected barley plants variety Giza 123 susceptible to *Blumeria graminis* f. sp. *hordei* (*Bgh*) were treated with silver nanoparticles, effective microorganisms (EM), benzothiadiazole (BTH), oxalic acid, tannic acid, allicin and fungicides treatments. Disease severity (%) was significantlty reduced as a result of all treatments, except oxalic acid and EM which showed less reduction compared with the control. Disease symptoms and electrolyte leakage decreased significantly at all treatments compared with the control. Endogenous reactive oxygen species (ROS) such as superoxide (O2 \ .-) and hydrogen peroxide (H2O2) were stimulated significantly early after natural infection consequently, later on activities of catalase (CAT), peroxidase (POX) and poly phenol oxidase (PPO) were increased sigificantly compared with the control. Elevated levels of ROS early after infection could play a pivotal role in killing the fungus and inhibiting the severity of disease symptoms as well as immunizing plants by increasing enzyme activities. Interestingly enough that the treatments were efficient so that the field characters values were increased significantly compared with the control. These results indicated that the non-traditional treatements are suitable and can be used as alternative to fungicides even under field conditions.
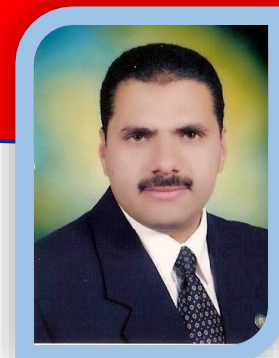
Kafrelsheikh University
Postgraduate Studies&Research

ROLE OF NON-TRADITIONAL TREATMENTS IN INDUCING RESISTANCE AGAINST WHEAT LEAF RUST CAUSED BY PUCCINIA TRITICINA

Omara, R.I.; S.M. Kamel; **Y. M. Hafez**, and S.Z. Morsy
*Plant Pathology Research Institute, Agriculture Research Centre, Giza, Egypt
**EPCRS Excellence Centre,
Agricultural Botany Department, Faculty of Agriculture, Kafrelshiekh University, Egypt
***Pesticides Chemistry Department, Faculty of Agriculture, Kafrelshiekh University, Egypt

ABSTRACT

Wheat leaf rust caused by *Puccinia triticina* has been reported to be a serious disease in wheat growing areas in the world and in Egypt as well. There are two drowbacks of chemical control of the disease one of which is enviromental polluation and the other is the cost. Therefore, ten non-traditional treatments were evaluated herein to stimulate and induce resistance against *P. triticina* with different applications and treatments. The results showed that the best appllied tratment was spray befor and after inocultion by 24 hours, in which incubation, latent periods, infection types, number of pustules/cm^2, pustule length, pustule width and totall chlorophyll followed by the the treatment of spray befor inocultion by 24 hours and treatment of seed treatment and spray befor inocultion by 24 hours. On the other hand, seed treatment was the lowest one. The best treatments were sumi-8, *Art*. 1% + 50 % sumi-8, *Art*. 2% + Zn and *Art*. 2% + Mn. Interstingly that the selected treatments showed significant reduction of electrolyte leakage (EL) %, increased activity of catalase (CAT) enzyme and decreased thereby the activities of peroxidase (POX) and polyphenol oxidase (PPO) compared with control tratement. Accordingly, this study suggests the possible use of these effective treatments for controlling wheat leaf rust disease especially treatments combined with *Artemisia cina* extract. This also support the use of natural products which reduced the environmental pollution; the adverse effect on human health and delays the resistance development by the fungi to fungicides. However, further studies are needed to evaluate the side effects of the used natural products to reflect their safety.

MICROPROPAGATION OF CATTLEYA: IMPROVED IN VITRO ROOTING AND ACCLIMATIZATION

Yaser Hassan Dewir[1,2]*, Mohammed Elsayed El-Mahrouk[2], Hosakatte Niranjana Murthy[3], and Kee Yoeup Paek[4]

[1]*Plant Production Department, College of Food and Agriculture Sciences, King Saud University, Riyadh 11451, Saudi Arabia*

[2]**Department of Horticulture, Faculty of Agriculture, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt**

3*Department of Botany, Karnatak University, Dharwad 580003, India*
4*Research Center for the Development of Advanced Horticultural Technology, Chungbuk National University, Cheongju 361-763, Korea*

ABSTRACT

Abstract. The present study reports optimization of in vitro rooting of *Cattleya* shoots with the aim to increase survival rate during acclimatization. Shoots (2.0 - 2.5 cm) which were regenerated in vitro were cultured on Murashige and Skoog (MS) medium and the effect of various parameters such as type and concentration of auxin [0.3, 0.6, 1.2 and 2.4 mg·L^{-1} indole butyric acid (IBA) and naphthaleneacetic acid (NAA)], medium strength (full and half strength), sucrose concentration (0, 15 and 30 g·L^{-1}) and light intensity [photosynthetic photon flux density (PPFD) of 30, 60, 90 μmol·m^{-2}·s^{-1}] were tested. Half strength MS medium supplemented with 2.4 mg·L^{-1} IBA, 3% sucrose and 60 μmol·m^{-2}·s^{-1} PPFD were found as suitable conditions for optimal induction of roots. In vitro regenerated *Cattleya* plantlets were successfully transferred to potting medium containing bark: perlite: peatmoss (1:1:1) and perlite:peatmoss (1:1), and 98.3 and 80.7% were survived respectively.

HYPERHYDRICITY IN AFRICAN VIOLET (*SAINTPAULIA IONANTHA* H. WENDL) – BIOCHEMICAL ASPECTS OF NORMAL VERSUS HYPERHYDRIC SHOOTS REGENERATED VIA DIRECT ADVENTITIOUS SHOOTS FORMATION

Yaser Hassan Dewir[1,2]*, Mohammed El-Sayed El-Mahrouk[2], Yaser Mohamed Hafez[3], Jaime A. Teixeira ,da Silva[4], and Yougasphree Naidoo[5]

1Plant Production Department, College of Food and Agriculture Sciences, King Saud University, 11451 Riyadh, Saudi Arabia.

[2] **Department of Horticulture, Faculty of Agriculture, Kafrelsheikh University, 33516 Kafr El-Sheikh, Egypt.**

[3]Department of Agricultural Botany, Plant Pathology and Biotechnology Laboratory, Faculty of Agriculture, Kafrelsheikh University, 33516 Kafr El-Sheikh, Egypt.

4P. O. Box 7, Miki-cho post office, Ikenobe 3011-2, Kagawa-ken, 761-0799, Japan.

[5]School of Life Sciences, University of KwaZulu-Natal, Westville Campus, Private Bag X54001, 4000 Durban, South Africa.

ABSTRACT

African violet (*Saintpaulia ionantha* H. Wendl) is one of the most easily and commonly tissue-cultured ornamental plants. Despite this, there are limited reports on the direct adventitious shoots from any organ, most papers reporting on an indirect route through callus. In this study, adventitious shoots were induced directly from leaf and petiole explants from *in vitro* plantlets derived from shoot tip culture. Murashige and Skoog (MS) medium supplemented with 0.2 mg l^{-1} 6-benzyladenine and 0.1 mg l^{-1} kinetin resulted in 91.65% direct shoot formation from leaf explants and 70% from petiole explants while 32.5 and 17.5 shoots formed per leaf and petiole explant, respectively. The origin of shoots was histologically demonstrated. The potential role of antioxidant enzymes in protecting hyperhydric plantlets from oxidative injury was examined by analyzing antioxidant enzyme activities of hyperhydric and normal tissues. Activities of catalase (CAT), peroxidase (POD), polyphenol oxidase (PPO), and glutathione reductase (GR) were significantly higher in hyperhydric tissue as compared to normal tissue indicating a crucial role in eliminating toxic hydrogen peroxide from plant cells. A comparison of hyperhydric tissues with normal tissues shows marked increase in malondialdehyde (MDA) content and electrolyte leakage in hyperhydric tissues. Hyperhydricity in African violet was associated with the formation of four new protein bands and absence of one protein band that is present in normal tissues. A hundred percent of the regenerated plantlets were rooted in MS medium without plant growth regulators. They were acclimatized with 93% survival in a growing substrate of peatmoss and vermiculite (1 : 1).

IN VITRO PROPAGATION AND PRELIMINARY RESULTS OF AGROBACTERIUM-MEDIATED GENETIC TRANSFORMATION OF CORDYLINE FRUTICOSA

Y.H. Dewir [a,b,] M.E. El-Mahrouk [b], A.N. El-Banna [c]

a Plant Production Department, College of Food and Agriculture Sciences, King Saud University, Riyadh 11451, Saudi Arabia

b Horticulture Department, Faculty of Agriculture, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt

c Genetics Department, Faculty of Agriculture, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt

ABSTRACT

A method for in vitro propagation through axillary shoot proliferation and induction of adventitious shoots as well as Agrobacterium-mediated transformation of Cordyline fruticosa is presented. In vitro Cordyline shoots were cultured on MS mediumsupplemented 0–4mg l−1 thidiazuron (TDZ) for their multiplication. MS medium supplemented with 0.1 mg l−1 TDZ proved to be the most effective in which 14 shoots per explants were obtained. Leaf segments were excised from in vitro axillary shoots and cultured on MS medium supplemented with TDZ (0–5mgl−1) for callus induction. Following induction, the non-embryogenic calluseswere proliferated on MS medium without plant growth regulators. A rapid and efficient method for producing transgenic plants has been developed for Cordyline via Agrobacterium-mediated transformation. Leaf segments fromin vitro shoots were co-cultivated with Agrobacterium tumefaciens EHA105, which harbored the binary vector carrying the bar and β-glucuronidase (GUS) genes in the T-DNA region. The results showed that the num er of plants expressing GUS gene first increased with inoculation time and bacterial density (OD600), and then dramatically decreasedwith the increment of both factors. The highest percentage of transformation efficiency (85%) was obtained when the leaf segment explants were inoculated with Agrobacterium for up to 40 min at OD600 of 1.0 followed by 80 and 75% at OD600 of 0.8 and 1.2, respectively. The transgenes were confirmed in transgenic plants using GUS primers and gave the expected band size of 750 bp. The results suggested that infection time and Agrobacterium density could have some effects on the transformation efficiency. Southern blot analysis was used for definitive confirmation of tDNA integration in Cordyline and confirmed the results of histochemical GUS assay and PCR amplifications. Regenerated plantlets were acclimatized in greenhouse.

PHOTOSYNTHETIC AND BIOCHEMICAL CHARACTERIZATION OF IN VITRO-DERIVED AFRICAN VIOLET (SAINTPAULIA IONANTHA H. WENDL) PLANTS TO EX VITRO CONDITIONS

Yaser Hassan Dewir[a,b]*, Mohammed El-Sayed El-Mahrouk[b,c], Hanady Salim Al-Shmgani[c,d],
Hail Z. Rihan[c,e], Jaime A. Teixeira da Silva[f] and Michael P. Fuller[c]

[a]Plant Production Department, College of Food and Agriculture Sciences, King Saud University, Riyadh 11451, Saudi Arabia;
[b]Department of Horticulture, Faculty of Agriculture, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt;
[c]School of Biological Sciences, Faculty of Science and Technology, University of Plymouth, Drake Circus, Plymouth PL4 8AA, UK;
[d]College of Education for Pure Sciences/Ibn Al-Haitham, Baghdad University, Baghdad, Iraq;
[e]Horticulture Department, Faculty of Agriculture, Damascus University, Damascus, Syria; fP. O. Box 7, Ikenobe 3011-2, Kagawa-ken 761-0799, Japan

ABSTRACT

African violet (Saintpaulia ionantha H. Wendl) is one of the most easily and commonly tissue-cultured ornamental plants. Despite this, there are limited reports on photosynthetic capacity and its impact on the plant quality during acclimatization. Various growth, photosynthetic and biochemical parameters and activities of antioxidant enzymes and dehydrins of micropropagated plants were assessed under three light intensities (35, 70, and 100 μmol m^{-2} s^{-1} photosynthetic photon flux density – PPFD). Fresh and dry plant biomass, plant height, and leaf area were optimal with high irradiance (70–100 μmol m^{-2} s^{-1} PPFD). Chlorophyll and carotenoid contents and net photosynthesis were optimal in plants grown under 70 μmol m^{-2} s^{-1} PPFD. Stomatal resistance, malondialdehyde content, and Fv/Fm values were highest at low light irradiance (35 μmol m^{-2} s^{-1} PPFD). The activities of three antioxidant enzymes, superoxide dismutase, catalase, and glutathione peroxidase, increased as light irradiance increased, signaling that high light irradiance was an abiotic stress. The accumulation of 55, 33, and 25 kDa dehydrins was observed with all light treatments although the expression levels were highest at 35 μmol m^{-2} s^{-1} PPFD. Irradiance at 70 μmol m^{-2} s^{-1} PPFD was suitable for the acclimatization of African violet plants. Both low and high irradiance levels (35 and 100 μmol m^{-2} s^{-1} PPFD) induced the accumulation of antioxidants and dehydrins in plants which reveals enhanced stress levels and measures to counter it.

IMPROVING FRUIT SET, YIELD AND FRUIT QUALITY

OF DATE PALM (*PHOENIX DACTYLIFERA*, L. CV. MNIFI) THROUGH BUNCH SPRAY WITH BORON AND ZINC

Omar, Alaa El-Din K., Ahmed, M. A. and Al-Obeed, R.S., Al-Obeed

[1] Plant Production Department, College of Food and Agriculture Science, King Saud

Univ., P.O. Box 2460, Riyadh 11451, Saudi Arabia.
[2] Department of Horticulture (Pomology), Faculty of Agriculture, 33516, Kafrelsheikh Univ., Egypt
[3] Department of Horticultural Crops ,Technology, National Research Center, 12622 Dokki, Cairo, Egypt.

ABSTRACT

Fertilization is one of the most important cultural practices in date palm orchards. Spraying micro-nutrients has an important role in fruit set, fruit retention, development, improved total yield, and fruit characteristics. The present study was conducted during the two successive seasons, 2011 and 2012, in order to investigate the effect of bunches sprayed with boron and/or zinc on fruit set, yield, and fruit quality of 10-year-old "Mnifi" date palm. Bunches were pollinated by placing 10 "Meghal" fresh male strands among female clusters during both seasons. Nine spraying treatments were performed twice; 2 h before pollination and 4 weeks after pollination. Results of the two seasons indicated that application of 1500 ppm boron þ300 ppm zinc (B_1 þ Zn_1) increased total yield/palm, fruit weight and volume, flesh weight, soluble solids content (SSC), and total and reducing sugars. Fruit set and titratable acidity were improved with spraying of 1500 ppm boron (B_1). Fruit dimensions and moisture content increased with B_1 treatment in the first season and B_1 þ Zn_1 treatment in the second season. Application of boric acid alone (1500 ppm) or combined with zinc sulphate (300 ppm) to get a positive effect on fruit set, total yield, and fruit quality of "Mnifi" date palm could be recommended.

DETERMINING PESTICIDE RESIDUES IN HONEY AND THEIR POTENTIAL RISK TO CONSUMERS

Fawzy Eissa[1], Sanaa El-Sawi and **Nour El-Hoda Zidan**

[1]Environment and Bio-agriculture Department, Faculty of Agriculture, Al-Azhar University, 118 84, Nasr city, Cairo, Egypt.

[2]Central Laboratory for Analysis of Pesticide Residues and Heavy Metals in Foods, Agricultural Research Center, Dokki, Giza, Egypt.

[3]Pesticides Chemistry and Toxicology Department, Faculty of Agriculture, Kafrelsheikh University, 33516, Kafr El-Sheikh, Egypt.

ABSTRACT

Forty-six organochlorine, organophosphorous, pyrethroid, and organonitrogen pesticides were analyzed in honey samples collected from 18 apiaries located in 9 centers in Kafr El-Sheikh governorate, Egypt, during 2011 by the QuEChERS method followed by gas chromatography. The recovery results ranged from 84.20 to 120.30%. The method provided limits of detection (LOD) in the range of 0.001-0.168 mg·kg^{-1}. The results indicated that residues of the tested pesticides were detected in 55.6% of the collected samples and most of the detected pesticides belonged to the organochlorine and organophosphorous groups. Concerning the most detected pesticide residues, dicofol was found in 38.9% of the samples analyzed owing to its applications to control *Varroa destructor*. Other acaricides used by beekeepers against *Varroa destructor* were also detected (i.e., bromopropylate, tetradifon, malathion), indicating that the chemicals used by apiculturists inside the hives in order to control disease are the main pollutants of the produced honey. 81.8% of the detected pesticides exceeded the European Union maximum residue levels (EU MRLs). Data obtained were then used for estimating the potential health risks associated with exposure to these pesticides. Estimated daily intake (EDI) of the detected pesticides were much lower than acceptable daily intakes (ADIs), which show that honey consumption has a minimal contribution to toxicological risk. Our study suggests the need for regularly monitoring programs for pesticide residues in honey at the national level to protect consumer health.

GIANT REED FOR SELENIUM PHYTOREMEDIATION UNDER CHANGING CLIMATE

Hassan El-Ramady, Neama Abdalla, Tarek Alshaal, Ahmed El-Henawy, Mohamed S. Shams, Salah E.-D. A. Faizy, El-Sayed B. Belal, Said Shehata, Mohamed I. Ragab, Miklos Fari, Attila Sztrik, Jozsef Prokisch, Dirk Selmar, Ewald Schnug, Elizabeth A. Pilon-Smits, Samia M. El-Marsafawy and Eva Domokos-Szabolcsy

Soil And Water Department, Faculty Of Agriculture, Kafrelsheikh University, Kafr El-Sheikh, Egypt

ABSTRACT

At very low concentrations selenium is an essential micronutrient for humans, animals and some lower plants including algae and bacteria, whereas Se is extremely toxic at higher doses. Living organisms can be exposed to high selenium concentrations from both natural and anthropogenic sources. Climate is a major factor governing the biogeochemistry of Se. Climate change can indeed modify Se uptake by plants and the rhizosphere and the volatilization of Se by plants. High precipitation rates and low temperatures can reduce Se accumulation by plants. Se hyperaccumulator plants such as giant reed thus appear as a means to regulate Se flow in ecosystems. Se-hyperaccumulator plants can indeed be used to clean Se-contaminated agricultural soils and wastewaters and as a source of dietary Se. Those plants are also converting mineral soil Se into volatile organic Se that is released in the atmosphere.

RECENT TRENDS FOR BIO-CONTROLLING THE TOMATO LATE BLIGHT UNDER FIELD CONDITIONS

A.M. Hamza[1]; A.A.A. Mohamed[2], A. S. Derbalah[1]

[1]Pesticides Chemistry and Toxicology Dept. Fac. of Agric. Kafr-El-Sheikh University 33516 Egypt

[2]Plant Pathology Research Institute, Agricultural Research Centre, Giza, Egypt

ABSTRACT

Late blight is a potentially destructive disease of tomato caused by the fungal-like organism, *Phytophthora infestans*. Control of tomato late blight (LB) in Egypt is heavily based on chemicals. However, reduction in fungicide usage is required in both conventional and organic production systems. This study was carried to evaluate biocontrol agents (Effective microorganisms *EMs1, Bacillus subtilus* and *Pseudomonas flouresens*), titanium dioxide, spearmint and cumin oils beside the recommended fungicide (propamocarb) against *Phytophthora infestans* under field conditions. Furthermore, to identify the bioactive chemical components of plant origin oils (spearmint and cumin) by GC-MS analysis. In addition to determine the effect of these treatments on some biochemical's (chlorophyll content, peroxidase and polyphenol oxidase) as well as growth and yield characters (plant height and fruit yield) of tomato plant. The results showed that the propamocarb was the most effective treatment against late blight pathogen followed by titanium dioxide, effective microorganisms, *Pseudomonas flouresens*, spearmint oil, cumin oil and *Bacillus subtilus,* respectively in both tested seasons. The antifungal activity of plant origin oils (spearmint and cumin oils) against *Phytophthora infestans* was due to the presence of bioactive compounds in its GC-MS analysis. Moreover, the tested treatments significantly increased chlorophyll contents (a, b) and defense enzymes (peroxidase and polyphenoloxidase) relative to control. Growth and yield of tomato under the tested treatments were also increased relative to control. From the results obtained it is suggested that biocontrol agents, plant oils and titanium dioxide nanoparticles could be used effectively in control of late blight disease and also can address future concerns for other plant pathogens control.

OBSERVED-PREDICTED SHIFTS IN THERMODYNAMIC FUNCTIONS OF WATER ADSORPTION BY SMECTITE AT NANOSCALE

Adel Elprince, **Mohamed Saffan**, Mohammed Zabidi

Dep. of Soils and Agricultural Chemistry Alexandria Univ. Alexandria ,Egypt

,**Dep. Soil and Water Sciences, Kafr Elshaikh Univ., Kafr Elshaikh, Egypt**
Dep. of Soils and Agricultural Chemistry,Alexandria Univ. Alexandria ,Egypt

ABSTRACT

The unique properties of nanoparticles have attracted a great deal of soil chemists' and geochemists' interest. The objective of this study was to evaluate the integral enthalpy (H), entropy (S), and free energy (F) of water vapor adsorption on nano-smectite surfaces. We used water adsorption isotherms at 28 and 35°C. The adsorbents were Na-nano smectite of diameter 59 to 72 nm and Na- and Ca-micro smectites of diameter 72 nm to 2 mm. The Na-nano smectite was prepared using centrifugation under prevailed diffusion motion in centripetal field that directed nanoparticles to assemble into hydrogel phase. X-ray diffraction (XRD) and selective dissolution analysis indicated separated smectite was the dominant phase. The means of DH were -8.6 ± 2.1, 11.6 ± 2.6, and -38.0 ± 7.4 kJ mol-1 for Na-micro smectite, Ca-micro smectites, and Na-nano smectite, respectively, indicating Na-nano smectite could function as effective thermal energy storage material and that bound water cannot be removed from Na-nano smectite aggregates without coarsening. The corresponding means of DS were -9.9 ± 4.7, -18.0 ± 3.2, and -104.9 ± 16.2 J mol-1 k-1, signifying ordered bound water cannot be disordered in Na-nano smectite aggregates without coarsening. The corresponding means of DF were -5.7 ± 2.9, -6.2 ± 2.5, and -6.1 ± 2.9 (averaged -6.0 ± 4.8 kJ mol-1), indicating that DF values, contrary to DH and DS, did not show definite nano-effect. These observed nano-effects were successfully predicted using facility in scaling the magnitudes of DH, DS, and DF, as the \ length scale L shrunk. The high heat of water vapor adsorption by nano smectite and ability to hydrate and dehydrate makes soil effective in the storage of thermal energy.
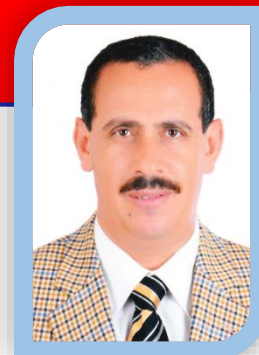
SELENIUM AND NANO-SELENIUM IN PLANT NUTRITION

Hassan El-Ramady**, **Neama Abdalla, Hussein S. Taha, Tarek Alshaal, Ahmed El-Henawy, Salah E.-D. A. Faizy, Mohamed S. Shams, Sarwat M. Youssef, Tarek Shalaby,**

Yousry Bayoumi, Nevien Elhawat, Said Shehata, Attila Sztrik, Jozsef Prokisch, Miklos Fari, Eva Domokos-Szabolcsy, Elizabeth A. Pilon-Smits, Dirk Selmar, Silvia Haneklaus and Ewald Schnug

**Soil and Water Department, Faculty of Agriculture, Kafrelsheikh University, Kafr El-Sheikh, Egypt

ABSTRACT

Selenium (Se) is a naturally occurring metalloid element which occurs nearly in all environments. Se is considered as a finite and non-renewable resource on the Earth. The common sources of Se in earth's crust occur in association with sulfide minerals such as metal selenide, whereas it is rarely found in elemental form (Se0). While there is no evidence of Se need for higher plants, several reports show that when Se added at low concentrations, Se exerts beneficial effects on plant growth. Se may act as quasi-essential micronutrient through altering different physiological and biochemical traits. Thus, plants vary considerably in their physiological and biochemical response to Se. This review focuses on the physiological importance of Se forms as well as different Se fertilizers for higher plants, especially plant growth, uptake, transport, and metabolism.

COPPER UPTAKE EFFICIENCY AND ITS DISTRIBUTION WITHIN BIOENERGY GRASS GIANT REED

N. Elhawat, Tarek Alshaal, É. Domokos-Szabolcsy, H. El-Ramady, G. Antal, L. Márton, M. Czakó, P. Balogh and M. G. Fári

[1] Department of Agricultural Botany, Plant Physiology and Biotechnology, University of Debrecen, Debrecen, P.O. Box 36, 4032, Hungary
[2] Department of Biological Sciences, University of South, Carolina, Columbia, SC, USA
[3] Department of Economic Analysis and Statistics, University of Debrecen, Debrecen, Hungary
[4] Department of Soil and Water Science, Faculty of Agriculture, University of Kafrelsheikh, Kafr Elsheikh, Egypt
[5] Department of Biological and Environmental Sciences, Faculty of Home Economics, Al-Azhar University, Cairo, Egypt

ABSTRACT

To evaluate copper uptake and its toxicity on bioenergy grass giant reed (*Arundo donax* L.), experiments were carried out using two epigenetic clonal lines –American (BL) and Hungarian (20SZ) ecotypes – grown on elevated Cu concentrations up to 26.8 mg L^{-1}. Neither ecotype showed any noticeable foliar symptoms of Cu toxicity at concentrations tested up to 10 mg L^{-1}. Dry mass of plants of both ecotypes significantly increased at the highest Cu treatment compared to control. Although the BL ecotype had greater capacity to uptake Cu than 20SZ, the dry mass and shoot length of BL was higher than that of 20SZ. Values of bioconcentration and transportation factors were higher in the BL than in the 20SZ ecotype. Almost 45 % of total Cu content within the whole plant was found in the plant root of both ecotypes. This demonstrated both ecotypes can be utilized for Cu phytoremediation alongside with significant biomass production.

DISTRIBUTION COEFFICIENTS OF CADMIUM AND ZINC IN DIFFERENT SOILS IN MONO-METAL AND COMPETITIVE SORPTION SYSTEMS

Sabry M. Shaheen[1], Christos D. Tsadilas[2], Holger Rupp[3], Jörg Rinklebe[4], and Ralph Meissner[3]

[1]University of Kafrelsheikh, Faculty of Agriculture, Department of Soil and Water Sciences, 33516 Kafr El-Sheikh, Egypt

[2]National Agricultural Research Foundation, Institute of Soil Mapping and Classification, 1 Theophrastos street, 41335 Larissa, Greece

[3]Helmholtz Centre for Environmental Research - UFZ, Department of Soil Physics, Lysimeter station, Falkenberg 55, 39615 Altmaerkische Wische, Germany

[4]University of Wuppertal, Department D, Soil- and Groundwater-Management, Pauluskirchstraße 7, 42285 Wuppertal, Germany

ABSTRACT

We aimed to investigate the distribution coefficient (K_d) of cadmium (Cd) and zinc (Zn) in different soils under mono-metal (MS) and competitive sorption (CS) systems. Eleven surface soil samples varying widely in their origin and properties were collected from Egypt and Greece. Sorption isotherms were developed and K_d determined. Egyptian clayey Entisols showed higher affinity for Zn, while Histosol showed higher affinity for Cd. In MS, K_d of Zn was higher than of Cd in the studied soils except for Aridisol and acidic Alfisols. However, in CS, Zn_K_d was higher than Cd in the studied soils. Cadmium_K_d decreased in CS in all soils as compared to the MS. The decreasing percentage of K_d ranged from 6.5 % in Histosol to 81.8 % in sandy Entisols. Zinc_K_d in the CS decreased in Entisols, Alfisols, and Histosol and increased in Aridisol, Vertisol, and Mollisol as compared to the MS. This suggests that upon co-addition of the two metals to the soil, Zn became preferentially sorbed at the expense of Cd. Permanent charge clayey soils with relatively low Fe, Al and Mn oxides content sorbed more Cd and Zn than the variable charge red soils with higher content of these oxides. Clay content, cation exchange capacity (CEC), soil organic matter, Al_d, Fe_d, Fe_o, Al_o, and total carbonates are important for sorption of Cd, whereas clay, CEC, Si_d and Si_o, and Al_o content determine sorption of Zn.

MISCELLANEOUS ADDITIVES CAN ENHANCE PLANT UPTAKE AND AFFECT GEOCHEMICAL FRACTIONS OF COPPER IN A HEAVILY POLLUTED RIPARIAN GRASSLAND SOIL

Jörg Rinklebe[a] and **Sabry M Shaheen[b]**

[a] University of Wuppertal, Department D, Soil- and Groundwater-Management, Pauluskirchstraße 7, 42285 Wuppertal, Germany

[b] University of Kafrelsheikh, Faculty of Agriculture, Department of Soil and Water Sciences, 33 516 Kafr El-Sheikh, Egypt

ABSTRACT

The problem of copper (Cu) pollution in riverine ecosystems is world-wide and has significant environmental, eco-toxicological, and agricultural relevance. We assessed the suitability and effectiveness of application rate of 1% of activated charcoal, bentonite, biochar, cement kiln dust, chitosan, coal fly ash, limestone, nano-hydroxyapatite, organo-clay, sugar beet factory lime, and zeolite as soil amendments together with rapeseed as bioenergy crop as a possible remediation option for a heavily Cu polluted floodplain soil (total Cu= 3041.9 mg kg^{-1}) that has a very high proportion of sorbed/ carbonate fraction (484.6 mg kg^{-1}) and potential mobile fraction of Cu (1611.9 mg kg^{-1}). Application changed distribution of Cu among geochemical fractions: alkaline materials lead to increased carbonate bounded fraction and the acid rhizosphere zone might cause release of this Cu. Thus, mobilization of Cu and uptake of Cu by rapeseed were increased compared to the control (except for organo-clay) under the prevailing conditions.

AMENDMENT OF BIOCHAR REDUCES THE RELEASE OF TOXIC ELEMENTS UNDER DYNAMIC REDOX CONDITIONS IN A CONTAMINATED FLOODPLAIN SOIL

Jörg Rinklebe[1], **Sabry M. Shaheen[2]**, Tina Frohne[1]

[1]University of Wuppertal, Department D, Soil- and Groundwater-Management, Pauluskirchstraße 7, 42285 Wuppertal, Germany

[2]Department of Soil & Water Sciences, Faculty of Agriculture, University of Kafrelsheikh

33 516- Kafr El-Sheikh, Egypt

ABSTRACT

Biochar (BC) can be used to remediate soils contaminated with potential toxic elements (PTEs). However, the efficiency of BC to immobilize PTEs in highly contaminated floodplain soils under dynamic redox conditions has not been studied up to date. Thus, we have i) quantified the impact of pre-definite redox conditions on the release dynamics of dissolved aluminum (Al), arsenic (As), cadmium (Cd), copper (Cu), nickel (Ni), and zinc (Zn) in a highly contaminated soil (CS) (non-treated) and in the same soil treated with BC (CS+BC), and ii) assessed the efficacy of BC to reduce the concentrations of PTEs in soil solution under dynamic redox conditions using an automated biogeochemical microcosm apparatus. The impact of redox potential (E_H), pH, dissolved organic carbon (DOC), dissolved inorganic carbon (DIC), iron (Fe), manganese (Mn), and sulfate (SO_4^{2-}) on dynamics of PTEs was also determined. The E_H was lowered to +68 mV and afterwards increased stepwise to +535 mV. Significant negative correlation between E_H and pH in CS and CS+BC was detected. The systematic increase of E_H along with decrease of pH favors the mobilization of PTEs in CS and CS+BC. The addition of BC seems to have little effect on redox processes because pattern of E_H/pH and release dynamics of PTEs was basically similar in CS and CS+BC. However, concentrations of dissolved Al, As, Cd, Cu, Fe, Mn, Ni, and Zn were considerably lower in CS+BC than in CS which demonstrates that BC is able to decrease concentrations of PTEs even under dynamic redox conditions.

PHYTOEXTRACTION OF POTENTIALLY TOXIC ELEMENTS BY INDIAN MUSTARD, RAPESEED, AND SUNFLOWER FROM A CONTAMINATED RIPARIAN SOIL

Sabry M Shaheen[a] and Jörg Rinklebe[b]

[a] **University of Kafrelsheikh, Faculty of Agriculture, Department of Soil and Water Sciences, 33 516 Kafr El-Sheikh, Egypt**

[b] University of Wuppertal, Department D, Soil- and Groundwater-Management, Pauluskirchstraße 7, 42285 Wuppertal, Germany

ABSTRACT

The objective of this study was to quantify the phytoextraction of the potentially toxic elements Al, As, Cd, Co, Cr, Cu, Mo, Ni, Pb, Se, V, and Zn by Indian mustard, rapeseed, and sunflower from a contaminated riparian soil. To achieve this goal a greenhouse pot experiment was established using a highly contaminated grassland soil collected at the Wupper River (Germany). The impact of ethylene-diamine-tetra-acetic acid (EDTA), humate (HK), and phosphate potassium (PK) on the mobility and uptake of the elements by rapeseed also was investigated. Indian mustard showed the highest efficiency for phytoextraction of Al, Cr, Mo, Se, and V; sunflower for Cd, Ni, Pb, and Zn, and rapeseed for Cu. The bio-concentration ratios were higher than 1 for the elements (except As and Cu), indicating the suitability of the studied plants for phytoextraction. Application of EDTA to the soil increased significantly the solubility of Cd, Co, Cr, Ni, and Pb and decreased the solubility of Al, As, Se, V, and Mo. Humate potassium decreased significantly the concentrations of Al and As in rapeseed but increased the concentrations of Cu, Se, and Zn. We may conclude that HK can be used for immobilization of Al and As, while it can be used for enhancing the phytoextraction of Cu, Se, and Zn by rapeseed. Phosphate potassium immobilized Al, Cd, Pb, and Zn, but enhanced phytoextraction of As, Cr, Mo, and Se by rapeseed.

REDOX EFFECTS ON RELEASE KINETICS OF ARSENIC, CADMIUM, COBALT, AND VANADIUM IN WAX LAKE DELTAIC FRESHWATER MARSH SOILS

Sabry M. Shaheen[a,b], Jörg Rinklebe[b*], Tina Frohne[b], John R. White[c], Ron D. DeLaune[c]

[a] University of Kafrelsheikh, Faculty of Agriculture, Department of Soil and Water Sciences, 33516 Kafr El-Sheikh, Egypt,

[b] University of Wuppertal, Department D, Soil- and Groundwater-Management, Pauluskirchstraße 7, 42285 Wuppertal, Germany

[c] Louisiana State University, Department of Oceanography and Coastal Sciences, School of the Coast and Environment, 3239 Energy, Coast and Environment Building, Wetland & Aquatic Biogeochemistry Laboratory, Baton Rouge LA 70803 USA

ABSTRACT

The impact of redox potential (E_H), pH, iron (Fe), manganese (Mn), chloride (Cl^-), aliphatic and aromatic dissolved organic carbon (DOC), and sulfate (SO_4^{2-}) on the release kinetics of water soluble As, Cd, Co, and V were studied in Louisiana freshwater marsh Wax Lake Delta soil using an automated biogeochemical microcosm apparatus. The experiment was conducted in a stepwise fashion from reducing (-60 mV) to oxidizing (+491 mV) soil conditions. The pH decreased under reducing conditions and remained constant at about 4.9 during the stepwise increase of E_H. Concentrations of As, V, Fe, DOC, and the specific UV absorbance (SUVA) were higher under reducing conditions and decreased with rising E_H. Release kinetics of As and V appeared to be related to changes of E_H/pH, co-precipitation with Fe oxides, and the release of dissolved aromatic carbon compounds (DAC). Concentration of soluble Cd, Mn, SO_4^{2-}, and Cl^- increased under oxidizing conditions. Release of Co was related to the chemistry of Fe followed by Mn and DOC. Phospholipid fatty acids (PLFA) analysis indicated the potential for the microbial community might be involved in biogeochemical processes such as the formation of sulfides, oxidation and reduction of compounds, and the biomethylation of elements such as As. Overall, we found a release of As and V under anaerobic conditions, while aerobic conditions favoured the release of Cd. These results outline concern on the potential risk of mobilization of toxic elements in temporary waterlogged soils for agricultural purposes in deltaic systems.

