FACULTY OF AGRICULTURE





BioMed Research International, Vol. 2014; ID, 946859. P, 1-8, DOI: 10.1155/2014/946859

Impact Factor = 2.706



INTEGRATIVE EFFECTS OF FEEDING ASPERGILLUS AWAMORI AND FRUCTOOLIGOSACCHARIDE ON GROWTH PERFORMANCE AND DIGESTIBILITY IN BROILERS: PROMOTION MUSCLE PROTEIN METABOLISM

Ahmed A. Saleh, Khairy Amber, Mohammed A. El-Magd, Mostafa S. Atta, Ahmed A.Mohammed, MohamedM. Ragab, and Hanaa Abd El-Kader

➢ ABSTRACT ☎

This study was conducted to show the effect of Aspergillus awamori (AA), fructooligosaccharide (FOS), and combined Aspergillus awamori and fructooligosaccharide (AA + FOS) on growth, digestibility, blood parameters, and expression of some growth-related genes. A total of 60 broiler chicks at the age of 15 d were divided into a control group (N=15) and 3 treatment groups. The control group was fed a basal diet, and the treatment groups were fed basal diets supplemented with 0.05% AA, 0.05% FOS, and combined of 0.05% AA and 0.05% FOS. Results from measurement of growth performance and digestibility revealed a significant increase in the body weight gain with improved feed conversion rate in the experimental groups. Interestingly, dry matter digestibility (DMD) and crude protein utilization (CPU) were improved. In addition, plasma total cholesterol and low density lipoproteincholesterol (LDL-C) were decreased, while plasma high density lipoprotein-cholesterol (HDL-C) was increased by feeding AA, FOS, and AA+ FOS. Expressions of growth hormone secretagogue receptor (GHSR), insulinlike growth factor 1 (IGF-1), and insulin-like growth factor 1 receptor (IGF1R) were increased in experimental groups. In conclusion, the supplementation of either Aspergillus awamori or fructooligosaccharide or both improves digestibility and growth performance probably by promoting skeletal muscle protein metabolism.



World's Poultry Science Journal, vol, 70, p, 857-864

Impact Factor = 1.158



BENEFICIAL EFFECTS OF ASPERGILLUS AWAMORI IN BROILER NUTRITION

Ahmed A. SALEH^{1,3}, K. HAYASHI², D. IJIRI³ and A. OHTSUKA³

¹Department of Poultry Production, Faculty of Agriculture, Kafrelsheikh University, 333516
Kafr El-Sheikh, Egypt; ²Biogenkoji Research Institute, 876-15 Mizobe,
Kirishima 899-6404, Japan; ³Department of Biochemical Science and
Technology, Faculty of Agriculture, Kagoshima University,
1-21-24 Korimoto, Kagoshima 890-0065, Japan

➢ ABSTRACT *⋉*

Since January 2006, the use of antibiotics for domestic animals as feed additives has been banned within the European Union, influenced by the consumers' demands for products free of antimicrobial residues. As an alternative, probiotics in animal nutrition have attracted attention for their potential roles as growth promoters as well as antibiotics. Recently, much research data has been gathered and

suggests a potential role for probiotics from fungi as natural growth promoters in broiler nutrition. One such fungi, Aspergillus awamori, has been shown to improve the growth performance and meat quality of broiler chickens. This review examines the current scientific data on the use of A. awamori as a probiotic in broiler nutrition. From the available literature, it can be concluded that A. awamori may provide an effective alternative to antibiotics in the production of broilers.



South African Journal of Animal Science, vol,44,(3), p, 254-261

Impact Factor = 0.345



NIGELLA SEED OIL AS ALTERNATIVE TO AVILAMYCIN ANTIBIOTIC IN BROILER CHICKEN DIETS

Ahmed A. Saleh

Poultry Production Department, Faculty of Agriculture, Kafrelsheikh University, Egypt



This study was conducted to study the effect of nigella seed oil as an alternative to the antibiotic, avilanycin, on growth, digestibility, muscle fatty acid profile and some physiological parameters in broiler chickens. Fifty four chicks at 15 d of age (average weight, 320 ± 3 g) were divided into a control group and two treatment groups (n = 18). The control group was fed a basal diet and the experimental treatment groups were fed the basal diet supplemented with avilamycin at a level of 0.001% or nigella seed oil at 1 mL/kg. Growth performance and breast muscle fatty acid profile were measured. Although feed intake was not affected, bodyweight gain was increased, and thus feed conversion ratio was improved by feeding nigella seed oil compared with the control and avilanycin groups. Plasma total cholesterol and low-density lipoprotein cholesterol (LDL-C) concentrations were higher, while, plasma high-density lipoprotein cholesterol (HDL-C) acid level was lower and polyunsaturated fatty acid levels were higher in the muscle fat of birds receiving nigella seed oil than those receiving the other treatments. It is concluded that feeding nigella seed oil as alternative to avilamycin antibiotic improved growth performance, modified the fatty acids profile in muscles and enhances plasma total cholesterol, LDL and HDL concentrations, and glutathione peroxidase (GSH-Px) activity.



Animal Science Papers and Reports, vol,32 (1), p, 65-79

Impact Factor = 0.814



EFFECT OF DIETARY MIXTURE OF ASPERGILLUS PROBIOTIC AND SELENIUM NANO-PARTICLES ON GROWTH, NUTRIENT DIGESTIBILITIES, SELECTED BLOOD PARAMETERS AND MUSCLE FATTY ACID PROFILE IN BROILER CHICKENS

Ahmed A. Saleh

Department of Poultry Production, Faculty of Agriculture, Kafrelsheikh University, 333516 Kafr El-Sheikh, Egypt



Forty five chickens (15 days old) were assigned to three groups: (1) control group fed a basal diet; group (2) fed the basal diet supplemented with 0.05% Aspergillus awamori and group (3) fed mixtureof A. awamori 0.05% + selenium nano-particles 0.3%. Chickens were allowed free access to feed and raised for 12 days. Body weight gain and breast muscle weight increased in group 2 and 3 when compared to the control. Plasma 3-methylhistidine concentration occurred lower in group 2 and 3Plasma triglyceride and total cholesterol were decreased by feeding A. awamori and the combination of A. awamori with selenium nano-particles. Fat content of the breast muscle increased accompanied by decrease of saturated fatty acids (SFAs) and increase of unsaturated fatty acids (UFA). Moreover, decreased muscle TBARS and increased a-tocopherol contents in the breast muscle was observed in both experimental groups. The mRNAs of FAS, GPX and delta-6 desaturase were increased by feeding A. awamori and the combination of A. awamori with selenium nano-particles. In conclusion, it is suggested that feeding A. awamori alone or its combination with selenium nano-particles may improve growth performance, modify the skeletal muscle fatty acid profile and a-tocopherol content, suggesting that they may improve meat quality.



Veterinarni Medicina, vol, 59, (11), p, 536-542

Impact Factor = 0.756



EFFECTS OF SUMMER SHIELD SUPPLEMENTATION ON GROWTH PERFORMANCE, NUTRIENT UTILISATION, AND PLASMA LIPID PROFILES IN BROILER CHICKENS

Ahmed A. Saleh^{1,2}, D. Ijiri², A. Ohtsuka²

¹Faculty of Agriculture, Kafrelsheikh University, Kafr El-Sheikh, Egypt

²Faculty of Agriculture, Kagoshima University, Kagoshima, Japan



This study was conducted to evaluate the effects of herb mixture (summer shield) supplementation on growth performance, nutrient utilisation, and plasma lipid profiles in broiler chickens. Thirty-six male chicks at 15 days of age were divided into three groups with three replicates of four birds. The control group of chicks was fed a basal diet and the remaining two groups of chicks were fed the basal diet supplemented with summer shield at a concentration of 1 g/kg or 2 g/kg, respectively, until 37 days of age. Although feed intake was not different among the three groups, both body weight gain and breast muscle weight were increased in chicks fed a summer shield supplemented diet. Summer shield supplementation decreased abdominal fat weight and consequently feed efficiency was improved. Both protein and fat utilization was improved in chickens fed a summer shield-supplemented diet although dry matter content was not influenced. In addition, summer shield supplementation improved plasma lipid profiles, i.e., total cholesterol, triglyceride, and low-density lipoprotein cholesterol were decreased, whereas high-density lipoprotein cholesterol was increased. Furthermore, summer shield supplementation increased total protein, albumin, and globulin levels in plasma, while neither glutamate oxaloacetate transaminase nor glutamate pyruvate transaminase were affected. These results suggest that summer shield supplementation has positive effects on growth performance, nutrient utilisation, and plasma lipid profiles in broiler chickens.



Water Environment Research, VOL, 86, P, 584-893

Impact Factor = 1.0



MONITORING AND REMEDIATION OF ORGANOCHLORINE RESIDUES IN WATER

Aly Derbalah, Ahmed Ismail, Amany Hamza and Sabry Shaheen



This study monitored the presence of organochlorines in drinking water (Kafr-El-Sheikh, Ebshan, Elhamoul, Mehalt Aboali, Fowa, Balteem, and Metobess in the Kafr-El-Sheikh Governorate, Egypt, to evaluate the efficiencies of different remediation techniques (advanced oxidation processes [AOPs] and bioremediation) for removing the most frequently detected compound (i.e., lindane) in drinking water. The results showed the presence of several organochlorine residues at all water sampling sites. Lindane was detected with high frequency relative to other detected organochlorines in water. Nano photo-Fenton-like reagent was the most effective treatment for lindane removal in drinking water. Bioremediation of lindane by effective microorganisms removed 100% of the initial concentration of lindane after 23 days of treatment. The study found that there is no remaining toxicity of lindane-contaminated water after remediation on treated rats relative to the control with respect to histopathological changes in the liver and kidneys. Therefore, AOPs, particularly those with nanomaterials and bioremediation, can be regarded as safe and effective remediation technologies for lindane in water.