FRACTIONATION AND MOBILIZATION OF TOXIC ELEMENTS IN FLOODPLAIN SOILS FROM EGYPT, GERMANY, AND GREECE: A COMPARISON STUDY

Sabry M. Shaheen[a], Jörg Rinklebe[b*] and Christos D. Tsadilas[c]

[a]Department of Soil Sciences, Faculty of Agriculture, University of Kafrelsheikh, 33 516 Kafr El-Sheikh, Egypt

[b]*University of Wuppertal, Department D, Soil- and Groundwater-Management, Pauluskirchstraße 7, 42285 Wuppertal, Germany*

[c]*National Agricultural Research Foundation, Institute of Soil Mapping and Classification, 1 Theophrastos street, 413 35 Larissa, Greece*

ABSTRACT

Determining the chemical fractions of toxic elements (TEs) in soils is important to evaluate their mobility and bioavailability. In this study, three representative samples were collected from the floodplain soils close to the three Rivers Nile (Egypt), Elbe (Germany), and Pinios (Greece) and were used to link the soil development and properties to the geochemical fractions and mobilization of cadmium (Cd), copper (Cu), nickel (Ni), lead (Pb), and zinc (Zn) in these soils. The Elbe soil showed the highest total concentration of the elements except for Ni, in which the Pinios soil had the highest amount. A significant amount (55-94%) of the elements was present in the Elbe soil in the potentially mobile (non-residual) fraction, while the amount of this fraction ranged between 9 and 39 % in the Pinios soil and between 9 and 34 % in the Nile soil. In the Elbe soil, most of the non-residual Ni, Pb, and Zn was associated with the Fe-Mn oxide fraction, while Cd was distributed in the soluble plus exchangeable fraction and Cu in the organic fraction. In the Nile and Pinios soils the Fe-Mn oxide fraction was the abundant pool for Cu, Ni, Pb, and Zn whereas Cd had the highest amount in the soluble plus exchangeable as well as in the carbonate fractions.

EXPLOITING BIOGEOCHEMICAL AND SPECTROSCOPIC TECHNIQUES TO ASSESS THE GEOCHEMICAL DISTRIBUTION AND RELEASE DYNAMICS OF CHROMIUM AND LEAD IN A CONTAMINATED FLOODPLAIN SOIL

Jörg Rinklebe[a*], Sabry M. Shaheen[a,b], Felix Schröter[c], Thilo Rennert[d]

[a] University of Wuppertal, Soil- and Groundwater-Management, Pauluskirchstraße 7, 42285 Wuppertal, Germany

[b] University of Kafrelsheikh, Faculty of Agriculture, Department of Soil and Water Sciences, 33516 Kafr El-Sheikh, Egypt

[c] University of Wuppertal, Environmental Safety, Rainer-Gruenter-Strasse, 42119 Wuppertal, Germany

[d] Department of Soil Chemistry and Pedology, Institute of Soil Science and Land Evaluation University of Hohenheim, Emil-Wolff-Str. 27, 70599 Stuttgart, Germany

ABSTRACT

Scanning electron microscopy (SEM) coupled with energy dispersive X-ray spectroscopy (EDX) combined with a seven steps sequential extraction technique were used to assess the geochemical distribution of chromium (Cr) and lead (Pb) in a contaminated floodplain soil. Total contents of Cr and Pb were 490.3 and 402.1 mg kg^{-1}, respectively. The residual fraction was 59.5 and 56.3% of total Cr and Pb. The crystalline iron (Fe) oxide was the dominant non-residual fraction of Cr (35.9%). Considerable amounts of Pb were found in the organic fraction (35.4%). Using nuclear magnetic resonance spectroscopy, the soil organic matter was identified as 48.9% aromatic carbon, which indicated that a certain portion of Pb and Cr might be associated with aromatic compounds. The SEM-EDX images demonstrate a concomitant occurrence of Pb, manganese (Mn), Fe, and aluminium (Al) as well as a coexistence of Cr and Fe. The release dynamics of dissolved Cr and Pb as affected by redox potential (E_H), pH, Fe, Mn, dissolved organic carbon, and sulfate was quantified using an automated biogeochemical microcosm apparatus. Soil pH decreased under oxic conditions. The release of Cr, Pb, Fe, and Mn increased under acidic oxic (E_H = 521 mV) conditions mainly due to the associated decrease of pH (7.1 to 3.7). The release dynamics of Cr and Pb are also affected by the chemistry of Fe and Mn. In conclusion, our multi-technique approach identified the geochemical distribution of Cr and Pb and verified major factors that explain release dynamics of Cr and Pb in floodplain soils.

MONITORING AND REMEDIATION TECHNOLOGIES OF ORGANOCHLORINE PESTICIDES IN DRAINAGE WATER

Ahmed Ismail [1], **Aly Derbalah** [*1], Sabry Shaheen [2]

[1]Kafr El-Sheikh University, Pesticides Chemistry and Toxicology Department, Faculty of Agriculture, 33516, Kafr El-Sheikh, Egypt

[2]*Kafr El-Sheikh University, Soil Department, Faculty of Agriculture, 33516, Kafr El-Sheikh, Egypt*

ABSTRACT

This study was carried out to monitor the presence of organochlorine in drainage water in Kafr-El-Sheikh Governorate, Egypt. Furthermore, to evaluate the effi- ciencies of different remediation techniques (advanced oxidation processes [AOPs] and bioremediation) for removing the most frequently detected compound (lindane) in drainage water. The results showed the presence of several organochlorine pesticides in all sampling sites. Lindane was detected with high frequency relative to other detected organochlorine in drainage water. Nano photo-Fenton like reagent was the most effective treatment for lindane removal in drainage water. Bioremediation of lindane by effective microorganisms (EMs) removed 100% of the lindane initial concentration. There is no remaining toxicity in lindane contaminated-water after remediation on treated rats relative to control with respect to histopathological changes in liver and kidney. Advanced oxidation processes especially with nanomaterials and bioremediation using effective microorganisms can be regarded as safe and effective remediation technologies of lindane in water

PERFORMANCE OF SOME FUNGICIDE ALTERNATIVES IN CONTROLLING POWDERY MILDEW ON CUCUMBER UNDER GREENHOUSE CONDITIONS

A. M. Hamza[1]; T.A. Essa[2]; A.S. Derbalah[1] and A.A. Mohamed[2]
[1]Pesticides Chemistry and Toxicology Dept. Faculty of Agriculture, Kafr-El-Shiekh University 33516, Egypt
[2]Plant Pathology Research Institute, Agricultural Research Centre, Giza, Egypt

ABSTRACT

Identification of biocompatible products for managing cucumber powdery mildew caused by *Sphaerotheca fuliginea* (Schlecht. ex Fr. Poll.) with low toxicity and low potential risk to the environment would be a valuable contribution to disease management. This is work feature alternatives of chemical fungicides for powdery mildew control in cucumber such as plant oils (clove and castor), biocontrol agants (*Bacillus subtilus*, *B. pumilus* and *Pseudomonas fluorescens*) and nanomaterials such as zinc oxide nanoparticls. The recommended fungicide (Pyrozophos) for powdery mildew was used to compare the efficacy of the tested treatments. The data showed that the fungicide was the most effective treatment followed by castor oil, zinc oxide nanopartilces, *Pseudomonas fluorescens* , *Bacillus pumilus, B. subtilus* and clove oil, respectively throughout the tested seasons (2013 and 2014). Significant increases in all measured biochemical parameters (chlorophyll content, peroxidase and polyphenoloxidase) in plants under all the treatments tested relative to the control were found. Also, all measured crop parameters (plant height, number of fruits/plant and yield/plant) were significantly increased with the treatments tested than the control. Plant oils, bio-agents and nanomaterials tested could be considered as effective alternatives for powdery mildew control in cucumber**.**

RECENT APPROACHES FOR CONTROLLING DOWNY MILDEW

OF CUCUMBER UNDER GREENHOUSE CONDITIONS

A. Mohamed[1] : A.M. Hamza[2]; **A. S. Derbalah[2]**

[1]Plant Pathology Research Institute, Agricultural Research Centre, Giza, Egypt

[2]Pesticides Chemistry and Toxicology Dept. Fac. of Agric. Kafr-El-Sheikh University 33516 Egypt

ABSTRACT

The efficacy of biocontrol agents (effective microorganisms (EMs1)*, Bacillus subtilus*, and *Bacillus pumilus*), zinc oxide nanoparticles, castor and clove oils, as well as of a recommended fungicide (famoxadone + cymoxanil) utilised during two growing seasons under greenhouse conditions against downy mildew of cucumber were evaluated. Furthermore, GC-MS analysis was carried out to identify the bioactive chemical components of plant origin oils (castor and clove). The effect of these treatments on some biochemical, growth, and yield characters of cucumber was also investigated. Famoxadone + cymoxanil was the most effective treatment in both test seasons, followed by clove oil, zinc oxide, EMs1, *Bacillus pumilus, Bacillus subtilus,* and castor oil. The results showed a significant effect of all the treatments on some biochemical (chlorophyll content, peroxidase, and polyphenoloxidase) as well as growth and yield characters (plant height, fruit number per plant, and fruit yield) of the cucumber plants relative to control.

HIERARCHICAL NANOHEXAGON CERAMIC SHEET LAYERS AS PLATFORM ADSORBENTS FOR HYDROPHILIC AND HYDROPHOBIC INSECTICIDES FROM AGRICULTURAL WASTEWATER

Aly Derbalah[1,2], Sherif A. El-Safty[1,3,*], Mohamed A. Shenashen[1] and Mohamed Khairy[1,4]

[1] National Institute for Materials Science (NIMS) 1-2-1 Sengen, Tsukuba-shi, Ibaraki-ken, 305-

[2] Pesticides Chemistry and Toxicology Department, Faculty of Agriculture, Kafr El-Sheikh University, 33516 (Egypt)

[3] Graduate School for Advanced Science and EngineeringWaseda University3-4-1 Okubo, Shinjuku-ku, Tokyo 169-8555 (Japan) Homepage

[4] Chemistry Department, Faculty of Science, Sohag University (Egypt)

ABSTRACT

Hierarchical mesoporous and macroporous nanohexagon NiO sheets were fabricated via a hydrothermal-guided synthesis route. This approach provided uniformly nanohexagonal ceramic sheets (with sizes of approximately 250–300 nm) having NiO active sites throughout the interior/exterior. The ceramic sheets with well-dispersed pore windows serve as significant platform-like adsorbents for the adsorption and recovery of a wide range of insecticides. A nanohexagon sheet adsorbent can accommodate insecticide molecules into the pore cavities or between the layer matrices which are directly accessible. The heterogeneous processing efficiency of insecticide adsorption was examined with a single ceramic sheet of the adsorbent at neutral pH and described in terms of the amount of uptake, removal of the multiple insecticide contaminants, and reusability. Experimental findings indicated that the platform-like adsorbent effectively removed >95 % of the insecticide toxins in a one-step batch adsorption process. Significantly, the complete recovery of multiple insecticide toxins from water sources could be achieved while maintaining the hierarchical hexagon sheet layered structures, thereby indicating its applicability for more than 20 reuse cycles. These nanohexagon sheet adsorbents can potentially satisfy the increasing need for the removal of hydrophilic and hydrophobic insecticides such as carbamates and organochlorines, respectively, from agriculture wastewater.

MESOPOROUS ALUMINA NANOPARTICLES AS HOST TUNNEL-LIKE PORES FOR REMOVAL AND RECOVERY OF INSECTICIDES FROM ENVIRONMENTAL SAMPLES

Aly Derbalah,[a, c] Sherif A. El-Safty,*[a, b] Mohamed A. Shenashen,[a] and Nabil A. Abdel Ghany[a, d]

[a] National Institute for Materials Science (NIMS) 1-2-1 Sengen, Tsukuba-shi, Ibaraki-ken, 305-0047 (Japan)

[b] Graduate School for Advanced Science and Engineering Waseda University3-4-1 Okubo, Shinjuku-ku, Tokyo 169-8555 (Japan)

[c] **Pesticides Chemistry and Toxicology Department, Faculty of Agriculture, Kafr El-Sheikh University, 33516 (Egypt)**

[d] National Research Centre Physical Chemistry Department Electrochemistry and Corrosion Lab (Egypt)

ABSTRACT

Water contamination with lindane, which is a persistent, toxic, and priority insecticide, is a major problem worldwide. This study presents the fabrication of mesoporous alumina nanoparticles (MA–NPs) with a large surface-area-to-volume ratio, active surface sites, and open channel pores to trap/adsorb insecticidemolecules, such as lindane. Key factors, such as temperature, pH (i.e., 4.5), adsorbate–adsorbent concentration, and contact time, influence the thermodynamics and kinetics of heterogeneous lindane–MA–NP adsorption. Results show that the maximum adsorption capacity (q_m) of lindane is 25.54 mgg¢1 at 20ºC. MA–NPs also exhibits a high uptake efficiency (>80%) of lindane after 20 cycles, which results in effective regeneration and reusability characteristics. MA–NPs were also applied in real environmental samples from tap and lake water sources contaminated with lindane. The results indicate that the MA–NPs show evidence of their environmental impact, their potential influence on the removal and recovery of lindane, and their possible contribution to waste management.

MECHANISM OF INDUCED SYSTEMIC RESISTANCE AGAINST ANTHRACNOSE DISEASE IN CUCUMBER BY PLANT GROWTH-PROMOTING FUNGI

Mohsen Mohamed Elsharkawy, Manchanahally Byrappa Shivanna, Manchanahally Shivanna Meera and Mitsuro Hyakumachic

Department of Agricultural Botany, Faculty of Agriculture, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt

b United Graduate School of Agricultural Science, Gifu University, 1-1 Yanagido, Gifu 501-1193, Japan

c Laboratory of Plant Pathology, Faculty of Applied Biological Sciences, Gifu University, Japan

ABSTRACT

Plant growth-promoting fungi (PGPF) such as *Phoma* sp. (isolates GS8-1, GS8-2 and GS8-3) and nonsporulating fungus (isolate GU21-2) were tested for their ability to induce systemic resistance against *Colletotrichum orbiculare* in cucumber. These isolates, used as colonized barley kernels to natural soils, induced systemic resistance in the greenhouse as well as in the field. Different elicitors from PGPF such as cell walls retaining or lacking protein and lipids, cell walls lipid fraction, and three fractions of culture filtrate (CF) with different molecular weight ranges were tested for their ability to elicit the defense response of cucumber plants under controlled conditions. Cell wall fraction lacking protein and lipids and the cell wall lipid fraction from root colonizing isolates GS8-1, GS8-2, and GS8-3 protected plants against *C. orbiculare*. While, only cell wall lipid fraction and CF fractions of different molecular weight ranges of the isolate GU21-2 protected plants against *C. orbiculare* infection. Methanol-soluble substances from CF fractions with molecular weight greater than 12,000 and less than 8000 consistently protected plants against the pathogen. Germination of *C. orbiculare* spores decreased significantly at 72 h of incubation on leaves of PGPF-protected plants. Isolate GU21-2 was the most effective in inhibiting spore germination. On the other hand, isolates GS8-1 and GU21-2 induced lignifications in the hypocotyls of seven-day-old cucumber seedlings after challenge inoculation with *C. orbiculare*. Three-week-old cucumber plants treated with isolate GU21-2 and challenged with *C. orbiculare* showed increased activities of exo- and endo-forms of glucanase and chitinase, as well as peroxidase and polyphenol oxidase in the second true leaves. Induction treatment with isolate GS8-1 also increased the activities of these enzymes with the exception of exo-glucanase. This study shows that the inoculation of PGPF or its CF resulted in additive effect on the suppression of anthracnose disease in cucumber.

CONTROL OF TOMATO BACTERIAL WILT AND ROOT-KNOT DISEASES BY BACILLUS THURINGIENSIS CR-371 AND STREPTOMYCES AVERMECTINIUS NBRC14893

Mohsen Mohamed Elsharkawy, Mai Nakatani, Mitsuyoshi Nishimura, Tatsuyuki Arakawa, Masafumi Shimizu and Mitsuro Hyakumachi

Department of Agricultural Botany, Faculty of Agriculture, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt

ABSTRACT

Ralstonia solanacearum and *Meloidogyne incognita* are two soilborne pathogens that cause serious damage and great losses in the production of tomato. For this purpose, a bacterial isolate, *Bacillus thuringiensis* CR-371, and an actinomyces isolate, *Streptomyces avermectinius* NBRC14893, were examined for their ability to protect tomato from root-knot nematode and bacterial wilt diseases under glasshouse conditions. Treatment of tomato roots with *B. thuringiensis* CR-371 and *S. avermectinius* NBRC14893 followed by challenge inoculation with *R. solanacearum* and *M. incognita* significantly decreased disease severity of bacterial wilt alone, root-knot nematode alone, or mixed infection by both pathogens compared to the control. Furthermore, pretreatment of tomato roots with *B. thuringiensis* CR-371 and *S. avermectinius* NBRC14893 significantly reduced bacterial proliferation of *R. solanacearum* both in pathogen alone inoculated plants and in plants co-inoculated with *R. solanacearum* and *M. incognita*. In conclusion, our results suggest that the treatment of tomato roots with *B. thuringiensis* CR-371 and *S. avermectinius* NBRC14893 simultaneously suppresses bacterial wilt and root-knot nematode diseases. Therefore, *B. thuringiensis* CR-371 and *S. avermectinius* NBRC14893 could provide new options for integrated pest management strategies against plant diseases, especially against bacterial-nematode disease complexes that cause synergistic yield losses.

ASSESSMENT OF URBAN SPRAWL ON AGRICULTURAL SOIL OF NORTHERN NILE DELTA OF EGYPT USING RS AND GIS

Adel SHALABY[1],   FARAHAT SAAD MOGHANM[2]
National Authority for Remote Sensing and Space Sciences, Cairo 1564, Egypt;
Soil and Water Science Department-faculty of Agricultural- Kafrelsheikh University, Kafr El-Sheikh 33511, Egypt)

ABSTRACT

Urban sprawl is threatening the limited highly fertile land in the Nile delta of Egypt. Landsat TM satellite images of 1984, 1992 and ETM+ of 2006 have been used to study the impact of urban sprawl on agricultural land of the Northern Nile delta, Egypt. Visual interpretation using on screen digitizing and change detection techniques were applied for monitoring the urban sprawl. Combining the land capability map and the urban thematic layer using GIS made it possible to point out the risk of urban expansion on the expense of the highly capable soil class. The results show that a total expansion of urban area amounted to 689.20 km2 (6.3% of total area) during the study period 1984–2006. The urban expansion during the 1984–2006 was on the expense of the most fertile soils where, the high capable soils (Class I) lost 247.14 km2 (2.26 % of total area) and the moderate capable soils lost 32.73 km2 (0.3% of total area), while the low capable soils lost only 57.39 km2 (0.53% of total area). The urban encroachment over the non capable soils was very limited during the study period 1984–1992, where 7.33 km2 only was lost. The pattern of urban sprawl has been changed during the 1992 to 2006 whereas much larger area (50.64 km2) of the non capable soils was converted to urban. It can be concluded that the urban sprawl is one of the dominant degradation process on the land of Nile Delta.

ESTABLISHMENT OF HIGH-EFFICIENCY AGROBACTERIUM-MEDIATED TRANSFORMATION CONDITIONS OF SOYBEAN CALLUS

Ismael, Khatab A Antar, El-Banna N

Department of Genetics, Faculty of Agriculture, Kafrelsheikh University, 33516 - Kafrelsheikh, Egypt

ABSTRACT

The present study was aimed to optimize some transformation conditions for elite Egyptian soybean cultivar Giza 21 using *Agrobacterium tumefaciens* strain EHA 105. A transformation system was developed using organogenic calli derived from cotyledon and hypocotyl explants on. Murashige and Skoog salts with various concentrations of 2,4-D+0.5 mg L^{-1} BAP. The calli were inoculated with *A. tumefaciens* harboring a binary vector with the bar gene and the dicistron containing *pr10a* and luciferase (*luc*) genes. The results showed that the number of calli expressing *luc* gene first increased with inoculation time and bacterial density (OD_{600}) and then dramatically decreased with the increment of both factors. The highest percentage of transformation efficiency (90%) was obtained when the calli explants were inoculated with *Agrobacterium* for up to 40 min at OD_{600} of 1.0, followed by 87.5 and 82.5% at OD_{600} of 0.8 and 1.2, respectively. The transgenes were confirmed in transgenic calli using pr10a and luc primers and gave the expected band size of 480 and 711 bp, respectively. Our results suggested that infection time and *Agrobacterium* density could have some effects on the transformation efficiency. Furthermore, an effecient *Agrobacterium*-mediated transformation system was established for soybean callus using dicistronic transformation vector.

GROWTH PERTURBATION, ABNORMALITIES AND MORTALITY OF ORIENTAL ARMYWORM MYTHIMNA SEPARATA (LEPIDOPTERA:NOCTUIDAE) CAUSED BY SILICA NANOPARTICLES AND BACILLUS THURINGIENSIS TOXIN

Mousa K.M.[;] M.M. Elsharkawy[2]; I.A. Khodeir[1]; T.N El-Dakhakhni[1] and A.E Youssef[1]

[1] Economic Entomology Department, Faculty of Agriculture, Kafr El-Sheikh University, Kafr El-Sheikh 33516, Egypt.

[2]Department of Agricultural Botany, Faculty of Agriculture, Kafr El-Sheikh University, Kafr El-Sheikh 33516, Egypt.

ABSTRACT

Impact of silica (Sio2) nanoparticles against) 3rd larval instar oriental armyworm *Mythimna separata* (Walker) (Lepidoptera:Noctuidae, was tested under the laboratory conditions. As well, was the effect of the soil application of such material on the resistance of wheat plants to this pest, when compared with *Bacillus thuringiensis* (*BT*), the effective bioagent against Lepidopteran pests. Nutrition proportion, longevity, growth rate, and morality of treated and untreated larvae were measured. Data indicated that both of the two syntheses significantly affected the life table of this pest, but, *BT* had the superiority. The feeding inhibition rate was 37.16% and 43.91% in soil and foliar treatments of silica, respectively, while it was 70.74% in BT treatment. The relative growth rate approximately decreased twice compared with control. Larval stage period elongated from 26.30 days in control to 30.89, 30.67, 34.83 and 33.00 days in silica soil, silica foliar, BT foliar and BT-Silica foliar treatments, respectively. Divergences occurred in mortality percentage of larva between10.00% in control, 84.63 in larva treated with BT and 67.69% when sprayed with silica. Furthermore, significant increase occurred in wheat plants features when silicon dioxide system was applied. In conclusion, the present results suggest the possible use of silica (Sio2) nanoparticles to control the oriental armyworm *M. separata*.

ESTIMATION COMBINING ABILITY OF SOME MAIZE INBRED LINES USING LINE × TESTER MATING DESIGN UNDER TWO NITROGEN LEVELS

Mohamed M. Kamara[1,2,*], Ibrahim S. El-Degwy[1] and Hiroyuki Koyama[2]

[1]Agronomy Department, Faculty of Agriculture 33516, Kafrelsheikh University, Kafr El-Sheikh, Egypt

[2]Laboratory of Plant Cell Technology, Faculty of Applied Biological Sciences, Gifu University, Gifu 501–1193, Japan

ABSTRACT

This study was conducted to estimate general (GCA) and specific (SCA) combining ability effects of some maize inbred lines for grain yield and other agronomic traits by using line × tester analysis under two nitrogen fertilizer levels. Ten white maize inbred lines and three testers; SC10, SC122 and TWC310 were crossed in line × tester scheme in 2012 season. Thirty top crosses plus the two checks; SC128 and TWC324 were evaluated in a randomized complete block design with three replications under two nitrogen fertilizer levels; 80 and 120 kg N/fed in 2013 season. Significant differences were noticed between the two nitrogen fertilizer levels for all the studied traits except ear diameter, indicating these traits were affected by nitrogen fertilizer levels. Mean squares of crosses (C) and their partitioning lines (L), testers (T) and line × tester (L × T) interaction were highly significant for all the studied traits under the two nitrogen levels as well as for the combined data. Significant interaction mean squares for C, L, T and L×T with nitrogen levels were detected for the most studied traits. The non-additive genetic variance was greater than the additive genetic variance in governing the inheritance of all studied traits except number of rows/ear and grain yield (ard/fed). Moreover, the non-additive gene action was more affected by nitrogen levels than the additive gene action for all the studied traits except days to 50% silking. Four top crosses; L3×T1, L6×T2, L1×T1 and L9×T1 were significantly out yielded the check hybrid; TWC324. While, only the top cross L3×T1 was significantly superior to the highest yielding check hybrid; SC128. The inbred lines; L8, L3 and L1 possessed the highest negative and significant GCA effects towards earliness, dwarfness and lower ear placement, respectively. The inbred lines; L1, L3, L6 and L10 exhibited positive and significant GCA effects for grain yield (ard/fed) and most of the other yield component traits. Nine top crosses; L2 ×T2, L2×T3, L3×T1, L4×T2, L5×T1, L6×T2, L8×T3, L9×T1and L10×T3 exhibited desirable SCA effects for grain yield and some of its components' traits. These crosses are valuable and could be used in maize breeding programs for high yielding ability.

EFFECT OF FEEDING *ASPERGILLUS AWAMORI* AND CANOLA SEED ON THE GROWTH PERFORMANCE AND MUSCLE FATTY ACID PROfiLE IN BROILER CHICKEN

Ahmed A SALEH, Kunioki HAYASHI, Daichi IJIRI[1] and Akira OHTSUKA

[1]*Department of Biochemical Science and Technology, Faculty of Agriculture, Kagoshima University, Kagoshima,*
[3]*Biogenkoji Research Institute, Kirishima, Japan; and*
[2]*Department of Poultry Production, Faculty of Agriculture, Kafrelsheikh University, Kafr El-Sheikh, Egypt*

ABSTRACT

The aim of this study was to examine effects of dietary supplementation with *Aspergillus awamori* and feeding canola seed on the growth and fatty acid profile in broilers. Twenty-eight chicks (15 days old) were assigned to the following groups: (1) control, fed a basal diet; (2) awamori, fed the basal diet supplemented with 0.05% *A. awamori*; (3) canola, fed a diet containing 5% canola seed; and (4) canola + awamori, fed the canola diet supplemented with *A. awamori* (seven birds/group). Body weight gain was increased by *A. awamori* but not influenced by canola seed. Breast muscle weight was increased in either awamori or canola groups. Although plasma triglyceride and cholesterol were decreased by feeding *A. awamori* or canola seed, fat content in the breast muscle were increased, accompanied by decrease in saturated fatty acids and increase in unsaturated fatty acids. Moreover, decreased thiobarbituric acid reactive substance and increased α-tocopherol content in the breast muscle was observed in all experimental groups. In conclusion, these results suggested that feeding canola seed and *A. awamori* might improve growth performance, and modified muscle fatty acid profile and α-tocopherol content, suggesting that they may improve meat quality.

Faculty of Veterinary

EFFICACY OF VARIOUS SYNCHRONIZATION PROTOCOLS ON THE ESTRUS BEHAVIOR, LAMBING RATE AND PROLIFICACY IN RAHMANI EGYPTIAN EWES DURING THE NON-BREEDING SEASON

[1]Essam Almadaly, [2]Mohey Ashour, **[1]Ismail El-Kon**, [1]Bassiouni Heleil and [1]El-Sayed Fattouh

1Department of Theriogenology, Faculty of Veterinary Medicine, Kafrelsheikh University, El-Geish Street, Kafrelsheikh, 33516, Egypt

2Riwina Animal Production Station, Agriculture Production Sector, Agricultural Research Center, Kafrelsheikh, 33516, Egypt

ABSTRACT

Although various progestagens are often used to induce and synchronize estrus and ovulation in small ruminants, concerns regarding residues are the impetus to develop alternative approaches, including reduced doses of progestagens. Therefore, this study investigated the effects of various estrus synchronization protocols on fertility of Rahmani ewes during the non-breeding season. In June, 82 ewes were randomly assigned to five groups and each group received 1 of 5 treatments: (1) The ewes (n = 10) intramuscularly (IM) injected with 20 mg progesterone (P4) acetate day after day for 12 days and equine Chorionic Gonadotropin (eCG) on day 12, (2) Two doses of prostaglandin (PG) F2" 9 days apart (n = 10) and eCG on day 9, (3) Ovulation synchronization (OVS, n = 10) with a gonadotropin Releasing Hormone (GnRH, day 0), PGF2" (day 5) and GnRH 48 h later, (4) Whole (20 mg, n = 20), or halved (10 mg, n = 22) Progesterone Releasing Intravaginal Device (PRID) for 6, 8 and 14 days; PGF2" a day prior to PRID removal and eCG at PRID removal and (5) Untreated-ewes (Control, n = 10). Blood samples were taken for serum P4 assay. There were significant differences ($p<0.05$) among treatments for estrus rate, onset of estrus, pregnancy and lambing rates as well as prolificacy. The highest (100%) estrus rate recorded in whole-PRID for 6 days and halved-PRID for 8 days, while the rapid onset (24 h) of estrus was in PGF2". Pregnancy and lambing rates were greater ($p<0.05$) in PGF 2" and halved-PRID for 8 days. The highest prolificacy (1.75) was recorded with whole-PRID for 6 days whereas; the lowest (1.0) was recorded with PGF 2" and halved-PRID for 8 and 14 days. Serum P4 concentrations were not different among all PRID protocols on 4, 7 and 13 days. In conclusion, all synchronization protocols except OVS had a positive effect on ewe fertility during the non-breeding season.

SARCOCYSTIS CHLOROPUSAE (PROTOZOA: SARCOCYSTIDAE) N. SP. FROM THE COMMON MOORHEN (GALLINULA CHLOROPUS) FROM EGYPT

A. EL-MORSEY, M. EL-SEIFY, A.Y. DESOUKY , M.M. ABDEL-AZIZ , H. SAKAI and T. YANAI

Parasitology and Animal Diseases Department, Veterinary Research Division, National Research Centre, 33 El Bohouth

st. (former El Tahrir st.), Dokki, Giza, P.O.12622, Egypt

Department of Parasitology, Faculty of Veterinary Medicine, Kafrelsheikh University, Kafrelsheikh, Egypt

Laboratory of Veterinary Pathology, Faculty of Applied Biological Sciences, Gifu University, 1-1 Yanagido, Gifu 501-1193, Japan

ABSTRACT

A new name Sarcocystis chloropusae is proposed for a parasite previously found in two of 25 common moorhen (Gallinula chloropus) from Brolos Lake, Egypt. Sarcocysts were microscopic, up to 650 μm long, the cyst wall was up to 4·5 μm thick, and contained villar protrusions that were up to 4 μm long and up to 2 μm wide. The villar protrusions were crowded, contained vesicles but lacked microtubules. The ground substance layer was smooth. The bradyzoites were up to 12 μm long and up to 2 μm wide. Molecular characterization and phylogenetic analysis of the (ITS-1) supported the conclusion that the Sarcocystis in G. chloropus is a distinct species.

AN EPIDEMIOLOGICAL SURVEY OF BOVINE *BABESIA* AND *THEILERIA* PARASITES IN CATTLE, BUFFALOES, AND SHEEP IN EGYPT

Ahmed Elsify , Thillaiampalam Sivakumar , Mohammed Nayel , AkramSalama , Ahmed Elkhtam, Mohamed Rizk , OmarMosaab , **Khaled Sultan** , Shimaa Elsayed a, Ikuo Igarashi , Naoaki Yokoyama ,

Department of Parasitology, Faculty of Veterinary Medicine, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt

ABSTRACT

Cattle, buffaloes, and sheep are the main sources of meat and milk in Egypt, but their productivity is thought to be greatly reduced by hemoprotozoan parasitic diseases. In this study, we analyzed the infection rates of *Babesia bovis, Babesia bigemina, Theileria annulata,* and *Theileria orientali*s, using parasite-specific PCR assays in blood. DNA samples sourced from cattle (n = 439), buffaloes (n = 50), and sheep (n = 105) reared in Menoufia, Behera, Giza, and Sohag provinces of Egypt.

In cattle, the positive rates of *B. bovis*, *B. bigemina*, *T. annulata*, and *T. orientalis* were 3.18%, 7.97%, 9.56%, and 0.68%, respectively. On the other hand*, B. bovis* and *T. orientalis* were the only parasites detected in buffaloes and each of these parasites was only found in two individual DNA samples (both 2%),while one (0.95%) and two (1.90%) of the sheep samples were positive for *B. bovis* and *B. bigemina*, respectively. Sequence analysis showed that the *B. bovis* Rhoptry Associated Protein-1 and the *B. bigemina* Apical Membrane Antigen-1 genes were highly conserved among the samples, with 99.3–100% and 95.3–100% sequence identity values, respectively. In contrast, the Egyptian *T. annulata* merozoite surface antigen-1 gene se quences were relatively diverse (87.8–100% identity values), dispersing themselves across several clades in the phylogenetic tree containing sequences fromother countries. Additionally, the *T. orientalis* Major PiroplasmSurface Protein (MPSP) gene sequences were classified as types 1 and 2. This is the first report *of T. orientalis* in Egypt, and of type 2MPSP in buffaloes. Detection of MPSP type 2, which is considered a relatively virulent genotype, suggests that *T. orientalis* infection may have veterinary and economic significance in Egypt. In conclusion, the present study, which analyzed multiple species of *Babesia* and *Theileria* parasites in different livestock animals, may shed an additional light on the epidemiology of hemoprotozoan parasites in Egypt.

EFFECTS OF *NIGELLA SATIVA* OIL AND ASCORBIC ACID AGAINST OXYTETRACYCLINE-INDUCED HEPATO-RENAL TOXICITY IN RABBITS

Mohamed M. Abdel-Daim [1]*, **Emad W. Ghazy [2]**

[1] Pharmacology Department, Faculty of Veterinary Medicine, Suez Canal University, Ismailia, 41522, Egypt

[2] Clinical Pathology Department, Faculty of Veterinary Medicine, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt

ABSTRACT

Objective(s): Oxytetracycline (OTC) is a broad spectrum antibiotic widely used for treatment of a wide range of infections. However, its improper human and animal use leads to toxic effects, including hepatonephrotoxicity. Our objective was to evaluate protective effects of *Nigella sativa* oil (NSO) and/or ascorbic acid (AA), against OTC-induced hepatonephrotoxicity in rabbits.

Materials and Methods: Forty male white New Zealand rabbits were divided into 5 groups of eight each. The 1st group (control) was given saline. The 2nd group was given OTC (200 mg/kg, orally). The 3rd and 4th groups were orally administered NSO and AA (2 ml/kg and 200 mg/kg respectively) 1 hr before OTC administration at the same dose regimen used for the 2nd group. Both NSO and AA were given in combination for the 5th group along with OTC administration. Serum biochemical parameters related to liver and kidney injury were evaluated, and lipid peroxidation as well as antioxidant markers in hepatic and renal tissues were examined.

Results: OTC-treated animals revealed significant alterations in serum biochemical hepato-renal injury markers, and showed a markedly increase in hepato-renal lipid peroxidation and inhibition in tissue antioxidant biomarkers. NSO and AA protect against OTC-induced serum and tissue biochemical alterations when each of them is used alone or in combination along with OTC treatment. Furthermore, both NSO and AA produced synergetic hepatoprotective and antioxidant properties.

Conclusion: The present study revealed the preventive role of NSO and/or AA against the toxic effects of OTC through their free radical-scavenging and potent antioxidant activities.

SYNERGISTIC PROTECTIVE ROLE OF MIRAZID (*COMMIPHORA MOLMOL*) AND ASCORBIC ACID AGAINST TILMICOSIN-INDUCED CARDIOTOXICITY IN MICE

Mohamed M. Abdel-Daim[1], **Emad W. Ghazy**[2] and Mostafa Fayez[1]

[1]*Department of Pharmacology, Faculty of Veterinary Medicine, Suez Canal University, Ismailia-41522, Egypt.*

[2]**Department of Clinical Pathology, Faculty of Veterinary Medicine, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt.**

ABSTRACT

Tilmicosin (TIL) is a long-acting macrolide antibiotic approved for the treatment of cattle with Bovine Respiratory Disease. However, overdose of TIL has been reported to induce cardiotoxicity. The purpose of our experiment was to evaluate the protective effects ofCommiphora molmol (mirazid (MRZ); myrrh) and (or) ascorbic acid (AA) against TIL-induced cardiotoxicity in mice. MRZ and AA were orally administered using stomach gavage, either alone or in combination for 5 consecutive days, followed with a single TIL overdose. TIL overdose induced a significant increase in serum levels of cardiac damage biomarkers (AST, LDH, CK, CK-MB, and cTnT), as well as cardiac lipid peroxidation, but cardiac levels of antioxidant biomarkers (GSH, SOD, CAT, and TAC) were decreased. Both MRZ and AA tended to normalize the elevated serum levels of cardiac injury biomarkers. Furthermore, MRZ and AA reduced TIL-induced lipid peroxidation and oxidative stress parameters. MRZ and AA combined produced a synergistic cardioprotective effect. We conclude that myrrh and (or) vitamin C

administration minimizes the toxic effects of TIL through their free-radical-scavenging and potent antioxidant activities.

PHARMACODYNAMIC INTERACTION OF SPIRULINA PLATENSIS AND DELTAMETHRIN IN FRESHWATER FISH NILE TILAPIA, OREOCHROMIS NILOTICUS: IMPACT ON LIPID PEROXIDATION AND OXIDATIVE STRESS

Nevien KM Abdelkhalek[1], **Emad W. Ghazy** and Mohamed M. Abdel-Daim[3]

[2]Department of Clinical Pathology, Faculty of Veterinary Medicine, Kafrelsheikh University, Kafr El-Sheikh, 33516, Egypt

ABSTRACT

Spirulina platensis (SP) is one of the most commonly used dietary supplements in human and many animal species, including fish. Recently, it has gained more attention in fish not only for its growth-promoting and immunomodulatory effects but also for its antioxidant potential. The present study was conducted to investigate the protective role of two different dietary levels of SP on freshwater Nile tilapia; *Oreochromis niloticus* exposed to subacute deltamethrin (DLM) intoxication. Spirulina was supplemented at levels of 0.5 and 1 % in the diet along with DLM at a concentration of 1.46 µg/l for 28 days. Serum biochemical parameters, alanine aminotransferase (ALT), aspartate aminotransferase (AST), alkaline phosphatase (ALP), total protein, albumin, cholesterol, urea, uric acid and creatinine, were estimated. In addition, the level of malondialdehyde (MDA) was analysed as a lipid peroxidation marker. Reduced glutathione (GSH) content and glutathione peroxidase (GSH-Px), superoxide dismutase (SOD) and catalase (CAT) activities were analysed as antioxidant biomarkers in liver, kidney and gills. The results revealed that DLM intoxication increased serum AST, ALT, ALP, cholesterol, urea, uric acid, creatinine and tissue MDA, while decreased serum total protein and albumin as well as tissue GSH level and GSH-Px, SOD and CAT activities. SP supplementation at the two tested levels enhanced all altered serum biochemical parameters as well as tissue lipid peroxidation and antioxidant biomarkers. Therefore, it could be concluded that SP administration could minimize DLM-induced toxic effects by its free radical scavenging and potent antioxidant activity.

ESOPHAGEAL OBSTRUCTION IN WATER BUFFALO (*BUBALUS BUBALIS*): A RETROSPECTIVE STUDY OF 44 CASES (2006–2013)

Mohamed MARZOK, Alaa MOUSTAFA, Sabry EL-KHODERY, Kerstin MÜLLER

1Department of Veterinary Surgery, Faculty of Veterinary Medicine, Kafrelsheikh University, Kafr El-Sheikh, Egypt
2Department of Internal Medicine and Infectious Diseases, Faculty of Veterinary Medicine, Mansoura University, Mansoura, Egypt
3Clinic for Ruminants and Swine, Free University of Berlin, Berlin, Germany

ABSTRACT

The purposes of this study were to report the types, causes, and clinical findings of esophageal obstructions in water buffaloes and to verify the role of radiography in diagnosis as well as the evaluation of the proposed treatment management and outcome after treatment. Forty-four buffaloes with esophageal obstruction were used in the study. Esophageal obstruction was significantly more frequent in females than males. Buffaloes at 1–3 years of age were significantly more liable to the disease than those of other ages. Complete obstruction was more frequent than partial obstruction. Intraluminal obstruction was more prevalent than extraluminal.

Obstruction at the cervical portion was more frequent than those at pharyngeal region and cardia. Radiography was confirmative in 41 buffaloes (93%). Manipulative treatment was successful in 6 buffaloes (13%) and surgical intervention for cervical esophageal obstructions was carried out by exposure of the cervical esophagus (n = 3), cervical esophagatomy (n = 25), or surgical correction of periesophageal cellulitis (n = 2), while surgical treatment of thoracic esophageal obstruction was carried out via laparorumenotomy (n= 8). In conclusion, early diagnosis, proper application of manipulative or surgical interventions, and postoperative follow-up are the

fundamental factors for successful outcomes of esophageal obstruction in water buffalo

PINACIDIL AND LEVAMISOLE PREVENT GLUTAMATE-INDUCED DEATH OF HIPPOCAMPAL NEURONAL CELLS THROUGH REDUCING ROS PRODUCTION

Mustafa Shukry, Tarek Kamal, Radi Ali, Foad Farrag, Essam Almadaly, Ayman A. Saleh, Mohammed Abu El-Magd

Department of Physiology, Faculty of Veterinary Medicine, Kafrelsheikh University, Egypt

Department of Biochemistry, Faculty of Veterinary Medicine, Kafrelsheikh University, Egypt
3Department of Hygiene and Preventive Medicine, Faculty of Veterinary Medicine, Kafrelsheikh University, Egypt
Department of Anatomy and Embryology, Faculty of Veterinary Medicine, Kafrelsheikh University, Egypt,
Department of Theriogenology, Faculty of Veterinary Medicine, Kafrelsheikh University, Egypt,
6Department of Animal Wealth Development, Genetics & Genetic Engineering, Faculty of Veterinary Medicine, Zagazig University, Egypt

ABSTRACT

Activators of both adenosine 5′-triphosphate (ATP)-sensitive K^+ (K_{ATP}) channel and cystic fibrosis transmembrane conductance regulator (CFTR) Cl^- channel have significant *in vivo* and *in vitro* neuroprotection against glutamate-induced death of some neuronal cells. Here, the effect of the K_{ATP} channel activator, pinacidil, and the CFTR Cl^- channel opener, levamisole, against glutamate-induced oxidative stress were investigated in mouse hippocampal cells, HT22. The results from cell viability assay (WST-1) showed that pinacidil and levamisole weakly protected cells against glutamate-induced toxicity at $10\,\mu M$ and their effect increased in a dose-dependent manner till reach maximum protection at $300\,\mu M$. Pretreatment with pinacidil or levamisole significantly suppressed the elevation of reactive oxygen species (ROS) triggered by glutamate through stabilizing mitochondrial membrane potential and subsequently protected HT22 cells against glutamate-induced death. HT22 cells viability was maintained by pinacidil and levamisole in presence of glutathione inhibitor, BSO. Also, pinacidil and levamisole pretreatment did not induce recovery of glutathione levels decreased by glutamate expectedly, this protection was abolished by the K_{ATP} and CFTR Cl^- channels blocker, glibenclamide. Thus, both pinacidil and levamisole protect HT22 cells against glutamate-induced cell death through stabilizing mitochondrial membrane potential and subsequently decreasing ROS production

PATHOLOGICAL AND IMMUNOHISTOCHEMICAL FINDINGS OF NATURAL HIGHLY PATHOGENIC AVIAN INLUENZA INFECTION IN TUFTED DUCKS DURING 2010–2011 OUTBREAKS IN JAPAN

Walied ABDO, Mohie HARIDY, Yuki KATOU, Minami GOTO, Toshio MIZOGUCHI, Yoshihiro SAKODA, Hiroki SAKAI and Tokuma YANAI*

[1] Department of Pathogenetic Veterinary Sciences, United Graduate School of Veterinary Sciences, Gifu University, 1–1 Yanagido, Gifu 501–1193, Japan

[2] **Department of Pathology and Clinical Pathology, Faculty of Veterinary Medicine, South Valley University, Qena 83523, Egypt**

[3] Fukushima Wildlife Rehabilitation Center, Adatara-gun, Fukushima 969–1302, Japan

[4] Department of Pathology, Faculty of Veterinary Medicine; Kafr El-Sheikh University, Egypt

[5] Laboratory of Microbiology, Department of Disease Control, Graduate School of Veterinary Medicine, Hokkaido University, Sapporo 060–0818, Japan

ABSTRACT

. In the winter of 2010–2011, an outbreak of highly pathogenic avian inluenza virus (HPAIV) infection occurred in wild and domestic birds in Japan. Tufted ducks were found dead in an urban area of Toyota City, Koriyama, Fukushima Prefecture. Two tufted ducks were examined histopathologically, immunohistochemically and molecularly. Gross indings included marked dark-red clotted blood in the pectoral muscles and multifocal hemorrhages on the serous membranes. Microscopically, non-suppurative meningoencephalitis, multifocal to coalescing pancreatic necrosis and severe pulmonary congestion were observed. HPAIV antigen was detected in the malacic areas, neuronal, glial and ependymal cells, pulmonary capillary endothelial cells and epithelium of pulmonary bronchioles, necrotic pancreatic acini and degenerated cardiac myocytes. The HPAIV isolate was genetically classiied into clade 2.3.2.1 group A. The broad distribution of virus antigen in brain and pulmonary tissues associated with HPAIV spontaneous infection in tufted ducks might be useful in understanding its pathogenesis in nature.

CALLIGONUM COMOSUM EXTRACT INHIBITS DIETHYLNITROSAMINE-INDUCED HEPATOCARCINOGENESIS IN RATS

WALIED ABDO, AKIHIRO HIRATA, MOSTAFA SHUKRY, TAREK KAMAL, ESSAM ABDEL-SATTAR, ENGI MAHROUS and TOKUMA YANAI

1Department of Pathology, Faculty of Veterinary Medicine, Kafrelsheikh University, Kafr el-Sheikh 33516, Egypt;

2Laboratory of Veterinary Pathology, Department of Veterinary Medicine, Faculty of Applied Biological Sciences;

3Division of Animal Experiment, Life Science Research Center, Gifu University, Gifu 501-1193, Japan;Departments of

4Physiology and 5Biochemistry, Faculty of Veterinary Medicine, Kafrelsheikh University,Kafr el-Sheikh 33516; 6Department of Pharmacognosy, Faculty of Pharmacy, Cairo University, Cairo 11562, Egypt

ABSTRACT

Calligonum comosum (*C. comosum)* is an Egyptian desert plant that contains polyphenol antioxidants. The present study examined the chemopreventive effect of an extract of *C. comosum* in a rat model of hepatocarcinogenesis. Male Wistar rats (n=40) were administered 100 mg/kg diethylnitrosamine (DEN) by intraperitoneal (i.p.) injection once a week for 3 weeks. Subsequently, depending on whether the rats received further administration of 0.8 mg/kg carbon tetrachloride (CCl4) i.p. once a week for 7 weeks and 100 mg/kg *C. comosum* extract in their diet for 7 weeks, the rats were divided into four groups as follows: Group 1, treatment with DEN alone; group 2, treatment with DEN and *C. comosum* extract; group 3, treatment with DEN and CCl4; and group 4, treatment with DEN, CCl4 and *C. comosum* extract. The supplementation of *C. comosum* extract significantly suppressed the elevation in serum liver enzyme levels, including aspartate aminotransferase, alanine transaminase and γ-glutamyl transferase, and reduced the degree of oval cell proliferation induced by DEN and CCl4. In addition, *C. comosum* extract significantly decreased the number and area of glutathione S-transferase placental form-positive preneoplastic hepatic foci induced by DEN, with or without CCl4 treatment. To the best of our knowledge, the present study is the first to provide definitive evidence of the hepatoprotective and chemopreventive effects of *C. comosum*.

MELATONIN REDUCES HEPATIC MITOCHONDRIAL DYSFUNCTION IN DIABETIC OBESE RATS

Ahmad Agil, Mazen El-Hammadi, Aroa Jim_enez-Aranda, Mohamed Tassi, **Walied Abdo** and Russel J. Reiter

1Department of Pathology, Faculty of Veterinary Medicine, Kafrelsheikh University, Kafr el-Sheikh 33516, Egypt;

ABSTRACT

: Hepatic mitochondrial dysfunction is thought to play a role in the development of liver steatosis and insulin resistance, which are both common characteristics of obesity and type 2 diabetes mellitus (T2DM). It was hypothesized that the antioxidant properties of melatonin could potentially improve the impaired functions of hepatic mitochondria in diabetic obese animals. Male Zucker diabetic fatty (ZDF) rats and lean littermates (ZL) were given either melatonin (10 mg/kg BW/day) orally for 6 wk (M-ZDF and M-ZL) or vehicle as control groups (C-ZDF and C-ZL). Hepatic function was evaluated by measurement of serum alanine transaminase and aspartate

MORPHOLOGIC AND MOLECULAR CHARACTERISTICS OF SARCOCYSTIS ATRAII N. SP. (APICOMPLEXA: SARCOCYSTIDAE) INFECTING THE COMMON COOT (FULICA ATRA) FROM EGYPT

Ahmed El-Morsey, Mahmoud El-Seify, **Abdel-Razik Y. Desouky**, Mohamed M. Abdel-Aziz1, Khaled Mohamed El-Dakhly, Samy Kasem4, Walied Abdo, Mohie Haridy, Hiroki Sakai and Tokuma Yanai

Department of Parasitology, Faculty of Veterinary Medicine, KafrElsheikh University, Egypt

ABSTRACT

A single morphologic type of *Sarcocystis* cysts found in two out of 43 examined common coots, *Fulica atra*, is considered to epresent a new species for which the name *Sarcocystis atraii* n. sp. is proposed and its description is provided. Coots were hunted from the vicinity of Brolos Lake located at KafrElsheikh province, Egypt. The structural morphology of the revealed sarcocysts was described using light and transmission electron microscopy. Sarcocysts were found in the leg and thigh muscles. The cysts were microscopic and measured 165−850 μ m in length × 50−85 μ m in width. Histologically; the sarcocyst wall was wavy and had minute undulations. Ultrastructurally, it measured 1−3 μ m in thickness and possessed many mushroom-like villar protrusions sometimes originating from other mushroom-like villar protrusions that measured approximately 0.5−2 μ m in length and up to 2 μ m in width, with the presence of electron dense ground substance of 300 nm to 1 μ m thick. The bradyzoites were elongated, banana-shaped and measured 7.−14 × 1.5−2.5 μ m, with centrally or terminally located nuclei. The ultrastructural features of the cyst wall belonged to type 24. On the basis of sequencing and phylogenic analyses for 18S rRNA , 28S rRNA genes and ITS-1 region; *S. atraii* n. sp. is considered a genetically dist nct species, being most closely related to avian *Sarcocystis* spp. Whose definitive hosts are predatory mammals.

TOXOPLASMA GONDII TACHYZOITE-INFECTED PERIPHERAL BLOOD MONONUCLEAR CELLS ARE ENRICHED IN MOUSE LUNGS AND LIVER

Akihiro Unno [a,b]**, Seira Kachi** [a]**, Tatiana A. Batanova** [a]**, Tamio Ohno** [b]**, Nagwa Elhawary** [a,c]**,Katsuya Kitoh** [a]**, Yasuhiro Takashima** [a],

Faculty of Veterinary Medicine, Kafrlsheikh University, Kafrlsheikh, Egypt

ABSTRACT

The intracellular parasite Toxoplasma gondii is thought to disseminate throughout the host by circulation of tachyzoite-infected leukocytes in the blood, and adherence and migration of such leukocytes into solid tissues. However, it is unclear whether T. gondii-infected leukocytes can migrate to solid organs via the general circulation. In this study, we developed a real-time quantitative PCR (qRT-PCR) method to determine the rate of infection of peripheral blood mononuclear cells (PBMCs) flowing into and remaining within solid organs in mice. A transgenic T. gondii parasite line derived from the PLK strain that expresses DsRed Express, and transgenic green fluorescent protein-positive PBMCs, were used for these experiments. Tachyzoite-infected PBMCs were injected into mouse tail veins and qRT-PCR was used to measure the infection rates of the PBMCs remaining in the lungs, liver, spleen and brain. We found that the PBMCs in the lungs and liver had statistically higher infection rates than that of the original inoculum; this difference was statistically significant. However, the PBMC infection rate in the spleen showed no such enhancement. These results show that tachyzoite-infected PBMCs in the general circulation remain in the lungs and liver more effectively than non-infected PBMCs.

OBSERVATIONS OF THE RABBIT PINWORM PASSALURUS AMBIGUOUS (RUDOLPHI, 1819) IN DOMESTIC RABBITS (ORYCTOLAGUS CUNICULUS) IN EGYPT USING A SCANNING ELECTRON MICROSCOPE

Sultan, K.[1]*, Elhawary, N.M.[1], Sorour, Sh. Gh.[1] and Sharaf, H.M.[2]

[1]Department of Parasitology, Faculty of Veterinary Medicine, Kafrelsheikh University, 33516, Kafrelsheikh, Egypt

[2]Zoology Department, Faculty of Science, Zagazig University, Egypt

ABSTRACT

Passalurus ambiguus (Rudolphi, 1819) is one of the most common oxyurid nematodes to be found in domestic and wild rabbits worldwide. In order to identify and determine the morphological characteristics of this pinworm, the current research was conducted as a microscopic study, using a scanning electron microscope (SEM). Adult *P.*

ambiguus were collected from naturally infected domestic rabbits in Egypt. Identification was made primarily by ordinary microscope, and subsequently, the morphological features were evaluated by SEM. Results indicate that SEM is a powerful tool to identify in detail the morphological characteristics such as the head, male cloacal area, female tail and the female copulatory plugs. All these features confirm the species is *P. ambiguus* and show the effectiveness of the SEM to differentiate *P. ambiguus* from related oxyurid species

CASEOUS LYMPHADENITIS IN SMALL RUMINANTS IN EGYPT

CLINICAL, EPIDEMIOLOGICAL AND PROPHYLACTIC ASPECTS

A. F. Oreiby; Y. M. Hegazy; S. A. Osman; Y. M. Ghanem; M. H. Al-Gaabary

Animal Medicine Department, Faculty of Veterinary Medicine, Kafrelsheikh University, Kafrelsheikh, Egypt

ABSTRACT

The aim of this study was to investigate the distribution of caseous lymphadenitis (CLA) among small ruminants in Egypt, identify risk factors associated with itsoccurrence and to analyze the efficacyof the vaccine for control of CLA.

Material and methods: A total of 1206 sheep and 351 goats were examined clinically for CLA. The prevalence and the risk factors of CLA in small ruminant flocks were estimated and identified. Efficacy of the commercial vaccine Case-Bac (Colorado Serum Company, USA) was determined in a field study trial conducted on 15 CLA-free lambs. Follow-up of vaccination immune response was carried out using indirect ELISA.

Results: Prevalence of superficial CLA was 6.7%. Clinically, CLA appeared as abscesses in superficial lymph nodes mostly of the head and neck. On the basis of a multivariate analysis which accounted for clustering at herd level, sheep were at risk of getting superficial CLA 3.5 times more than goats (p < 0.0001). Animals of fixed flocks were at risk of getting the superficial CLA 2 times more than animals in fixed-mobile flocks (p < 0.038). Serological follow-up indicated protective antibody titers for 6 months. In vaccinated animals clinical cases were not observed while they occurred among non-vaccinated sheep. **Discussion:** Prevalence of CLA varied among studied flocks even between those of the same breeding system due to complex and overlapping factors associated

with each flock like introduction or culling rate of animals, care of shepherds or owners to deal with opened abscesses in addition to the average age of the animals within each flock. Breeding systems have observable effects on occurrence of CLA: infected sheep can transmit the infection to a large number of animals in a short period under the conditions of close contact and reduced air flow in covered sheds. **Conclusion and clinical relevance:** Infected small ruminants in fixed flocks represent a risk factor for CLA for healthy ones. The vaccine used in the study provides an effective protection against new in

fections. So mass vaccination of small ruminants against CLA in Egypt

has to be considered to minimize the disease prevalence.

DIAGNOSIS OF CASEOUS LYMPHADENITIS IN SHEEP AND GOAT

Atef F. Oreiby∗

Animal Medicine Department (Infectious Diseases), Faculty of Veterinary Medicine, Kafrelsheikh University, 33516, Egypt

ABSTRACT

Caseous lymphadenitis (CLA) is a transmissible, insidious, serious disease of sheep and goat. It was firstly reported in the last decades of the 19th century. To date control of such disease is mostly unsuccessful because of its nature which leads to relapse of the problem even if a single case escapes diagnosis. Consequently, diagnosis of CLA is still a matter of intense research for more than a century. There is no single diagnostic test that could identify all cases or even different stages of the disease. This review discusses the most common diagnostic approaches for CLA in sheep and goat and to illustrate the opportunities and limitations of each approach and its validity to build up a diagnostic plan for CLA

PERFORMANCE OF A NEW CARBON DIOXIDE ABSORBENT, YABASHI LIME® AS COMPARED TO CONVENTIONAL CARBON DIOXIDE ABSORBENT DURING SEVOFLURANE ANESTHESIA IN DOGS

Kei KONDOH1), **Ayman ATIBA**, Kiyoshi NAGASE, Shizuko OGAWA, Takashi MIWA, Teruya KATSUMATA, Hiroshi UENO and Yuji UZUKA

Department Of Surgery, Anesthesiology And Radiology, Faculty Of Veterinary Medicine, Kafrelsheikh University, Kafrelsheikh, 33516, Egypt

ABSTRACT

In the present study, we compare a new carbon dioxide (CO_2) absorbent, Yabashi lime® with a conventional CO_2 absorbent, Sodasorb® as a control CO_2 absorbent for Compound A (CA) and Carbon monoxide (CO) productions. Four dogs were anesthetized with sevoflurane. Each dog was anesthetized with four preparations, Yabashi lime® with high or low-flow rate of oxygen and control CO_2 absorbent with high or low-flow rate. CA and CO concentrations in the anesthetic circuit, canister temperature and carbooxyhemoglobin (COHb) concentration in the blood were measured. Yabashi lime® did not produce CA. Control CO_2 absorbent generated CA, and its concentration was significantly higher in low-flow rate than a high-flow rate. CO was generated only in low-flow rate groups, but there was no significance between Yabashi lime® groups and control CO_2 absorbent groups. However, the CO concentration in the circuit could not be detected ($\leq$5ppm), and no change was found in COHb level. Canister temperature was significantly higher in low-flow rate groups than high-flow rate groups. Furthermore, in low-flow rate groups, the lower layer of canister temperature in control CO_2 absorbent group was significantly higher than Yabashi lime® group. CA and CO productions are thought to be related to the composition of CO_2 absorbent, flow rate and canister temperature. Though CO concentration is equal, it might be safer to use Yabashi lime® with sevoflurane anesthesia in dogs than conventional CO_2 absorbent at the point of CA production.

EXPRESSION OF NG2 PROTEOGLYCAN IN THE DEGENERATED INTERVERTEBRAL DISC IN DACHSHUNDS

MOHAMMED ABDEL-HAKIEM, AYUKO YAMASHITA, **AYMAN ATIBA,** YASUHIKO OKAMURA, MASAAKI KATAYAMA, HAROUN YOUSSEF, HIROSHI ISOMURA AND Yuji UZUKA

Department Of Surgery, Anesthesiology And Radiology, Faculty Of Veterinary Medicine, Kafrelsheikh University, Kafrelsheikh, 33516, Egypt

ABSTRACT

1) Division of Veterinary Diagnostic Imaging, Cooperative Department of Veterinary Medicine, Faculty of Agriculture, Iwate University, Morioka 020–8550, Japan. 2) Department of Animal Surgery, Faculty of Veterinary Medicine, Assiut University, Assiut, 71526, Egypt. 3) Department of Surgery, Anesthesiology and Radiology, Faculty of Veterinary Medicine, Kafrelsheikh University, Kafrelsheikh, 33516, Egypt. 4) Division of Veterinary Surgery, Cooperative Department of Veterinary Medicine, Faculty of Agriculture, Iwate University, Morioka 020–8550, Japan. 5) Pathological Assist. Co. S-1, W-14, Chuo-Ku, Sapporo, Hokkaido 060-0061, Japan.

FATAL ENCEPHALITIS IN CATTLE ASSOCIATED WITH ACANTHAMOEBA INFECTION IN EGYPT

N Gomaa, **A Atiba**, N El-Habashi, E Wadeed and D Hosny

[1]Department of Animal Medicine; **[2]Department of Surgery Anesthesiology and Radiology;** [3]Department of Veterinary Pathology; 4Department of veterinary Clinical Pathology, Faculty of Veterinary Medicine, **Kafrelsheikh University, Kafrelsheikh, 33516, Egypt**

ABSTRACT

A 15-month-old bull suffered from pyrexia, anorexia, convulsion, blindness and taxia, which died after 6 weeks of onset of symptoms. Hematological and CSF examination indicated a preacute inflammatory condition although bacteriological examination gave a negative result. Histopathological examination of brain and cerebrospinal fluid analysis (CSF) showed evidence of amoebic infection. This is the first report which documented *Acanthamoeba* spp. as a causative agent of fetal encephalitis in cattle in Egypt with special attention for its diagnosis

COMPREHENSIVE SEROLOGY BASED ON APEPTIDE ELISA TO ASSESS THE PREVALENCE OF CLOSELY RELATED EQUINE HERPESVIRUSES IN ZOO AND WILD ANIMALS

Azza Abdelgawad1,Robert Hermes, Armando Damiani , BenjaminL amglait,Gábor Á.Czirják, MarionEast, Ortwin Aschenborn , ChristianWenker , **Samy Kasem**, Nikolaus Osterrieder,Alex D.Greenwood*

Virology Department ,Faculty of Veterinary Medicine ,Kafrelsheikh University, Kafrelsheikh, Egypt

ABSTRACT

Equine herpesvirus type 1 (EHV-1) causes respiratory disorders and abortion in equids while EHV-1 regularly causes equine herpesvirus myeloencephalopathy (EHM), a stroke-like syndrome following endothelial cell infection in horses. Both EHV-1 and EHV-9 infections of non-definitive hosts often result in neuronal infection and high case fatality rates. Hence, EHV-1 and EHV-9 are somewhat unusual herpesviruses and lack strict host specificity, and the true extent of their host ranges have remained unclear. In order to determine the seroprevalence of EHV-1 and EHV-9, a sensitive and specific peptide-based ELISA was developed and applied to 428 sera from captive and wild animals representing 30 species in 12 families and five orders. Members of the *Equidae*, *Rhinocerotidae* and *Bovidae* were serologically positive for EHV-1 and EHV-9. The prevalence of EHV-1 in the sampled wild zebra populations was significantly higher than in zoos suggesting captivity may reduce exposure to EHV-1. Furthermore, the seroprevalence for EHV-1 was significantly higher than for EHV-9 in zebras. In contrast, EHV-9 antibody prevalence was high in captive and wild African rhinoceros species suggesting that they may serve as a reservoir or natural host for EHV-9. Thus, EHV-1 and EHV-9 have a broad host range favoring African herbivores and may have acquired novel natural hosts in ecosystems where wild equids are common and are in close contact with other perissodactyls

SEROPREVALENCE AND "KNOWLEDGE, ATTITUDES AND PRACTICES" (KAPS) SURVEY OF ENDEMIC OVINE BRUCELLOSIS IN EGYPT

Yamen Hegazy[1], **Walid Elmonir[2]***, Nour Hosny Abdel‑Hamid[3] and Essam Mohamed Elbauomy[3]

[1]Animal Medicine Department, Faculty of Veterinary Medicine, Kafrelsheikh University, Kafrelsheikh 33516, Egypt.

[2]Hygiene and Preventive Medicine (Zoonoses) Department, Faculty of Veterinary Medicine, Kafrelsheikh University, Kafrelsheikh 33516, Egypt.

[3]Brucellosis Research Department, Animal Health Research Institute, Nadi El-Seid Street, Dokki, Giza 12618, Egypt.

ABSTRACT

Background: Between February and July 2014, a cross-sectional study to estimate the seroprevalence of brucellosis in sheep in the Kafrelsheikh district of Egypt was carried out, together with a survey of knowledge, attitudes and practices (KAPs) among local shepherds. A total of 273 serum samples were collected from 28 sheep flocks in 10 villages within the study area. These samples were analysed by the Rose Bengal Plate test (RBPT) test, with all positive samples being confirmed by complement fixation test (CFT).

Results: True seroprevalence was 20 % (95 % CI 15.3–24.7 %) with the prevalence of villages with at least one seropositive sheep estimated at 95.5 % (95 % CI 92.2–100 %); village flock seroprevalence ranged from 0 to 46.8 %. Results of the KAPs survey demonstrated that despite good knowledge regarding brucellosis being potentially present within their flocks, shepherds lacked knowledge regarding routes of livestock to humans disease transmission and the symptoms of brucellosis in humans. This lack of knowledge regarding disease transmission resulted in high-risk practices being widespread—practices such as assisting parturition without protective measures, throwing aborted material into water canals and a reluctance to remove animals that had aborted from the flock.

Conclusions: This study proposes potential measures to reduce seroprevalence of brucellosis in sheep and reduce public health risks from brucellosis such as culling aborted livestock and educational campaigns among shepherds regarding disease risks and modes of transmission.

Systematic review of brucellosis in the Middle East: disease frequency in ruminants and humans and risk factors for human infection

I. I. MUSALLAM[1], M. N. ABO-SHEHADA, **Y. M. HEGAZY**, H. R. HOLT AND Q1 F. J. GUITIAN

1 Veterinary Epidemiology, Economics and Public Health Group, Department of Production and Population
Health, The Royal Veterinary College, University of London, Hatfield, UK
2Faculty of Epidemiology and Population Health, London School of Hygiene and Tropical Medicine, Keppel
Street, London, UK
3Department of AnimalMedicine, Faculty of VeterinaryMedicine, Kafr el-Sheikh University, Kafr el-Sheikh, Egypt

ABSTRACT

A systematic review of studies providing frequency estimates of brucellosis in humans and ruminants and risk factors for Brucella spp. seropositivity in humans in the Middle East was conducted to collate current knowledge of brucellosis in this region. Eight databases were searched for peer-reviewed original Arabic, English, French and Persian journal articles; the search was conducted on June 2014. Two reviewers evaluated articles for inclusion based on predefined criteria. Of 451 research articles, only 87 articles passed the screening process and provided bacteriological and serological evidence for brucellosis in all Middle Eastern countries. Brucella melitensis and B. abortus have been identified in most countries in the Middle East, supporting the notion of widespread presence of Brucella spp. especially B. melitensis across the region. Of the 87 articles, 49 were used to provide evidence of the presence of Brucella spp. But \ only 11 provided new knowledge on the frequency of brucellosis in humans and ruminants or on human risk factors for seropositivity and were deemed of sufficient quality. Small ruminant populations in the region show seroprevalence values that are among the highest worldwide. Human cases are likely to arise from subpopulations occupationally exposed to ruminants or from the consumption of unpasteurized dairy products. The Middle East is in need of welldesigned observational studies that could generate reliable frequency estimates needed to assess \ the burden of disease and to inform disease control policies. Key words: Brucella melitensis, B. abortus, human incidence, Middle East, ruminant prevalence, seroprevalence, systematic review.
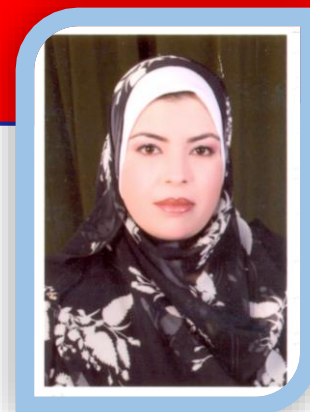
ENTERIC PARASITES OF EGYPTIAN CAPTIVE BIRDS: A GENERAL COPROLOGICAL SURVEY WITH NEW RECORDS OF THE SPECIES

El-Shahawy, I.S. and **Abou Elenien, F**.

Department of Parasitology, Faculty of Veterinary Medicine, South Valley University, Egypt

Department of Hygiene and Preventive Medicine, Faculty of Veterinary Medicine, Kafrelsheikh University, Egypt

ABSTRACT

A survey was undertaken to investigate the prevalence of intestinal parasites from various species of birds housed in a zoological garden in Egypt. A total of 72 faecal samples were collected randomly from studied birds. It was discovered that 63.9% were infected with at least one intestinal parasites, with 27.8% positive for helminths and 36.1% positive with protozoa. Coprological analysis revealed that the fecal samples were infected with different parasite species including 6 nematode eggs or larvae namely *Ascaridia* spp. (4.1%), *Heterakis* spp. (8.3%), *Capillaria* spp.(5.6%), *Contracaecum* spp.(2.8%), *Strongyloidesavium*(2.8%), *Strongyloides pavonis* larvae(4.1%), 2 protozoan parasites identified were *Eimeria* spp. (25%) and *Cryptosporidium* spp.(11.1%) . *Strongyloidespavonis*, *Contracaecum* spp. and *E.mutica* are referred for the first time in Egypt. New host record was established for most of these species. Routine monitoring for the presence of parasites in birds kept in the zoo is imperative in assisting zoo management and implementation of preventive and control measures against the spread of infectious parasitic diseases among birds within the zoo or to hummans.
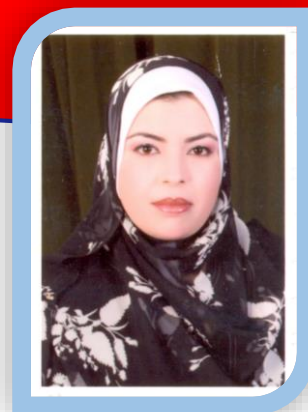
DRY CO-DIGESTION OF POULTRY MANURE WITH AGRICULTURE WASTES

Fatma Abouelenien & Yuzaburo Namba & Naomichi Nishio & Yutaka Nakashimada

Department of Hygiene and Preventive Medicine, Faculty of Veterinary Medicine, Kafrelsheikh University, Egypt

ABSTRACT

This study tested the effect on thermophilic and mesophilic digestion of poultry manure (PM) or treated poultry manure (TPM) by the addition of agriculture wastes (AWS) as a co-substrate under dry conditions. PM was co-digested with a mixture of AWS consisting of coconut waste, cassava waste, and coffee grounds. Results were increased methane content in biogas, with decreased ammonia accumulation and volatile acids. The highest performance occurred under mesophilic conditions, with a 63 and 41.3 % increase in methane production from addition of AWS to TPM (562 vs. 344 mL g VS−1 from control) and PM (406 vs.287 mL g VS−1 from control), respectively. Thermophilic conditions showed lower performance than mesophilic conditions. Addition of AWS increased methane production by 150 and 69.6 % from PM (323.4 vs. 129 mL g VS−1 from control) and TPM (297.6 vs. 175.5 mL g VS−1 from control), respectively. In all experiments, 100 % acetate produced was degraded to methane. Maximum ammonia accumulation was lowered to 43.7 % by mixing of AWS (range 5.35–8.55 vs. 7.81–12.28 g N kg−1 bed). The pH was held at 7.3–8.8, a range suitable for methanogenesis

CHENODEOXYCHOLIC ACID INCREASES THE INDUCTION OF CYP1A1 IN HEPG2 AND H4IIE CELLS

ZEIN SHABAN IBRAHIM

Department of Physiology, Faculty of Medicine, Taif University, Taif 21974, Saudi Arabia;

Department of Physiology, Faculty of Veterinary Medicine, Kafrelsheikh University, Kafrelsheikh 33516, Egypt

ABSTRACT

Bile acids are considered to promote carcinogenesis. Cytochrome P450 1A1 (CYP1A1) plays a critical role in the biotransformation of drugs and procarcinogens. This study aimed to investigate the ability of bile acids to modulate CYP1A1 expression. Treatment of HepG2 cells with chenodeoxycholic acid (CDCA) and Sudan III (S.III) upregulated CYP1A1 transcriptional activity in HepG2 cells and CYP1A1 mRNA expression in H4IIE cells. Pretreatment of the HepG2 and H4IIE cells with CDCA upregulated the S.III-induced CYP1A transcriptional activity and mRNA expression. The CDCA-induced enhancement of CYP1A1 was not abolished by the p38 inhibitor SB203580. However, exposure of the cells to the mitogen-activated protein kinase kinase (MEK)1/2 inhibitor PD98059 suppressed the CDCA-induced enhancement of CYP1A1. These results show the ability of CDCA to upregulate CYP1A1 transcription and expression, which may explain the hepatocarcinogenesis-inducing effect of cholestasis. The CDCA-induced upregulation of CYP1A1 most probably proceeded through MEK1/2 activation, indicating that this may be a therapeutic target to prevent the cancer-promoting effects of excessive amounts of bile acids.

IMPACT OF ASPARTAME AND SACCHARIN ON THE RAT LIVER: BIOCHEMICAL, MOLECULAR, AND HISTOLOGICAL APPROACH

Mohamed El-Sayed Alkafafy, Zein Shaban Ibrahim, Mohamed Mohamed Ahmed and Samir Ahmed El-Shazly

Department of Physiology, Faculty of Veterinary Medicine, Kafrelsheikh University, Kafrelsheikh 33516, Egypt

ABSTRACT

The current work was undertaken to settle the debate about the toxicity of artificial sweeteners (AS), particularly aspartame and saccharin. Twenty-five, 7-week-old male Wistar albino rats with an average body weight of 101 ± 4.8 g were divided into a control group and four experimental groups (n = 5 rats). The first and second experimental groups received daily doses equivalent to the acceptable daily intake (ADI) of aspartame (250 mg/Kg BW) and fourfold ADI of aspartame (1000 mg/Kg BW). The third and fourth experimental groups received daily doses equivalent to ADI of saccharin (25 mg/Kg BW) and four-fold ADI of saccharin (100 mg/Kg BW). The experimental groups received the corresponding sweetener dissolved in water by oral route for 8 weeks. The activities of enzymes relevant to liver functions and antioxidants were measured in the blood plasma. Histological studies were used for the evaluation of the changes in the hepatic tissues. The gene expression levels of the key oncogene (*h-Ras*) and the tumor suppressor gene (*P27*) were also evaluated. In addition to a significant reduction in the body weight, the AS-treated groups displayed elevated enzymes activities, lowered antioxidants values, and histological changes reflecting the hepatotoxic effect of aspartame and saccharin. Moreover, the overexpression of the key oncogene (*h-Ras*) and the downregulation of the tumor suppressor gene (*P27*) in all treated rat groups may indicate a potential risk of liver carcinogenesis, particularly on long-term exposure.