Journal of poultry science, vol, 51 (3), p, 281-288

Impact Factor = 0.787



EFFECTS OF DIETARY SUPPLEMENTATION WITH ASPERGILLUS AWAMORI ON GROWTH PERFORMANCE AND ANTIOXIDATIVE STATUS OF BROILER CHICKENS EXPOSED TO HIGH AMBIENT TEMPERATURE

Mahmoud H. El-Deep^{1,2}, Daichi Ijiri¹, Yahya Z. Eid³, Hisaya Yamanaka¹ and Akira Ohtsuka¹

¹ Department of Biochemical Science and Technology, Faculty of Agriculture, Kagoshima University, 1-21-24 Korimoto, Kagoshima 890-0065, Japan

² Animal Production Research Institute, Sakha Station, 33717 Kafr El-Sheikh, Egypt

³ Department of Poultry Production, Faculty of Agriculture, Kafrelsheikh University, 33516 Kafr El-Sheikh, Egypt



This study was conducted to evaluate the effects of dietary supplementation with Aspergillus awamori on the growth performance and antioxidative status in male broiler chickens exposed to high ambient temperatures. Twenty-four 15-d-old male broiler chickens were randomly divided into 2 dietary groups fed a cornsoybean meal-based diet supplemented without or with 0.05% of Asp. awamori. Six birds of each dietary group were kept under a thermoneutral condition (22°C), and 6 birds were exposed to heat stress (35°C, 9 h/d) for 15 d. Dietary Asp. awamori decreased feed intake and improved the feed conversion ratio in chickens kept at 22°C. Body weight gain and feed intake were decreased in chickens exposed to heat stress. There was no beneficial effect of dietary Asp. awamori on growth performance under the heat stress condition. However, the malondialdehyde content in skeletal muscle, as an index of lipid peroxidation, was decreased by dietary Asp. awamori in chickens kept at 22°C. Although the malondialdehyde content increased under the heat stress condition, dietary Asp. awamori alleviated the increased malondialdehyde. In addition, the α-tocopherol content in skeletal muscle was negatively affected by the exposure to heat stress, and dietary Asp. awamori recovered the reduction in the α -tocopherol content. Moreover, mRNA expression of glutathione peroxidase in liver was increased by dietary Asp. awamori under both of the thermal conditions. In conclusion, this study shows that dietary Asp. awamori improves the diminished antioxidative status under the heat stress condition partially because of its effect on the expression of hepatic antioxidant enzymesin broilers.



Journal of the American Pomological Society, Vol. 68(3), p,135-140

Impact Factor = 0.2



EFFECT OF STRAND THINNING ON YIELD AND FRUIT QUALITY OF EGYPTIAN DRY DATE PALM (PHOENIX DACTYLIFERA L.) CV. SULTANI

Alaa E. K. Omar^{1,2}, and Shamel M. Alam-Eldein^{3,4}

- ¹ Plant Production Department, Faculty of Food and Agricultural Science, King Saud University, Riyadh 11451, Saudi Arabia. Phone +966-597-528-317.
 - ² Department of Horticulture, Faculty of Agriculture, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt.
- ³ Corresponding author: University of Guelph, Kemptville campus, 830 Prescott Street, Kemptville, Ontario, K0G1J0, Box 2003, Canada. Phone +1-613-240-4575.
 - ⁴ Department of Horticulture, Faculty of Agriculture, Tanta University, Tanta 31527, Egypt.

ABSTRACT 🗷

Strand thinning is one of the common cultural practices used by Egyptian date palm farmers to reduce the incidence of alternate bearing, increase flowering, reduce the compactness of bunches, and improve yield and fruit quality. Five treatments of strand thinning were carried out; 15% strand thinning on the day of pollination, 30% strand thinning on the day of pollination, 15% strand thinning 15 days after pollination, 30% strand thinning 15 days after pollination, 30% strand thinning 15 days after pollination, and the control. Compared to the control, all thinning treatments improved fruit weight, flesh weight, and tannin, vitamin C, and total and reducing sugars concentrations. Thinning 30% of strands 15 days after pollination resulted in the best physical and chemical characteristics compared to other thinning treatments.



Journal of Food, Agriculture & Environment, Vol. 12(2), p, 520-522

Impact Factor = AVG 5 YEAR 0.435



BAGGING OF BUNCHES WITH DIFFERENT MATERIALS INFLUENCES YIELD AND QUALITY OF ROTHANA DATE PALM FRUIT

Alaa El-Din Khalil Omar^{1,2}, Adel Mohamed Al-Saif¹ and Mahmoud Abd El-Aziz Ahmed^{1,3}

¹ Plant Production Department, College of Food and Agricultural Science, King Saud University, P.O. Box 2460, Riyadh 11451. KSA.

² Department of Horticulture (Pomology), Faculty of Agriculture, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt.

³ Department of Horticultural Crops Technology, National Research Center, Dokki 12622-Cairo, Egypt.

ABSTRACT &

Under hot arid conditions, date palms are facing environmental stresses that limit tree productivity and negatively affect fruit quality characteristics especially weight and size. Bagging is a physical technique commonly used with many crops to protect the fruits from diseases, pests and to improve the micro-environment in which the fruits develop its ripening. This research was conducted during 2011 and 2012 seasons. Different materials of bagging were used to investigate its effect on fruit set, yield and quality of 11 years old 'Rothana' semidry date palm. Bunches were pollinated by placing 10 'Meghal' fresh male strands among female clusters during both seasons. Two bagging materials (paper kraft and grill cloth) were performed after pollination for one month, besides without bagging as control. All the bagging treatments improved fruit quality with respect to fruit set, bunch weight, fresh fruit weight, fruit flesh weight, total and reducing sugars contents except fruit dimensions as compared to the control treatment. Between bagging treatments, T (grill cloth) produced the best results in physical and chemical properties under study condition. Such results could be obtained either by bagging with grill cloth or with paper kraft per palm. Generally, bagging with grill cloth application treatment could be recommended to improve the bunch yield and fruit quality of 'Rothana' fruits under the current study conditions.



Journal of Food, Agriculture & Environment, Vol. 12(2), p, 523-525

Impact Factor = AVG 5 YEAR 0.345



METAXENIC EFFECTS AS RELATED TO MALE PALM (PHOENIX DACTYLIFERA AND PHOENIX CANARIENSIS), YIELD AND QUALITY OF KHALAS FRUIT

Alaa El-Din Khalil Omar, Rashed Sultan Al-Obeed and Mahmoud Abd El-Aziz Ahmed

¹ Plant Production Department, College of Food and Agricultural Science, King Saud University, P.O. Box 2460, Rivadh 11451, KSA.

² Department of Horticulture (Pomology), Faculty of Agriculture, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt.

³ Department of Horticultural Crops Technology, National Research Center, Dokki 12622-Cairo, Egypt.

ABSTRACT &

In order to get satisfactory fruit set, yield and fruit quality, different sources of pollen are required, palm growers said. Direct effect of pollens on date's quality was reported in many studies 5, 18, 21. This study was carried out in two successive seasons (2011 and 2012) on six female date palms, cv. Khalas (Phoenix dactylifera L.), grown in the Agricultural Experimental and Research Station-Dirab, College of Food and Agricultural Sciences, King Saud University, Riyadh, Saudi Arabia. On each female palm (10 inflorescences /female), five inflorescences of the same age and almost equal in size were labelled and hand pollinated from Phoenix dactylifera, by placing male pollen strands (8 strands) within each female inflorescence. The other five female inflorescences (same age and almost equal in size) were hand pollinated from Phoenix canariensis by placing the same number of male. Results showed that bunches pollinated by pollen from Phoenix canariensis recorded the highest values in most parameters of 'Khalas' fruit quality. In addition, fruit were ripening two weeks earlier. On the other hand, bunches pollinated by pollen from Phoenix dactylifera palm recorded the highest fruit set, seed weight, acidity and fruit moisture content. This variation in results can help in male selection, and may present the importance of Phoenix canariensis as pollinator to improve yield, fruit quality and early fruit ripening.



Acta Agriculturae Scandinavica, Section B - Soil & Plant Science, Vol. 64,(2), p, 155-164

Impact Factor = 0.65



ELEVATED EXPRESSION OF HYDROLASES, OXIDASE, AND LYASE IN SUSCEPTIBLE AND RESISTANT CUCUMBER CULTIVARS SYSTEMICALLY INDUCED WITH PLANT GROWTH-PROMOTING FUNGI AGAINST ANTHRACNOSE

NaglaA Hassan^{ab}, Mohsen Mohamed Elsharkawy^c, Manchanahally Byrappa Shivanna^b, Manchanahally Shivanna Meera^b and Mitsuro Hyakumachi^d

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

^b Department of Plant Pathology, Faculty of Agriculture, South Valley University, Oena 83523, Egypt

^c Department of Agricultural Botany, Faculty of Agriculture, Kafr El-Sheikh University, Kafr Elsheikh 33516, Egypt

^d Laboratory of Plant Pathology, Faculty of Applied Biological Sciences, Gifu University, 1-1 Yanagido, Gifu, Gifu 501-1193, Japan.