CAMEL DERMATOPHILOSIS: CLINICAL SIGNS AND TREATMENT OUTCOMES

Salama A. Osman

Department of Veterinary Medicine, College of Agriculture and Veterinary Medicine, Qassim University, 51452 Buraydah, Qassim, Saudi Arabia
Permanent address: Animal Medicine Department, Faculty of Veterinary Medicine, Kafrelsheikh University, 33516, Kafrelsheikh-Egypt

ABSTRACT

This study was conducted to study the clinical signs associated with dermatophilosis infection in 9 dromedary camels in addition to study some trials for treatment. Diagnosis of Dermatophilosis was done based on clinical appearance of the lesion on the affected animal and demonstrating the causal organism from the lesions beneath the scabs. Clinically, diseased camel showed lesions in the form of exudative dermatitis, thick greasy scabs and long hairs were collected to form paint brush in some areas. Removal of these hairs in the early stage of the disease revealed severe pain leaving bled area beneath it but later and in old lesion. All infected camels were heavily infested with ticks. Treatment of dermatophilosis using long acting oxytetracycline, 2 doses 3 days apart, in addition to oral administration of potassium iodide 10 gram daily for 10 days gave 100% cure rate, whereas camels treated with long acting oxytetracycline alone gave 66.67% cure rate. Tick control in infected animals and environment is indicated to minimise the risk of dermatophilosis. Also, vitamin A and mineral supplementation is necessary to obtain fast cure rate.

LACK OF MIDDLE EAST RESPIRATORY SYNDROME CORONAVIRUS TRANSMISSION FROM NFECTED CAMELS

Maged G. Hemida, Abdulmohsen Al-Naeem, Ranawaka A.P.M. Perera, Alex W.H. Chin,

Leo L.M. Poon, Malik Peiris

Faculty of Veterinary Medicine, Kafrelsheikh University, Egypt

ABSTRACT

To determine risk for Middle East respiratory syndrome coronavirus transmission from camels to humans, we tested serum from 191 persons with various levels of exposure to an infected dromedary herd. We found no serologic evidence of human infection, suggesting that zoonotic transmission of this virus from dromedaries is rare

DROMEDARY CAMELS AND THE TRANSMISSION OF MIDDLE EAST RESPIRATORY SYNDROME CORONAVIRUS (MERS-COV)

M. G. Hemida, A. Elmoslemany, F. Al-Hizab, A. Alnaeem, F. Almathen, B. Faye, D. K. W. Chu R. A. P. M. Perera[8] and M. Peiris[8]

1 Department of Microbiology and Parasitology, College of Veterinary Medicine and Animal Resources, King Faisal University, Al-Hsa, Saudi Arabia

2 Department Of Virology, Faculty Of Veterinary Medicine, Kafrelsheikh University, Kafrelsheikh, Egypt

3 Department of Clinical Studies, College of Veterinary Medicine and Animal Resources, King Faisal University, Al-Hsa, Saudi Arabia

4 Hygiene and Preventive Medicine Department, Faculty of Veterinary Medicine, Kafrelsheikh University, Kafrelsheikh, Egypt

5 Department of Pathology, College of Veterinary Medicine and Animal Resources, King Faisal University, Al-Hsa, Saudi Arabia

6 Department of Public Health and Animal Welfare, College of Veterinary Medicine and Animal Resources, King Faisal University, Al-Hsa, Saudi Arabia

7 FAO Consultant, Camel Project UTF/SAU/044/SAU, Centre for Agriculture Project, Al-Kharj, Saudi Arabia

8 The School of Public Health, The University of Hong Kong, Hong Kong, China

ABSTRACT

Middle East respiratory syndrome coronavirus (MERS-CoV) is an existential threat to global public health. The virus has been repeatedly detected in dromedary camels (Camelus dromedarius). Adult animals in many countries in the Middle East as well as in North and East Africa showed high (>90%) seroprevalence to the virus. Middle East respiratory syndrome coronavirus isolated from dromedaries is genetically and phenotypically similar to viruses from humans. We summarize current understanding of the ecology of MERS-CoV in animals and transmission at the animal–human interface. We review aspects of husbandry, animal movements and trade and the use and consumption of camel dairy and meat products in the Middle East that may be relevant to the epidemiology of MERS. We also highlight the gaps in understanding the transmission of this virus in animals and from animals to humans.

SEROPREVALENCE OF SHEEP AND GOAT POX, PESTE DES PETITS RUMINANTS AND RIFT VALLEY FEVER IN SAUDI ARAB

Hani Boshra, Thang Truong, Shawn Babiuk**, Maged Gomaa Hemida**

1 Canadian Food Inspection Agency, National Centre for Foreign Animal Disease, Winnipeg, Manitoba, Canada,
2 Department of Immunology, University of Manitoba, Winnipeg, Manitoba, Canada,
3 Department   of Microbiology and Parasitology, College of Veterinary Medicine and Animal Resources, King Faisal University, Al-Hasa, Saudi Arabia,
4 Department of Virology, Faculty of Veterinary Medicine, Kafrelsheikh University, Kafrelsheikh, Egypt

ABSTRACT

Sheep and goat pox, peste des petits ruminants and Rift Valley fever are important diseases of small ruminant livestock. Sheep and goat pox, along with peste des petits ruminants, are endemic throughout most of Africa, Asia and the Middle East. Whereas Rift Valley fever is endemic in Africa, outbreaks in the Middle East have been reported over the past decade, including the Arabian Peninsula. Saudi Arabia is a major importer of livestock, and understanding the prevalence of these viral infections would be useful for disease control. In this study, sera from sheep and goats were collected from 3 regions in Saudi Arabia. They were evaluated for antibodies specific to sheep and goat pox, peste des petits ruminants and Rift Valley fever by virus neutralization assays. To the best of our knowledge, this is the first study to evaluate the seroprevalence of these viruses in sheep and goats

BLASTOCYSTS DERIVATION FROM SOMATIC CELL FUSION WITH PREMATURE OOCYTES (PREMATURATION SOMATIC CELL FUSION)

Islam M. Saadeldin, Candrani Khoirinaya, Su Jin Kim, Joon Ho Moon, **Essam Almadaly** and Byeong Chun Lee

Department of Theriogenology, Faculty of Veterinary Medicine, Kafrelsheikh

University, Kafrelsheikh 33516, Egypt

ABSTRACT

This study was undertaken to investigate the development of immature oocytes after theirfusion with male somatic cells expressing red fluorescence protein (RFP). RFP-expressing cells were fused with immature oocytes, matured *in vitro* and then parthenogenetically activated. Somatic nuclei showed spindle formation, 1st polar body extrusion after *in vitro* maturation and protruded the 2nd polar body after parthenogenetic activation. RFP was expressed in the resultant embryos; 2- cell stage and blastocysts. Chromosomal analysis showed aneuploidy in 81.82 % of the resulting blastocysts while 18.18 % of the resulting blastocysts were diploid. Among eight RFP-expressing blastocysts, Xist mRNAs was detected in six while Sry mRNA was detected in only one blastocyst. We propose "prematuration somatic cell fusion" as an approach to generate embryos using somatic cells instead of spermatozoa. The current approach, if improved, would assist production of embryos for couples where the male partner is sterile, however, genetic and chromosomal analysis of the resultant embryos are required before transfer to the mothers.

135

IMMUNOHISTOCHEMICAL ANALYSIS OF CD146 EXPRESSION IN CANINE SKIN TUMOURS

S. Abou Asa , Sh. Anwar, T. Yanai and H. Sakai

Laboratory of Veterinary Pathology, Faculty of Applied Biological Sciences, Gifu 6University,
Department of Veterinary Pathology, Faculty of Veterinary Medicine, Kafr El-7 Sheikh University, Egypt

ABSTRACT

CD146, a cell adhesion molecule, is overexpressed in a variety of carcinomas, including melanoma, prostate cancer, epithelial ovarian cancer, and breast cancer. The level of expression is directly correlated with tumour progression and metastatic potential. The most commonly affected organ for both neoplastic and non-neoplastic tumours is the skin. The objective of this study is to investigate the immunohistochemical expression of CD146 in canine skin tumours of epidermal or follicular origin in 53 squamous cell carcinomas (SCCs), 9 squamous papillomas, 7 infundibular keratinizing acanthomas (IKA), 21 trichoepitheliomas, 13 trichoblastomas, and 3 pilomatricomas. Immunohistochemical results showed that SCCs (90.6%), squamous papilloma (33.3%), IKA (85.7%), trichoepithelioma (85.9%), trichoblastoma (30.8%) and pilomatricoma (100%), respectively, were positive for CD146. The significant expression of CD146 in SCCs supports its importance as a useful treatment target. CD146 could also be used in differentiation

EVALUATION OF SERUM ENZYME ACTIVITIES AND PROTEIN FRACTIONS IN *BRUCELLA*-INFECTED COWS

Mohamed Fahmy Abou ElAZAB*

Department of Clinical Pathology, Faculty of Veterinary Medicine, Kafrelsheikh University, Kafr Elsheikh, Egypt

ABSTRACT

The aim of this study was to evaluate potential changes in serum enzyme activities and protein fractions in *Brucella*-infected cows. A total of 1100 serum samples of dairy cows were screened for *Brucella* infection using the Rose Bengal test (RBT). Serum samples reacting positively to the RBT were subjected to indirect enzyme-linked immunosorbent assay for confirmation. Thirty serum samples from serologically positive cows and 30 from negative (healthy) cows were analyzed for alanine aminotransferase (ALT), aspartate aminotransferase (AST), creatine kinase (CK), lactate dehydrogenase (LDH), alkaline phosphatase (ALP), and gamma-glutamyl transferase (GGT) activities and total protein (TP) concentrations and serum protein electrophoresis. Serum ALT, AST, CK, and LDH activities were increased in serologically positive cows and significantly higher than those measured in healthy cows. However, there were no significant differences in ALP and GGT activities. TP and γ-globulin concentrations were increased in serologically positive cows and significantly higher than those of healthy cows, but there were no significant differences in albumin or α1-, α2-, and β-globulin concentrations. Hence, *Brucella* infection has a detrimental effect on dairy cows' health and is accompanied with elevated serum ALT, AST, CK, and LDH activities and increased TP concentrations due to the increase in γ-globulin concentrations only.

INDUCTION OF NON-SPECIFIC SUPPRESSION IN CHICKS BY SPECIFIC COMBINATION OF MATERNAL ANTIBODY AND RELATED ANTIGEN

Mohamed Fahmy ABOU ELAZAB, Hiroyuki HORIUCHI1) and Shuichi FURUSAWA

1)Laboratory of Immunobiology, Department of Molecular and Applied Bioscience, Graduate School of Biosphere Science, Hiroshima
University, 1–4–4 Kagamiyama, Higashi-Hiroshima, Hiroshima 739–8528, Japan
2)Department of Clinical Pathology, Faculty of Veterinary Medicine, Kafrelsheikh University, 33516 Elgiesh Street, Kafr Elsheikh, Egypt

ABSTRACT

Specific immune suppression in newly hatched chicks induced by specific maternal antibodies has been reported. Laying hens were immunized with dinitrophenyl-keyhole limpet hemocyanin (DNP-KLH). Purified maternal anti-DNP and non-specific immunoglobulin (Ig) Y antibodies were transferred by yolk sac inoculation to newly hatched chicks, and then, they were immunized with an optimum immunogenic dose of DNP-KLH at 1 and 4 weeks of age. Concentrations of anti-DNP antibodies in serum samples of these chicks were measured by using Enzyme-linked immunosorbent assay (ELISA). Proportions of T-cell subsets in peripheral blood of these chicks were also measured by flow cytometric analysis at 5 weeks of age (one week after the second immunization). Suppression of anti-DNP antibody response and down-regulation of CD3$^+$CD4$^+$ cells were observed in the chicks received high dose of maternal anti-DNP antibodies and immunized with DNP-KLH. On the other hand, normal anti-DNP antibody response and normal proportion of CD3$^+$CD4$^+$ cells were observed in the chicks received high dose of non-specific IgY antibodies and immunized with DNP-KLH. Furthermore, when chicks received high dose of maternal anti-DNP antibodies and immunized with DNP-KLH at 1 and 4 weeks of age and then with rabbit serum albumin (RSA) at 5 and 8 weeks of age, their primary anti-RSA response was also significantly suppressed. We indicate here that specific maternal antibodies can affect both B and T cell responses and induce non-specific suppression against different antigens. However, this non-specific suppression does not continue for a long time.

EFFECT OF GLUCAGON-LIKE PEPTIDE-1 AND GHRELIN ON LIVER METABOLITES IN STEERS

M. El-SabaghA,, D. TaniguchiA, T. SuginoA,, T. ObitsuA and K. TaniguchiA

AGraduate School of Biosphere Science, Hiroshima University, Higashi-Hiroshima, Hiroshima 739-8528, Japan.

Faculty of Veterinary Medicine, Kafrelsheikh University, 33516, Kafr El-Sheikh, Egypt.

ABSTRACT

Glucagon-like peptide 1 (GLP-1) and ghrelin have opposite regulatory effects on glucose metabolism in non-ruminants. However, mechanisms by which GLP-1 and ghrelin regulate nutrient partitioning, particularly in the liver, have been much less demonstrated in ruminants. A novel metabolomic method based on capillary electrophoresis time-offlight mass spectrometry (CE-TOFMS) combined with multivariate statistical analysis was applied to address the GLP-1 and ghrelin-induced metabolic changes in the liver of steers. Three Holstein steers (400 _ 5.0 kg LW) fed a maintenance

diet according to Japanese feeding standards were randomly assigned to three treatments (GLP-1, ghrelin and saline) in a 3 · 3 Latin square design with one week apart. Liver biopsies were taken 30 min after a single injection (1.0 ɱg/kg LW) of GLP-1 or ghrelin, and analysed for metabolites by Agilent CE-TOFMS system. Also, blood samples were collected for plasma hormones analysis. Results indicated that 20 and 10 liver metabolites were altered ($P < 0.05$) by GLP-1 and ghrelin, respectively. Pathway analysis showed that GLP-1 is involved in biochemical pathways related to glycolysis/ gluconeogenesis, lipogenesis and lipid export from the liver, oxidative stress defence and protein turnover. Ghrelin was shown to be involved in pathways related to glycolysis, protein anabolism and phospholipid biosynthesis. However, plasma concentrations of insulin, growth hormone and glucagon did not differ between treatments. These results imply that GLP-1 and ghrelin are involved in multibiochemical pathways that go beyond simply regulating glucose metabolism. In addition, the effects of GLP-1 and ghrelin may potentially be independent of insulin and growth hormone, respectively.

INSULIN-INDEPENDENT ACTIONS OF GLUCAGON-LIKE PEPTIDE-1 IN WETHERS

Mabrouk EL-SABAGH, Dai TANIGUCHI,1 Toshihisa SUGINO,1 Taketo OBITSU1 and Kohzo TANIGUCHI1

1*Graduate School of Biosphere Science, Hiroshima University, Higashi-Hiroshima, Japan; and*

2*Faculty of Veterinary Medicine, Kafrelsheikh University, Kafrelsheikh, Egypt*

ABSTRACT

I nsulin-independent actions of glucagon-like peptide-1 (GLP-1) are notyet clear in ruminants. Four Suffolk mature wethers (60.0 پ} 6.7 kg body weight (BW)) were intravenously infused with insulin (0.5 mU/kg BW/min; from 0 to 90 min) and GLP-1 (0.5 µg/kg BW/min; from 60 to 150 min) with both hormones co-administered from 60 to 90 min, in a repeatedmeasure design under euglycemic clamp for 150 min, to investigate whether GLP-1 has insulin-independent actions. Jugular blood samples were taken at 15 min intervals for plasma hormones and metabolites analysis. Compared to baseline concentrations (at 0 min), insulin infusion decreased ($P < 0.05$) plasma concentrations of glucagon, non-esterified fatty acids (NEFA), lactate, nonessential amino acids (NEAA), branched-chain amino acids (BCAA), total amino acids (TAA) and urea nitrogen (UN). Insulin plus GLP-1 infusion induced a greater increase ($P < 0.05$) in plasma concentrations of insulin and triglyceride (TG), but decreased ($P < 0.05$) glucagon, total cholesterol (T-Cho), NEAA and UN plasma concentrations. GLP-1 infusion increased ($P < 0.05$) NEFA, β-hydroxybutyrate and TG, but decreased ($P < 0.05$) glucagon, T-Cho, NEAA, BCAA and UN plasma concentrations. In conclusion, GLP-1 exerts extrapancreatic roles in ruminants not only insulin-independent but probably, in contrast to non-ruminants, antagonistic to insulin effects.

CHARACTERISATION OF PRODUCTION, MARKETING AND CONSUMPTION PATTERNS OF FARMED TILAPIA IN THE NILE DELTA OF EGYPT

Mahmoud Eltholth, Kimberly Fornace, Delia Grace, Jonathan Rushton, Barbara Häsler

Department of Hygiene and Preventive Medicine, Faculty of Veterinary Medicine, Kafrelsheikh University, Egypt

b The Royal Veterinary College, London, Veterinary Epidemiology, Economics and Public Health Group, London, UK

c London School of Hygiene and Tropical Medicine, UK

d Food Safety and Zoonoses Program, International Livestock Research Institute, Nairobi, Kenya

ABSTRACT

Egypt has one of the world's largest aquaculture sectors which makes a significant contribution to income, employment creation and food security. However, there are very limited data available on the farmed tilapia value chain. The aim of this study therefore was to characterise production, marketing and consumption patterns of farmed tilapia in the Nile Delta of Egypt. A cross sectional study was conducted to collect data from tilapia producers (100), transporters (32), retailers (100), fish fry shops (20) and households (300) in three case study communities (fish producing, peri-urban and rural community).

We conducted structured questionnaire interviews and participatory assessments for producers and consumers. Focus group discussions with mothers were also held to collect data for the availability, sources and consumption patterns of tilapia. Results showed that, more than half of producers were small scale, having a farm size of 10 feddan or less (1 feddan = 4200 m2). The main water supply for almost all farms was agricultural drain water, a potential source of contamination with chemical and biological hazards. The main production constraints were reported to be feed prices, water quality and availability, land rent, fuel and energy sources and environmental conditions. The farmed tilapia value chain was short with some value added in the form of marketing fresh and live fish as well as selling tilapia in fried or grilled form. The majority of produced tilapia was transported to retail sale and sold to consumers as fresh, while only a small proportion was processed by cleaning, grilling or frying. A lack of hygiene during transportation and marketing of farmed tilapia was found that could be potential sources for post-harvesting contamination. The availability and frequency of tilapia consumption were higher in the community in the production areas than in other communities. In non-producing areas, tilapia may be available in the market once a week during the village market day. Potential areas for further research in order to improve safety, quality and production of farmed tilapia were identified.

Temporal Analysis and Costs of Ruminant Brucellosis Control Programme in Egypt Between 1999 and 2011

M. M. Eltholth1., Y. M. Hegazy, W. F. El-Tras5, M. Bruce1 and J. Rushton1

1 Veterinary Epidemiology, Economics and Public Health Group (VEEPH), Royal Veterinary College, London, UK
2 Department of Hygiene and Preventive Medicine (Hygiene), Faculty of Veterinary Medicine, Kafrelsheikh University, Kafrelsheikh, Egypt
3 Department of Economics, School of Arts and Social Sciences, City University London, London, UK
4 Department of Animal Medicine, Faculty of Veterinary Medicine, Kafrelsheikh University, Kafrelsheikh, Egypt
5 **Department of Hygiene and Preventive Medicine (Zoonoses), Faculty of Veterinary Medicine, Kafrelsheikh University, Kafrelsheikh, Egypt**

ABSTRACT

Data for the prevalence of brucellosis in ruminants in Egypt are scarce; recent tudies suggest the disease is endemic, with a high prevalence. The aim of this study was to assess the financial costs and the impact of the current control programme on the pattern of brucellosis among ruminants between 1999 and 2011. A univariate binary logistic regression model was used to compare between seropositive proportions for different years for each species. The proportion of decreased from 2005 to 2011. The proportion of seropositive buffalo fluctuate year to year; however, there was a significant increase in 2008 (OR 3.13, 95% CI 2.69–3.66, P < 0.001). There was a decrease in the proportion of seropositive sheep during the study period except in 2001 and 2009 in which there was a significant increase. The proportion of seropositive goats increased in 2000 and 2001, and then decreased from 2002 to 2007. In 2008, there was a significant increase in the seropositive proportion of goats (OR 2.53, 95% CI 2.21–2.90, P < 0.001). The average annual cost for the control programme including testing and compensation was more than US$3 million. The total cost for the control programme including testing and compensation for the period (13 years) between 1999 and 2011 was more than US$40 million, from which more than 56% for cattle. Further studies are required for the effectiveness of the current control strategies and alternative strategies should be considered. The soci

THE EFFECTS OF WITNESSING MANAGEMENTAL PROCEDURES DURINGTHE LIGHT VERSUS THE DARK PHASE OF THE LIGHT CYCLE ONBEHAVIOUR, PERFORMANCE AND WELFARE OF LABORATORY RATS

Usama A. Abou-Ismail, **Radi A**. Mohamed & Sherif Z. El-kholya

Department of Husbandry and Development of Animal Wealth, Faculty of Veterinary Medicine, Mansoura University, Gomhoria St., Mansoura, P.O. box 35516, Egypt.
Department of Hygiene and Preventive Medicine, Faculty of Veterinary Medicine, Kafr El-Sheikh University, Kafr El-Sheikh , Egypt.
Department of Husbandry and Development of Animal Wealth, Faculty of Veterinary Medicine, Damanhour University, Damanhour, Egypt.

ABSTRACT

Research has indicated that witnessing managemental procedures are stressful to laboratory rat. Yet there has been little investigation into whether the time of witnessing these procedures affects behaviour and welfare in these animals. 96 rats, representing two batches, were used in this study. 48 of them were housed, in groups of four, in either light phase witnessing group (LPWG) (n= 6) or dark phase witnessing group (DPWG) (n= 6) for five consecutive weeks. The remaining 48 rats were exposed to the managemental procedures (e.g. weighing, cage cleaning, restraint and vehicle injection) in either the light or the dark phase of the light/dark cycle, and were also housed in groups of four. At the beginning of the 5th week of the housing period, behaviour for all cages was sampled over the 1st 4 hrs of both the light and dark phase of the light/dark cycle. Physiological (e.g. body weight) and pathological (e.g. thymus and spleen weight) measures were collected at the end of the 5th week of the housing period. Principal component analyses yielded six factors, four of which revealed significant treatment differences. For the first, loaded positively on the body weight of animals, and negatively on relative weight of adrenal gland, rats of the DPWG scored higher than those of the LPWG ($P < 0.01$). Similarly, the second component loaded strongly positively on sleep and enrichment-directed behaviours and strongly negatively on awake non-active behaviour, and rats of the DPWG scored higher than those of the LPWG ($P < 0.01$) on this factor. On the other hand, the third component loaded positively on agonism, feeding and bedding-directed behaviours and negatively on self-grooming, and for this factor rats of the LPWG scored higher than those of the DPWG ($P < 0.01$). The fourth factor loaded positively on relative weight of thymus gland and negatively on exploration and rats of the DPWG scored higher than those of the LPWG ($P < 0.01$). Therefore, witnessing experimental procedures during the light phase of the light/dark cycle appeared to be stressful and might compromise the welfare of laboratory rats. Taken together, the reported results demonstrate that the time in which managemental procedures are witnessed affect behaviour, performance and welfare of laboratory rats.

Faculty of Science

SPECTRAL CHARACTERIZATION OF THE SILVER NANOPARTICLES BIOSYNTHESIZED USING AMBROSIA MARITIMA PLANT

M. El-Kemary[1], M. Zahran [2], S. A.M. Khalifa[3] and H. R. El-Seedi[4, 5]

[1] Division of Photo- and Nanochemistry, Chemistry Department, Faculty of Science, Kafrelsheikh University, 33516 Kafr ElSheikh, Egypt.

[2] *Department of Chemistry, Faculty of Science, El-Menoufia University, 32512 Shebin El-Kom, Egypt.*
[3] *Department of Experimental Hematology, Karolinska University Hospital, SE-141 86 Stockholm, Sweden.*
[4] *Division of Pharmacognosy, Department of Medicinal Chemistry, Uppsala University, Box 574, SE-75 123, Uppsala, Sweden.*
[5] *Department of Chemistry, Faculty of Science, University of Malaya, 50603 Kuala Lumpur, Malaysia.*

ABSTRACT

Silver nanoparticles (AgNPs) were biosynthesized by reducing silver nitrate (AgNO3) using *Ambrosia maritima* aqueous leaves extract. The biosynthesized AgNPs were characterized by transmission electron microscope (TEM), fourier transform infrared (FT-IR) Spectroscopy and zeta potential analyzer. The nanoparticles were generally found to be spherical in shape with average size of 30 nm and were stable at zeta potential of-26.29 mV. The data collected by cyclic voltammetry, UV-VIS spectrophotometer and Spectrofluorophotometer proved the characteristic electrochemical and optical properties of the biosynthezied AgNPs. The metallic nanoparticles showed an anodic peak at 0.4 mV, a surface plasmon resonance peak at 437 nm and a fluorescence emission peak at the wavelength of 467 nm. In conclusion, AgNPs biosynthesized using A. *maritima* proved to be compatible and feasible to be studied further in *in vitro* and *in vivo* systems. Overall, the biosynthesized AgNPs can be used as a tool applied in a broad range of industrial and medical applications.

CYTOGENETIC STUDIES ON TWO WILD SPECIES OF GENUS ECHINOCHLOA P. BEAUV. FROM SAUDI ARABIA

Soliman Abdelfattah Haroun and Mohammad Kdaimes Alotaibi
Department of Biology, Taibah University, Madinah 30001, Saudi Arabia
Department of Botany, Kafr El-Sheikh University, Kafr El-Sheikh 33516, Egypt

ABSTRACT

Two species, *E. colona* and *E. crus-galli*, belonging to genus *Echinochloa* from Saudi Arabia were subjected to cytogenetic investigation in this study. These species are common grass belonging to family Poaceae, mostly distributed in wet or damp places throughout agricultural and public gardens in the Arabian Peninsula. Mitotic studies show that *E. colona* has 36 chromosomes as tetraploid species, whereas *E. crus-galli* has 54 chromosomes as hexaploid. Both species are based on $x=9$ as the common basic number in this genus and the majority of genera of family Poaceae. Karyotype structure and mitotic measurements of *E. colona* show a high degree of homogeneity in chromosome morphology and centromere position, reflecting its autotetraploid nature. Regarding *E. crus-galli*, the karyotype structure and mitotic measurements show significant variation between chromosome measurements and morphology, insuring the alloploid nature of the species. Meiotic chromosome associations, chiasma frequency, pollen fertility and irregularities for the two species were carried out. *E. colona* recorded normal association and high ratio of chiasma frequency as well as low irregularities, indicating the genetic stability of the species and giving rise to high pollen viability. In contrast, *E. crus-galli* shows low frequency of bivalents compared to *E .colona*, low chiasma frequency and high percentage of meiotic irregularities, reflecting genetic instability and alloploidy structure of the species. The genetic stability of *E. colona* directly affects seed production, especially at open pollination conditions, in contrast to *E. crus-galli,* where the heterogenis structure and genetic instability negatively affect seed production at open conditions. Significant low seed set at self-pollination conditions insures that the two species undergo open pollination rather than selfpollination, as common in the grass family.

EVALUATION OF THE ALLELOPATHIC EFFECT OF AQUEOUS EXTRACT OF ZYGOPHYLLUM SIMPLEX L. ON VICIA FABA L. PLANTS

Soliman A. Haroun and Abdulaziz S. Abualghaith

[1] Department of Biology, College of Science, Taibah University, Saudi Arabia
Botany Department, College of Science, Kafr el Sheikh University, Egypt

ABSTRACT

In the present study, the allelopathic effects of *Zygophyllum simplex* aqueous extract on *Vicia faba* was tested. Three concentrations (10, 20 and 40%) for three times of treatment (6, 12, 18 h) were applied. The control plants were normal, while the treated ones were significantly affected. Low concentration (10%) at all treatment times had a stimulatory effect on seed germination percentage. On the other hand, high concentration of the extract gave rise to substantial reduction in all parameters studied as the concentration increase and time of treatment prolonged. In contrast, the percentage of mitotic and meiotic aberrations increased and were time and dose dependent. Various types of mitotic and meiotic aberrations were observed. Sticky and micronuclei types of aberrations were found more frequently, confirming the toxic effect of the extract at high concentrations. Meiotic parameters of chromosome association, chiasma frequency and pollen fertility were also found affected by the time and dose. The present study proves the mutagenic effects of this extract on *Vicia faba*, especially at high doses. It also recommends its use at low concentrations when used as folk medicine. However, with the use of medicinal plants for treatment (folk medicine) recently increasing instead of synthetic chemical drugs, their side effects and safe and effective dose should be carefully pretested and documented before public use.

METABOLIC AND MOLECULAR RESPONSES IN NILE TILAPIA, OREOCHROMIS NILOTICUS DURING SHORT AND PROLONGED HYPOXIA

Magdy E. Mahfouz, Mona M. Hegaz, Mohammed A. El-Magd and Enas A. Kasema

Faculty of Science, Zoology Department, Kafrelsheikh University, Kafrelsheikh, Egypt; Faculty of Science, Zoology Department, Tanta University, Tanta, Egypt; Faculty of Veterinary Medicine, Anatomy Department, Kafrelsheikh University, Kafrelsheikh, Egypt

ABSTRACT

The strictly aquatic breathing Nile tilapia, *Oreochromis niloticus* is an extremely hypoxia-tolerant fish. To augment our understanding of the effects of hypoxia on anaerobic glycolysis in the Nile tilapia, the effect of short-term for one day (trial 1) and long-term for 30 days (trial 2) hypoxia on a selected glycolytic enzymes activity and mRNA expression in liver and white muscle was studied. The hypoxic oxygen concentrations used in the two trials were 2, 1 and 0.5 mg O_2 L^{-1} in comparison to control normoxic group 8 mg O_2 L^{-1}. The activity of phosphofructo-kinase (PFK), pyruvate kinase (PK) and lactate dehydrogenase (LDH) in liver and white muscle except liver LDH decreased in trial 1 and increased in trial 2. Assessments of mRNA levels in trial 1 revealed that *PFK* was down-regulated and *LDH* was up-regulated in liver and white muscle, while *PK* fluctuated between up- in liver and down-regulation in white muscle. Meanwhile, *PK* and *LDH* were up-regulated while *PFK* was similar to control values in both tissues in trial 2. Comet assay results demonstrated an increase in DNA damage that was directly proportional with increasing hypoxic concentrations. This damage was more pronounced in in trial 1. It seems likely that the Nile tilapia cope better with long-term hypoxic conditions, possibly as an adaptive response

AMELIORATIVE EFFECT OF CURCUMIN ON AFLATOXIN B1-INDUCED CHANGES IN LIVER GENE EXPRESSION OF *OREOCHROMIS NILOTICUS*

M. E. Mahfouz

Zoology Department, Faculty of Science, Kafrelsheikh University, Kafrelsheikh, 33516 Egypt

ABSTRACT

To evaluate the ameliorative effect of curcumin on dietary aflatoxin-induced changes in the expression of genes in Nile tilapia *Oreochromis niloticus* liver, the fish were fed with a diet contaminated by 200 ppb of aflatoxin B1 (AFB1) with and without curcumin (5 mg/kg diet) for 16 weeks in addition to a negative and positive controls fed with the basal diet and basal diet supplemented with curcumin, respectively. Further, two recovery groups with and without curcumin were tested after 2 more weeks. Relative mRNA expression of genes involved in antioxidant function (superoxide dismutase, *SOD*), biotransformation (cytochrome P4501A, *CYP1A*) and immune response (interleukin-1β, *IL-1β* and transforming growth factor β, *TGF-β*) were assessed using RT-PCR. Also, fish weight gain and survival rate were determined. Results revealed that AFB1 significantly reduced the survivability and weight gain, while curcumin inclusion improved them. Fish fed with AFB1-contaminated diet showed the up-regulation of *CYP1A* and down-regulation of *SOD*, *IL-1β* and *TGF-β*. This expression pattern was still evident in the recovery group without curcumin, but to a lesser extent. Supplementation of curcumin ameliorated the overall gene expression close to the control levels. It appears that curcumin exhibited protective effects on AFB1-induced liver toxicity in *O. niloticus* by moderating oxidative stress, toxin biotransformation, immune response, and hence growth performance.

DEVONIAN TO PERMIAN EVOLUTION OF THE PALEO-TETHYS OCEAN: NEW EVIDENCE FROM U–PB ZIRCON DATING AND SR–ND–PB ISOTOPES OF THE DARREHANJIR– MASHHAD "OPHIOLITES", NE IRAN.

Hadi Shafaii Moghadam, Xian-Hua Li, Xiao-Xiao Ling, Robert J. Stern, **Mohamed Zaki Khedr**, Massimo Chiaradia, Ghasem Ghorbani, Shoji Arai, Akihiro Tamura

a State Key Laboratory of Lithospheric Evolution, Institute of Geology and Geophysics, Chinese Academy of Sciences, Beijing 100029, China
b School of Earth Sciences, Damghan University, Damghan 36716-41167, Iran
c Geosciences Dept., University of Texas at Dallas, Richardson, TX 75083-0688, USA
d Department of Earth Sciences, Kanazawa University, Kanazawa 920-1192, Japan
e **Department of Geology, Faculty of Science, Kafrelsheikh University, Egypt**
f Département de Minéralogie, Université de Genève, Genève, Switzerland

ABSTRACT

Middle to Late Paleozoic ophiolites, which are remnants of the Paleo-Tethys Ocean, are aligned in two main zones in northern Iran: Darrehanjir–Fariman–Mashhad, and Rasht in the north and Jandagh–Anarak ophiolites to the south. Our new U–Pb zircon dating results show that the ~200 km long Darrehanjir–Mashhad mafic–ultramafic body is not a single ophiolite but a composite igneous complex composed of Permian pillow lavas and pelagic sediments in fault contact with a small outcrop of Devonian intrusive and ultramafic rocks. Darrehanjir intrusive rocks have U–Pb zircon ages of 380.6 ± 3.7 Ma and 382.9 ± 3.7 Ma respectively, ~100 Ma older than published ages for gabbros and radiolarites intercalated with lavas near Mashhad and Fariman. Mantle peridotites from the Devonian complex contain low Cr# spinel, similar to that in MORB-type peridotites. Devonian Darrehanjir gabbros and Permian Mashhad sequences both have boninitic and calc-alkaline signatures, respectively. The $\delta^{18}O_{zircon}$ values from the Devonian ferrodiorite ($\delta^{18}O_{zircon}$ ~ 4.6 ± 0.3‰) are slightly lower than the 5.2 to 5.4‰ expected for MORB-type zircons whereas Devonian plagiogranitic zircons mostly have $\delta^{18}O_{zircon}$ b5‰, perhaps reflecting involvement of hydrothermally altered crust. Similar, strongly positive values of zircon $\varepsilon Hf(t)$ for plagiogranite (av. +14.9) and ferrodiorite (av. +13.8) indicate melt derivation from depleted asthenosphere. Darrehanjir–Mashhad ophiolitic rocks can be divided into groups with high εNd (>10.3) and low εNd (<5.4) for both Permian and Devonian suites. Most Darrehanjir–Mashhad rocks are characterized by radiogenic $^{207}Pb/^{204}Pb$ and $^{208}Pb/^{204}Pb$, indicating the involvement of subducted terrigenous sediments in the source. The Mashhad–Darrehanjir mafic–ultramafic complex demonstrates that this part of Paleo-Tethys evolved from oceanic crust formation above a subduction zone in Devonian time to accretionary convergence in Permian time. Iranian Paleozoic ophiolites and oceanic igneous complexes along with those of the Caucasus and Turkey in the west and Afghanistan, Turkmenistan and Tibet to the east, define a series of diachronous subduction-related marginal that were active from at least Early Devonian to Late Permian time.