🖎 ABSTRACT 🗷

Susceptible and resistant cultivars of cucumber (cv. Suyo and cv. Shogoin fushinari, respectively) were evaluated for induction of systemic resistance by plant growth-promoting fungal isolates Phoma sp. GS8-1 and nonsporulating fungus GU21-2 against Colletotrichum orbiculare. Reduction in anthracnose disease was assessed at regular intervals of 0, 3, 6, and 9 days after challenge inoculation. Activities of endochitinase, β-1,3-endoglucanase, peroxidase (PO), polyphenol oxidase, and phenylalanine ammonia lyase (PAL) were assayed at the above intervals, while the activities of exochitinase and β -1,3-exogluconase were assayed at 9 days after challenge inoculation. The data showed that all the enzymes activities increased in plants treated with plant growth-promoting fungi (PGPF) compared with nontreated plants of both cultivars. The activities of endochitinase and β-1,3-endoglucanase were highly increased in PGPF-induced plants than in nontreated plants of both cultivars at different time points. Activities of PO, polyphenol oxidase, and PAL also increased between 3 and 6 days due to inoculation with PGPF and decreased thereafter. The activity of PAL at 9 days in PGPF-induced plants was at the same level as that of nontreated plants of both cultivars. Results of this investigation suggest that PGPF-induced systemic resistance is associated with not only high increases in the activities of *chitinase* and β-1,3-gluconases but also other plant defense-related enzymes such as PO, PPO, and PAL. Roles of other mechanisms rather than accumulation of defense-related enzymes in PGPF-mediated induced resistance in susceptible cultivars were demonstrated.



Applied Soil Ecology, Vol. 77, p,34-41

Impact Factor = 2.206



CARBON LOSS BY SCLEROTIA OF SCLEROTIUM ROLFSII UNDER THE INFLUENCE OF SOIL PH, TEMPERATURE AND MATRIC POTENTIAL AND ITS EFFECT ON SCLEROTIAL GERMINATION AND VIRULENCE

Mitsuro Hyakumachi^a, Sachindra Nath Mondal^b, Mohsen Mohamed Elsharkawy^c, Naglaa Hassan^{d,e}

^aLaboratory of Plant Pathology, Faculty of Applied Biological Sciences, Gifu University, 1-1 Yanagido, Gifu City 501-1193, Japan.

^bUniversity of Florida, Citrus Research and Education Center, 700 Experiment Station Road, Lake Alfred, FL 33850, USA.

^cDepartment of Agricultural Botany, Faculty of Agriculture, Kafr El-Sheikh University, Kafr El-Sheikh 33516, Egypt.

^dUnited Graduate School of Agricultural Science, Gifu University, 1-1 Yanagido, Gifu City 501-1193, Gifu, Japan.

^eDepartment of Plant Pathology, Faculty of Agriculture, South Valley University, Qena 83523, Egypt.

⋈ ABSTRACT ⋈

Germinability and virulence of sclerotia of Sclerotium rolfsii were assessed after 50 days of exposure of ^{14}C -labeled sclerotia to soil at 0, -5 and -15 kPa and pH 6.9, or to soil at 15, 25 or 30°C, pH 5 or 8 and -1 kPa. Evolution of $^{14}CO_2$ accounted for the greatest share of endogenous carbon loss from sclerotia under all soil conditions, except in water-saturated soil (0 kPa), in which sclerotial exudates contributed the major share of carbon loss. Total evolution of $^{14}CO_2$ from sclerotia in soil at -15 kPa (42.4% of total ^{14}C) and at -5 kPa (38%) was significantly higher than at 0 kPa (23.8%). Evolution of ${}^{14}CO_2$ in soil at 25or 30°C was more rapid than at 15°C with regardless of pH. Loss of endogenous carbon by sclerotia was the greater after 50 days of exposure to soil at 0 kPa, or at 25 or 30°C and pH 8, than at other soil conditions. Sclerotia exposed to watersaturated soil (0 kPa) showed a more rapid decline in nutrient independent germinability, viability and virulence, than to those exposed to -5 or -15 kPa. Sclerotia became dependent on nutrient for germination and lost viability and virulence within 30-40 days in soil at 25 or 30°C, pH 8. However, more than 60% of sclerotia retained viability in soil at 15°C regardless of pH, even after 50 days. Radish shoot growth was increased significantly by the sclerotia that had been exposed to soil at 0 kPa, or to soil at 25 or 30°C and pH 8 for 50 days. In conclusion, carbon loss by sclerotia during incubation on soil at different pH levels, temperatures and water potentials was inversely correlated with sclerotial ability to infect radish seedlings. The relationship between carbon loss by sclerotia and radish shoot length was positive.



Acta Agriculturae Scandinavica, Section B - Soil& Plant Science, vol, 64,(2), p, 135-140

Impact Factor = 0.65



EFFECT OF ZOYSIAGRASS RHIZOSPHERE FUNGAL ISOLATES ON DISEASE SUPPRESSION AND GROWTH PROMOTION OF RICE SEEDLINGS

Mohsen Mohamed Elsharkawy^a, Naglaa Hassanb^c, Muhammad Ali^b, Sachindra Nath Mondal^d & Mitsuro Hyakumachi^e

^a Department of Agricultural Botany, Faculty of Agriculture, Kafr El-Sheikh University, Kafr El-sheikh, Egypt

^b United Graduate School of Agricultural Science, Gifu University, Gifu, Japan

^c Department of Plant Pathology, Faculty of Agriculture, South Valley University, Qena, Egypt

d Citrus Research and Education Center, University of Florida, Lake Alfred, FL, USA
 e Laboratory of Plant Pathology, Faculty of Applied Biological Sciences,
 Gifu University, Gifu, Japan



Some rhizosphere fungal isolates belonging to Phoma, Penicillium, Trichoderma and Fusarium were evaluated to control Fusarium and Rhizopus blights and bakanae diseases of rice seedlings. Among the isolates, Phoma spp. GS8-2, GS6-4 and GS10-2 showed 74–89% reduction of severity of Fusarium blight in rice seedlings. In case of Rhizopus blight, Phoma spp. GS8-2, GS6-4 and GS12-2 and Trichoderma harzianum GT3-2 reduced disease severity to 81–93%. Phoma sp. GS12-2 was the most effective isolate in controlling bakanae disease (90% reduction in disease severity). The effect of the tested isolates on the growth of rice seedlings varied significantly in terms of fresh and dry weight in rice trays. However, Phoma sp. GS12-2 effectively increased fresh and dry weight of shoots to 40 and 30%, respectively, compared with untreated control plants. In contrast, Phoma sp. GS6-4, T. harzianum GT3-2 and Penicillium sp. GP17-1 showed inhibitory effect to shoot growth of rice seedlings.



Crop Protection, vol, 63, p, 68-75

Impact Factor = 1.539



A NOVEL METHOD FOR CONTROLLING RICE BLAST DISEASE USING FAN-FORCED WIND ON PADDY FIELDS

Yoshihiro Taguchi^a, Mohsen Mohamed Elsharkawy^b, Naglaa Hassanc^a, Mitsuro Hyakumachi^a

^a Laboratory of Plant Pathology, Faculty of Applied Biological Sciences, Gifu University, 1-1 Yanagido, Gifu City 501-1193, Japan

^b Department of Agricultural Botany, Faculty of Agriculture, Kafr El-Sheikh University, Kafr Elsheikh 33516, Egypt

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

^d Department of Plant Pathology, Faculty of Agriculture, South Valley University, Qena 83523, Egypt

ABSTRACT &

Rice blast disease is one of the obstacles of rice production not only in Japan but throughout rice producing countries. The effects of fan-forced wind on the incidence of rice blast disease were studied in two successive seasons. Electric fans (5 KW, 110-cm blade diameter) set on the ridge of paddy fields at a height 5 m from the ground level were used to artificially generate wind. In season 1, the fan operated twice daily for 30 min periods at 11:00 PM and 4:00 AM from June 15 to September 1. The blocks of the paddy fields were divided into 6 zones according to wind speed and distance from the fan. The wind speed ranged from 2.0 to >7.3 m/s. The incidence of both rice leaf and panicle blast was significantly lower in the zones receiving wind between 2.6 and 7.3 m/s; however, the zone that received a velocity >7.3 m/s was severely affected by leaf and panicle blast. The zone that received the a wind speed of 2.6 m/s or lower exhibited an inefficient reduction of leaf and panicle blast disease, but it was better than in the control fields. In season 2, a wind-forced fan was applied from June 16 to September 9, with the velocity adjusted between ca. 3.0 and 6.0 m/s. The incidence and severity of leaf and panicle blasts (chuff, rachis-branch and neck blast) were efficiently reduced in the wind-treated fields. Fan-forced wind was more effective than the application of conventional chemical fungicides for controlling rice blast disease. These data demonstrate the potential of fan-forced wind for controlling rice blast disease.



African Journal of Biotechnology, Vol. 13(5), p, 640-650

Impact Factor = AVG 5 YEAR 0.573



MECHANISM OF BIOLOGICAL CONTROL OF RHIZOCTONIA DAMPING-OFF OF CUCUMBER BY A NON-PATHOGENIC ISOLATE OF BINUCLEATE RHIZOCTONIA

Mohsen Mohamed Elsharkawy¹, Naglaa Hassan^{2,3}, Remedios Villajuan-Abgona² and Mitsuro Hyakumachi⁴

¹Department of Agricultural Botany, Faculty of Agriculture, Kafr El-Sheikh University, Kafr El-Sheikh 33516, Egypt.

²United Graduate School of Agricultural Science, Gifu University, 1-1 Yanagido, Gifu 501-1193, Gifu, Japan.

³Department of Plant Pathology, Faculty of Agriculture, South Valley University, Qena 83523, Egypt.