ARC-RELATED HARZBURGITE–DUNITE–CHROMITITE COMPLEXES IN THE MANTLE ECTION OF THE SABZEVAR OPHIOLITE, IRAN: A MODEL FOR FORMATION OF PODIFORM CHROMITITES

Hadi Shafaii Moghadam, **Mohamed Zaki Khedr** , Shoji Arai , Robert J. Stern, Ghasem Ghorbani , Akihiro Tamura , Chris J. Ottley
e **Department of Geology, Faculty of Science, Kafrelsheikh University, Egypt**

ABSTRACT

Podiform chromitites are common within the mantle section of the Late Cretaceous Sabzevar ophiolite in NE Iran. We studied chromitite pods and related ultramafic rocks from three Sabzevar massifs: Baghjar-Kuh Siah, Gaft Chromitite Mine and Forumad peridotite–chromitite. These represent an upper mantle sequence just below the Sabzevar Moho. The Baghjar-Kuh Siah mantle sequence contains plagioclase lherzolites, enriched in bulk REEs, with low Cr# spinels and MORB-like clinopyroxenes. These lherzolites formed due to the impregnation of MORB-like melts. The Gaft and Forumad harzburgites are depleted in trace and rare earth elements and thus are residues after high degree of partial melting (more than exhaustion of Cpx). The Gaft Chromitite Mine includes two types of podiform chromitites, high Cr# and low Cr#. The melt precipitating high Cr# spinel was boninitic whereas the melt forming the low Cr# chromitites was tholeiitic. Most Forumad massif chromitites have high Cr# spinels, although those rich in silicate inclusions are aluminous. Trace and REE element patterns of Forumad harzburgite clinopyroxene are similar to those in supra-subduction zone (SSZ) peridotites while those of Baghjar-Kuh Siah lherzolites are similar to MOR peridotite clinopyroxenes. These mineral data are also consistent with bulk rock trace and rare earth elements composition of their host peridotites. Field observations indicate that early tholeiitic magmas were followed by late boninites, as revealed in chromitite compositions as well as mantle rocks and dikes. We suggest a time-integrated model for the evolution of the Sabzevar mantle sequence during an early stage of subduction initiation associated with formation of an incipient arc. In this scenario, MORB-like melts (forearc basalts) formed first, causing low Cr# chromitites and plagioclase–clinopyroxene impregnations. Subsequent arc-like or boninitic melts with increasing contribution of slab-derived fluids were responsible for the formation of replacive dunites and high Cr# chromitites.

POPULATION CHARACTERISTICS OF GIANT REED (ARUNDO DONAX L.) IN CULTIVATEDAND NATURALIZED HABITATS

Ebrahem M. Eida,, **Mohamed S.G. Youssef**, Kamal H. Shaltoutc

Botany Department, Faculty of Science, Kafr El-Sheikh University, 33516 Kafr El-Sheikh, Egyptb

Biology Department, College of Science, King Khalid University, P.O. Box 9004, Abha 61321, Saudi Arabiac

Botany Department, Faculty of Science, Tanta University, 31527 Tanta, Egypt

ABSTRACT

In the present study, we analyzed the variability among naturalized and cultivated giant reed (Arundodonax L.) populations in terms of density, morphology and primary production along the prevailing envi-ronmental gradient in Nile Delta, Egypt. For this purpose, a sampling was carried out in homogeneousand monospecific A. donax stands in Nile Delta. The samples were collected to represent the cultivatedpopulations (planted habitat) and the naturalized populations in four habitats (canal banks, waste lands,road and railway sides). Each habitat was represented by 3 stands; and in each stand, density, mor-phology and biomass were recorded using five randomly distributed quadrats (each of 0.5×0.5 m). Theresults had indicated a significant variation in density, morphological and biomass parameters betweennaturalized and cultivated populations. Generally, naturalized populations along the railway and roadsides (the less moist habitats) had the minimum values for most measured population parameters, whilethe cultivated populations (the moistest habitat) had the maximum. The dependence of shoot height,number of branches and panicle length on shoot density indicated the density-size effects. Density, mor-phology and biomass of A. donax were correlated significantly with some soil properties such as salinity,pH, organic matter and nitrogen. The regression technique was applied to develop equations for predict-ing the biomass of A. donax shoots from more easily determined shoot height and shoot basal diameter.These methods were time-saving, so the equations might be useful in evaluating management techniqueswhich were used for monitoring A. donax.

MATHEMATICAL PROBIT AND LOGISTIC MORTALITY MODELS OF THE KHAPRA BEETLE FUMIGATED WITH PLANT ESSENTIAL OILS

Alhadi E. Alamir[a], **Gomah E. Nenaah[b]**, Mohamed A. Hafiz[a]

[a]Department of Mathematics, Najran University, Najran,1988, Kingdom of Saudi Arabia
[b]Zoology Department, Faculty of Science, Kafrelsheikh University, Kafr El sheikh 3516, Egypt
[a]Department of Mathematics, Najran University, Najran1988 Kingdom of Saudi Arabia

ABSTRACT

In the current study, probit and logistic models were employed to fit experimental mortality data of the Khapra beetle, *Trogoderma granarium* (Everts) (Coleoptera: Dermestidae), when fumigated with three plant oils of the gens Achillea. A generalized inverse matrix technique was used to estimate the mortality model parameters instead of the usual statistical iterative maximum likelihood estimation. As this technique needs to perturb the observed mortality proportions if the proportions include 0 or 1, the optimal perturbation in terms of minimum least squares (L_2) error was also determined. According to our results, it was better to log-transform concentration and time as explanatory variables in modeling mortality of the test insect. Estimated data using the probit model were more accurate in terms of L_2 errors, than the logistic one. Results of the predicted mortality revealed also that extending the fumigation period could be an effective control strategy, even, at lower concentrations. Results could help in using a relatively safe and effective strategy for the control of this serious pest using alternative control strategy to reduce the health and environmental drawbacks resulted from the excessive reliance on the broadly toxic chemical pesticides and in order to contribute safeguard world-wide grain supplies.

CHEMICAL COMPOSITION, INSECTICIDAL ACTIVITY AND PERSISTENCE OF THREE ASTERACEAE ESSENTIAL OILS AND THEIR NANOEMULSIONS AGAINST *CALLOSOBRUCHUS MACULATUS* (F.)

Gomah E. Nenaah[a] [*], Sahar I. Ibrahim[b] and Basma A. Al-Assuity[c]

[a]Department of Zoology, Faculty of Science, Kafrelsheikh University, 33516 Kafr El sheikh, Egypt

[b]Department of Pesticides, Faculty of Agriculture, Kafrelsheikh University, Egypt
[c]Department of Zoology, Faculty of Science, Tanta University, Egypt
[*]Corresponding author: Tel: +966500754240; Email: dr_nenaah1972@yahoo.com

ABSTRACT

Essential oils of *Ageratum conyzoides* (L.), *Achillea fragrantissima* (Forssk.) and *Tagetes minuta* (L.) were obtained by hydrodistillation and analyzed using gas chromatography (GC) and GC/mass spectrometry (MS). Nanoemulsions from the obtained oils were prepared using the High Pressure Homogenization (HPH) technique. The plant oils showed considerable ovicidal, adulticidal and residual activities against the cowpea beetle, *Callosobruchus maculatus* (F.) (Coleoptera: Bruchidae), where *A. conyzoides* oil was the most toxic. Upon fumigation and 48 h post exposure period, eggs were less susceptible to the oils than adults, where $LC_{50's}$ ranged between (71.6 and 161.9 μl/l air) and (19.2 and 77.8 μl/l air) against eggs and adults, respectively. When mortality was counted after 96 h of treatment, susceptibility of all stages was increased. When prepared as nanoemulsions and tested as fumigants, toxicity of oils was increased dramatically, where LC_{50} values after 96 h of treatment reached (16.1-40.5 μl/l air) and (4.5-24.3 μl/l air) against eggs and adults, respectively. In a contact toxicity bioassay, adults were susceptible to the oils-treated filter papers, where $LC_{50's}$ after 96 h of treatment ranged between (37.1-110.8 μl/cm^2). When mixed with kaolin powder and tested as contact adulticides, activity of oils increased compared with their application alone. The plant oils showed a weak to moderate residual adulticidal activity, where *A. conyzoides* oil was the most effective. The study recommends the potential of using the tested plant oils as natural grain protectants after the required toxicological assessments.

SYNTHESIS, CHARACTERIZATION AND MEDICAL EFFICACY (HEPATOPROTECTIVE AND ANTIOXIDATIVE) OF ALBENDAZOLE-BASED COPPER(II) COMPLEXES – AN EXPERIMENTAL AND THEORETICAL APPROACH

MOHAMED M. IBRAHIM, **ABDEL-MOTALEB M. RAMADAN**,
HAMDY S. EL-SHESHTAWY†, MAHMOUD A. MOHAMED§,
MOHAMED SOLIMAN and SAYED I.M. ZAYED,

Faculty of Science, Department of Chemistry, Kafr El-Sheikh University, Kafr El-Sheikh, Egypt
‡Faculty of Science, Department of Chemistry, Taif University, Taif, Saudi Arabia
§Faculty of Agriculture, Department of Biochemistry, Cairo University, Cairo, Egypt
Faculty of Veterinary Medicine, Department of Biochemistry, Benha University, Benha, Egypt

ABSTRACT

A series of albendazole-based copper(II) complexes with different counter anions, $[Cu(Albz)(H_2O)_2]$ $(ClO_4)_2$ (**1**), $[Cu(Albz)_2(Cl)]Cl\cdot 2H_2O$ (**2**), $[Cu(Albz)_2(NO_3)](NO_3)$ (**3**), and $[Cu_2(Albz)_2(\mu\text{-}SO_4)_2(H_2O)_2]$ (**4**) (Albz = albendazole), have been synthesized and characterized. Their structures and properties were characterized by elemental analysis, thermal analysis (TGA, DTG and DTA), IR, UV‑vis and ESR spectroscopies, cyclic voltammetry, electrical molar conductivity, and magnetic moment measurements. A square-planar geometry is proposed for **1**, whereas the five-coordinate copper(II) complexes **2**, **3**, and **4** have a square pyramidal geometry. Theoretical calculations (DFT) using B3LYP/6‑311 + G(d,p) level of theory corroborated the experimental results to investigate both the drug Albz and its copper(II) complex, **1**. The hepatoprotective and antioxidative efficacy of Albz and **1–4** were evaluated against carbon tetrachloride-induced acute hepatotoxicity in rats. Hepatotoxicity in experimental rats was evidenced by significant decrease in the antioxidant enzyme activities (SOD, GSH-S-transfers, and GSH-Rd levels). The results have strong impact for designing anticancer drugs, combined with their potential cytotoxic and antioxidant activities, which can be targeted selectively against cancer cells and increase their therapeutic index and advantages over other anticancer drugs. The DNA cleavage studies of Albz and its copper(II) complexes using genomic DNA indicated that Albz has no role in cleavage of DNA, and only (**1**) played a marked role in the DNA cleavage without any external additives

FABRICATIONAND CHARACTERIZATION NO F LOW COST CU2O/ZNO:AL SOLAR CELLS FOR SUSTAINABLE PHOTOVOLTAICS WITH EARTH ABUNDANT MATERIALS

Mahmoud Abdelfatah ,JohannesLedig , **AbdelhamidEl-Shaer** ,
AlexanderWagner a, VicenteMarin-Borras , AzatSharafeev , PeterLemmens ,
MohsenMohamedMosaad , Andreas Waag , AndreyBakin

b Physics Department, Faculty of Science, KafrelSheikh University ,KafrelSheikh 33516, Egypt

. **ABSTRACT**

The lowcostelectrodepositionmethodwasusedtogrowCu2O thin films and experimentally determine the optimal absorber layer hickness.Ramans cattering studiesindicatethepresenceofsolelycrystalline Cu2O andSEMimagesshowthatthethin films consistofgrainswithapyramidalshape.Theinfluence of the thicknessofthelightabsorbingCu2O ayeronthebasiccharacteristicoftheheterojunctionandtheir properties havebeeninvestigatedusingreflectivity,current–voltage(J–V), capacitance–voltage(C–V) and the externalquantumefficiency (EQE)measurements.The depletionlayer,thechargecollectionlengthof the minority carrier,and reflectivity arethemainfactorsdescribingthedeviceproperties.Theefficiency of 1.09%withanopencircuitvoltageof Voc¼0.35 V,ashortcircuitcurrentdensity Jsc¼6.21mAcm_2 and a filling factorofFF¼50% was obtain edasthehighestvalueforoursolarcells.AGaussian fit showsthat the film thicknessofaround3 mm isanoptimumwithrespecttoahighefficiency ofthesolarcells. C–V measurements showsthattheestimatedvalueofthebuilt-inpotentialis Vb¼0.35 Vandtheacceptor concentration atthejunctionis NA¼4.375_1016 cm_3 for solarcellwiththehighestefficiency.

.

FABRICATION AND CHARACTERIZATION OF FLEXIBLE SOLAR CELL

FROM ELECTRODEPOSITED CU2O THIN FILM ON PLASTIC SUBSTRATE

Mahmoud Abdelfatah , Johannes Ledig , **Abdelhamid El-Shaer** , Alexander Wagner , Azat Sharafeev , Peter Lemmens , Mohsen Mohamed Mosaad , Andreas Waag , Andrey Bakin

Institute of Semiconductor Technology, University of Technology, Braunschweig, Germany

b **Physics Department, Faculty of Science, KafrelSheikh University, KafrelSheikh 33516, Egypt**

c Laboratory for Emerging Nanometrology Braunschweig, University of Technology, Braunschweig, Germany

d Institute for Condensed Matter Physics, University of Technology, Braunschweig, Germany

. **ABSTRACT**

We present here for the first time the fabracition of a p-Cu2O/ZnO/AZO flexible heterojunction solar cell by electrodeposition of Cu2O thin film on a plastic substrate and sputtering of ZnO:Al layer. The Atomic Layer Deposition (ALD) has been employed to insert 5 nm ZnO as buffer layer. The heterojunction solar cell was characterized by Raman spectroscopy and scanning electron microscopy that show pyramidal shape and phonon modes for Cu2O thin film. Current–voltage (J–V), capacitance–voltage (C–V) and the external quantum efficiency (EQE) measurements were performed to understand the heterojunction properties. The solar cell device exhibits a power conversion efficiency of $0.897 \pm 0.005\%$ with an open circuit voltage of Voc = 300 mV, a short circuit current density of Jsc = 6.819 ± 0.048 mA cm_2 and a fill factor of FF = 0.439 ± 0.006. The values of the built-in potential and the acceptor concentration at the junction were estimated from the reverse bias C–V measurement to be 0.37 V and 6.67 _ 1016 cm_3, respectively.

IRON(II) COMPLEXES CONTAINING THE 2,6-BIS-IMINOPYRIDYL MOIETY. SYNTHESIS, CHARACTERIZATION, REACTIVITY, AND DNA BINDING

SHABAN Y. SHABAN*†, NAGI EL-SHAFAI†, HANAA MANSOUR† and RUDI VAN ELDIK*‡

†Chemistry Department, Faculty of Science, Kafrelsheikh University, Kafrelsheikh, Egypt

‡Department of Chemistry and Pharmacy, University of Erlangen-Nuremberg, Erlangen, Germany

§Faculty of Chemistry, Jagiellonian University, Krakow, Poland

. ABSTRACT

Two iron(II) complexes, $[FeII(pytBuN_3)_2](FeCl_4)$ (1) and $[FeII(pytBuMe_2N_3)Cl_2]$ (2), with sterically constrained $pytBuN_3$ and $pytBuMe_2N_3$ chelate ligands ($pytBuN_3$ = 2,6-bis-(aldiimino)pyridyl; $pytBu\text{-}Me_2N_3$ = 2,6-bis-(ketimino) pyridyl), have been synthesized and characterized by elemental analysis,IR, UV–vis spectra, and preliminary X-ray single-crystal diffraction. The latter revealed that Fe(II) in 1 is six-coordinate by six nitrogen donors from two bisiminopyridines in a distorted octahedron. Complex 2 reacts with thiourea with a second-order rate constant k2 = $(2.50 \pm 0.05) \times 10^{-3}$ M^{-1} s^{-1} at 296 K, and the reaction seemed to be slow. In a similar way, the interaction of 2 and DNA was studied by fluorescence and absorption spectroscopy. The results revealed that 2 caused fluorescence quenching of DNA through a dynamic quenching procedure. The binding constants KA, Kapp, and KSV as well as the number of binding sites between 2 and DNA were determined.
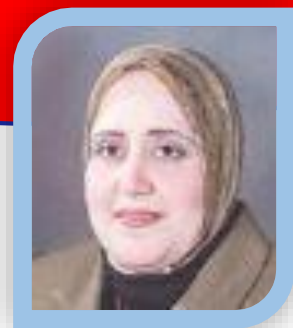
SYNTHESIS, CHARACTERIZATION, AND APPLICATION OF DENDRIMER MODIFIED MAGNETITE NANOPARTICLES AS ANTIMICROBIAL AGENT

Samia M. El-Sigeny[1], Manal F. Abou Taleb[2]

[1]Department of Chemistry, Faculty of Science, Kafr El-Sheikh University, 33516 Kafr El - Sheikh, Egypt.

[2]Polymer Chemistry Department, National Center for Radiation Research and Technology, P. O. Box No. 29, Nasr city, Cairo,,11731 Egypt.

ABSTRACT

Synthesis and characterization of different generations (G_0–G_5) of polyamidoamine (PAMAM) dendrimer – coated Fe_3O_4 nanoparticles using ethyl acrylate and 1,3-propane diamine have been reported in this study. Superparamagnetic iron oxide Fe_3O_4 nanoparticles were synthesized by co- precipitation method and modified with tris(hydroxymethylamino) methane hydrochloride for dendrimer coating. Physical characterization of the newly prepared PAMAM dendirmer-coated Fe_3O_4 nanocomposite have been carried out by using infrared spectrophotometer (IR), Transmission electron microscope (TEM), steady-state spectrophotomer (UV–Vis),thermogravimetric analysis (TGA), and X–ray diffraction. TEM images demonstrated that the PAMAM dendirmer-coated nanocomposite have monodisperse of 7.3–6.3 nm. The antimicrobial activity of the PAMAM dendirmer-coated Fe_3O_4 nanoparticles and Fe_3O_4 nanoparticles were tested against various microorganisms *Staphylococcus aureus* (+ve) Gram and (-ve) *Escherichia coli* bacteria. In general, the PAMAMdendirmer -coated Fe_3O_4 nanoparticles showed good antimicrobial activity.
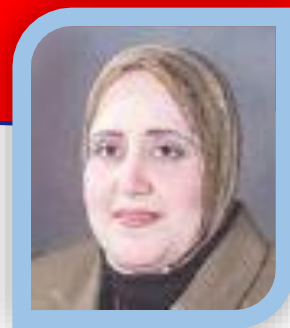
SYNTHESIS OF POLYAMIDOAMINE DENDRIMER (PAMAM /CUS/AA) NANOCOMPOSITE AND ITS APPLICATION IN THE REMOVAL OF ISMA ACID FAST YELLOW G DYE

Manal F. Abou Taleb[a,b], A. El-Trass[c], **Samia El-Sigeny[c]**

[a]Chemistry Department Faculty of Science and Humanities, Salman bin Abdulaziz University, Alkharj, Kingdom of Saudi Arabia

[b]Polymer Chemistry Department, National Center for Radiation Research and Technology, P. O. Box No. 29, Nasr city, Cairo,,11731 Egypt

[c]Chemistry Department, Faculty of Science, Kafrelsheikh University, 33516 Kafr ElSheikh, Egypt.

ABSTRACT

The adsorption of Isma acid fast yellow G dye was studied using PAMAM dendrimer /CuS/AA nanocomposite containing different amounts of CuS by batch technique. PAMAM dendrimer/CuS/AA nanocomposites were synthesized via gamma irradiation cross-linking method with the aid of sonication. The nanocomposites were characterized by FTIR, XRD, TEM, EDX, TGA, ultraviolet–visible and fluorescence spectroscopy. The size of the CuS nanoparticles were formed in the range of 12 - 19 nm. The adsorption capacity of the nanocomposites were evaluated as a function of initial dye concentration, pH, adsorbent dosage and time. It was verified that the adsorption rate fits a pseudo- second -order kinetics for initial Isma acid fast yellow G dye concentrations. Results indicated that the adsorption of Isma acid fast yellow G dye fitted well to the Langmuir model. Our results demonstrate that the PAMAM dendrimer /CuS/AA nanocomposite is very promising for removing organic dyes from wastewater.

160

FORMATION OF GROUND AND EXCITED HYDROGEN ATOMS IN PROTON–CAESIUM INELASTIC SCATTERING

S.A. Elkilany

Department of Mathematics, Faculty of Science, Kafrelsheikh University, Egypt

ABSTRACT

The inelastic scattering of proton with caesium atom is treated for the first time as a three-channel problem within the framework of the improved coupled static approximation with the assumption that the ground (1s-state) and excited (2s-state) hydrogen formation channels are open for seven values of the total angular momentum ℓ ($0 \le \ell \le 6$) at energies between 50 and 500 keV. The Green's function iterative numerical method is used to obtain the computer code to calculate iterative partial cross-sections. This can be done through calculating the reactance matrix at different values of considered energies to obtain the transition matrix that gives partial and total cross sections. Present results give reasonable agreement with previous results

FORMATION OF HYDROGEN ATOM IN 2S-STATE IN PROTON-SODIUM INELASTIC SCATTERING

Sabbah A. Elkilany

a)Department of Mathematics, Faculty of Science, Ad Dammam University, Kingdom of Saudi Arabia

b)Department of Mathematics, Faculty of Science, Kafrelsheikh University, Kafrelsheikh, Egypt

ABSTRACT

The inelastic collision of protons with sodium atoms are treated for the first time within the framework of the coupled-static and frozen core approximations. The method is used for calculating partial and total cross-sections with the assumption that only two channels (elastic and hydrogen formation in 2s-state) are open. In each case, the calculations are carried out for seven values of the total angular momentum ℓ $(0 \leq \ell \leq 6)$. The target is described using the Clementi Roetti wave functions within the framework of the one valence electron model. We use Lipmann-Swinger equation to solve the derived equations of the problem, then apply an iterative numerical method to obtain the code of computer to calculate iterative partial cross-sections. This can be done through calculating the reactance matrix at different values of considered energies to obtain the transition matrix that gives partial and total cross sections. The present results for total hydrogen (2s-state) formation cross sections are in agreement with results of other available ones in wide range of incident energy

TOPOLOGICAL APPROACH TO MULTIVALUED INFORMATION SYSTEM

R. Mareay

Department of Mathematics, Faculty of Science, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt, e-mail: roshdeymareay@yahoo.com

ABSTRACT

Rough set is a powerful tool for analyzing deterministic information systems. Problems arise when a nondeterministic information system (multivalued information system) is used to make a classification. In this paper, we introduce a new method to solve this problem by using topological bases. Firstly, we define the characteristic sets for multivalued information systems. These characteristic sets are used to generate topological bases which decompose data. We carry out the reduct and the core of this classification by using the topological bases based on these characteristic sets. New pre-topological approximations are introduced and some of their properties are proved. Finally, we define the accuracy measure and the membership function with respect to pre-topological approximations.

ENERGY-TRANSFER STUDIES ON PHTHALOCYANINE–BODIPY LIGHT HARVESTING PENTAD BY LASER FLASH PHOTOLYSIS

Mohamed E. El-Khouly, Cem Göl, Morad M. El-Hendawy, Serkan Yeşilot and Mahmut Durmuş

[a] **Department of Chemistry, Faculty of Science, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt**
[b] *Gebze Technical University, Department of Chemistry, PO Box 141, Gebze 41400, Kocaeli, Turkey*

ABSTRACT

A molecular pentad, comprised of zinc phthalocyanine (ZnPc) with four units boron dipyrromethene (BODIPY) have been examined by femtosecond and nanosecond laser flash photolysis to explore its photoinduced intramolecular events from the excited BODIPY. The geometry optimization showed that the phthalocyanine moiety is completely symetteric and form perfect square planar complex with zinc. The absorption spectra of ZnPc-BODIPY pentad cover most of the visible region (ca. 300-750 nm), which clearly is an advantage for capturing solar energy. The excitation transfer from the singlet BODIPY to ZnPc is envisioned due to good spectral overlap of the BODIPY emission and ZnPc absorption spectra. Femtosecond laser flash photolysis studies provided concrete evidence for the occurrence of energy transfer from the singlet excited BODIPY to ZnPc in tetrahydrofuran. The kinetic study of energy transfer measured by monitoring the decay of the BODIPY emission revealed fast energy transfer (5.90×10^{10} s^{-1}) in the molecular pentad. Since the electron transfer from the singlet ZnPc to BODIPY is thermodynamically not feasible, the singlet ZnPc decayed to populates the triplet ZnPc, in addition to the grounds state. These findings suggest the potential of the examined ZnPc-BODIPY pentad to be efficient photosynthetic antenna in the artificial photosynthetic systems.
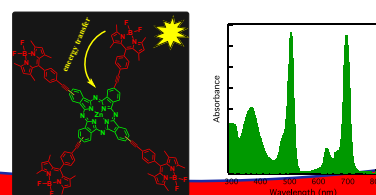
SYNTHESIS, PHOTOPHYSICAL AND PHOTOCHEMICAL PROPERTIES OF NOVEL PHTHALOCYANINES SUBSTITUTED WITH TRIPTYCENE MOIETIES

Bader S. Ghanem[a], Mehmet Pişkin[b], Mahmut Durmuş[c]*, **Mohamed E. El-Khouly[d,e]**, Shaya Y. Al-Raqa[a]**

[a] Department of Chemistry, Faculty of Science, Taibah University, Saudi Arabia

*[b] Onsekiz Mart University, 17100 Çanakkale, Turkey*

[c] Gebze Technical University, Turkey

[d] Department of Chemistry, Faculty of Science, Kafrelsheikh University, Egypt

[e] Osaka University, JAPAN

ABSTRACT

The new metal-free and zinc (II) phthalocyanines containing four triptycene moieties were synthesized and characterized by ^{1}H NMR, mass, IR spectrometry and electronic spectroscopy. The steady-state absorption spectra of the investigated compounds exhibited the main absorption bands in the visible region at around 700 nm. The fluorescence spectra and quantum yields were recorded by the steady-state emission measurement. The powerful nanosecond laser flash photolysis technique was employed to record the transient absorption spectra of the long-lived triplet states of the investigated compounds. The singlet oxygen generation and photodegradation properties of target phthalocyanines under light irradiation were also investigated in tetrahydrofuran solution.
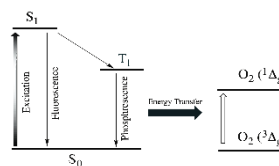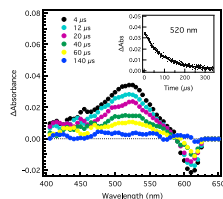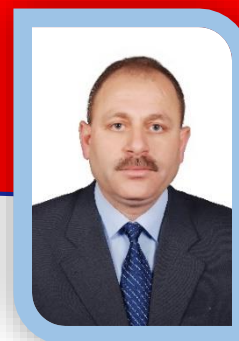
THE DIAGNOSTIC VALUE OF 18F-FDG PET/CT IN ASSOCIATION WITH SERUM TUMOR MARKER ASSAYS IN BREAST CANCER RECURRENCE AND METASTASIS

Ying Dong,[1] Haifeng Hou,Chunyan Wang,[6] Jing Li . Qiong Yao,
Said Amer, andMei Tian

DEPARTMENT OF ZOOLOGY, FACULTY OF SCIENCE, KAFR EL SHEIKH UNIVERSITY, KAFR EL SHEIKH 33516, EGYPT

### ABSTRACT

Background: After initial treatment of breast cancer (BC), monitoring loco-regional recurrence and distant metastases is a great clinical challenge.

Objective: To evaluate the efficacy of PET/CT in association with serum tumor makers in BC follow-up.

Methods: Twenty-six women with a history of modified radical mastectomy were evaluated by 18F-FDG PET/CT. The results of PET/CT were compared with those of conventional imaging techniques (CITs) (including mammography, chest radiography, CT, MRI, ultrasound, and bone scintigraphy). Serum tumor markers of CEA, CA 125, and CA 15-3 in the BC patients were also analyzed in association with the results of PET/CT.

Results: Compared with CITs, PET/CT was more sensitive to detect the malignant foci and had better patient-based sensitivity and specificity. The mean CA 15-3 serum level was significantly higher in the confirmed positive patients of PET/CT results than in the confirmed negative ones, while there were no significant differences in the serum levels of CEA and CA 125 of both groups.

Conclusion: PET/CT is a highly efficient tool for BC follow-up compared with CITs. The high serum levels of CA 15-3 in confirmed positive PET/CT patients indicated the clinical value of CA 15-3 in BC follow-up.
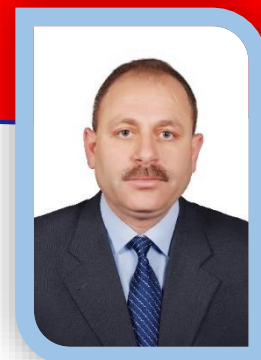
MORPHOLOGIC AND GENOTYPIC CHARACTERIZATION OF *PSOROPTES* MITES FROM WATER BUFFALOES IN EGYPT

Said Amer, Taher Abd El Wahab[3], Abd El Naby Metwaly[3], Yaoyu Feng[4*], Lihua Xiao[1*]

[1]Division of Foodborne, Waterborne and Environmental Diseases, National Center for Emerging and Zoonotic Infectious Diseases, Centers for Disease Control and Prevention, Atlanta, Georgia, United States of America,

[2]Department of Zoology, Faculty of Science, Kafr El sheikh University, Kafr El Sheikh, Egypt,

[3]Animal Health Research Institute, Kafr El Sheikh Provisional Laboratory, Kafr El Sheikh, Egypt,

[4]State Environmental Protection Key Laboratory of Environmental Risk Assessment and Control on Chemical Process, School of Resources and Environmental Engineering, East China University of Science and Technology, Shanghai, People's Republic of China

ABSTRACT

Species delimitation of *Psoroptes* spp. and identity of the parasite in water buffaloes remain poorly defined. In this study, *Psoroptes* infestation on three water buffalo farms in Egypt was examined based on morphometric characteristics, especially the opisthosomal setae of adult male mites. Clinical investigations showed that 28% (196/700) of the sampled animals had mange infestation. Microscopic examinations of 80 skin scrapings indicated the occurrence of *Psoroptes* mites in 17 (21.3%) samples, *Sarcoptes* mites in 27 (33.7%) samples, and the concurrence of both in 36 (45.0%) samples. Morphologically, the *Psoroptes* parasite was identified as *Psoroptes natalensis*. DNA sequence analysis of the second internal transcribed spacer (ITS2) in 11 representative samples confirmed the diagnosis and suggested the presence of a distinct variety of *Psoroptes natalensis* in Egypt.

Kafrelsheikh University
Postgraduate Studies&Research

ASSESSMENT OF ELEMENTAL AND NROM/TENORM HAZARD POTENTIAL FROM NON-NUCLEAR INDUSTRIES IN NORTH SINAI, EGYPT

A. F. El-Mekawy & H. M. Badran & M. K. Seddeek &
T. Sharshar & T. Elnimr

Physics Department, Faculty of Science, Kafrelsheikh University, Kafr El-Sheikh, Egypt

ABSTRACT

Non-nuclear industries use raw materials containing significant levels of naturally occurring radioactive material (NORM). The processing of these materials may expose workers engaged in or even people living near such sites to technologically enhanced naturally occurring radioactive material (TENORM) above the natural background. Inductively coupled plasma and gamma ray spectrometry have been used to determine major and trace elements and radionuclide concentrations in various samples, respectively, in order to investigate the environmental impact of coal mining and cement plant in North Sinai, Egypt. Generally, very little attention was directed to the large volumes of waste generated by either type of industrial activities. Different samples were analyzed including various raw materials, coal, charcoal, Portland and white cement, sludge, and wastes. Coal mine and cement plant workers dealing with waste and kaolin, respectively, are subjected to a relatively high annual effective dose. One of the important finding is the enhancement of all measured elements and radionuclides in the sludge found in coal mine. It may pose an environmental threat because of its large volume and its use as combustion material. The mine environment may have constituted Al, Fe, Cr, and V pollution source for the local area. Higher concentration of Al, Fe, Mn, B, Co, Cr, Mn, Ni, Sr, V, and TENORM were found in Portland cement and Zn in white cement. Coal has higher concentrations of Al, Fe, B, Co, Cr, and V as well as ^{226}Ra and ^{232}Th. The compiled results from the present study and different worldwide investigations demonstrate the obvious unrealistic ranges normally used for ^{226}Ra and ^{232}Th activity concentrations in coal and provided ranges for coal, Portland and white cement, gypsum, and limestone.

Scientific benefits: Considerable attention has recently been devoted to the assessment of elemental and radioisotopes hazard potential from non-nuclear industries in environment. Therefore, the results of this study are important as these results give a good information about the environment of the area of north Sinai

STUDYING THE EFFECT OF NANO LEAD COMPOUNDS ADDITIVES ON THE CONCRETE SHIELDING PROPERTIES FOR Γ-RAYS

H.E. Hassan , H.M. Badran , A. Aydarous , **T. Sharshar**

Physics Department, Faculty of Science, Taif University, P.O. Box 888, Al-Hawiah, Taif 21974, Saudi Arabia
Cyclotron Facility, Nuclear Research Center, Atomic Energy Authority, Cairo 13759, Egypt
Physics Department, Faculty of Science, Tanta University, Tanta 31527, Egypt
Physics Department, Faculty of Science, Kafrelsheikh University, Kafr El-Sheikh, Egypt

ABSTRACT

Summary of results: In the present work the effect of concrete incorporation with two types of nano-lead compounds on its γ-ray shielding characteristics is investigated. The concrete samples were prepared according to the local standards of building materials and doped by different percentages of PbO and $PbTiO_3$ nano powders which were prepared using co-precipitation and oxalate precursor techniques, respectively. In addition, commercial PbO_2 powder additive was used to check the effect of particle size on concrete attenuation properties. The phase composition and particle size of all the lead-oxide additives were confirmed by XRD and TEM imaging. The γ-rays attenuation coefficients were measured as a function of the additive percentage of lead compounds for γ-ray energies of 662, 1173 and 1332 keV using ^{137}Cs and ^{60}Co sources. The microstructure changes occurred in the concrete samples doped with Pb compounds additives were probed using the positron annihilation spectroscopy (PAS) and the results were compared with that for normal concrete. The obtained data revealed that the overall defect density of the investigated samples, as seen by the positrons, decreases with increasing the nano-PbO contents which is in agreement with the determined values of the samples apparent densities. It was found that the c-ray attenuation coefficient of concrete doped by nano-PbO is improved. The results are explained in the view of the fine structure enhanced modification and its impact on the γ-ray interaction probability at different energies.

Scientific benefits: The obtained results depict that addition of nan-PbO to concrete can enhance its γ-ray mass attenuation coefficient to reach 33% of pure Pb sheets at 662 keV. The obtained parameters of PAL and PADB indicated that both techniques are highly sensitive to any changes occurred due to addition of nano-Pb compounds.

STUDY OF CHEMICAL BONDING, PHYSICAL AND BIOLOGICAL EFFECT OF METFORMIN DRUG AS AN ORGANIZED MEDICINE FOR DIABETES PATIENTS WITH CHROMIUM(III) AND VANADIUM(IV) IONS

Abdel Majid A. Adam**, T. Sharshar**, Mahmoud A. Mohamed, Omar B. Ibrahim, Moamen S. Refat

[a] Chemistry Department, Faculty of Science, Taif University, Al-Haweiah, P.O. Box 888, 21974 Taif, Saudi Arabia
[b] Physics Department, Faculty of Science, Taif University, P.O. Box 888, Al-Hawiah, Taif 21974, Saudi Arabia
[c] Physics Department, Faculty of Science, Kafrelsheikh University, Kafr El-Sheikh, Egypt
[d] Department of Biochemistry, Faculty of Agriculture, Cairo University, Giza, Egypt
[e] Department of Chemistry, Faculty of Science, Port Said, Port Said University, Egypt

ABSTRACT

New vanadium(IV) and chromium(III) complexes of metformin (MFN) were synthesized upon the chemical interaction between vanadyl(II) sulfate monohydrate or chromium(III) chloride hexahydrate with metformin diabetic drug in the media of a pure grade of methanol solvent. The $[(VO)_2(MFN)_2(SO_4)_2]2H_2O$ and $[Cr(MFN)_3]-Cl_3-6H_2O$ complexes were discussed using microanalytical measurements, molar conductance, spectroscopic (infrared, ESR, XRD, and UV–vis), effective magnetic moment, scanning electron microscopy (SEM), and thermal analyses (TG/DTG). The elemental analysis shows that VO(II) and Cr(III) complexes were associated with 1:1 and 1:3 M ratios, respectively. The infrared spectroscopic results data received from the comparison between free MFN free ligand and their vanadyl(II) and chromium(III) complexes were proven that metformin reacted with respected metal ions as a bidentate ligand through its two imino groups. The kinetic thermodynamic parameters were estimated from the DTG curves. The microstructure changes of the VO(II) and Cr(III) complexes have been probed using positron annihilation lifetime (PAL) and positron annihilation Doppler broadening (PADB) techniques. The PAL and PADB line-shape parameters were found to be dependent on the structure, electronic configuration and molecular weight of metal complexes. Antimicrobial activity of the metformin free ligand and its vanadyl(II) and chromium(III) complexes were evaluated against the gram negative and gram positive bacteria strains and different fungal strains. Moderate antimicrobial activity recorded by disk diffusion inhibition growth zone method in vanadyl(II) and chromium(III) complexes compared to metformin free ligand.

Scientific benefits: Considerable attention has recently been devoted to the synthesizing and characterizing the metformin complexes as a diabetic drug model. This interest stems from the significant physical and chemical properties of these complexes.

THE USE OF POSITRON ANNIHILATION DOPPLER BROADENING SPECTROSCOPY IN THE CHARACTERIZATION OF RADIOCHROMIC DOSIMETRY FILMS

N.T.S. Albogamy **, T. Sharshar** , A. Aydarous

[a] Physics Department, Faculty of Applied Medical Sciences, Taif University-Tarabah Branch, Tarabah, Saudi Arabia

[b] Physics Department, Faculty of Science, Taif University, Al-Hawiah, Taif, P.O. Box 888, Zip Code 21974, Saudi Arabia

[c] **Physics Department, Faculty of Science, Kafrelsheikh University, Kafr El-Sheikh, Egypt**

ABSTRACT

The positron annihilation Doppler broadening (PADB) spectroscopy has been employed to probe the defects and structural changes of various types of materials. In this work, an investigation was carried out for the first time to use PADB spectroscopy in probing the g irradiated radiochromic films. The Gaf- Chromic MDe55 and HDeV2 radiochromic films irradiated with absorbed doses ranges of 0e80 and 0 e2000 Gy, respectively, were subjected to Doppler broadening measurements employing a HPGe geray spectrometer. The Doppler broadening lineeshape parameters (S and W) of 511 keV annihilation radiations were discussed in terms of the polymerization degree of the active components of these dosimetry films. The S- and W-parameters were found to be dependent on the active component structures of both films. A reasonable correlation was also found between the values of the Separameter and the optical density of these radiochromic films. In addition, the Doppler broadening lineeshape parameters were successfully used to provide explanation of the observed nonlinearity of these films at the end of their dynamic dose ranges. The results demonstrate the applicability of the PADB technique to probe the physical and chemical changes occurred in the active layer of the studied radiochromic films during the solidestate polymerization reaction caused by g irradiation of different absorbed doses.

SPECTROSCOPIC, ELEMENTAL AND THERMAL ANALYSIS, AND POSITRON ANNIHILATION STUDIES ON CA(II), SR(II), BA(II), PB(II), AND FE(III) PENICILLIN G POTASSIUM COMPLEXES

M. S. Refata and T. Sharshar

c **Physics Department, Faculty of Science, Kafrelsheikh University, Kafr El-Sheikh, Egypt**

ABSTRACT

The $[Pb(Pin)_2] \cdot 3H_2O$, $[M(Pin)(H_2O)_2(Cl)] \cdot nH_2O$ (M = SrII, CaII or BaII; n = 0–1), and $[Fe(Pin)_2(Cl)(H_2O)] \cdot H_2O$ penicillin G potassium (Pin) complexes were synthesized and characterized using elemental analyses, molar conductivity, thermal analysis and electronic spectroscopy techniques. The positron annihilation lifetime (PAL) and Doppler broadening (DB) techniques have been employed to probe the defects and structural changes of Pin ligand and its complexes. The PAL and DB line-shape parameters were discussed in terms of the structure, molecular weight, ligand–metal molar ratio, and other properties of the Pin complexes.

Scientific benefits: In the present work, the coordination chemistry of penicillin G potassium (Pin) antibiotics with some transition and non-transition metal ions was discussed to examine the modes of binding in the solid state.

NORFLOXACIN LA(III)-BASED COMPLEX: SYNTHESIS, CHARACTERIZATION AND DNA BINDING STUDIES

SHABAN Y. SHABAN, MAGED A. EL-KEMARY, GEHAN SAMIR†, HOSNY EL-BARADE and RALPH PUCHTA

†Department of Chemistry, Faculty of Science, Kafrelsheikh University, 33516 Kafrelsheikh, Egypt

‡Inorganic Chemistry, Department of Chemistry and Pharmacy, Friedrich-Alexander University
Erlangen-Nuremberg, Egerlandstrasse 1, 91058 Erlangen (Germany)

ABSTRACT

A La(III) complex, [LaIIICl$_2$(NOR)$_2$]Cl (**2**), containing norfloxacin (NOR) (**1**), a synthetic fluoroquinolone antibacterial agent, has been synthesized and characterized by elemental analysis, IR, UV–vis spectra and 1H-NMR spectroscopy and molar conductance measurements.

The interaction between **2** and CT-DNA was investigated by steady-state absorption and fluorescence techniques in different pH media, and showed that **2** could bind to CT-DNA presumably via non-intercalative mode and the La(III) complex showed moderate ability to bind CT-DNA compared to other La(III) complexes. The binding site number *n*, and apparent binding constant *KA*, corresponding thermodynamic parameters $\Delta G\#$, $\Delta H\#$, $\Delta S\#$ at different temperatures were calculated. The binding constant *(KA)* values are 0.23 ± 0.05, 0.56 ± 0.05 and $0.18 \pm 0.08 \times 105$ L mol-1 in pH 4, 7 and 11, respectively. It was also found that the fluorescence quenching mechanism of CT-DNA by La(III) complex was a static quenching process.

SPECTROSCOPIC, THERMODYNAMIC, KINETIC STUDIES AND OXIDASE/ANTIOXIDANT BIOMIMETIC CATALYTIC ACTIVITIES OF TRIS (3,5-DIMETHYLPYRAZOLYL)BORATE CU(II) COMPLEXES†

Shaban Y. Shaban,* Abd El-Motaleb M. Ramadan, Mohamed M. Ibrahim, Mahmoud A. Mohamed and Rudi van Eldik

†Department of Chemistry, Faculty of Science, Kafrelsheikh University, 33516 Kafrelsheikh, Egypt

ABSTRACT

A series of copper(II) complexes, viz. [TpMeMeCu(Cl)(H2O)] (1), [TpMeMeCu(OAc)(H2O)] (2), [TpMeMeCu(NO3)] (3) and [TpMeMeCu(ClO4)] (4) containing tris(3,5-dimethylpyrazolyl)borate (KTpMeMe), have been synthesized and fully characterized. The substitution reaction of 1 with thiourea was studied under pseudo- first-order conditions as a function of concentration, temperature and pressure in methanol and acetonitrile as solvents. Two reaction steps that both depended on the nucleophile concentration were observed for both solvents. Substitution of coordinated methanol is about 40 times faster than the substitution of chloride. In acetonitrile, the rate constant for the displacement of coordinated acetonitrile was more than 20 times faster than the substitution of chloride. The reported activation parameters indicate that both reaction steps follow a dissociative mechanism in both solvents. On going from methanol to acetonitrile, the rate constant for the displacement of the solvent becomes more than 200 times faster due to the more labile acetonitrile, but the substitution mechanism remained to have a dissociative character. The antioxidant activities of 1–4 were evaluated for superoxide dismutase (SOD), glutathione-stransferase (GST0 and glutathione reduced (GSH-Rd) activity. 1 and 2 were found to show ($p < 0.05$) the highest antioxidant activity in comparison to 3 and 4, which can be ascribed to the geometric configuration as well as the nature of the co-ligand. 1 showed catechol oxidase activity with turnover numbers of 20 min^{-1} and a coordination affinity for 3,5-DTBC of K_1, = 31 mM^{-1} . K_1 is rather large and seems to be typical for faster biomimetic models, and also for the enzyme itself (25 mM^{-1}). The reaction rate depended linearly on the complex concentration, indicating a first-order dependence on the catalyst concentration

Q-SYMMETRY AND CONDITIONAL Q-SYMMETRIES FOR DRINFEL'D–SOKOLOV–WILSON SYSTEM

Hassan A. Zedan and Seham Sh. Tantawy

[1] Mathematics Department, Faculty of Science, King Abdulaziz University, P. O. Box 80203, Jeddah 21589, Saudi Arabia
[2]Mathematics Department, Faculty of Science, Kafr El-Sheikh University, Kafr El-Sheikh, Egypt
[3]Mathematics Department, Faculty of Education, Ain Shams University, Cairo 11566, Egypt

ABSTRACT

We study in this paper the Q-symmetry and conditional Q-symmetries of Boussinesq equation. The solutions which we obtain, in

this case, are in the form of convergent power series with easily computable components

INVARIANCE OF THE NONLINEAR GENERALIZED NLS

EQUATION UNDER THE LIE GROUP OF SCALING TRANSFORMATIONS

Hassan A. Zedan · Seham Shapll · Amira Abdel-Malek
Mathematical Department, Faculty of Science, Kafr El-Sheikh University, Kafr El-Sheikh, Egypt S. Shapll
Mathematical Department, Faculty of Education, Ain Shams University, Cairo, Egypt
Basic Science Department, Faculty of Engineering, Egyptian Russian University, Badr City, Egypt

ABSTRACT

The nonlinear generalized NLS equation in the sense of the Riemann Liouville derivatives is considered. The symmetry properties of nonlinear generalized NLS equation is investigated by using the Lie group analysis method. By right of the obtained Lie point symmetries, it is shown that this equation could transform into a nonlinear ordinary differential equation of fractional order with the new independent variable.\ The derivative is an Erdélyi–Kober derivative depending on a parameter α.

A NOVEL CLASS OF SOLUTIONS FOR THE (2 + 1)-DIMENSIONAL HIGHER-ORDER BROER-KAUP SYSTEM

Hassan Zedan, Mohamed M. Alshamrani

Department of Mathematics, Faculty of Science, Kafr El-Sheikh University, Egypt

ABSTRACT

Complete symmetry analysis is presented for the (2+1)-Dimensional Higher-Order Broer Kaup System. One-dimensional optimal system is determined for symmetry algebras obtained through group symmetry. The determination of optimal systems of subalgebras \ and reductions and the solutions corresponding to these optimal systems are obtained.

Q-SYMMETRY AND CONDITIONAL Q-SYMMETRIES FOR BOUSSINESQ EQUATION

Hassan A. Zedan and Seham Sh. Tantawy

[1] Mathematics Department, Faculty of Science, King Abdulaziz University, P. O. Box 80203, Jeddah 21589, Saudi Arabia
[2]Mathematics Department, Faculty of Science, Kafr El-Sheikh University, Kafr El-Sheikh, Egypt
[3]Mathematics Department, Faculty of Education, Ain Shams University, Cairo 11566, Egypt

ABSTRACT

We study in this paper the Q-symmetry and conditional Q-symmetries of Boussinesq equation. The solutions which we obtain, in this case, are in the form of convergent power series with easily computable components.

HAAR WAVELET METHOD FOR THE SYSTEM OF INTEGRAL EQUATIONS

Hassan A. Zedan and Eman Alaidarous

[1] *Mathematics Department, Faculty of Science, King Abdulaziz University, P.O. Box 80203, Jeddah 21589, Saudi Arabia*
[2] *Mathematics Department, Faculty of Science, Kafrelsheikh University, Kafrelsheikh, Egypt*

ABSTRACT

We employed the Haar wavelet method to find numerical solution of the system of Fredholm integral equations (SFIEs) and the system ofVolterra integral equations (SVIEs). Five test problems, forwhich the exact solution is known, are considered.Comparison of the results is obtained by the Haar wavelet method with the exact solution

FOURTH ORDER ELLIPTIC OPERATOR-DIFFERENTIAL EQUATIONS WITH UNBOUNDED OPERATOR BOUNDARY CONDITIONS IN THE SOBOLEV-TYPE SPACES

Eman S Al-Aidarous, Araz R Aliev, Elvin S Rzayev and **Hassan A Zedan**

²Mathematics Department, Faculty of Science, Kafrelsheikh University, Kafrelsheikh,

Egypt

ABSTRACT

Conditions for well-posed and unique solvability of a non-homogeneous boundary value problem for a class of fourth order elliptic operator-differential equations with an unbounded operator in boundary conditions are found in this work. Note that these solvability conditions are sufficient, and they are expressed only in terms of the properties of operator coefficients of the boundary value problem. Besides, the estimates for the norms of intermediate derivative operators in a Sobolev-type space are obtained, and their close relationship with the solvability conditions is established.

TRANSPORTPROPERTIESOFTI–NI SPINELFERRITES

M.R. Eraky , S.M.Attia ,

Physics Department, Faculty of Science, Kafrelsheikh University,33516 ElGeesh Street, KafrEl-Sheikh,Egypt

b Physics Department,CollegeofAppliedSciences,UmmAl

QuraUniversity,PB7296,Makkah21955,SaudiArabia

ABSTRACT

Polycrystalline ferrites with the composition $Ti_xNi_{(1+x)}Fe_{(2-2x)}O_4$ ($0 \leq x \leq 0.625$) were prepared by a double sintering ceramic method. Results of DC electrical resistivity, ρ_{DC}, versus a temperature ensured that the samples possess a semiconductive character. Results of Seebeck coefficient S reveal that pure Ni ferrite is n-type semiconductor while the sample with x=0.625 is p- type semiconductor over the whole range of temperature. However, for other samples, S shows a transition from p-type to n-type semiconductor with increasing temperature. On the basis of ρ_{DC}, S and ρ_{AC}, the conduction mechanism of Ni– Ti ferrite was determined

DIELECTRIC PROPERTIES IN CO-TI DOPED CASRM HEXAFERRITES

M. R. Eraky

Physics Department, Faculty of Science, Kafrelsheikh University, 33516 El Geesh Street, Kafr El Sheikh, Egypt

ABSTRACT

The dependence of dielectric constant ε' and dielectric loss tangent $\tan\delta$ on frequency and composition have been investigated at fixed temperatures for polycrystalline $Ca_{0.5}Sr_{0.5}Co_xTi_xFe_{12-2x}O_{19}$ (where $0.0 \leq x \leq 0.8$) hexaferrites samples prepared by ceramic method. The measurements reveal that the samples under investigation have high values of ε' reached to 10^6 at 1 KHz and 600K. The experimental results indicated that ε' and $\tan\delta$ decrease as the frequency increases and temperature decreases. The studied samples showed an abnormal dielectric loss (or relaxation peaks) which were shifted towards higher frequency as the temperature increases. ε' and $\tan\delta$ increase as Co and Ti ion substitution increases up to $x \leq 0.4$, after that both parameters decreases. The activation energy for dielectric relaxation, E_D, were estimated for the samples. It is shown that, E_D, have low values (~ 0.08- 0.18 eV) and have inverse proportional with the dielectric constant ε'.

A SIMPLIFIED SHEAR AND NORMAL DEFORMATIONS NONLOCAL THEORY FOR BENDING OF NANOBEAMS IN THERMAL ENVIRONMENT

Ashraf M. Zenkour and **Mohammed Sobhy**

Department of Mathematics,Faculty of Science, King Abdulaziz
University,P.O.Box 80203,Jeddah 21589,Saudi Arabia
[b] Department of Mathematics and Statistics,Faculty of Science,King Faisal
University,P.O.Box400,Hofuf 31982,Saudi Arabia
**[c] Department of Mathematics,Faculty of Science,Kafrelsheikh
University,Kafrelsheikh 33516, Egypt**

Abstract

This article presents a simplified three-unknown shear and normal deformations nonlocal beam theory for the bending analysis of nanobeams in thermal environment. Eringen's nonlocal constitutive equations are considered in the analysis. Governing equations are derived according to the present refined theory using Hamilton's principle. Central deflections of nanobeams under uniform and point loads are given and compared with the available ones in the literature. Additional results of displacement and stresses are presented for future comparison. The effects of nonlocality, temperature parameters, length of beam, length-to-depth ratio

HYGROTHERMAL DEFORMATION OF ORTHOTROPIC NANOPLATES BASED ON THE STATE-SPACE CONCEPT

Mohammed Sobhy

Department of Mathematics,Faculty of Science,Kafrelsheikh University,Kafrelsheikh 33516, Egypt

ABSTRACT

This paper deals with the investigation of the effect of hygrothermal conditions on the bending of nanoplates using Levy type solution model employing the state-space concept. The nanoplates are assumed to be subjected to a hygrothermal environment. The two-unknown function plate theory is used to derive the governing differential equations on the basis of Eringen's nonlocal elasticity theory. The governing equations contain the small scale effect as well as hygrothermal and mechanical effects. These equations are converted into a set of first-order linear ordinary differential equations with constant coefficients. Analytical solution of bending response for nanoplates under combinations of simply supported, clamped and free boundary conditions is obtained. Comparison of the results with those being in the open literature is made. The influences played by small scale parameter, temperature rise, the degree of moisture concentration, boundary conditions, plate aspect ratio and side-to-thickness ratio are studied.

A COMPREHENSIVE STUDY ON FGM NANOPLATES EMBEDDED IN AN ELASTIC MEDIUM

Mohammed Sobhy

Department of Mathematics,Faculty of Science,Kafrelsheikh University,Kafrelsheikh 33516, Egypt

ABSTRACT

This work is devoted to investigate the bending response, free vibration, mechanical buckling and thermal buckling of functionally graded material (FGM) nanoplates embedded in an elastic medium. According to a new mixture law, the material properties of the FGM nanoplate are graded only in the thickness direction. The elastic medium is modeled as Pasternak's two-parameter elastic foundations. The four-unknown shear deformation theory incorporated in Eringen's nonlocal elasticity theory is employed to deduce the equations of motion from the Hamilton's principle. The solutions of simply supported FGM nanoplates are obtained and the results are compared with those available in the literature. Detailed numerical studies are performed to demonstrate the influences of inhomogeneity parameter, nonlocal parameter, elastic foundation stiffness, plate aspect ratio and side-to-thickness ratio on the behavior of FGM nanoplates.

HYGROTHERMAL VIBRATION OF ORTHOTROPIC DOUBLE-LAYERED GRAPHENE SHEETS EMBEDDED IN AN ELASTIC MEDIUM USING THE TWO-VARIABLE PLATE THEORY

Mohammed Sobhy

Department of Mathematics, Faculty of Science,Kafrelsheikh University,Kafrelsheikh 33516, Egypt

ABSTRACT

Vibration of orthotropic double-layered graphene sheets under hygrothermal conditions is investigated in this paper using the trigonometric shear deformation plate theory. This theory accounts for sinusoidal distribution of transverse shear stress, and satisfies the free transverse shear stress condition on the top and bottom surfaces of the plate without using shear correction factor. Unlike the conventional shear deformation theory, the present trigonometric theory contains only two unknowns. The two layers are assumed to be bonded by an internal elastic medium and surrounded by external elastic foundations. The equations of motion are derived based on the nonlocal theory. The motion equations contain the small scale effect as well as hygrothermal effect. The present solution is examined by comparing the present results with those being in the open literature. The effects played by small scale parameter, temperature rise, the degree of moisture concentration, plate aspect ratio and side-to-thickness ratio are studied.

186

STRUCTURE AND OPTICAL PROPERTIES OF ZNO PRODUCED FROM MICROWAVE HYDROTHERMAL HYDROLYSIS TRIS (ETHYLENEDIAMINE)ZINC NITRATE COMPLEX

Nasser Y. Mostafa , Zein K. Heiba , **Mohamed M. Ibrahim**

Taif University, Faculty of Science, P.O. Box 888, Al-Haweiah, Taif, Saudi Arabia
Chemistry Department, Faculty of Science, Suez Canal University, Ismailia 41522, Egypt
Ain Shams University, Faculty of Science, Physics Department, Cairo, Egypt
Chemistry Department, Faculty of Science, Kafr El-Sheikh University, Kafr El-Sheikh 33516, Egypt

ABSTRACT

ZnO powders were synthesized using a solution microwave hydrothermal hydrolysis process and *tris*-(ethylenediamine)zinc nitrate $\{[Zn(en)_3](NO_3)_2\}$ (en = ethylenediamine) as a precursor. Hydrolysis of the precursor complex at different pH produced zinc oxide with a diversity of well-defined morphologies. The effect of hydrolysis pH values on the structural and optical properties has been explored using XRD, SEM, and UV‑visible diffuse reflectance spectroscopy (DRS). At pH = 7.0, randomly dispersed rods were formed. Whereas flower-like morphologies were obtained by treating the complex precursor in water at pH = 10.0 and 12.0. The ZnO4 tetrahedrons are greatly affected by the pH value. The band gap decreased sharply with increasing the pH value from 7.0 to 10.0, and then slightly decreased with further increasing the pH to 12.0. The relationship between band gap and both structure and surface defects of the samples is also discussed.

INSULIN-LIKE ACTION OF NOVEL METFORMIN-CONTAINING VANADATE AS A NEW ANTIDIABATIC DRUG: SYNTHESIS, CHARACTERIZATION AND CRYSTAL STRUCTURE OF [METFORMIN-H]2[V2O6]]·H2O

Mohamed M. Ibrahim , Mahmoud A. Mohamed , Gaber A.M. Mersal , Salih Al-Juaid

Department of Chemistry, Faculty of Science, Taif University, Taif, Saudi Arabia

Department of Chemistry, Faculty of Science, Kafr El-Sheikh University, Kafr El-Sheikh 33516, Egypt

Biochemistry Department, Faculty of Agriculture, Cairo University, Giza, Egypt

Department of Chemistry, Faculty of Science, South Valley University, Qena, Egypt

Chemistry Department, Faculty of Science, King Abdulaziz University, Jeddah, Saudi Arabia

ABSTRACT

A new vanadate compound, which contains interlamellary, the insulin enhancing agent metformin was prepared. Its structure was established to be [Metformin]$_2$[V$_2$O$_6$]·H$_2$O **1** by using elemental analysis, FT-IR and ^{1}H-^{13}C NMR spectroscopic methods. The crystal structure of 1 shows that each of the two vanadium atoms is coordinated to four oxygen atoms, forming a distorted tetrahedral {VO$_4$} that are arranged alternately to form one-dimension {V$_2$O$_6$}$^{n2n-}$ chains. The chains are stabilized by an extensive hydrogen bonding involving oxide ligands of the chains and metformin molecules which fill the space between the stacks of chains. Furthermore, powder X-ray diffraction, EDX-SEM and TGA-DTA analysis of compound **1** are also investigated, which demonstrates its high purity and thermal stability. The thermoanalytical data evidence that compound **1** undergo complete decomposition, resulting in V$_2$O$_5$ as a residual product. Investigation of the glucose lowering activity by oral administration of compound **1** in streptozotocin-induced diabetic rats was examined.

SPECTROSCOPIC, ELECTROCHEMICAL, DNA BINDING AND ANTIOXIDANT BIOMIMETIC CATALYTIC ACTIVITIES OF METFORMIN-BASED COPPER(II) COMPLEXES

Abdel Ghany F. Shoair , Mohamed M. Ibrahim, Mohamed Soliman , Khlood A. Abu-Melha

Chemistry Department, Faculty of Science, Damietta University, Damietta 34517, Egypt
Chemistry Department, Faculty of Science, Kafr El-Sheikh University, Kafr El-Sheikh 33516, Egypt
Biochemistry Department, Faculty of Veterinary Medicine, Benha University, Benha, Egypt
Chemistry Department, Faculty of Science (Girls), King Khalid University, Saudi Arabia
e Chemistry Department, Faculty of Science, Taif University, Taif, Saudi Arabia

ABSTRACT

Interaction of copper(II) perchorate hexahydrate with metformin as a primary ligand and amino acids as secondary ligands lead to the formation of threemixed ligand complexes, viz., $[Cu(Met)(AA)(ClO_4)(H_2O)]$ (Met=metformin, AA = glycine (1), L-glutamine (2), and L-arginine (3)). Their structures and properties were characterized by elemental analysis, IR, UV–Vis, and ESR spectroscopy, electrochemical measurements including cyclic voltammetry, electrical molar conductivity and magnetic moment measurements. An octahedral geometry is proposed for the three compounds in monomeric structures. The redox behavior of complexes was investigated by cyclic voltammetry. Also, the interaction of copper complexes with calf thymus double-stranded DNA (CT DNA) was studied electrochemically by using CV. The binding constants of complexes (2) and (3) with DNAwere determined through the changes on the redox peak currents. The binding constants were evaluated to be 4.6×10^4 and 2.8×10^4 M^{-1} for complexes (2) and (3), respectively. Additionally, the antioxidant (superoxide dismutase and catalase) biomimetic catalytic activities of the obtained complexes (1–3) have been assessed for their efficiency of O_2^- scavenging with and complete reactive oxygen species (ROS) detoxification with respect to peroxides.

SPECTROSCOPIC AND THERMODYNAMIC PROPERTIES OF SOME TRANSITION METAL COMPLEXES DERIVED FROM 2-(HYDROXYIMINO)-1-(2-HYDROXYPHENYL)BUTANE-1,3-DIONE

Aisha I. Mosa[1] · **Mohamed M. Ibrahim**[2,3] · Kholood S. Abo-Melha[4]

Department of Chemistry, Sciences Faculty for Girls, King Abdulaziz University, Jeddah,

Saudi Arabia

Department of Chemistry, Faculty of Science, Kafr El-Sheikh University, Kafr El-Sheikh 33516, Egypt

Department of Chemistry, Faculty of Science, Taif University, Taif, Saudi Arabia

Department of Chemistry, Faculty of Science, King Khalid University, Abha, Saudi Arabia

ABSTRACT

The protonation constants of the syn ketoxime, 2-(hydroxyimino)-1-(2-hydroxyphenyl) butane-1,3-dione (HPDO) were determined by a pH-metric method solutions of dioxane, methanol and dimethylformamide (75 % v/v) at 20 ± 0.1 °C and ionic strength of 0.1 $mol·L^{-1}$ supported by KNO3. The complexation reaction of the ligand HPDO with the transition metal ions Cu(II), Ni(II), Co(II), Cr(III), Fe(III), and Mn(II) in solution has been also studied potentiometrically. The stability constants of the respective species were determined and show that their values decrease in the order: 1,4-dioxane\ DMF \ methanol. The stability of the chelates is highly affected by the relative permittivity (εr) and the donor number of the solvents. In addition, the complexes of $[Cu (PDO)(Cl)]_2·EtOH$ (**1**), $[Ni(PDO)(H_2O)(Cl)]_2·2H_2O$ (**2**), $[Co(PDO)(Cl)]_2·EtOH$ (**3**), $[Fe(PDO) (Cl)_2(EtOH)_3]·EtOH$ (**4**), and $[VO(PDO)H_2O]_2SO_4·4H_2O$ (**5**) were prepared and characterized by elemental analysis, IR, UV/Vis spectra, magnetic measurements and thermal analysis. Magnetic and spectral data suggest the formation of (i) neutral polymerized molecules accompanied by inclusion of lattice or coordinated water molecules, and (ii) a paramagnetic octahedral structure around metal ions in all cases. The geometry optimization of the syn structure of the ligand HPDO has been also calculated by Hyper Chem. 8.0 software.

THERMODYNAMIC PROPERTIES OF SOME LANTHANIDE METAL ION COMPLEXES OF NEWLY MONO- AND DIOXIMES IN DIOXAN-WATER MIXTURES

Aisha I. Mosa, Aisha M. A. Al-Turkustani, Mohamed M. Ibrahim, Kholood S. Abo-Melha
Department of Chemistry, Sciences Faculty for Girls, King Abdulaziz University, Jeddah, Saudi Arabia
Department of Chemistry, Faculty of Science, Taif University, Taif, Saudi Arabia
Departmentof Chemistry, Faculty of Science, Kafr El-Sheikh University, Kafr El-Sheikh, Egypt
Department of Chemistry, Girl's Collage of Education, King Khalid University, Abha, Saudi Arabia

ABSTRACT

The protonation constants of monoxime HL^1 and dioxime H_2L^2, derived from 1-(ohydroxybenzoyl) propane-1,2-dione were determined by pH-metric method. The stability constants of their complexes with a series of lanthanide metal ions increase in the order of Gd(III) < Nd(III) < Dy(III) < Sm(III) < Tb = Er(III) < La(III) < Eu(III) at M:L ratio of 1:3 at different temperatures (20, 30, and 40 °C) and constant ionic strength in dioxin-water mixtures (25-75% v/v). The thermodynamic parameters were determined and indicated that the ligand dissociation and complex formation reactions were exothermic.

STUDY OF THE INTERACTION BETWEEN MERCAPTOACETIC ACID (MAA) CAPPED CdS QUANTUM DOTS WITH DENATURED BOVINE SERUM ALBUMIN (dBSA)

M. ATIF, W.A. FAROOQ, M.S. ABD EL SADEK , **H.S. EL SHESHTAWY**, I.S. YAHIA

Physics and Astronomy Department, College of Science, King Saud University, Riyadh, Saudi Arabia
National Institute of Laser and Optronics, Nilore, Islamabad, Pakistan
Nanomaterials Laboratory, Physics Department, Faculty of Science, South Valley University, Qena-83523, Egypt.
Biotechnology and Fish Processing Department, Faculty of Aquatic and Fisheries Sciences, Kafrelsheikh University, 33516 Kafr ElSheikh, Egypt
Nano-Science Laboratory, Semiconductor Lab., Physics Department, Faculty of Education, Ain Shams University, Cairo, Egypt

ABSTRACT

The highly fluorescent thiol capped CdS quantum dots were synthesized by a novel aqueous synthesis route. In this method we used $CdCl_2.2.5H_2O$ and sodium sulfide (Na_2S) as the Cd and S source, respectively with thioglycolic acid (TGA) as stabilizer. The structure of CdS nanocrystals was investigated by means of X–ray diffraction (XRD), energy–dispersive X–ray analysis (EDX), UV–visible, Fourier transform infrared (FT–IR) spectroscopy and transmission electron microscopy (TEM). The results showed the crystallinity of the CdS nanocrystals and the average size of CdS QDs was 3.15 nm. An aqueous solution of CdS capped with thioglycolic acid (TGA) shows a characteristic fluorescent peak at 560 nm, which decrease under the influence of both the pH and temperature. The interaction between water soluble colloidal mercaptoacetic acid (MAA) capped CdS quantum dots and denatured bovine serum albumin (dBSA) has been studied by using absorption and steady state fluorescence measurements. The interaction between quantum dots and dBSA occurs through static quenching mechanism.

SYNTHESIS, SPECTROSCOPIC INVESTIGATION, AND MOLECULAR INTERACTIONS BETWEEN ACIVICIN AND CdSe QUANTUM DOTS

S.E. ALGARNI[a*], S.R. ALHARBI[a], M.S. ABD EL SADEK[b], H.S. EL-SHESHTAWY[c]
Physics Department, Science Faculty for Girls, King Abdulaziz University, Jeddah- Saudi Arabia
Nanomaterials Lab., Physics Department, Faculty of Science, South Valley University, Qena- Egypt.
Biotechnology and Fish Processing Department, Faculty of Aquatic and Fisheries Sciences, Kafrelsheikh University, Kafrelsheikh-Egypt

ABSTRACT

Water-Soluble and fluorescent thiol capped CdSe quantum dots (QDs) were synthesized by chemical rout. The structure of CdSe QDs was investigated by means of X–ray diffraction (XRD), energy–dispersive X–ray analysis (EDX), UV–visible, Fourier transform infrared (FT–IR) spectroscopy and transmission electron microscopy (TEM). The crystal phase of the CdSe QDs confirmed with XRD diffraction technique. The average size of CdSe QDs was calculated to be 3 nm by different spectroscopic techniques. CdSe capped with mercaptopropionic acid (MPA) shows a characteristic fluorescent peak at 590 nm, which is highly dependant on the pH value. The interaction of the water-soluble MPA–CdSe and acivicin (AC) was investigated in 50 mM sodium acetate buffer pH 7.4 by fluorescence spectroscopy. The interaction between acivicin and MPA–CdSe shows a dynamic quenching process. Analysis of the circular dichorism (CD) spectra indicated higher interaction of the MPA–CdSe-AC complex with human serum albumin than the individual AC drug.

SPECTROSCOPIC AND STRUCTURE INVESTIGATION OF THE MOLECULAR COMPLEXES OF TRIS(2-AMINOETHYL)AMINE WITH Π-ACCEPTORS

Hamdy S. El-Sheshtawy , Mohamed M. Ibrahim, Mohamed R.E. Aly , Maged El-Kemary

Chemistry Department, Faculty of Science, Kafrelsheikh University, 33516 Kafr ElSheikh, Egypt

Nanochemistry Laboratory, Chemistry Department, Faculty of Science, Kafrelsheikh University, 33516 Kafr ElSheikh, Egypt

Chemistry Department, Faculty of Applied Science, Port Said University, Port Said 42522, Egypt

Chemistry Department, Faculty of Science, Taif University, Taif, Saudi Arabia

ABSTRACT

The intermolecular charge transfer CT-complexes of tris(2-aminoethyl)amine (TREN)with different π-acceptors such as picric acid (PIC), o-chloranil (CHL) and tetracyanoquinolines (TCNQ) were investigated in both solid and liquid phase. Spectroscopic techniques, such as FT-IR, 1H NMR, 13C NMR, and UV–vis, were used to characterize the molecular complexes. Spectral data, for example, formation constants, molar extinction coefficient, standard free energy, and ionization potentials for the complexes were calculated for the 1:1 molecular CT-complexes. Exploring the single crystal of TREN/PIC, grown by slow evaporation technique from methanol solution at room temperature, shows that CT-complex stabilized by two noncovalent interactions, namely, hydrogen bond and dipole–dipole interactions. In addition, the structure of tris(2-aminoethyl)amine and CHL and TCNQ complexes were investigated by DFT calculations at B3LYP/6-311++G(d,p) level of theory.

ELECTRICAL CONDUCTIVITY AND POSITRON ANNIHILATION CHARACTERISTICS OF TERNARY SILICONE RUBBER/CARBON BLACK/TIB2 NANOCOMPOSITES

A.M. Ismail , **K.R. Mahmoud** , M.H. Abd-El Salam

Physics Department, Faculty of Education, Ain Shams University, Roxy, 11711, Cairo, Egypt

Physics Department, Faculty of Science, Kafrelsheikh University, 33516, El Gaish Street, Kafr El Sheikh, Egypt

ABSTRACT

The effect of TiB2 nano-powder content on the electrical conductivity and positron annihilation characteristics of ternary silicone rubber/CB/TiB2 nanocomposites was studied. The endothermic enthalpy of melting (DHm) and melting temperature of the composites (Tm) were determined by differential scanning calorimetery (DSC). The addition of 12 phr TiB2 leads to a maximum shift in Tm toward higher temperature. Also, cc values of the investigated composites were found to decrease with increasing TiB2 content. The dc conductivity has reached maxima in the region of 12 phr TiB2 followed by a decrease with increasing TiB2 content. The temperature dependence of the conductivity showed peaks at certain temperatures and shifted to higher temperature with increasing TiB2 content up to 12 phr. Two types of free volume cavities were detected by positron annihilation lifetime, ranging from V1 (8.77e18.18 Å3) and V2 (270.68e274.48 Å3). A correlation between positron annihilation parameters was also used to discuss the properties of the investigated composites.

STATE SPACE APPROACH FOR THE VIBRATION OF NANOBEAMS BASED ON THE NONLOCAL THERMOELASTICITY THEORY WITHOUT ENERGY DISSIPATION

A. M. Zenkour, A. E. Abouelregal, K. A. Alnefaie, N. H. Abu-Hamdeh,
A. A. Aljinaidi and E. C. Aifantis4,

Department of Mathematics, Faculty of Science, King Abdulaziz University, P.O. Box 80203, Jeddah 21589, Saudi Arabia
Department of Mathematics, Faculty of Science, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt
Department of Mathematics, Faculty of Science, Mansoura University, Mansoura 35516, Egypt
4Department of Mechanical Engineering, King Abdulaziz University, Jeddah 21589, Saudi Arabia
Laboratory of Mechanics and Materials, Polytechnic School, Aristotle University of Thessaloniki, Thessaloniki GR-54124, Greece
College of Engineering, Michigan Technological University, Houghton, MI 49931, USA

ABSTRACT

In this article, an Euler-Bernoulli beam model based upon nonlocal thermoelasticity theory without energy dissipation is used to study the vibration of a nanobeam subjected to ramp-type heating. Classical continuum theory is inherently size independent, while nonlocal elasticity exhibits size dependence. Among other things, this leads to a new expression for the effective nonlocal bending moment as contrasted to its classical counterpart. The thermal problem is addressed in the context of the Green-Naghdi (GN) theory of heat transport without energy dissipation. The governing partial differential equations are solved in the Laplace transform domain by the state space approach of modern control theory. Inverse of Laplace transforms are computed numerically using Fourier expansion techniques. The effects of nonlocality and ramping time parameters on the lateral vibration, temperature, displacement and bending moment are discussed.