⁴Laboratory of Plant Pathology, Faculty of Applied Biological Sciences, Gifu University, 1-1 Yanagido, Gifu City 501-1193, Japan.

🛪 ABSTRACT 🧭

The interaction of binucleate Rhizoctonia (BNR) anastomosis group (AG)-A isolate W7, Rhizoctonia solani AG-4 and cucumber seedlings were investigated to elucidate the mechanism of biocontrol of Rhizoctonia solani by BNR. Hypocotyls of Cucumis sativus L. cv. Jibai were inoculated with a virulent isolate of R. solani AG-4 isolate C4 and examined with light microscopy and scanning and transmission electron microscopy. The hyphae of the virulent isolate colonized the outer surface of the hypocotyl and penetrated the epidermal and cortical cells to the pith of hypocotyls. The hyphae of a non-pathogenic species of BNR isolate W7 did not penetrate the cortical cells but instead colonized the outer epidermal cells 12 h after inoculation. Accumulation of mucilage occurred on the surface after dense colonization of the hypocotyls surface by the BNR. Observation of the hypocotyls surface pre-inoculated with BNR and challenged inoculated with R. solani showed constricted and deformed hyphae of R. solani, which were prevented to penetrate the epidermal cells. Preinoculating of BNR isolate caused profused formation of the mucilage which lysed BNR hyphae and restricted the growth of R. solani. The mucilage was identified as pectic substances. Analysis of pectin contents from dried hypocotyls tissues showed highly methylated pectin with low uronic acid contents in the seedlings inoculated with R. solani and unprotected by BNR while BNR- treated seedlings showed less methylated pectin and high amount of uronic acid. Furthermore, the BNR-inoculated seedlings showed significant (P=0.05) increase in calcium, indicating high amount of wall-bound cations in cell walls. Pectic substances accumulation and increased calcium in the cucumber tissues greatly contributed in the protection of cucumber seedlings against Rhizoctonia damping off by a non-pathogenic species of Rhizoctonia.



Appl Microbiol Biotechnol, Vol. 98, p, 8005-8015

Impact Factor = 3.811



A COPPER TOLERANCE IN FRANKIA SP. STRAIN EUI1C INVOLVES SURFACE BINDING AND COPPER TRANSPORT

Medhat Rehan, Teal Furnholm, Ryan H. Finethy, Feixia Chu, Gomaah El-Fadly and Louis S. Tisa

➢ ABSTRACT ✗

Several Frankia strains have been shown to be copper-tolerant. The mechanism of their copper tolerance was investigated for Frankia sp. strain EuIIc. Copper binding was shown by binding studies. Unusual globular structures were observed on the surface of the bacterium. These globular structures were composed of aggregates containing many relatively smaller "leaf-like" structures. Scanning electron microscopy with energy-dispersive X-ray (SEM-EDAX) analysis of these structures indicated elevated copper and

phosphate levels compared to the control cells. Fourier transform infrared spectroscopy (FTIR) analysis indicated an increase in extracellular phosphate on the cell surface of copperstressed cells. Bioinformatics' analysis of the Frankia sp. strain EuIlc genome revealed five potential cop genes: copA, copZ, copC, copCD, and copD. Experiments with Frankia sp. strain EuIIc using qRT-PCR indicated an increase in messenger RNA (mRNA) levels of the five cop genes upon Cu2+ stress. After 5 days of Cu2+ stress, the copA, copZ, copC, copCD, and copD mRNA levels increased 25-, 8-, 18-, and 25-fold, respectively. The protein profile of Cu2+-stressed Frankia sp. strain EuIIc cells revealed the upregulation of a 36.7 kDa protein that identified as FraEuI1c_1092 (sulfate-binding periplasmic transport protein). Homologues of this gene were only present in the genomes of the Cu2+- resistant Frankia strains (EuIIc, DC12, and CN3). These data indicate that copper tolerance by Frankia sp. strain EuIlc involved the binding of copper to the cell surface and transport proteins.



Appl Microbiol Biotechnol, Vol. 98, p, 6125-6135

Impact Factor = 3.811



DEGRADATION OF ATRAZINE BY FRANKIA ALNI ACN14A: GENE REGULATION, DEALKYLATION, AND DECHLORINATION

Medhat Rehan, Martin Kluge, Stefan Fränzle, Harald Kellner, René Ullrich, Martin Hofrichter

ABSTRACT 🗷

Atrazine *N-isopropylammelide* is transformed to through hydroxyatrazine as an intermediate as indicated by high-performance liquid chromatography/mass spectroscopy in culture filtrates of Frankia alni ACN14a and Frankia sp. EuI1c. Both Frankia strains have the ability to degrade atrazine via dechlorination and dealkylation and, subsequently, may be using it as a nitrogen and carbon source as detected here by increasing their growth patterns. Bioinformatic analysis of the Frankia genomes revealed that a potential gene cluster involved in atrazine decomposition contains three genes, namely, trzN FraEuI1c 5874), (FRAAL1474 and atzB (FRAAL1473 FraEuI1c_5875), and atzR (FRAAL1471). The relative messenger RNA gene expression

of the former genes was examined by qRT-PCR. The LysRtype transcriptional regulator atzR (FRAAL1471), which is expected to control the cluster expression, showed a 13-fold increase in the expression level under atrazine stress. Moreover, the putative adenosine aminohydrolase 3 atzB (FRAAL1473), which is expected to dealkylate the N-ethyl group of atrazine, showed also an increased expression by factor 16 with increased exposure. Eventually, the trzN (FRAAL1474) gene, which is predicted to encode a putative amidohydrolase catalyzing atrazine dechlorination, exhibited 31-fold increased expression. To our best knowledge, this is the first report about adenosine aminohydrolase 3 function in the dealkylation of the N-ethyl group from atrazine.



African Journal of Biotechnology, Vol. 12(20), p, 2830-2839

Impact Factor = AVG 5 YEAR 0.573 published 2013



ANALYSIS OF GENETIC DIVERSITY WITHIN AND AMONG FOUR RABBIT GENOTYPES USING BIOCHEMICAL AND MOLECULAR GENETIC MARKERS

Ola A. Galal¹, Medhat Rehan¹ and Ragaa E. Abd El-Karim²

¹Genetics Department, Faculty of Agriculture, 33516, Kafrelsheikh University, Kafr El-Sheikh, Egypt.

²Animal Production Research Institute, Agricultural Research Center (ARC), Dokki, Giza, Egypt.

ABSTRACT &

Genetic variations were detected in four different rabbit genotypes; Animal Production Research Institute (APRI) line, New-Zealand White (NZW), Baladi Black (BB) and Gabali (GAB) breeds. Ten individuals from the first three genotypes and seven individuals from GAB, were blood sampled. Isozymes (esterase and peroxidase) and sodium dodecyl sulphate (SDS)-protein markers were used to detect the genetic variations within these genotypes, whereas the random amplified polymorphic DNA polymerase chain reaction (RAPD-PCR) analysis using six random arbitrary primers were employed to assess the genetic variations and phylogenetic relationships among the four genotypes. The results show a variation in biochemical activity levels since, esterase profiles showed higher percentage of polymorphism (67.21%) than peroxidase (34.78%) and SDS-protein profiles (39.11 %). Moreover, the mean of the genetic similarity within the genotypes based on overall biochemical markers were 0.81 (APRI), 0.91 (NZW), 0.89 (BB) and 0.86 (GAB), which indicates high homogeneity within each of the four genotypes. The polymorphism percentage based on overall RAPD primers was 35.44% among these genotypes, which presents a kind of genetic diversity. From the dendrogram tree, the genotypes BB and GAB appeared to be closely related, while the APRI genotype was the most different.



Environ Sci Pollut Res, Vol. 21 Issue 12, p7773-7780

Impact Factor = 2.757



PHYTOACCUMULATION POTENTIALS OF TWO BIOTECHNOLOGICALLY PROPAGATED ECOTYPES OF ARUNDO DONAX IN COPPER-CONTAMINATED SYNTHETIC WASTEWATER

N. Elhawat, Tarek Alshaal, É. Domokos-Szabolcsy, H. El-Ramady, L. Márton, M. Czakó, J. Kátai, P. Balogh, A. Sztrik, M. Molnár, J. Popp and M. G. Fári

Soil and Water Sci. Dept., Faculty of Agriculture, Uni. of Kafrelsheikh, Kafrelsheikh, Egypt.

Department of Agricultural Botany, Plant Physiology and Biotechnology, University of Debrecen,
P.O. Box 36, 4015 Debrecen, Hungary.

Department of Agricultural Chemistry and Soil Sciences, Uni. of Debrecen, Hungary.

Department of Biological Sciences, University of South Carolina, Columbia, SC, USA.

Department of Economic Analysis and Statistics, Uni. of Debrecen, Debrecen, Hungary.

Department of Biological and Environmental Sciences, Faculty of Home Economics,

Al-Azhar University, Al Mokhaym Al Daem, Egypt.

Institute of Animal Science, Biotechnology and Nature Conservation, University of Debrecen, Debrecen, Hungary

🖎 ABSTRACT 🗷

An in vitro experiment was carried out to evaluate the phytoremediation potentials of two somatic embryo-derived ecotypes of Arundo donax-BL (American ecotype) and 20SZ (Hungarian ecotype)-of copper from synthetic wastewater. The two ecotypes were grown under sterile conditions in tubes containing a nutrient solution supplied with increasing doses of Cu $(0, 1, 2, 3, 5, 10, \text{ and } 26.8 \text{ mg L}^{-1})$ for 6 weeks. The translocation and bioaccumulation factors and removal rate were estimated. In general, increasing Cu concentration in nutrient solution slightly decreased root, stem and leaf biomass without toxicity symptoms up to 26.8 mg L^{-1} . Moreover, both ecotypes showed high Cu removal efficiency from aqueous solution. However, Cu removal rate ranged between 96.6 to 98.8 % for BL ecotype and 97 to 100 % for 20SZ ecotype. Data illustrated that both BL and 20SZ ecotypes may be employed to treat Cu-contaminated water bodies up to 26.8 mg L^{-1} .