EFFECTS OF PHASE-LAGS IN A THERMOVISCOELASTIC ORTHOTROPIC CONTINUUM WITH A CYLINDRICAL HOLE AND VARIABLE THERMAL CONDUCTIVITY

A. M. ZENKOUR A. E. ABOUELREGAL

Department of Mathematics, Faculty of Science, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt

ABSTRACT

This article presents an analytical solution for the effect of phase-lags on a generalized plane strain thermoviscoelastic orthotropic medium with a cylindrical cavity subjected to a thermal shock from varying heat. It is assumed that the cylindrical cavity is made of Kelvin–Vogt type material. The general solutions for field quantities are obtained using the method of Laplace transforms. The results are graphically presented to illustrate the effect of phase-lags, viscoelasticity and variability of thermal conductivity on the studied fields. Comparisons are also presented with those in the absence of viscosity and variability of thermal conductivity.

NONLOCAL THERMOELASTICITY THEORY FOR THERMAL-SHOCK NANOBEAMS WITH TEMPERATURE-DEPENDENT THERMAL CONDUCTIVITY

A. M. Zenkour, A. E. Abouelregal, K. A. Alnefaie4, X. Zhang,
and E. C. Aifantis

Department of Mathematics, Faculty of Science, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt

ABSTRACT

In this work, a model of nonlocal generalized thermoelasticity with one thermal relaxation time is used to consider the vibration behavior of an Euler-Bernoulli (E-B) nanobeam. The thermal conductivity of the nanobeam is assumed to be temperaturedependent. The nonlocality brings in an internal length scale in the formulation and, thus, allows for the interpretation of size effects. The governing partial differential equations are solved in the Laplace transform domain by adopting the state-space approach of modern control theory. The inverse of Laplace transforms are numerically computed using Fourier expansion techniques. The distributions of the lateral vibration, the temperature, the axial displacement and the bending moment of the nanobeam are determined. The effect of thickness and variability of thermal conductivity, as well as the influence of the nonlocal parameter are investigated.

NONLOCAL THERMOELASTIC NANOBEAM SUBJECTED TO A SINUSOIDAL PULSE HEATING AND TEMPERATURE-DEPENDENT PHYSICAL PROPERTIES

ASHRAF M. ZENKOUR · AHMED E. ABOUELREGAL

epartment of Mathematics, Faculty of Science, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt

ABSTRACT

This article studies the vibration phenomenon of a nanobeam subjected to a sinusoidal pulse varying heat using the nonlocal Bernoulli–Euler beam theory. A unified generalized thermoelasticity model with one thermal relaxation is used to solve this problem. Both the thermal conductivity and Young's modulus of elasticity are considered linear functions of temperature. An analytical solution in the Laplace domain is obtained for the vibration deflection and temperature. The effect due to the nonlocal parameter and the pulse-width of the sinusoidal pulse varying heat on the lateral vibration, the temperature, the axial displacement and the flexure moment of the nanobeam, is discussed. The results are also obtained in the case of temperature- independent mechanical and thermal properties.

THREE-DIMENSIONAL THERMAL SHOCK PLATE PROBLEM WITHIN THE FRAMEWORK OF DIFFERENT THERMOELASTICITY THEORIES

Ashraf M. Zenkour

Department of Mathematics, Faculty of Science, King Abdulaziz University, P.O. Box 80203, Jeddah 21589, Saudi Arabia

Department of Mathematics, Faculty of Science, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt

ABSTRACT

The exact three-dimensional solutions of the temperature, displacements and stresses of thermal shock plate problem are presented. The bottom surface of the plate is thermally isolated while the upper one is subjected to a thermal shock. A unified generalized thermoelasticity theory for the transient thermal shock plate problem in the context of Green and Lindsay, Lord and Shulman, and coupled thermoelasticity theories is presented. The variations along the longitudinal and thickness directions of all fields are investigated. Some comparisons have been shown graphically to estimate the effects of different parameters on all the studied fields. The analytical general solution is applied to the present plate using the normal mode analysis. A comparison between different theories is presented and suitable conclusions

ELECTRO-MAGNETO-THERMO-ELASTIC RESPONSE OF INFINITE FUNCTIONALLY GRADED CYLINDERS WITHOUT ENERGY DISSIPATION

Ashraf M.Zenkour , IbrahimA.Abbas

Department of Mathematics, Faculty of Science, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt

ABSTRACT

The electro-magneto-thermo-elastic analysis problem of an infinite functionally graded (FG) hollow cylinder is studied in the context of Green–Naghdi's (G–N) generalized thermoelasticity theory (without energy dissipation). Material properties are assumed to be graded in the radial direction according to a novel power-law distribution in terms of the volume fractions of the metal and ceramic constituents. The inner surface of the FG cylinder is pure metal whereas the outer surface is pure ceramic. The equations of motion and the heat-conduction equation are used to derive the governing second-order differential equations. A finite element scheme is presented for the numerical purpose. The system of differential equations is solved numerically and some plots for displacement, radial and electromagnetic stresses, and temperature are presented. The radial displacement, mechanical stresses and temperature as well as the electromagnetics stress are all investigated along the radial direction of the infinite cylinder

THERMO-MECHANICAL BENDING RESPONSE OF EXPONENTIALLY GRADED THICK PLATES RESTING ON ELASTIC FOUNDATIONS

A. M. Zenkour

Department of Mathematics, Faculty of Science, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt

ABSTRACT

The trigonometric shear and normal deformations plate theory is used to study the thermo-mechanical bending analysis of exponentially graded (EG) thick rectangular plates resting on Pasternak elastic foundations. Material properties of the plate are assumed to be graded in the thickness direction according to an exponential law distribution, meaning that Lam´e coefficients vary exponentially in a given fixed z-direction. The governing equations are derived from the principle of virtual displacements. The analytical solutions are obtained by using Navier technique and the effects of stiffness of the foundations, thermal loading, and gradient index on thermo-mechanical responses of the plates are discussed. Numerical results for the bending response for EG rectangular plates are investigated and some of them are compared with those available in the literature.

GENERALIZED MAGNETO-THERMOVISCOELASTICITY IN A PERFECTLY CONDUCTING THERMODIFFUSIVE MEDIUM WITH A SPHERICAL CAVITY

Ashraf M Zenkour*, Ebraheem O Alzahrani[1] and Ahmed E Abouelregal[3,].

Department of Mathematics, Faculty of Science, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt

In this work, the effects of viscosity and diffusion on thermoelastic interactions in an infinite medium with a spherical cavity are studied. The formulation is applied to the generalized thermoelasticity based on the theory of generalized thermoelastic diffusion with one relaxation time. The surface of the spherical cavity is taken to be traction free and subjected to both heating and external constant magnetic field. The solution is obtained in the Laplace transform domain by using a direct approach. The solution of the problem in the physical domain obtained numerically using a method based on Fourier expansion techniques. The temperature, displacement, stress, concentration as well as the chemical potential are obtained and represented graphically. Comparisons are made within the theory in the presence and absence of viscosity and diffusion.

NONLOCAL TRANSIENT THERMAL ANALYSIS OFASINGLE-LAYERE DGRAPHENE SHEET EMBEDDED INVISCOELASTIC MEDIUM

Ashraf M.Zenkour

Department of Mathematics, Faculty of Science, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt

ABSTRACT

The transient thermal analysis of a single-layered graphene sheet (SLGS) embedded in viscoelastic medium is presented by using the nonlocal elasticity theory. The elastic medium, which characterized by the linear Winkler's modulus and Pasternak's (shear) foundation modulus, is changed to a viscoelastic one by including the viscous damping term. The governing dynamical equation is obtained and solved for simply-supported SLGSs. Firstly; the effect of the nonlocal parameter is discussed carefully for the vibration and bending problems. Secondly, the effects of other parameter like aspect ratio, thickness-to-length ratio, Winkler-Pasternak's foundation, viscous damping coefficient on bending field quantities of the SLGSs are investigated in detail. The present results are compared with the corresponding available in the literature. Additional results for thermal local and nonlocal deflections and stresses are presented to investigate the thermal visco-Pasternak's parameters for future comparisons

ANALYSIS OF THREE-LAYER COMPOSITE SHELLS BY A NEW LAYERWISE THEORY AND RADIAL BASIS FUNCTIONS COLLOCATION, ACCOUNTING FOR THROUGH-THE-THICKNESS DEFORMATIONS

D. A. MATURI, A. J. M. FERREIRA, **A. M. ZENKOUR**, and D. S. MASHAT

Department of Mathematics, Faculty of Science, King Abdulaziz University, Jeddah, Saudi Arabia
Faculdade de Engenharia, Universidade do Porto, Porto, Portugal
Department of Mathematics, Faculty of Science, Kafrelsheikh University, Kafr El-Sheikh, Egypt

ABSTRACT

In this article, the static and free vibration analysis of three-layer composite shells is performed by radial basis functions collocation, according to a new layerwise theory that considers independent layer rotations, accounting for through-the-thickness deformation by considering a linear evolution of all displacements with each layer thickness coordinate. The equations of motion and the boundary conditions are obtained by the Carrera's Unified Formulation, and further interpolated by collocation with radial basis functions

THERMOELASTIC INTERACTION IN FUNCTIONALLY GRADED NANOBEAMS SUBJECTED TO TIME-DEPENDENT HEAT FLUX

Ashraf M. Zenkour and Ahmed E. Abouelregal

Department Of Mathematics, Faculty Of Science, Kafrelsheikh University, Kafr El-Sheikh, Egypt

ABSTRACT

This paper investigates the vibration phenomenon of a nanobeam subjected to a time-dependent heat flux. Material properties of the nanobeam are assumed to be graded in the thickness direction according to a novel exponential distribution law in terms of the volume fractions of the metal and ceramic constituents. The upper surface of the functionally graded (FG) nanobeam is pure ceramic whereas the lower surface is pure metal. A nonlocal generalized thermoelasticity theory with dual-phase-lag (DPL) model is used to solve this problem. The theories of coupled thermoelasticity, generalized thermoelasticity with one relaxation time, and without energy dissipation can extracted as limited and special cases of the present model. An analytical technique based on Laplace transform is used to calculate the variation of deflection and temperature. The inverse of Laplace transforms are computed numerically using Fourier expansion techniques. The effects of the phase-lags (PLs), nonlocal parameter and the angular frequency of oscillation of the heat flux on the lateral vibration, the temperature, and the axial displacement of the nanobeam are studied.

VIBRATIONAL ANALYSIS FOR AN AXIALLY MOVING MICROBEAM WITH TWO TEMPERATURES

E. Carrera, A. E. Abouelregal, I. A. Abbas, and **A. M. Zenkour**

Department Of Mathematics, Faculty Of Science, Kafrelsheikh University, Kafr El-Sheikh, Egypt

ABSTRACT

In this article, the effect of two temperatures on an axially moving microbeam subjected to ramp-type heating is studied. The generalized thermoelasticity theory with one relaxation time model is used. The governing equations are expressed in Laplace transform domain. Based on Fourier series expansion technique, the inversion of Laplace transform is done numerically. Some comparisons have been shown in figures to present the effect of the temperature discrepancy and the transport speed on all the studied field quantities. Additional results across the thickness of the microbeam are presented graphically.

FRACTIONAL ORDER THERMOELASTICITY THEORY FOR A HALF-SPACE SUBJECTED TO AN AXISYMMETRIC HEAT DISTRIBUTION

D. S. MASHAT, **A. M. ZENKOUR**, and A. E. ABOUELREGAL

Department Of Mathematics, Faculty Of Science, Kafrelsheikh University, Kafr El-Sheikh, Egypt

ABSTRACT

The present work is concerned with a traction-free thermoelastic half-space subjected to a known axisymmetric temperature distribution. The thermoelastic interactions inside the medium are investigated by employing the fractional order theory of thermoelasticity. The problem is solved by using Laplace's and Hankel's transforms. The inverse transforms are computed numerically. The variations of temperature, displacements, and stresses inside the half-space are investigated. The field variables for a particular material are graphically presented. Comparisons are made within the theory in the presence and absence of fractional order parameter

GENERALIZED THERMOELASTIC VIBRATION OF A MICROBEAM WITH AN AXIAL FORCE

Ahmed E. Abouelregal , **ASHRAF M. Zenkour**

Department Of Mathematics, Faculty Of Science, Kafrelsheikh University, Kafr El-Sheikh, Egypt

ABSTRACT

This paper presents an analytical solution for the transverse vibration of a microbeam. The generalized thermoelasticity theory with dual-phase-lags model is used to solve this problem. Laplace transforms technique isused to obtain the general solution for any set of boundary conditions. The general solution obtained is applied to a specific problem of a microbeam subjected to ramp-type heating with an initial axial force. The inverse of Laplace transforms are computed numerically using Fourier expansion techniques. The effects of the phase-lags and the ramping- time parameters are studied and discussed on the lateral vibration, the temperature, the axial displacement and the bending moment of the microbeam. Effects of the dimensionless tensile/compressive axial force on all the studied fields are also investigated.

THERMOELASTIC BENDING RESPONSE OF A LAMINATED PLATE RESTING ON ELASTIC FOUNDATIONS

A.M. Zenkour and D.A. Maturi

. Department of Mathematics, Faculty of Science, King Abdulaziz University, P.O. Box 80203, Jeddah 21589, Saudi Arabia.
. Department of Mathematics, Faculty of Science, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt.

ABSTRACT

The thermoelastic bending response is presented for a simply-supported composite laminated plate subjected to a thermal _eld. The sinusoidal plate theory as well as classical and other shear deformation theories is used. The laminated plate may be composed of one material or a combination of two materials. The layers may be symmetric cross-ply or anti- or non-symmetric angle-ply lay-up. The numerical illustrations concerned with the thermal bending response of the presented rectangular plate are studied. The e_ects due to many parameters, such as shear deformation, aspect ratio, side-to-thickness ratio, thermal loading and elastic foundations, are all investigated

THERMOELASTIC VIBRATION OF AN AXIALLY MOVING MICROBEAM SUBJECTED TO SINUSOIDAL PULSE HEATING

Ashraf M. Zenkour and Ahmed E. Abouelregal.

Department Of Mathematics, Faculty Of Science, Kafrelsheikh University, Kafr El-Sheikh, Egypt

ABSTRACT

This paper develops the solution for the generalized thermoelastic vibration of an axially moving microbeam resonator induced by sinusoidal pulse heating. The system of governing equations is reduced to a novel six-order thermoelastic di®erential equation in terms of either de°ection or temperature. The Laplace transformation method is used to determine the de°ection, temperature, axial displacement, and bending moment of the microbeam. The e®ects of phase-lag and width of the sinusoidal pulse are studied and represented graphically. The e®ect of the moving speed on the microbeam resonator is also investigated.

EFFECT OF TEMPERATURE DEPENDENCY ON CONSTRAINED ORTHOTROPIC UNBOUNDED BODY WITH A CYLINDRICAL CAVITY DUE TO PULSE HEAT FLUX..

Ashraf M. ZENKOUR and Ahmed E. ABOUELREGAL

Department Of Mathematics, Faculty Of Science, Kafrelsheikh University, Kafr El-Sheikh, Egypt

ABSTRACT

In this paper, the thermoelastic interactions in an orthotropic unbounded body containing a cylindrical cavity are studied. Thisproblemis solved by using the Green and Naghdi's(GN)generalized thermoelasticitymodel. The thermal material characteristic of the GN theory is taken as linear function of temperature.The surface of the cylinder is constrained and subjected to an exponentially decaying pulse boundary heat flux. The Laplace transform is used to removethe time dependency from the governing field equations. Finally, the transformed equations are inverted by the numerical inversion of the Laplace transform. Numerical results areshown graphically to estimate the effect of the thermal material coefficientand time of the pulse heatparameters. The distributions of all the studied felidsin the space-time domain are alsoinvestigated.

A COMPARATIVE STUDY FOR BENDING OF CROSS-PLY LAMINATED PLATES RESTING ON ELASTIC FOUNDATIONS

Ashraf M. Zenkour

Department Of Mathematics, Faculty Of Science, Kafrelsheikh University, Kafr El-Sheikh, Egypt

ABSTRACT

Two hyperbolic displacement models are used for the bending response of simply-supported orthotropic laminated composite plates resting on two-parameter elastic foundations under mechanical loading. The models contain hyperbolic expressions to account for the parabolic distributions of transverse shear stresses and to satisfy the zero shear-stress conditions at the top and bottom surfaces of the plates. The present theory takes into account not only the transverse shear strains, but also their parabolic variation across the plate thickness and requires no shear correction coefficients in computing the shear stresses. The governing equations are derived and their closed-form solutions are obtained. The accuracy of the models presented is demonstrated by comparing the results obtained with solutions of other theories models given in the literature. It is found that the theories proposed can predict the bending analysis of cross the literature. It is found that the theories proposed can predict the bending analysis of cross-ply laminated composite plates resting on elastic foundations rather accurately. The effects of Winkler and Pasternak foundation parameters, transverse shear deformations, plate aspect ratio, and side-to-thickness ratio on deflections and stresses are investigated.

STRESS, VIBRATION AND BUCKLING ANALYSES OF FGM PLATES—A STATE-OF-THE-ART REVIEW

K. Swaminathan , D.T. Naveenkumar , **A.M. Zenkour** , E. Carrera

Department Of Mathematics, Faculty Of Science, Kafrelsheikh University, Kafr El-Sheikh, Egypt

ABSTRACT

This paper presents a comprehensive review of the various methods employed to study the static, dynamic and stability behavior of Functionally Graded Material (FGM) plates. Both analytical and numerical methods are considered. The review is carried out with an emphasis to present stress, vibration and buckling characteristics of FGM plates predicted using different theories proposed by several researchers without considering the detailed mathematical implication of various methodologies. The effect of variation of material properties through the thickness, type of load case, boundary conditions, edge ratio, side-to-thickness ratio and the effect of nonlinearity on the behavior of FGM plates are discussed. The main objective of this paper is to serve the interests of researchers and engineers already involved in the analysis and design of FGM structures.

THERMAL BENDING OF LAYERED COMPOSITE PLATES RESTING ON ELASTIC FOUNDATIONS USING FOUR-UNKNOWN SHEAR AND NORMAL DEFORMATIONS THEORY

Ashraf M. Zenkour

Department Of Mathematics, Faculty Of Science, Kafrelsheikh University, Kafr El-Sheikh, Egypt

ABSTRACT

A refined plate theory as well as different plate theories is presented to study the thermoelastic response of multilayered cross-ply laminates and angle-ply sandwich plates. The effects of transverse shear strains as well as the transverse normal strain are taken into account. The number of unknown functions involved in the present theory is only four as against six or more in case of other shear and normal deformations theories. The plate is subjected to a sinusoidal temperature distribution and resting on Pasternak's or Winkler's elastic foundation models. The effects due to side-to-thickness ratio, aspect ratio, shear deformation, thermal loads and elastic foundations parameters as well as the variation of lamination angle are investigated.

STATIC ANALYSES OF FGM BEAMS BY VARIOUS THEORIES AND FINITE ELEMENTS

M. Filippi , E. Carrera , **A.M. Zenkour**

Department Of Mathematics, Faculty Of Science, Kafrelsheikh University, Kafr El-Sheikh, Egypt

ABSTRACT

The 1D Carrera Unified Formulation (CUF) is here used to perform static analyses of functionally graded (FG) structures. The hierarchical feature of CUF allows one to automatically generate an infinite number of displacement theories that may include any kind of functions of the cross-section coordinates (x, z), among which those used to describe the variation of the mechanical properties of FG materials. The governing equations are derived by means of the Principle of Virtual Displacements in a weak form and solved by means of the Finite Element method (FEM). The equations are written in terms of ''fundamental nuclei'', whose forms do not depend on the used expansions. Trigonometric, polynomial, exponential and miscellaneous expansions are here used and evaluated for various structural problems. Resulting theories are assessed by considering several aspect-ratios, gradation laws, loading and boundary conditions. The results are compared with 1-, 2- and 3-D solutions both in terms of displacements and stress distributions. The comparisons confirm that the 1D CUF elements are valuable tools for the study of FG structures.

AXIOMATIC/ASYMPTOTIC EVALUATION OF REFINED PLATE MODELS FOR THERMOMECHANICAL ANALYSIS

E. Carrera, M. Cinefra, A. Lamberti, and **Ashraf M. Zenkour**

Department Of Mathematics, Faculty Of Science, Kafrelsheikh University, Kafr El-Sheikh, Egypt

ABSTRACT

This work deals with refined models for the thermal stress analysis of multilayered plates. The Carrera Unified Formulation has been used in order to generate refined models of any order, and both equivalent single layer (ESL) and layer-wise (LW) schemes have been adopted. A Navier-type solution has been employed and, as a result, only simply supported orthotropic plates have been considered. A linear temperature distribution along the thickness direction is considered. The purpose of this work is to establish the relevance of the displacement variables and to discard the irrelevant terms in order to obtain refined models with the same accuracy as full theories, but with a lower computational cost. The axiomatic/asymptotic technique has been employed. The effectiveness of each displacement variable has been measured considering the influence of several parameters, such as the length-to-thickness ratio (a/h), the stacking sequence and the kind of material (isotropic and orthotropic). The "best" reduced models have been proposed and their relative stress and displacement components distributions along the thickness direction have been discussed. It has been found that the relevance of each displacement variable is affected to a great extent by the problem considered. In addition, it has been demonstrated that the nature of the load (mechanical or thermal) leads to the necessity of retaining different displacement variables for a given problem.

THERMOELASTIC PROBLEM OF AN AXIALLY MOVING MICROBEAM SUBJECTED TO AN EXTERNAL TRANSVERSE EXCITATION

Ahmed E. Abou elregal, **Ashraf M. Zenkour**

Department Of Mathematics, Faculty Of Science, Kafrelsheikh University, Kafr El-Sheikh, Egypt

ABSTRACT

In this study, the problem of an axially moving microbeam subjected to sinusoidal pulse heating and an external transverse excitation is solved. The generalized thermoelasticity theory with one relaxation time is used to solve this problem. An analytical technique based on the Laplace transform is used to calculate the vibration of deflection and the temperature. The inverse of Laplace transforms are computed numerically using Fourier expansion techniques. The effects of the pulse-width of thermal vibration, moving speed and the transverse excitation are studied and discussed on the lateral vibration, temperature, displacement and bending moment of the beam.

THE FRACTIONAL EFFECTS OF A TWO-TEMPERATURE GENERALIZED THERMOELASTIC SEMI-INFINITE SOLID INDUCED BY PULSED LASER HEATING

A. M. ZENKOUR, A. E. ABOUELREGAL

Department Of Mathematics, Faculty Of Science, Kafrelsheikh University, Kafr El-Sheikh, Egypt

ABSTRACT

In this study, the problem of an axially moving microbeam subjected to sinusoidal pulse heating and an external transverse excitation is solved. The generalized thermoelasticity theory with one relaxation time is used to solve this problem. An analytical technique based on the Laplace transform is used to calculate the vibration of deflection and the temperature. The inverse of Laplace transforms are computed numerically using Fourier expansion techniques. The effects of the pulse-width of thermal vibration, moving speed and the transverse excitation are studied and discussed on the lateral vibration, temperature, displacement and bending moment of the beam.

THE EFFECT OF MAGNETIC FIELD ON THERMAL SHOCK PROBLEM FOR A FIBER-REINFORCED ANISOTROPIC HALF-SPACE USING GREEN-NAGHDI'S THEORY

Ibrahim A. Abbas and **Ashraf M. Zenkour**

Department Of Mathematics, Faculty Of Science, Kafrelsheikh University, Kafr El-Sheikh, Egypt

ABSTRACT

This article presents a two-dimensional problem of generalized thermoelasticity for a fiberreinforcement anisotropic half-space under a thermal shock at its upper surface. The effects of initial stress and rotation are both studied. Green and Naghdi's theory of thermoelasticity is employed to study the present problem. The inclusion of reinforcement anisotropic elastic parameter is made and two additional terms are added to the displacement equation. The problem is solved numerically by using the finite element method. Numerical results for displacements, stresses and temperature are given and presented graphically in different positions. Comparisons are made for different values of the magnetic field. The inclusion of the reinforcement parameters is also investigated.

A SIMPLIFIED FOUR-UNKNOWN SHEAR AND NORMAL DEFORMATIONS THEORY FOR BIDIRECTIONAL LAMINATED PLATES

A M ZENKOUR

Department Of Mathematics, Faculty Of Science, Kafrelsheikh University, Kafr El-Sheikh, Egypt

ABSTRACT

This paper presents a simplified 4-unknown shear and normal deformations theory for the bending analysis of cross-ply laminated plates. The present theory accounts for an adequate distribution of transverse shear strains through the plate thickness and tangential stress-free on the plate surfaces. The effect of normal strain is also included. The governing, equilibrium equations and boundary conditions are derived by employing the virtual work principle. Numerical results for stresses and displacements are compared well with those obtained using 3-D elasticity solution.

Faculty of Engineering

DESIGN AND SIMULATION OF MEANDER LINE ANTENNA FOR LTE COMMUNICATIONS BASED ON DEFECTED GROUND STRUCTURE

Bedir Yousif, Mohammed Sadiq, Maher Abdelrazzak

Assistant professor at electrical eng. department faculty of eng. Kafrelsheikh University, Egypt,
Master student in communications eng. at Mansoura University, Egypt,
professor in electronics and communications department at faculty of eng. Mansoura University, Egypt,

ABSTRACT

Wireless communications performance depends on the efficiency of the antenna design in any wireless device. Achieving long term evolution frequency bands using a small-size antenna in a compact device remains a major technical challenge. This paper demonstrates the design and simulation of meander line antenna for a wireless local area network application using defected ground structure. The performance of the proposed design has been analyzed and it has been observed that a good efficiency up to 82% and bandwidth 57 MHz. Moreover the specific absorption rate values are calculated according to the 10 gram standard of the human tissue mass and the result is (0.128 (W/kg)-10 g). Finally antenna can operate at less than -10 dB with 2.4GHz and return losses of -38 dB. The proposed antenna has great potential to be implemented for Wireless devices such as mobile phones, tabs etc.

CRITICAL ASPECTS ON WAVELET TRANSFORMS BASED FAULT IDENTIFICATION PROCEDURES IN HVTRANSMISSION LINE

Ahmed R. Adly, **Ragab A. El Sehiemy**, Almoataz Youssef Abdelaziz , Nabil M.A. Ayad

Nuclear Research Centre, Atomic Energy Authority, Cairo, Egypt
Faculty of Engineering, Kafrelsheikh University, Kafrelsheikh, Egypt
Faculty of Engineering, Ain Shams University, Cairo, Egypt

ABSTRACT

The fault identification process in transmission systems involves three functions: discrimination, classification and phase selection. The current study classifies the methods that applied for each function. Moreover, this study introduces criticism and assessment study that helps the power system protection engineer to choose the best fault identification scheme at responsible indices. Investigated solutions for the drawbacks appeared with the previous methods are suggested. This study also proposes sensitive and automated fault identification scheme to solve the existing challenges such as high-impedance faults (HIFs), non-linear modelling of arcing etc. Several simulation studies are employed using alternative transients program/electromagnetic transient program (ATP/EMTP) package on a sample 500 kV test system to ensure the performances of the proposed scheme compared with the previous methods. Simulation results concluded that: the proposed identification scheme has the ability to discriminate correctly between HIF and low-impedance faults using current signal captured from one end only. Moreover, the proposed scheme alleviates perfectly the problems associated with load variations by adaptive threshold settings and reduces the impacts on the environmental and external phenomena

ADEQUATE PLANNING OF SHUNT POWER CAPACITORS INVOLVING TRANSFORMER CAPACITY RELEASE BENEFIT

Abdullah Mohammed Shaheen, **Ragab A. El-Sehiemy**, and Sobhy M. Farrag

the South Delta Electricity Distribution Company (SDEDCo), Ministry of Electricity, Tanta, Egypt

Department of Electrical Engineering, Faculty of Engineering, Kafrelsheikh University, Kafr El-Sheikh 35514, Egypt

Electrical Power System, Department of Electrical Engineering, Faculty of Engineering, Menoufia University, Shebin El-Kom, 32511, Egypt

ABSTRACT

The installation of new shunt power capacitors (SPCs) through transmission networks releases significant MVA capacities of transformers that have a high impact on transmission and distribution systems, particularly for highly loaded networks. The maximization of this important benefit is proposed to be incorporated in a new formulation of the reactive power planning (RPP) problem. The loss in value resulting from the use of SPCs during the lifetime is taken into account in itscapital purchase costs. For solving this multiobjective RPP formulation, a new variant of the differential evolution (DE) algorithm (DE/best/1) is employed with the Pareto concept. The proposed approach is tested on the standard IEEE 30-bus system and the West Delta region (WDN) system as a part of the Egyptian unified network with different objective functions. The simulation results demonstrate the potential and outperformance of the proposed approach to solve the RPP problem compared with other approaches.

OPTIMAL CAPACITOR PLACEMENT IN DISTRIBUTION SYSTEMS FOR POWER LOSS REDUCTION AND VOLTAGE PROFILE IMPROVEMENT

Adel Ali Abou El-Ela, **Ragab A. El-Sehiemy**, Abdel-Mohsen Kinawy, Mohamed Taha Mouwafi

Electrical Engineering Department, Faculty of Engineering, Menoufiya University, Shebin El-Kom, 32511, Egypt
Electrical Engineering Department, Faculty of Engineering, Kafrelsheikh University, Egypt

ABSTRACT

This study presents a two-stage procedure to identify the optimal locations and sizes of capacitors in radial distribution systems. In first stage, the loss sensitivity analysis using two loss sensitivity indices (LSIs) is employed to select the most candidate capacitors locations. In second stage, the ant colony optimisation algorithm is investigated to find the optimal locations and sizes of capacitors considering the minimisation of energy loss and capacitor costs as objective functions while system constraints are fully achieved. The fixed, practical switched and the combination of fixed and switched capacitors are considered to find the optimal solution. The backward/forward sweep algorithm is developed for the load flow calculations. The proposed procedure is applied to different standard test systems as 34-bus and 85-bus radial distribution systems. In addition, the application of the proposed procedure on a real distribution system of the East Delta Network as a part of the Unified Egyptian Network is used as a test system. Numerical results show the capability of the proposed procedure to find the optimal solution for significant saving in the total cost with more accurate and efficient, competitive compared with other methods in the literature especially with increasing the distribution system sizing.

SOLVING MULTI-OBJECTIVE OPTIMAL POWER FLOW PROBLEM VIA FORCED INITIALISED DIFFERENTIAL EVOLUTION ALGORITHM

Abdullah M. Shaheen, **Ragab A. El-Sehiemy**, Sobhy M. Farrag
South Delta Electricity Distribution Company (SDEDCo), Ministry of Electricity, Tanta, Egypt
Electrical Engineering Department, Faculty of Engineering, Kafrelsheikh University, Kafrelsheikh, Egypt
Electrical Engineering Department, Faculty of Engineering, Menoufiya University, Al-Minufya, Egypt

ABSTRACT

This study proposes a multi-objective differential evolution algorithm (MO-DEA) based on forced initialisation to solve the optimal power flow (OPF) problem. The OPF problem is formulated as a non-linear MO optimisation problem. The considered objective functions are fuel cost minimisation, power losses minimisation, voltage profile improvement, and voltage stability enhancement. For solving the MO OPF, the proposed approach combines a new Q2 variant of DE (DE/best/1) with the ε-constraint approach. This combination guarantees high convergence speed and good diversity of Pareto solutions without computational burden of Pareto ranking and updating or additional efforts to preserve the diversity of the non-dominated solutions. The proposed approach has the ability to generate Paretooptimal solutions in a single simulation run through adaptive variation of the ε-value. In addition, the best compromise solution is extracted based on fuzzy set theory. The effectiveness of the proposed MO-DEA is tested on the IEEE 30-bus and IEEE 57-bus standard systems. The numerical results obtained by the proposed MO-DEA are compared with other evolutionary methods reported in this literature to prove the potential and capability of the proposed MO-DEA for solving the MO OPF at acceptable economical and technical levels.

A NOVEL ADEQUATE BI-LEVEL REACTIVE POWER PLANNING STRATEGY

Abdullah M. Shaheen , **Ragab A. El-Sehiemy** , and Sobhy M. Farrag

South Delta Electricity Distribution Company (SDEDCo), Ministry of Electricity, Tanta, Egypt.

Electrical Engineering Department, Faculty of Engineering, Kafrelsheikh University, Egypt.

Professor of Electrical power systems, Electrical Engineering Department, Faculty of Engineering, Menoufiya University, Egypt.

ABSTRACT

Planning of reactive power sources is a serious issue for secure and economic operation of power systems. In this paper, a bi-level strategy is proposed to optimize the Reactive Power Planning (RPP) problem. In the first level, the weakest buses are selected to be the optimal placements to install the additional VAR sources and its corresponding suitable sizes are determined using a proposed Refined Heuristic Process (RHP). In the second level, two modified versions of Differential Evolution Algorithm (DEA) are proposed for optimizing the RPP control variables which able to minimize both the allocation costs of additional VAR sources throughout the system, and the system operational costs of real power losses. To validate the effectiveness of proposed strategy, several applications are carried out on three power systems networks namely IEEE 14-bus, IEEE 30-bus test systems and the West Delta region system as a part of the Egyptian Unified network. The proposed strategy is evaluated compared with other optimization methods as Genetic Algorithms (GA), Particle Swarm Optimization (PSO), and the commonly used Differential Evolution (DE) version (DE/rand/1). The robustness of the proposed versions of DEA is proven compared to other optimization techniques. Added to that, the control parameters of the proposed DEA are optimally identified. Numerical results show that the proposed version of DEA achieves highest reduction in the operation and investment costs compared to other optimizing algorithms in the literature which denotes that the proposed version of DEA can be efficiently applied to the RPP problem.

OPTIMAL POWER FLOW USING AN IMPROVED COLLIDING BODIES OPTIMIZATION ALGORITHM

Bouchekara, , A.E. Chaiba, M.A. Abido, **R.A. El-Sehiemy**

Electrical Engineering Department, Faculty of Engineering, Kafrelsheikh University, Egypt.

ABSTRACT

This paper proposes Improved Colliding Bodies Optimization (ICBO) algorithm to solve efficiently the optimal power flow (OPF) problem. Several objectives, constraints and formulations at normal and preventive operating conditions are used to model the OPF problem. Applications are carried out on three IEEE standard test systems through 16 case studies to assess the efficiency and the robustness of the developed ICBO algorithm. A proposed performance evaluation procedure is proposed to measure the strength and robustness of the proposed ICBO against numerous optimization algorithms. Moreover, a new comparison approach is developed to compare the ICBO with the standard CBO and other well-known algorithms. The obtained results demonstrate the potential of the developed algorithm to solve efficiently different OPF problems compared to the reported optimization algorithms in the literature.

EXPERIMENTAL STUDY OF STEPPED SOLAR STILL INTEGRATED WITH REFLECTORS AND EXTERNAL CONDENSER

Y. A. F. E l-Samadony, A. S. Abdullah, and **Z. M. Omara**

**Mechanical Engineering Department, Faculty of Engineering,
Kafrelsheikh University, Kafrelsheikh, Egypt**

ABSTRACT

In this article, an experimental study of a modified stepped solar still with internal and external reflectors and an external condenser is presented. A suction fan is connected with the still to withdraw water vapor. A comparison between the modified stepped solar still and the conventional solar still is conducted.

Based on the present experimental investigation, the following conclusions can be presented.

- Integrating an external condenser to the stepped solar still enhances the productivity of the stepped solar still. Productivity of the stepped solar still with a condenser is about 66% higher than that of the conventional still. .
- A simple modification using internal and external (top and bottom) reflectors can increase the daily productivity of a stepped solar still by about 108% over a conventional solar still.
- Water productivity of the stepped still increases by about 165% over the conventional still when both reflectors and an external condenser are used. Consequently, the estimated costs of 1 L of distillate for stepped and conventional solar stills are approximately $0.036 and $0.049, respectively.