J. Poult. Sci, Vol. 51, p, 359-363

Impact Factor = 0.787



GENETIC DIVERSITY ANALYSIS OF EGYPTIAN NATIVE CHICKENS USING MTDNA D-LOOP REGION

Ibrahim Elkhaiat^{1, 4}, Kotaro Kawabe², Kamal Saleh¹, Hassan Younis¹, Reiad Nofal¹, Shinnya Masuda³, Takeshi Shimogiri⁴ and Shin Okamoto⁴

¹ Faculty of Agriculture, Kafrelsheikh University, Kafrelsheikh 33516, Egypt. ² Natural Science Centre for Research and Education, Kagoshima University, Kagoshima 890-0065, Japan. ³ Liberal Arts Education Center, Aso Campus, Tokai University, Minami Aso-mura, Kumamoto 869-1404, Japan. ⁴ Faculty of Agriculture, Kagoshima University, Kagoshima 890-0065, Japan

➢ ABSTRACT *⋉*

This study was aimed to evaluate the genetic diversity of Egyptian native chickens by using mtDNA sequence polymorphism. A 546-bp fragment of the mtDNA D-loop region was sequenced for a total of 36 Egyptian native chickens with 14 reference sequences from DNA databank. Of the Egyptian chickens 5 haplotypes were identified. Haplotype diversity and nucleotide diversity of the Egyptian native chickens were 0.5635±0.0845 and 0.00123±0.00108, respectively. The Egyptian native chickens were distributed within one clade, which were closed to the haplotypes from Indian subcontinent and Southeast Asia. *Most of Egyptian native chickens were classified into the haplotype E1,* which contains 63.9% of individuals followed by E4 (16.6%), E5 (11.1%), E2 (5.5%) and E3 (2.7%), respectively. These findings indicate that the maternal lineages was involved in the origin of domestic chicken in Egypt may have roots in Indian subcontinent and other Southeast Asia. The genetic information from this study will probably pave the way to further studies for evaluation, preservation and improvement of Egyptian native chickens as genetic resources in the future.

Egyptian journal of biological pest control, Vol. 24(1), p,139-149

Impact Factor = 0.408



INFLUENCE OF RHIZOBIUM SP. COMBINED WITH TRICHODERMA SPP. ON DAMPING-OFF DISEASE AND GROWTH PARAMETERS OF FABA BEAN PLANTS

Nagwa M. M. El-Khateeb

Agric. Microbiol., Agric. Botany Dept., Fac. Agric., Kafrelsheikh Univ., Egypt.

ABSTRACT 🗷

Fusarium solani is one of the most common pathogens, causing damping-off disease of faba bean (Vicia fabe L.) in Egypt. All the obtained isolates were able to attack faba bean plants (cv. Sakha1) causing damping-off disease. Isolate 2 (identified as F.solani) was the most virulent ones in the pathogenicity test. The antagonistic effect of three Trichoderma species, i.e. T.harzianum, T.hamatum, and T.virens was tested against F.solani in vitro and in greenhouse experiments. In vitro, all Trichoderma spp., significantly reduced the mycelial growth of F. solani and showed a mycoparasitic activity against the pathogenic fungus. In greenhouse experiments, the combined effect of Trichoderma spp. (as seed or soil treatments) and Rhizobium leguminosarum bv.viceae significantly reduced the pre-and post-emergence damping-off disease incidence under artificial infection with F. solani. The best protection to damping- off disease was obtained by T.virens (as soil treatment), followed by T.harzianum and T.hamatum, respectively. The treatments gave the highest values of plant survival (%) and improved the growth parameters, symbiotic N_2 fixing and yield components, compared with infested control. The effects were similar in more cases to those of the fungicide Rizolex-T50%, which reduced the damping-off disease incidence but adversely affected Rhizobium sp. and the symbiotic N_2 fixing parameters. Sensitivity test of the Rhizobium and Trichoderma strains with some chemical pesticides (Rhizolex-T50, ground-up, malathion and Rugby) was applied. All tested fungicides showed toxic effects to Rhizobium and Trichoderma strains, even at low concentrations. The fungicide Rizolex-T50% was the most effective one even at the one forth recommended dose.



Egyptian journal of biological pest control, Vol. 24(2), p,301-308

Impact Factor = 0.408



BIOLOGICAL CONTROL OF POWDERY AND DOWNY MILDEWS OF CUCUMBER UNDER GREENHOUSE CONDITIONS

Elsharkawy M. M.¹, Kamel S. M.², Nagwa M. M. El-Khateeb³

¹Agricultural Botany Department (Plant Pathology), Faculty of Agriculture, Kafrelsheikh University, 33516 Kafr El-Sheikh, Egypt.

²Plant Pathology Research Institute, Agricultural Research Center (ARC), Giza, Egypt.

³Agricultural Botany Department (Agricultural Microbiology), Faculty of Agriculture, Kafrelsheikh University, 33516.



Powdery and downy mildews are potentially serious diseases of cucumber inflicting considerable quantitative and qualitative losses. In the present study, the efficiency of Bacillus subtilis, Pseudomonas fluorescens, Derxia gummosa and Trichoderma harzianum was investigated to control both powdery and downy mildews on cucumber plants. Bioassays were conducted under greenhouse conditions to evaluate these bioagents for the protection of cucumber plants from powdery and downy mildews. Spraying of cucumber plants with these bioagents significantly reduced the severity of both mildews as well as increased the fruit yield (Kg/plant) compared to the control. B. subtilis recorded the highest reduction of area under disease progress curve (AUDPC) being 175.0 as compared to 536.55 in the control treatment for powdery mildew while, T. harzianum recorded the highest reduction, being 241.15 as compared to the control treatment (513.45) for downy mildew. Light and Scanning electron microscopes showed that Podosphaera fusca and Pseudoperonospora cubensis spores and hyphae were abnormal and both pathogens had restricted growth on treated-cucumber plants. Additionally, treated plants showed significant increase in plant growth parameters (plant height, total chlorophyll and fresh and dry weight) and the activity of defense related enzymes (peroxidase and polyphenoloxidase) compared to the untreated plants. The results suggest the possible use of B. T. harzianum and P. fluorescens to control powdery and downy mildews on cucumber.



Desalination, Vol. 349, p, 1-9

Impact Factor = 3.096



ENHANCING THE SOLAR STILL PERFORMANCE USING SOLAR PHOTOVOLTAIC, FLAT PLATE COLLECTOR AND HOT AIR

Mohamed A. Eltawil a, Z.M. Omara b

^a Agricultural Engineering Department, Faculty of Agriculture, 33516, Kafrelsheikh University, Egypt

^b Mechanical Engineering Department, Faculty of Engineering, 33516, Kafrelsheikh University, Egypt



This work aims to enhance the productivity of a single slope solar still for remote communities facing electricity problems and a shortage of good quality water. The single slope solar still was equipped with a flat plate solar collector, spraying unit, perforated tubes, external condenser and solar air collector. The developed solar still (DSS) was evaluated in passive and active modes and compared with the conventional solar still (CSS). The circulated water was either sprayed into the DSS or pumped from the bottom upward forming fountains. A hot dry air was forced at the bottom of the DSS which constituted air bubbles to burst at the water surface. The DSS was powered by photovoltaic (PV) system and evaluated at different operating modes. The CSS productivity ranged from 3 to 4 l/m2. The DSS productivity was more than the CSS by 51-148% depending on the type of amendment. The use of external condenser with solar still increased the productivity by 51%. The use of circulated hot water in passive and active sprays without condenser led to increase the DSS productivity by 56% and 82%, respectively. The DSS has demonstrated its suitability for the desalination process when weather conditions are suitable and water demandis not too great.



Journal of Plant Interactions, Vol. 9 (1), p, 632-639

Impact Factor = 0.865



MOLECULAR IDENTIFICATION OF PHYTOPLASMAS IN FASCIATED CACTI AND SUCCULENT SPECIES AND ASSOCIATED HORMONAL PERTURBATION

A.F. Omar^a, Y.H. Dewir^b and M.E. El-Mahrouk^b

^aDepartment of Agricultural Botany, Plant Pathology and Biotechnology Laboratory, Faculty of Agriculture, Kafrelsheikh University, Kafr El Sheikh 33516, Egypt.

^bHorticulture Department, Faculty of Agriculture, Kafrelsheikh University, Kafr El Sheikh 33516, Egypt



Fasciation, a frequent phenomenon in Cactaceae, has been attributed to various causes. The present study reports on phytoplasma-induced fasciation in Euphorbia coerulescens (Euphorbiaceae), Orbea gigantea Opuntia cylindrica (Cactaceae), (Asclepiadaceae), stapeliiformis (Asteraceae). 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 cacti fasciation phytoplasmas in 16SrII group. The hormonal content of symptomless and fasciated tissues including indole-3-acetic acid (IAA), kinetin (Kin), N6-benzyladenine (BA), abscisic acid (ABA), and gibberellic acid (GA3) was quantified by high performance liquid chromatography (HPLC). The results indicated that fasciation in O. gigantea was correlated with the accumulation of Kin and IAA increasing five and two times, respectively, as compared to symptomless tissue. However, there was no consistent pattern of hormones in other fasciated species (E. coerulescens, O. cylindrica, and S. stapeliiformis), suggesting that different plant species might have different mechanism to develop fasciation associated with phytoplasma infection.