EFFECT OF USING NANOFLUIDS AND PROVIDING VACUUM ON THE YIELD OF CORRUGATED WICK SOLAR STILL

.M. Omara , A.E. Kabeel , F.A. Essa

Mechanical Engineering Department, Faculty of Engineering, Kafrelsheikh University, Kafrelsheikh, Egypt

ABSTRACT

Purifying water using solar energy is a suitable green technique for rejecting salts from saline water. Solar stills are famous and simple devices for sea water desalination but their productivity from freshwater is limited. Various novel techniques were advanced and established to increase the solar still output yield. In the current work, experimental studies with modifications on the ordinary solar still have been conducted to investigate the performance of the new erected solar still. A hybrid solar distillation system comprising of corrugated and wick absorbers of solar stills is integrated with an external condenser to examine their performance. The first solar still is a base traditional type (CSS), while the other one is a corrugated wick still (CrWSS). The performance of CrWSS with internal reflectors, integrated with external condenser and using different types of nanomaterials is investigated and compared with the conventional still. The two types of solar stills are subjected to the same metallurgical conditions. The influence of saline water depth (1, 2, and 3 cm) on CrWSS performance was also investigated. Results showed that integrating an external condenser, with corrugated wick still, with reflectors improves the productivity of the modified solar still. Also; the yield of CrWSS with reflectors when providing a vacuum was enhanced to about 180% higher than the CSS. The productivity of the system is enhanced when using cuprous and aluminum oxides nano particles by an approximate percentages of 285.10% and 254.88% respectively.

PERFORMANCE OF VERTICAL DIFFUSERS CARRYING GAS-SOLID FLOW: EXPERIMENTAL AND NUMERICAL STUDIES

Mechanical Power Engineering Department, Faculty of Engineering, Menoufiya University, Shebin El-Kom, Egypt

Faculty of Engineering, Kafrelsheikh University, Kafrelshiekh, Egypt

ABSTRACT

In the present work, numerical and experimental studies are carried out to investigate the performance of vertical straight-walled conical diffusers carrying air-solid two-phase flow. Eulerian-Lagrangian approach is used to numerically simulate the two phases using the Chen-Kim k-ε turbulence model. The continuous phase (gas) is simulated using Eulerian frame by solving Reynolds-Averaged Navier-Stokes equations (RANS), while the dispersed phase (solids) is simulated using particle tracking method. Coupling between the two phases is established by adding particle source terms and void fraction in the continuous phase equations. A 4-way coupling is adapted to include the effect of particle-particle collisions. Lift forces, particle dispersion and particle-wall collisions are also considered in the simulation of solid-phase. The experimental study is carried out on a pilot scale vertical pneumatic transport system. Four different diffuser geometries are tested at various inlet-Reynolds numbers and mass loading ratios. Sand particles of different sizes and mass flow rates are used to represent the solid phase. Comparisons between numerical predictions and experimental results indicated good agreement. The effects of solid parameters are significant for small angled-diffusers and decrease as the diffuser angle increases. It is also found that, there is a significant decrease in the separation zone within diffuser due to the presence of solid particles. Energy is transferred from the gas phase to the solid phase in the upstream pipe. This energy is transferred again to the gas phase through the diffuser and its downstream tangent pipe. The rate of energy transfer is enhanced by increasing the solid mass flow rate and decreasing the particle size. The results show that the mass loading and size of solid particles have significant effects on the diffuser loss coefficient.

SYNCHRONOUS RELUCTANCE MOTORS PERFORMANCE BASED ON DIFFERENT ELECTRICAL STEEL GRADES

M. N. Ibrahim, Peter Sergeant, and E. M. Rashad,

Electrical Engineering Department, Kafrelshiekh University, Kafr el-Sheikh 33511, Egypt

ABSTRACT

This paper investigates the influence of various electrical steel grades on the torque and efficiency of Synchronous Reluctance Motors (SynRMs). Four different steel grades are studied for the same motor geometry. A Finite Element Method (FEM) is combined with an experiment-based magnetic material model to study the effect of the four steel grades on the performance of the SynRM. On the one hand, there is a negligible effect on the torque ripple because this ripple depends mainly on the motor geometry. On the other hand, it was found that the material properties have an obvious effect on the SynRM efficiency and output power. Evidently, the low loss grades result in higher efficiency: 9% point higher for NO20 compared to M600-100A. One of the four considered grades is designed to have a higher flux density in the useful magnetic field range (a few hundred to a few thousand A/m). This grade has somewhat lower efficiency, but results in a higher saliency ratio and an 8% higher torque output compared to the worst grade. Some experimental validation results are shown.

TECHNIQUES USED TO IMPROVE THE PERFORMANCE OF THE STEPPED SOLAR STILL—A REVIEW

A.E.Kabeel , Z.M.Omara **, M.M.Younes**

Mechanical Power Engineering Department, Faculty of Engineering, Tanta University,Tanta, Egypt

Mechanical Engineering Department, Faculty of Engineering, Kafrelsheikh University, Kafrelsheikh, Egypt

ABSTRACT

Solar still is widely used in solar desalination processes. But the productivity of the solar still is very low. To enhance the productivity of the single basin solar still many research works is being carried out up till now. The various factors affecting the productivity of solar still are solar intensity ,wind velocity, ambient temperature, water–glass temperature difference, free surface area of water, absorber plate area, temperature of inlet water, glass angle and depth of water. The solar intensity, wind velocity, ambient temperature cannot be controlled, as they are metrological parameters. Whereas, the remaining parameters can be varied to enhance the productivity of the solar stills. Depth of water in the solar still inversely affects the productivity of the solar still. Maintaining minimum depth in the solar still is very difficult. For maintaining minimum depth, wicks, plastic water purifier and stepped solar still were used. Investigations indicated that a reduction of the brine depth in the still improves the productivity, mainly due to the higher basin temperature. So that stepped solar stills can increase the distillate productivity about conventional solar stills, many reports studied the performance of stepped solar still. In this review, we are attempting to study the present status of different designs of stepped solar stills.

EFFECT OF SINTERING PARAMETERS ON MICROSTRUCTURE, MECHANICAL PROPERTIES AND ELECTROCHEMICAL BEHAVIOR OF NB–ZR ALLOY FOR BIOMEDICAL APPLICATIONS

M.A. Hussein . Suryanarayana , M.K. Arumugam , N. Al-Aqeeli

Department of Mechanical Engineering, Kafrelsheikh University, Kafrelsheikh 33516, Egypt

ABSTRACT

Despite the importance of Nb–Zr alloys as candidate materials for biomedical applications, little attention has been given to their processing and the development of new or improved structures. Here, we explore the viability of synthesizing a nano/sub-micron grain structured Nb–Zr alloy through the use of mechanical alloying (MA) and spark-plasma sintering (SPS). The sintered samples were characterized through measurements of densification, Vickers hardness (HV), X-ray diffractometry (XRD) and transmission electron microscopy (TEM). The effect of the SPS parameters on the microstructure and mechanical properties of the sintered alloys was also investigated. Moreover, electrochemical corrosion analyses were performed by a means of a conventional three-electrode cell to assess the corrosion resistance of the developed alloys in Simulated Body Fluids (SBF) medium. A nano/sub-micron grain structured Nb–Zr alloy with an average grain size of between 100 and 300 nm was produced using the MA-SPS techniques. A maximum hardness and relative density of 584 HV and 97.9% were achieved, respectively. Moreover, the nano/sub-micron grain structured Nb–Zr alloy exhibited higher corrosion resistance in SBF medium, which makes this alloy is a promising candidate for use in biomedical applications

FABRICATION OF NANO-GRAINED TI–NB–ZR BIOMATERIALS USING SPARK PLASMA SINTERING

M.A. Hussein , C. Suryanarayana , N. Al-Aqeeli

Department of Mechanical Engineering, Kafrelsheikh University, Kafrelsheikh 33516, Egypt

ABSTRACT

Nanostructured near-β Ti–20Nb–13Zr at % alloy with non-toxic elements and enhanced mechanical properties has been synthesized by spark plasma sintering (SPS) of nanocrystalline powders obtained by mechanical alloying. The consolidated bulk product was characterized by density measurements and Vickers hardness (HV), and X-ray diffraction (XRD), field emission scanning electron microscopy (FE SEM) combined with energy-dispersive spectroscopy (EDX), and transmission electron microscopy (TEM) for structural details. The temperature during spark plasma sintering was varied between 800 and 1200 °C, while the heating rate and holding time of 100°K/min and 10 min were maintained constant in all the experiments. The effect of SPS temperature on the densification, microstructure, and HV was discussed. The results show that a nearly full density structure was obtained after SPS at 1200 °C. The microstructure of the obtained alloy is a duplex structure with the α-Ti (hcp) region having an average size of 70–140 nm, surrounding the β-Ti (bcc) matrix. The obtained alloy was chemically homogenized with a micro hardness value, HV of 660. The developed nanostructured Ti–20Nb–13Zr alloy is suggested for biomedical use as in implant material in dental and orthopedic applications.

WEAR CHARACTERISTICS OF METALLIC BIOMATERIALS

Mohamed A. Hussein , Abdul Samad Mohammed , and Naser Al-Aqeeli

Department of Mechanical Engineering, Kafrelsheikh University, Kafrelsheikh 33516, Egypt

ABSTRACT

Metals are extensively used in a variety of applications in the medical field for internal support and biological tissue replacements, such as joint replacements, dental roots, orthopedic fixation, and stents. The metals and alloys that are primarily used in biomedical

applications are stainless steels, Co alloys, and Ti alloys. The service period of a metallic biomaterial is determined by its abrasion and wear resistance. A reduction in the wear resistance of the implant results in the release of incompatible metal ions into the body that loosen the implant. In addition, several reactions may occur because of the deposition of wear debris in tissue. Therefore, developing biomaterials with high wear resistance is critical to ensuring a long life for the biomaterial. The aim of this work is to review the current state of knowledge of the wear of metallic biomaterials and how wear is affected by the material properties and conditions in terms of the type of alloys developed and fabrication processes.

We also present a brief evaluation of various experimental test techniques and wear characterization techniques that are used to determine the tribological performance of metallic biomaterials.

PHASE EVOLUTION DURING HIGH ENERGY BALL MILLING OF IMMISCIBLE NB–ZR ALLOYS

N. Al-Aqeeli , **M.A. Hussein** , C. Suryanarayana

Department of Mechanical Engineering, Kafrelsheikh University, Kafrelsheikh 33516, Egypt

ABSTRACT

Mechanical alloying (MA), a solid-state processing technique used extensively to synthesize metastable phases, was employed to synthesize solid solution and amorphous phases in Nb-rich Nb–Zr powder blends. These metastable phases could be synthesized by MA, under different processing conditions, even though the heat of mixing between Nb and Zr is positive, which makes alloying them difficult. The effect of alloy composition, milling time, and the ball-to-powder weight ratio (BPR) were varied and their effect studied on phase evolution and microstructure in the milled powders. The composition of the milled powders was varied starting from a low value of 5 to about 50 at.% Zr. At a Zr content below 40 at.%, amorphization was achieved at a higher BPR of 30:1, i.e. more milling energy. The formation of an amorphous phase at Zr contents lower than 40% was achieved for the first time in this work and confirmed using TEM. However, this amorphous phase crystallized rapidly on continued milling (mechanical crystallization) to form an FCC phase. Additionally, milling of powders with low Zr contents primarily resulted in the formation of Nb-based Nb–Zr solid solutions.

INCREASING THE PRODUCTIVITY OF THE WIRE-CUT ELECTRICAL DISCHARGE MACHINE ASSOCIATED WITH SUSTAINABLE PRODUCTION

Ibrahem Maher , Ahmed A.D. Sarhan , Mohsen Marani Barzani , M. Hamdi

Department of Mechanical Engineering, Faculty of Engineering, Kafrelsheikh University, Kafrelsheikh 33516, Egypt

ABSTRACT

Wire-cut electric discharge machining is a nontraditional technique by which the required profile is acquired using sparks energy. Concerning wire-cut electric discharge machining, high cutting rates and precision machining is necessary to improve productivity and achieve high quality of machined workpieces. In this research work, an experimental investigation was introduced to achieve higher productivity of the wire electrode associated with sustainable production in terms of product quality and less heat-affected zone. For this purpose, the effects of machining parameters including peak current, pulse on time and wire preloading were investigated using adaptive neuro-fuzzy inference system along with the Taguchi method. From this study, the optimal setting of machining parameters to achieve higher productivity and sustainability was identified. Moreover, Neuro-fuzzy modeling was successfully used to build an empirical model for the selection of machining parameters to achieve higher productivity at highest possible surface quality and minimum cost for sustainable production.

CUTTING FORCE-BASED ADAPTIVE NEURO-FUZZY APPROACH FOR ACCURATE SURFACE ROUGHNESS PREDICTION IN END MILLING OPERATION FOR INTELLIGENT MACHINING

Ibrahem Maher & M. E. H. Eltaib & Ahmed A. D. Sarhan & R. M. El-Zahry
Department of Mechanical Engineering, Faculty of Engineering, Kafrelsheikh University, Kafrelsheikh 33516, Egypt

ABSTRACT

End milling is one of the most common metal removal operations encountered in industrial processes. Product quality is a critical issue as it plays a vital role in how products perform and is also a factor with great influence on manufacturing cost. Surface roughness usually serves as an indicator of product quality. During cutting, surface roughness measurement is impossible as the cutting tool is engaged with the workpiece, chip, and cutting fluid. However, cutting force measurement is easier and could be used as an indirect parameter to predict surface roughness. In this research work, a correlation analysis was initially performed to determine the degree of association between cutting parameters (speed, feed rate, and depth of cut) and cutting force and surface roughness using adaptive neuro-fuzzy inference system (ANFIS) modeling. Furthermore, the cutting force values were employed to develop an ANFIS model for accurate surface roughness prediction in CNC end milling. This model provided good prediction accuracy (96.65 % average accuracy) of surface roughness, indicating that the ANFIS model can accurately predict surface roughness during cutting using the cutting force signal in the intelligent machining process to achieve the required product quality and productivity.

REVIEW OF IMPROVEMENTS IN WIRE ELECTRODE PROPERTIES FOR LONGER WORKING TIME AND UTILIZATION IN WIRE EDM MACHINING

Ibrahem Maher & Ahmed A. D. Sarhan & M. Hamdi
Department of Mechanical Engineering, Faculty of Engineering, Kafrelsheikh University, Kafrelsheikh 33516, Egypt

ABSTRACT

Wire electrical discharge machining (WEDM) is an important technology, which demands high speed cutting and high-precision machining to realize productivity and improved accuracy for manufacturing hard materials. WEDM has experienced explosive growth and complexity of equipment as well as rising demand for the basic process tool (the wire electrode). Greater taper angles, thicker workpieces, automatic wire threading, and long periods of unattended operation make the selection of the ideal wire a much more critical basis for achieving successful operation. This paper focuses on the evolution of EDM wire electrode technologies from using copper to the widely employed brass wire electrodes and from brass wire electrodes to the latest coated wire electrodes. Wire electrodes have been developed to help user demand and needs through maximum productivity and quantity by choosing the best wire. In the final part of the paper, the possible trends for future WEDM electrode research are discussed.

INVESTIGATING THE MACHINABILITY OF AL–SI–CU CAST ALLOY CONTAINING BISMUTH AND ANTIMONY USING COATED CARBIDE INSERT

Mohsen Marani Barzani , Ahmed A.D. Sarhan , Saeed Farahany , Singh Ramesh, Ibrahem Maher

Department of Mechanical Engineering, Faculty of Engineering, Kafrelsheikh University, Kafrelsheikh 33516, Egypt

ABSTRACT

Surface roughness and cutting force are two key measures that describe machined surface integrity and power requirement evaluation, respectively. This investigation presents the effect of melt treatment with addition of bismuth and antimony on machinability when turning Al–11%Si–2%Cu alloy. The experiments are carried out under oblique dry cutting conditions using a PVD TIN-coated insert at three cutting speeds of 70, 130 and 250 m/min, feed rates of 0.05, 0.1, 0.15 mm/rev, and 0.05 mm constant depth of cut. It was found that the Bi-containing workpiece possess the best surface roughness value and lowest cutting force due to formation of pure Bi which plays an important role as a lubricant in turning process, while Sb-containing workpiece produced the highest cutting force and highest surface roughness value. Additionally, change of silicon morphology from flake-like to lamellar structure changed value of cutting force and surface roughness during turning

INVESTIGATION OF THE EFFECT OF MACHINING PARAMETERS ON THE SURFACE QUALITY OF MACHINED BRASS (60/40) IN CNC END MILLING— ANFIS MODELING

Ibrahem Maher & M. E. H. Eltaib & Ahmed A. D. Sarhan & R. M. El-Zahry

Department of Mechanical Engineering, Faculty of Engineering, Kafrelsheikh University, Kafrelsheikh 33516, Egypt

ABSTRACT

Brass and brass alloys are widely employed industrial materials because of their excellent characteristics such as high corrosion resistance, non-magnetism, and good machinability. Surface quality plays a very important role in the performance of milled products, as good surface quality can significantly improve fatigue strength, corrosion resistance, or creep life. Surface roughness (Ra) is one of the most important factors for evaluating surface quality during the finishing process. The quality of surface affects the functional characteristics of the workpiece, including fatigue, corrosion, fracture resistance, and surface friction. Furthermore, surface roughness is among the most critical constraints in cutting parameter selection in manufacturing process planning. In this paper, the adaptive neuro-fuzzy inference system (ANFIS) was used to predict the surface roughness in computer numerical control (CNC) end milling. Spindle speed, feed rate, and depth of cut were the predictor variables. Experimental validation runs were conducted to validate the ANFIS model. The predicted surface roughness was compared with measured data, and the maximum prediction error for surface roughness was 6.25 %, while the average prediction error was 2.75 %.

SIMULATION-BASED OPTIMIZATION FRAMEWORK FOR REUSE OF AGRICULTURAL DRAINAGE WATER IN IRRIGATION

A. Allam , A. Tawfik , C. Yoshimura , A. Fleifle

Civil Engineering Department, Faculty of Engineering, Kafr Elsheikh University, Egypt

ABSTRACT

A simulation-based optimization framework for agricultural drainage water (ADW) reuse has been developed through the integration of a water quality model (QUAL2Kw) and a genetic algorithm. This framework was applied to the Gharbia drain in the Nile Delta, Egypt, in summer and winter 2012. First, the water quantity and quality of the drain was simulated using the QUAL2Kw model. Second, uncertainty analysis and sensitivity analysis based on Monte Carlo simulation were performed to assess QUAL2Kw's performance and to identify the most critical variables for determination of water quality, respectively. Finally, a genetic algorithm was applied to maximize the total reuse quantity from seven reuse locations with the condition not to violate the standards for using mixed water in irrigation. The water quality simulations showed that organic matter concentrations are critical management variables in the Gharbia drain. The uncertainty analysis showed the reliability of QUAL2Kw to simulate water quality and quantity along the drain. Furthermore, the sensitivity analysis showed that the 5-day biochemical oxygen demand, chemical oxygen demand, total dissolved solids, total nitrogen and total phosphorous are highly sensitive to point source flow and quality. Additionally, the optimization results revealed that the reuse quantities of ADW can reach 36.3% and 40.4% of the available ADW in the drain during summer and winter, respectively. These quantities meet 30.8% and 29.1% of the drainage basin requirements for fresh irrigation water in the respective seasons.

EVALUATION OF ERYTHEMAL ULTRAVIOLET SOLAR RADIATION OVER SAUDI ARABIA

Zaki A. Al-Mostafa **, Hamdy K. Elminir** , Ahmed Abulwfa , Saad M. Al-Shehri ,

Fawaz A. Alshehri , Ibrahim M. Al-Rougy , Ahmed A. Bazyad

Kafr Elshiekh University, Department of Electrical Engineering, Faculty of Engineering, 33735 Kafr Elshiekh, Egypt

ABSTRACT

To characterize and reduce the harmful effects of Erythemal ultraviolet radiation (EUV), it is vital to recognize the spatial distribution and temporal variation of EUV radiation under various meteorological conditions. In light of these requirements, the problem we address here is to understand the results of a study performed to assess the influence of stratospheric ozone and aerosol loading on the receipt of EUV at six sites located in Saudi Arabia. The selected sites were chosen to represent the climatic zones of the north, middle, and south of Saudi Arabia. Intensive satellite-based measurements of the atmosphere over the period 1979–2005 obtained from the Total Ozone Mapping Spectrometer (TOMS) website (ftp://toms.gsfc.nasa.gov) were used, with a four year gap from 1993 to 1996. The results hint that, in spite of the significant decrease in stratospheric ozone, there is a clear decreasing trend in the EUV data series due to the increase in the aerosol loading during summer months. For the other months the correlation is not clear and in all cases there was no decrease in the EUV radiation trend outside summer months, with few exceptions.

SIGNSWORLD FACIAL EXPRESSION RECOGNITION SYSTEM (FERS)

Samaa M. Shohieb & **Hamdy K. Elminir**

Kafr Elshiekh University, Department of Electrical Engineering, Faculty of Engineering, 33735 Kafr Elshiekh, Egypt

ABSTRACT

Live facial expression recognition is an effective and essential research area in human computer interaction (HCI), and the automatic sign language recognition (ASLR) fields. This paper presents a fully automatic facial expression and direction of sight recognition system, that we called SignsWorld Facial Expression Recognition System (FERS). The SignsWorld FERS is divided into three main components: Face detection that is robust to occlusion, key facial features points extraction and facial expression with direction of sight recognition. We present a powerful multi-detector technique to localize the key facial feature points so that contours of the facial components such as the eyes, nostrils, chin, and mouth are sampled. Based on the extracted 66 facial features points, 20 geometric formulas (GFs), 15 ratios (Rs) are calculated, and the classifier based on rule-based reasoning approach are then formed for both of the gaze direction and the facial expression (Normal, Smiling, Sadness or Surprising). SignsWorld FERS is the person independent facial expression and achieved a recognition rate of 97%.

MITIGATION OF TRANSFORMER-ENERGIZING INRUSH CURRENT USING GRID-CONNECTED PHOTOVOLTAIC SYSTEM

Abdelsalam A. Ahmed , **Hany A. Abdelsalam**

Electrical Power and Machines Engineering Department, Faculty of Engineering, Tanta University, Egypt
Electrical Engineering Department, Faculty of Engineering, Kafrelsheikh University, Kafrelsheikh, Egypt

ABSTRACT:

This paper presents a novel technique for suppressing the transformer-energizing inrush current. This technique is based on existing of a Photovoltaic (PV) generation system. Large magnitude inrush current can occur with certain combination of point of wave energization and residual core flux. The PV system is exploited to produce a magnetic flux in the core of the energized transformer in a negative direction of that produced by the main grid during grid-off. In this paper, the wave-energizing instant is optimally chosen and hence the amount of the residual flux existing in the core is controlled to be ready to sink the energizing effect. The impact of existing of PV system that connected to 280 kV, 60 Hz grid is studied at different energizing instances, different power ratings and different solar irradiances. The method is illustrated by simulation results and validated by harmonic analysis. The optimum energizing instances are explored at different working circumstances. The results at transient and steady states verify that the proposed technique enables the minimization of the inrush current by optimized grid-switching instance.

A NEW STRATEGY FOR SELECTION OF SWITCHING INSTANT TO REDUCE TRANSFORMER INRUSH CURRENT IN A SINGLE-PHASE GRID-CONNECTED PHOTOVOLTAIC SYSTEM

Hany A. Abdelsalam and Almoataz Y.Abdelaziz

1 Electrical Engineering Department, Faculty of Engineering, Kafrelsheikh University, Kafrelsheikh, Egypt

2 Electrical Power and Machines Department, Faculty of Engineering, Ain Shams University, Cairo, Egypt

ABSTRACT

Photovoltaic energy integration with the power system is increasing with the lack of fossil resources and developments in photovoltaic technology. Magnetizing inrush current occurs due to switching the transformer into service. Inrush current leads to shortage in the transformer lifetime and/or the operation of protection devices disconnecting the transformer. This article studies the impact of existing photovoltaic energy on the reduction of transformer inrush current. Photovoltaic power is utilized to reduce the inrush current by applying an opposite flux on the transformer, then connecting the transformer with the power network at a suitable switching instant of grid voltage waveform. The switching instant depends upon the flux produced in the transformer primary winding by the photovoltaic system. This article introduces a new strategy to determine the switching instant for reducing the transformer inrush current. The proposed method depends upon the monitoring of total harmonic distortion at different switching instants. The proposed method is appropriate for real-time applications. The proposed procedure is applied to a single- phase example and simulated in MATLABR2013a/SIMULINK (MathWorks, Natick, Massachusetts, USA). The simulation results show the suitable instant of switching to reduce the magnetizing inrush current and the corresponding total harmonic distortion.

Faculty of Medicine

DO HOXB13 AND P63 HAVE A ROLE IN DIFFERENTIATING POORLY DIFFERENTIATED PROSTATIC CARCINOMA FROM UROTHELIAL HIGH-GRADE CARCINOMA?

HANAN ALSAEID ALSHENAWY[1] and EMAN SAIED

Department of Pathology, Faculty of Medicine, Kafr Alshikh University, Kafr Alshikh, Egypt

ABSTRACT

Poorly differentiated prostatic carcinoma may overlap with high-grade urothelial carcinoma; a distinction is a must as treatments differ. This study aims to evaluate traditional (PSA and HMWCK) and relatively novel (P63 and HOXB13) markers in distinguishing them; and to evaluate their role in the diagnosis of challenging cases. Sections from: diagnosed group includes 65 prostatic and urothelial carcinoma cases were stained with PSA, HMWCK, P63, and HOXB13. Sensitivity, specificity, and accuracy were evaluated. The second group includes 25 challenging cases which were stained first by PSA and HMWCK, then solved the problematic cases with P63 and HOXB13. PSA and HMWCK were sensitive and specific for prostatic and urothelial carcinomas, respectively, but the sensitivity and accuracy were higher for P63 and HOXB13. By using the traditional markers, 17 cases were diagnosed in the second group while the remaining eight cases need the novel markers to be diagnosed. A confident diagnosis can be established in the majority of cases of poorly differentiated carcinoma in either prostatic or urothelial by using a panel of PSA and HMWCK. In some problematic cases, an extended panel including P63 and HOXB13 is helpful in resolving the diagnosis.

ATORVASTATIN AND METFORMIN ADMINISTRATION MODULATES EXPERIMENTAL TRICHINELLA SPIRALIS INFECTION

Ahmad A. Othman , Dina M. Abou Rayia , Dalia S. Ashour , **Eman M. Saied** , Doaa H. Zineldeen , Ahmad A. El-Ebiary
Department of Pathology, Kafr El-Sheikh Faculty of Medicine, Egypt

ABSTRACT

The host–parasite interaction can be altered by the changes in the host environment that may be or may not be in favor of successful invasion by the nematode parasite Trichinella spiralis. Metformin and atorvastatin are applied on a wide scale, to the degree that they could be considered as part of the host biochemical environment that can affect the parasite. Therefore, this study aimed to investigate the impact of alteration of the host's biochemical environment by these commonly used drugs upon the course of T. spiralis infection. Mice were divided into three groups: (1) received atorvastatin, (2) received metformin, and (3) untreated, then after one week, animals

Were infected with T. spiralis. The treatment continued until the end of the experiment. From each group, small intestines and muscles were removed for histopathological, immunohistochemical, and biochemical analyses as well as total muscle larval counts. We found that the oxidative stress and the expression of vascular endothelial growth factor (VEGF) in the muscles were significantly reduced in both drug-receiving groups,while the total larval counts in muscles were only significantly reduced in atorvastatin-receiving group as compared to the infected control group. Moreover, marked reduction in the inflammatory cellular infiltration, cyclooxygenase-2 (COX-2) expression, and oxidative stress was noted in the small intestines of the treated groups as compared to the infected control group. In conclusion, this study provides many insights into the different biochemical changes in the host that the parasite has to face. Moreover, the anti-inflammatory and anti-angiogenic effects should be taken into consideration when treating infections in patients on therapy with atorvastatin or metformin.

Faculty of Pharmacy

INHIBITION OF QUORUM SENSING-MEDIATED BIOFILM FORMATION IN PSEUDOMONAS AERUGINOSA BY A LOCALLY ISOLATED BACILLUS CEREUS

Shaimaa Wahman, Mohamed Emara, Riham M. Shawky, **Ramadan A. El-domany** and Mohammad Mabrouk Aboulwafa

Department of Microbiology and Immunology, Faculty of Pharmacy, Kafr El Sheikh University, Egypt

ABSTRACT

Quorum sensing has been shown to play a crucial role in Pseudomonas aeruginosa pathogenesis where it activates expression of myriad genes that regulate the production of important virulence factors such as biofilm formation. Antagonism of quorum sensing is an excellent target for antimicrobial therapy and represents a novel approach to combat drug resistance. In this study, Chromobacterium violaceum biosensor strain was employed as a fast, sensitive, reliable, and easy to use tool for rapid screening of soil samples for Quorum Sensing Inhibitors (QSI) and the optimal conditions for maximal QSI production were scrutinized. Screening of 127 soil isolates showed that 43 isolates were able to breakdown the HHL signal. Out of the 43 isolates, 38 isolates were able to inhibit the violet color of the biosensor and to form easily detectable zones of color inhibition around their growth. A confirmatory bioassay was carried out after concentrating the putative positive cell-free lysates. Three different isolates that belonged to Bacillus cereus group were shown to have QSI activities and their QSI activities were optimized by changing their culture conditions. Further experiments revealed that the cell-free lysates of these isolates were able to inhibit biofilm formation by P. aeruginosa clinical isolates.

Faculty of Aquatic and Fisheries Sciences
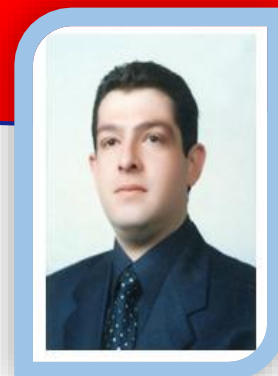
CONTROL OF CITRUSMOLDS USING BIOACTIVE COATINGS INCORPORATED WITH FUNGAL CHITOSAN/PLANT EXTRACTS COMPOSITE

Ahmed A Tayel, Shaaban H. Moussa, Mohammed F. Salem, Khaled E. Mazrou and

Wael F El-Tras

Faculty of Veterinary Medicine, Kafrelsheikh University, Egypt

ABSTRACT

BACKGROUND: The ongoing postharvest loss in citrus fruits, due to fungal infection, is a chronic economic and agricultural problem. Most of citrus damage is caused by Penicillium spp., e.g. green mold (P. digitatum) and blue mold (P. italicum). Fungal chitosan, fromMucor rouxii, and plant extracts fromcress seeds, olive leaves, pomegranate peels and senna pods, were evaluated as antifungal agents against the phytopathogenic fungi, P. digitatum and P. italicum,using in vitro qualitative and quantitative assays.

RESULTS: All natural agents tested exhibited potent antifungal activity; the most powerful agent was cress (Lepidium sativum) seed extract, followed by pomegranate (Punica granatum) peel extract. Fungal chitosan also had a remarkable fungicidal

potentiality using both evaluation assays. Penicillium digitatum was generally more resistant than P. italicum toward all examined agents. The incorporation of each
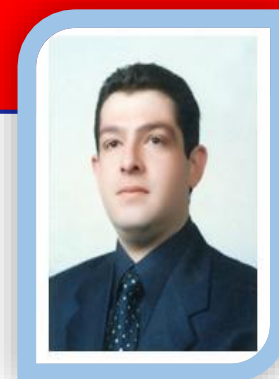
FOODBORNE PATHOGENS PREVENTION AND SENSORY ATTRIBUTES ENHANCEMENT IN PROCESSED CHEESE VIA FLAVORING WITH PLANT EXTRACTS

Ahmed A. Tayel, Heba Hussein, Noha M. Sorour, and **Wael F. El-Tras**

Faculty of Veterinary Medicine, Kafrelsheikh University, Egypt

ABSTRACT

Cheese contaminations with foodborne bacterial pathogens, and their health outbreaks, are serious worldwide problems that could happen from diverse sources during cheese production or storage. Plants, and their derivatives, were always regarded as the potential natural and safe antimicrobial alternatives for food preservation and improvement. The extracts from many plants, which are commonly used as spices and flavoring agents, were evaluated as antibacterial agents against serious foodborne pathogens, for example Listeria monocytogenes, Salmonella Typhimurium, Staphylococcus aureus, and Escherichia coli O157:H7, using qualitative and quantitative assaying methods. Dairy-based media were also used for evaluating the practical application of plant extracts as antimicrobial agents. Most of the examined plant extracts exhibited remarkable antibacterial activity; the extracts of cinnamon, cloves, garden cress, and lemon grass were the most powerful, either in synthetic or in dairy-based media. Flavoring processed cheese with plant extracts

MIXED REARING CORRELATES WITH THE EXISTENCE OF TRICHOPHYTON VERRUCOSUM PATHOGENS IN HUMANS

Wael F. El-Tras , Ahmed A. Tayel , Radi A. Mohamed , Doaa M. El-Kordy , Nevein N. El-Kady , Ahmed Samir

Faculty of Veterinary Medicine, Kafrelsheikh University, Egypt

ABSTRACT

Background/Objective: Trichophyton verrucosum is a serious zoophilic dermatophyte causing dermatophytic infections and skin lesions in humans and animals. Raising small ruminants beside cattle is a common practice in rural areas of Egypt. Therefore, the current study emphasizes the risk of T. verrucosum spreading through backyard farming, recognizing the interconnectedness of ruminants and humans. Methods: A total of 478 cattle, 215 sheep, 186 goats, and 250 human contacts were investigated for the presence of skin lesions, and then the lesions were sampled. All samples were examined by fungal cultures using Sabouraud dextrose agar. Results: The highest rate of T. verrucosum isolates was recorded in cattle that grew up along with sheep and goats (14.5%), whereas the lowest rate was observed in cattle reared as a single species (6.6%), with a significant difference of $p = 0.04$, odds ratio $= 2.42$ at a 95% confidence interval: 1.03e5.65. In addition, there was a borderline significant difference of $p = 0.05$ between the presence of T. verrucosum pathogens in humans in contact with combined species of cattle, sheep, and goats (13.8%) and those in humans in contact with cattle only (3.3%); the odds ratio was 4.66 at a 95% confidence interval: 1.00e22.53. Moreover, the highest rate of T. verrucosum isolates in cattle was recorded in young cattle (calves). Tinea barbae was found in 11 human cases, while tinea corporis was determined in seven cases. Conclusion: Rearing different species of small ruminants with cattle supports the spread of T. verrucosum pathogens. Tinea barbae caused by T. verrucosum was predominant in the examined humans.

EFFECT OF DIFFERENT LEVELS OF DIETARY COPPER NANOPARTICLES AND COPPER SULFATE ON GROWTH PERFORMANCE, BLOOD BIOCHEMICAL PROFILES, ANTIOXIDANT

STATUS AND IMMUNE RESPONSE OF RED SEA BREAM (*PAGRUS MAJOR*)

Mohammed Fouad El Basuini, Abdelaziz Mohammed El-Hais , Mahmoud A.O. Dawood , Adel El-Sayed Abou-Zeid , Saad Zaglol EL-Damrawy , **Malik Mohamed EL-Sayed Khalafalla** , Shunsuke Koshio , Manabu Ishikawa , Serge Dossou

Department of Aquaculture, Faculty of Aquatic and Fisheries Sciences, Kafrelsheikh University, 33516 Kafrelsheikh, Egypt

ABSTRACT

A 60 days feeding trial was conducted to evaluate the effects of dietary copper nanoparticles (Cu-NPs) or copper sulfate (CuSO4) on growth performance, blood biochemical profiles, antioxidant status and immune response of red sea bream (*Pagrus major*) (initial bodyweight: 3.30±0.02 g). Six dietswere formulated containing CuSO4 or 2, 4, 6 or 8 mg supplemental Cu as NPs were supplied to the basal diet (control). The obtained results showed that, fish fed diets supplemented with Cu-NPs at levels of 2 and 4 mg kg−1 had the highest values of final body weight, weight gain, specific growth rate, feed intake, protein gain and tolerance against low-salinity stress. Significantly higher feed efficiency ratio, protein efficiency ratio, protein retention, whole body Cu content, protease activity, lysozyme activity and total serum protein were found at levels of 2 mg Cu-NPs kg−1 diet when compared with the control group. Whole body protein of fish fed diet Cu-free diet was significantly lower than those of fish fed other diets. Fish fed diets supplemented with Cu-NPs at different levels gave the lowest values of plasma glucose. Furthermore, fish fed diets supplemented with Cu-NPs at 2 and 4 mg kg−1 diet were in better conditions whereas, fish fed control diet implied comparatively higher oxidative conditions. Therefore, the data of the present study recommend adding 2 mg Cu-NPs per kg diet to improve fish growth, immune response and antioxidant defense system.

Statement of relevance: Efficiency of copper for red