Keywords: cactus; cristation; fasciation; phytoplasma.



Journal of Stored Products Research, Vol. 57, p, 30-35

Impact Factor = 1.491



INSECTICIDAL EFFICACY OF CERTAIN BIO-INSECTICIDES, DIATOMACEOUS EARTH AND MODIFIED ATMOSPHERES AGAINST RHYZOPERTHA DOMINICA (F.) (COLEOPTERA: BOSTRICHIDAE) ON STORED WHEAT

Fawzy I. Eissa^a, Nour El-Hoda A. Zidan^b, Mohamed Y. Hashem^c, Sayeda S. Ahmed^c

^a Environment and Bio-agriculture Department, Faculty of Agriculture, Al-Azhar University, 11884 Cairo, Egypt

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

^c Department of Economic Entomology and Pesticides, Faculty of Agriculture, Cairo University, Giza, Egypt



Efficacy of three bio-insecticides (i.e. Spinosad, Beauveria bassiana and Metarhizium anisopliae), one inert dust (i.e., diatomaceous earth), and modified atmospheres (MAs) with high carbon dioxide concentrations as alternative treatments to methyl bromide for the control of the lesser grain borer, Rhyzopertha dominica (Fabricius) on wheat was investigated in laboratory bioassays. Results showed that spinosad was the most effective bio-insecticide against R. dominica followed by diatomaceous earth inert dust at all exposure periods. Exposure of R. dominica adults to spinosad at 0.5 mg/kg for 168 h resulted in 100% mortality. It was also noted that mortality of R. dominica was enhanced as dosage rate and exposure interval increased. Observations at 21 days post-treatment with diatomaceous earth (DE) showed that 100% of the exposed individuals of R. dominica died on wheat treated with the highest two rates i.e., 8 and 16 g kg_1. The mortality of R. dominica adults responding to modified atmospheres (MAs) reached 100% mortality after 7 days with 80% CO2 and after 8 days with 60% CO2. MAs containing 40% and 20% CO2 recorded 96% mortality at 8 and 9 days, respectively. LT50 and LT95 values together confirm that the highest toxicity was recorded for MA containing 80% CO2 while the remaining MAs were progressively less toxic.



World Rabbit Sci, Vol. 22, p. 261-268

Impact Factor = 0.86



GENETIC COMPARISON OF MILK PRODUCTION AND COMPOSITION IN THREE MATERNAL RABBIT LINES

EL Nagar A.G. §, Sánchez J.P.†, Ragab M.†, Mínguez C.*, Baselga M.*

Departamento de Ciencia Animal, Universitat Politècnica de València, Camino de Vera s/n, 46022 Valencia, Spain.

[†]Genètica i Millora Animal, Institut de Recerca i Tecnologia Agroalimentàries, Torre Marimon s/n, 08140, Caldes de Montbui, Barcelona, Spain.

[‡]Poultry Production Department, Faculty of Agriculture, Kafr El-Sheikh University, Kafr El-Sheikh, Egypt.

§Department of Animal Production, Faculty of Agriculture at Moshtohor, Benha University, Moshtohor, Toukh-Qalyoubia, Egypt.

⋈ ABSTRACT ⋈

The aim of this study was to compare 3 Spanish maternal rabbit lines (A, V and LP) in terms of milk production and composition. These lines were founded on different criteria but selected for litter size at weaning. A total of 194 mature does in their third or higher parity were used. The milk yield of does was recorded at 1, 2, 3, 4, 8, 9, 10, 11, 15, 16 and 17 d post-partum (dpp). The milk production traits studied were weekly milk yield (WMY; g/wk) and milk conversion ratio (MCR; grams of litter gain per grams of milk suckled during the first 21 dpp). The milk composition traits studied were fat (%), protein (%), ash (%), lactose (%) and total solids (%). The milk samples to be analysed were collected from each doe at 18 dpp. Data were analysed using single trait mixed and fixed models with and without covariates; the covariates were number born alive (NBA) and doe weight at kindling (DW). The overall mean of WMY, during the first 3 wk, was 1547±16 g/wk. Milk yields during the different lactation weeks were for line A 872±39, 1503±39 and 1865±39 g for first, second and third lactation weeks, respectively. In line V, the corresponding values were 919±35, 1633±35 and 2004±35 g, and in line LP, they were 1043±36, 1819±36 and 2254±36 g. Means of MCR were 0.41 ± 0.01 , 0.41 ± 0.01 and 0.42 ± 0.01 for A, V and LP lines, respectively. Overall means of fat, protein, ash, lactose and total solids (%) were 14.62 ± 0.17 , 11.10 ± 0.07 , 1.89 ± 0.04 , 2.67 ± 0.12 and 30.27 ± 0.24 , respectively. The differences between lines for milk production traits were significant except for MCR, while the differences between lines for milk composition traits were not significant. NBA had significant effects on all milk yield traits but had no significant effects on milk composition traits. DW only had a significant effect on weekly milk yield. The parity order had no significant effect either for milk production traits or milk composition traits in multiparous does, except for ash %.



J. Anim. Breed. Genet. Vol. 32(1):p.68-73

Impact Factor = 2.095



EFFECTIVE POPULATION SIZE AND INBREEDING DEPRESSION ON LITTER SIZE IN RABBITS. A CASE STUDY

M. Ragab^{1,2}, J.P. S_anchez³ & M. Baselga¹

¹ Instituto de Ciencia y Tecnolog_1a Animal, Universidad Polit_ecnica de Valencia, Valencia, Spain

² Poultry Production Department, Faculty of Agriculture, Kafer El-Sheikh University, Kafer El-Sheikh, Egypt

³ Unitat de Cunicultura, Institut de Recerca i Tecnologia Agroaliment_aries, Caldes de Montbui, Barcelona, Spain

ABSTRACT 🗷

The purpose of this study is to use demographic and litter size data on four Spanish maternal lines of rabbits (A, V, H and LP), as a case study, in order to: (i) estimate the effective population size of the lines, as a measure of the rate of increase of inbreeding, and (ii) study whether the inbreeding effect on litter size traits depends on the pattern of its accumulation over time. The lines are being selected for litter size at weaning and are kept closed at the same selection nucleus under the same selection and management programme. The study considered 47 794 l and a pedigree of 14 622 animals. Some practices in mating and selection management allow an increase of the inbreeding coefficient lower than 0.01 per generation in these lines of around 25 males and 125 females. Their effective population size (Ne) was around 57.3, showing that the effect of selection, increasing the inbreeding, was counterbalanced by the management practices, intended to reduce the rate of inbreeding increase. The inbreeding of each individual was broken down into three components: old, intermediate and new inbreeding. The coefficients of regression of the old, intermediate and new inbreeding on total born (TB), number born alive (NBA) and number weaned (NW) per litter showed a decreasing trend from positive to negative values. Regression coefficients significantly different from zero were those for the old inbreeding on TB (6.79) \pm 2.37) and NBA (5.92 \pm 2.37). The contrast between the coefficients of regression between the old and new inbreeding were significant for the three litter size traits: 7.57 ± 1.72 for TB; 6.66 ± 1.73 for NBA and 5.13 ± 1.67 for NW. These results have been interpreted as the combined action of purging unfavourable genes and artificial selection favouredby the inbreeding throughout the generations of selection.



J. Anim. Sci, Vol. 92, p, 1-7

Impact Factor = 1.92



LITTER SIZE COMPONENTS IN A FULL DIALLEL CROSS OF FOUR MATERNAL LINES OF RABBITS

M. Ragab, ^{†2} J. P. Sánchez, [‡] C. Mínguez, ^{*} J. S. Vicente, ^{*} and M. Baselga ^{*}

^{*}Department of Animal Science, Polytechnic University of Valencia, Camino de Vera s/n, E-46022 Valencia, Spain; [†]Poultry Production Department, Faculty of Agriculture, Kafr El-Sheikh University, 33516 Kafr El-Sheikh [AU: Please verify that the postal code added is correct.], Egypt; and [‡]Genetica i Millora Animal, Institut de Recerca i Tecnologia Agroalimentàries, Torre Marimon s/n, E-08140 Caldes de Montbui, Barcelona, Spain.

➢ ABSTRACT ✗

A crossbreeding experiment between 4 Spanish maternal lines of rabbits was performed to estimate crossbreeding effects on litter size components. The experiment was designed as a complete diallel cross involving 4 lines selected for litter size at weaning (A, V, H, and LP [L]) and their 12 simple crosses. Does from these 16 genetic groups were distributed among 4 Spanish farms, but only V line was present in all farms, allowing connectivity of the data. A total of 2,015 does in the third, fourth, or fifth gestations were subjected to laparoscopy. The recorded traits were ovulation rate (OR), number of implanted embryos (IE), total born (TB), embryo survival (ES), foetal survival (FS), and prenatal survival (PS). The differences in direct genetic effects, maternal genetic effects, and individual heterosis between the lines were estimated according to Dickerson's model. Line A was significantly inferior to lines V and H, whereas line LP was similar to A line, but for FS and PS, line A showed the best values, followed by line LP. Comparing crossbred groups to line V, significant differences were shown favoring crossbred groups for OR and IE. The crossbred groups presented high implantation rate, but the foetal survival was lower than in V line. Important values for commercial production were presented by some crosses for OR (HV, 1.26 ova), IE (AH, 1.50 embryos; HV, 1.41 embryos), and TB (AH, 0.82 rabbits; HV, 0.78 rabbits). Relevant and significant reciprocal effects were found, especially for OR in all cases except the LV and VL crosses. These differences become nonsignificant in most of the other traits. Regarding direct genetic effects, line A presented lower estimates than the other lines with important values for OR, but the opposite was observed for FS. The maternal effects were significant only for some contrasts in OR and revealed that the LP line was inferior to the others (1.08 ova compared to the A line, 1.23 compared to the H line, and 0.38 compared to the V line). In general, high positive values for heterosis were found in crossbred does for OR and IE. The crosses, where lines A and H were involved, showed significant heterosis. The highest values were obtained by crossing lines A and H (1.18 ova for OR, 1.87 embryos for IE) followed by the cross between lines H and V. Crosses between line LP and the other lines had a negative heterosis for FS and PS.



Environmental Chemistry Letters, Vol. 12, p, 495-510

Impact Factor = 1.906



SELENIUM AND NANO-SELENIUM IN AGROECOSYSTEMS

Hassan R. El-Ramady, Éva Domokos-Szabolcsy, Neama A. Abdalla, Tarek A. Alshaal, Tarek A. Shalaby, Attila Sztrik, Jószef Prokisch and Miklós Fári

Soil and Water Sci. Dept., Faculty of Agriculture, Uni. of Kafrelsheikh, Kafrelsheikh, Egypt.

Horticulture Dept., Faculty of Agriculture, Uni. of Kafrelsheikh, Kafrelsheikh, Egypt.

Department of Agricultural Botany, Plant Physiology and Biotechnology, Debrecen University, Debrecen, Hungary.

Nano Food Lab, Bio- and Environmental Energetics Institute, Debrecen University, Debrecen, Hungary.

Genetic Engineering Division, Plant Biotechnology Department, National Research Center, Giza, Egypt.

➢ ABSTRACT *⋉*

Selenium (Se) is an essential health element becoming rare in food as a result of intensive plant production. Indeed, several enzymes contain selenium in the form of the unusual selenocysteine amino acid. Selenium was found an essential nutrient in the late 1950s, when selenium was found to replace vitamin E in the diets of rats and chicks for the prevention of vascular, muscular, and hepatic lesions. At that time, selenium was considered solely as a toxic element in the northern Great Plains of the USA, because selenium was associated with the 'alkali disease' of grazing livestock. The major source of Se in soils is the weathering of Se-containing rocks. Secondary sources are volcanic activities, dusts such as in the vicinity of coal burning, Se-containing fertilizers, and some waters. Se cycles through the food system; Se is first removed from soils by plants and soil microorganisms, which can take up Se into their proteins and produce volatile forms such as dimethylselenide. Dimethylselenide enters the atmosphere to be brought down with precipitation and airborne particulates. Here, we review Se in agroecosystems. We focus on the production, biological effects, and use of nanoselenium particles.



Environmental Chemistry Letters, Vol. 13, (1), pp 1-19

Impact Factor = 1.906



SELENIUM IN SOILS UNDER CLIMATE CHANGE, IMPLICATION FOR HUMAN HEALTH

Hassan El-Ramady, Neama Abdalla, Tarek Alshaal, Éva Domokos-Szabolcsy, Nevien Elhawat, Jószef Prokisch, Attila Sztrik, Miklós Fári, Samia El-Marsafawy and Mohamed S. Shams

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

Agricultural Botanics, Plant Physiology and Biotechnology Department, Debrecen University, Debrecen, Hungary

Nano Food Lab, Bio- and Environmental Energetics Institute, Debrecen University, Debrecen, Hungary

Genetic Engineering Division, Plant Biotechnology Department, National Research Center, Giza, Egypt.

Biological and Environmental Science Department, Faculty of Home Economics, Al-Azhar University, Tanta, Egypt.

> Soil, Water and Environment Research Institute (SWERI), Agricultural Research Center, Giza, Egypt.

⋈ ABSTRACT ⋈

Global climate changes can alter the suitable geographical range of different crops, leading to possible changes in cropping pattern and its extent in some regions. For example, temperature changes can interact very closely with changes in availability of water and soil nutrients, and crop growth cycle. The consequences of the biophysical impacts of climate changes will be influenced by the human responses to these impacts. There is a strong link between soils and human health, and these soils per se are controlled by climate changes. The human health is very close to both selenium (Se) element and climate changes. It is estimated that about 37-40 % of the total Se emissions to the atmosphere are due to the anthropogenic activities. Those anthropogenic activities, which are sources of Se, include coal and oil combustion, mining activities, the utilization of rock phosphates as a fertilizer and the application of sewage sludge to agricultural land. It was thought that selenium was a toxicant for a long time due to inadequate analytical data. In the recent past, Se has become very important in environmental biogeochemistry because of its influence on human health. Although Se is an essential nutrient for animals and humans, it is also toxic at high doses. Furthermore, the range between Se deficiency, lower than 40 µg day⁻¹, and toxicity, higher than 400 µg day⁻¹, is narrow. Selenium deficiency has been linked to several human diseases including multiple sclerosis, muscular dystrophy, heart disease, immune system, cancer and reproductive disorders. On the other hand, Se toxicity can lead to hair and nail loss and disruption of the nervous and digestive systems in animals and humans. Despite the obvious connections between Se element and human health under climate changes, there has not been a great amount of research done in this area. So, more and more studies should be carried out to enhance and protect human health. Therefore, this article reviews the biological and economic dimensions of the effects of Se element on human health under climate changes.



Pak. J. Bot, Vol. 46 (2), P, 673-677

Impact Factor = 1.207



INFLUENCES OF EXPLANT TYPE AND ENZYME INCUBATION ON ISOLATED PROTOPLAST DENSITY AND VIABILITY IN TWO GARLIC CULTIVARS

E.I. Metwally¹, M.E. El-Denary² and Y.H. Dewir¹

¹Horticulture Department, Faculty of Agriculture, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt

²Horticulture Research Institute, Giza, Egypt



The present study reports on optimizing protoplast isolation and fusion in two garlic cultivars 'Balady' and 'Seds 40'. Protoplast density and viability were investigated in four different explants (etiolated and green parts of the pseudostem and lower and upper parts of the leaves) under enzyme incubation for 1, 2, 3 and 4 h. Among different explants, used for protoplast isolation in Balady cultivar, the upper and lower parts of the leaves produced the highest number of total protoplasts (70 and 66 pps/0.1 ml) at 4 and 3 h enzyme incubation, respectively. However, the etiolated part of pseudostem produced the highest number of viable protoplast in which 52.5 pps/0.1 ml were obtained at 3 h enzyme incubation. For protoplast isolation in Seds 40 cultivar, the highest number of total protoplasts (125 and 107.5 pps/0.1 ml) as well as viable protoplasts (105 and 107.5 pps/0.1 ml) was obtained from the etiolated and the green parts of pseudostem, respectively. The cultivar 'Seds 40' yielded higher total and viable protoplasts than Balady cultivar. Isolated protoplasts of 'Seds 40' and 'Balady' were fused successfully at a protoplast density of 1×105 using either physical and/or electrical method. Optimization of the source of plant material as well as protoplast isolation conditions for garlic is a crucial step towards a successful protoplast fusion and subsequent colony formation.



Egyptian Journal of Biological Pest Control, Vol. 24(2), p363-368

Impact Factor = 0.408



LABORATORY EVALUATION OF SOME NON-TRADITIONAL AND CONVENTIONAL METHODS TO CONTROL THE PINK BOLLWORM PECTINOPHORNA GOSSYPIELLA

A. S. Derbalah¹; A.A. Khidr²; Hemat Z. Moustafa² and A. Taman²

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

²Plant Protection Research Institute, Agriculture Research Centre, Giza, Egypt



The pink bollworm (PBW), Pectinophora gossypiella (Saunders) (Lepidoptera: Gelechiidae) is one of the most important pests of cotton in the world. This study was carried out to evaluate the efficacy of some nontraditional methods (Zinc oxide and silica nanoparticles, as well as effective microorganisms bioformulation) beside spinosad and pyriproxyfen as conventional insecticides against the newly hatched larvae of the pink bollworm, Pectinophora gossypiella (Saunders) under the laboratory conditions. The effect of the tested treatments on some liver functions enzymes, carbohydrate hydrolyzing enzymes, total protein and total lipids of the 4th instar larvae of the pink bollworm was also investigated. Zinc oxide nanoparticles with the most effective treatment against the newly hatched larvae of the pink bollworm followed spinosad, effective microorganisms, pyriproxyfen, respectively. The tested materials significantly disrupt the liver functions enzymes, carbohydrates enzymes, total lipids and total protein. The results suggest the ability of using silica and zinc oxide nanoparticles as well as effective microorganisms for control Pectinophora gossypiella as a safe alternative to insecticides . however, saftey and field evaulation of these materials considerd a source of major concern.

Keyword: Cotton; insecticides; nanoparticles; alternatives; pink bollworm



Water Environment Research, Vol. 86, p,1-10

Impact Factor = 1.0



METAL ION REMOVAL FROM WASTEWATERS BY SORPTION ON ACTIVATED CARBON, CEMENT KILN DUST, AND SAWDUST

Sabry M. Shaheen¹, Fawzy I. Eissa², Khaled M. Ghanem², Hala M. Gamal El-Din³, Fathia S. Al Anany^{2, 3}

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

²Environment and Bio-agriculture Department, Faculty of Agriculture, Al-Azhar University, 11884, Cairo, Egypt

³Biological & Environmental Sciences Department, Faculty of Home Economic, Al-Azhar University, 31511, Tanta, Egypt

ABSTRACT &

This study aimed to assess the efficiency of activated carbon (AC), cement kiln dust (CKD) and sawdust (SD) for removal of cadmium (Cd), copper (Cu), lead (Pb) and zinc (Zn) from aqueous solutions under mono-metal and competitive sorption system and for removal of Cd, Cu, and Zn from different industrial wastewaters. Batch equilibrium experiments were conducted in a mono-metal and competitive sorption system. The efficiency of the sorbents in removal of Cd, Cu, and Zn from industrial wastewaters was also investigated. The CKD expressed the highest affinity for the metals followed by AC and SD. Competition among the metals changed their distribution coefficient (K_d) with the sorbents. Sorption of Pb and Cu was higher than Cd and Zn. The average metal removal from the wastewaters varied from 74, 61, and 60 to nearly 100 % for Cd, Cu, and Zn, respectively. The efficiencies of CKD and AC in removing metals were higher than SD, suggesting their potential as low-cost sorbents for removal of toxic metals from wastewaters.



Environmenta Pollution, Vol. 191, p, 223-231

Impact Factor = 3.902



TEMPORAL DYNAMICS OF PORE WATER CONCENTRATIONS OF CD, CO, CU, NI, AND ZN AND THEIR CONTROLLING FACTORS IN A CONTAMINATED FLOODPLAIN SOIL ASSESSED BY UNDISTURBED GROUNDWATER LYSIMETERS

Sabry M. Shaheen^a, Jörg Rinklebe^{b,*}, Holger Rupp^c, Ralph Meissner^c

^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

^c Helmholtz Centre for Environmental Research - UFZ, Department of Soil Physics, Lysimeter station Falkenberg, Dorfstr. 55, 39615 Falkenberg, Germany

⋈ ABSTRACT ⋈

We aimed to assess the dynamics of pore water concentrations of Cd, Co, Cu, Ni, Zn and their controlling factors (E_H , pH, DOC, Fe, Mn, and SO_4^{2-}) in a contaminated floodplain soil under different flood-dry-cycles. Two parallel undisturbed groundwater lysimeters (mean values presented) were used for long term (LT; 94 days) and short term (ST; 21 days) flood-dry-cycles. Reducing conditions under LT lead to low E_H and pH, while DOC, Co, Fe, Mn, and Ni increased. Cadmium, Cu, Zn, and SO_4^{2-} increased under oxidizing conditions during ST. Cobalt and Ni revealed a similar behavior which seem to governed by E_H /pH, Mn, Fe, and DOC. Cadmium, Cu, and Zn reveal a similar fate; their dynamics were affected by E_H /pH, DOC, and SO_4^{2-} . Our findings suggest that a release of Cd, Cu, Co, Fe, Mn, Ni, and Zn under different flood-dry-cycles can assumed what might create potential environmental risks in using metal-enriched floodplain soils.



Journal of Environmenta Management, Vol. 145, p, 249-267

Impact Factor = 3.188



OPPORTUNITIES AND CHALLENGES IN THE USE OF COAL FLY ASH FOR SOIL IMPROVEMENTS – A REVIEW

Sabry M. Shaheen^a, Peter S. Hooda^{b,*} and Christos D. Tsadilas^c

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

^b Centre for Earth and Environmental Science Research, Kingston University London, Kingston upon Thames KT1 2EE, UK

^cNational Agricultural Research Foundation, Institute of Soil Mapping and Classification, 1 Theophrastos street, 413 35 Larissa, Greece



Coal fly ash (CFA), a by-product of coal combustion has been regarded as a problematic solid waste, mainly due to its potentially toxic trace element, PTE (e.g. Cd, Cr, Ni, Pb) and organic compounds (e.g. PCBs, PAHs) contents. However, CFA is a useful source of essential plant nutrients (e.g. Ca, Mg, K, P, S, B, Fe, Cu and Zn). Uncontrolled land disposal of CFA is likely to cause undesirable changes in soil conditions, including contamination with PTEs, PAHs and PCBs. Prudent CFA land applications offer considerable opportunities for soil improvements, particularly marginal and degraded lands, specifically for nutrient supplementation, pH correction and ameliorating soil physical conditions (soil compaction, water retention and drainage), ultimately improving land biomass production. Since CFA contains little or no N and organic carbon and CFA-borne P is not readily plant available, a mixture of CFA and manure or sewage sludge (SS) is better suited than CFA alone. Additionally, land application of such a mixture can mitigate the mobility of SS-borne PTEs, which is known to increase following cessation of SS application. Research analysis further shows that application of alkaline CFA with or without other amendments can help remediate at least marginally metal contaminated soils by immobilisation of mobile metal forms.

Coal FA land application with SS or other source of organic carbon, N, and P can help effectively reclaim/restore mining-affected lands. It should be noted that CFA application to fertile soils should be avoided as it may not provide any noticeable benefits. Given the variability in the nature and composition of CFA (pH, major and micronutrients) and that of soil (pH, texture and fertility), the choice of CFA (acidic or alkaline and its application rate) needs to consider the properties and problems of the soil. Coal FA can also be used as a low cost sorbent for the removal of organic and inorganic contaminants from wastewater streams; the disposal of spent CFA however can pose further challenges.

Problems in CFA use as soil amendment occur when it results in undesirable change in soil pH, imbalance in nutrient supply, boron toxicity in plants, excess supply of sulphate and PTEs. These problems, however, are usually associated with excess or inappropriate CFA applications. The levels of PAHs and PCBs in CFA are generally low; their effects on soil biota, uptake by plants and soil persistence, however, need to be assessed. In spite of this, co-application of CFA with manure or SS to land enhances its effectiveness in soil improvements.



Geoderma, Vol. 228, p, 5-13

Impact Factor = 2.509



LYSIMETER TRIALS TO ASSESS THE IMPACT OF DIFFERENT FLOOD-DRY-CYCLES ON THE DYNAMICS OF PORE WATER CONCENTRATIONS OF AS, CR, MO AND V IN A CONTAMINATED FLOODPLAIN SOIL

Sabry M. Shaheen^a, Jörg Rinklebe^{b,*}, Holger Rupp^c, Ralph Meissner^c

^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

^c Helmholtz Centre for Environmental Research - UFZ, Department of Soil Physics, Lysimeter Station Falkenberg, Dorfstr. 55, 39615 Falkenberg, Germany



We hypothesize that the dynamics of water soluble arsenic (As), chromium (Cr), molybdenum (Mo) and vanadium (V) in soils might be controlled by the period of flooding due to changes of redox potential (E_H) , pH, and carriers of metals such as dissolved organic carbon (DOC), iron (Fe), manganese (Mn) and sulphate $(SO_4^{2^*})$. Therefore, we aimed to assess the impact of different flood-dry-cycles on the temporal dynamics of pore water concentrations of As, Cr, Mo and V as affected by changes of soil E_H /pH and dynamics of DOC, Fe, Mn and $SO_4^{2^*}$ in a contaminated floodplain soil collected at the Elbe River (Germany). For this purpose a specific groundwater lysimeter technique with two separate lysimeters which served as replicates was used. The groundwater level inside the lysimeters was controlled to simulate different flood-dry-cycles sequentially as follows: the long term (LT) includes 94 days of flooding followed by similar drying term. The short term (ST) comprises 21 days flooding followed by a similar drying term and was repeated six times. The entire experimental period (LT_ST) was about 450 days. The presented data are mean values of both lysimeters.

Flooding of the soil caused a significant decrease of E_H and pH. Concentrations of soluble As, Cr, Fe, Mn, Mo and DOC were higher under reducing conditions than under oxidizing conditions in LT. However, As and Cr tended to be mobilized under oxidizing conditions during ST, which might be due to slow kinetics of the redox reaction of As and Cr. Dynamics of Mo were more affected by changes of E_H /pH as compared to As, Cr and V and governed mainly by Fe-Mn chemistry. Concentrations of V in ST were higher than in LT and were controlled particularly by pH and chemistry of Fe. The interactions between the elements and carriers studied were stronger during long flood-dry-cycles than during short cycles, which confirmed our hypothesis. We conclude that the dynamics of As, Cr, Mo and V are determined by the length of time soils are exposed to flooding, because drivers of element mobility need a certain time to provoke reactions in soils under changing conditions.



Geoderma, Vol. 228, p, 142-159

Impact Factor = 2.509



GEOCHEMICAL FRACTIONS OF CHROMIUM, COPPER, AND ZINC AND THEIR VERTICAL DISTRIBUTION IN FLOODPLAIN SOIL PROFILES ALONG THE CENTRAL ELBE RIVER, GERMANY

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.



The determination of geochemical fractions of heavy metals (HM) in soils is a key issue when studying their mobility. Therefore, we have determined the geochemical fractions and the vertical distribution of chromium (Cr), copper (Cu), and zinc (Zn) in seven floodplain soil profiles in relation to flooding conditions and relevant soil properties. These soil profiles represent two different soil groups (Mollic Fluvisols and Eutric Gleysols) which differ significantly in flooding duration and soil properties. The metals were fractionated sequentially to seven fractions as follows: F1: soluble + exchangeable, F2: easily mobilizable, F3: bound to Mn oxides, F4: bound to soil organic matter (SOM) (might include sulphides), F5: bound to low crystalline (amorphous) Fe oxides, F6: bound by crystalline Fe oxides, and F7: residual fraction.

The total Cr, Cu, and Zn concentrations ranged from 54.4 to 134.1, 165.2 to 215.7, and 128.5 to 1097.8 mg kg⁻¹, respectively, and exceeded the precautionary values of the BBodSchV (1999). Total metal concentrations correlated significantly to soil organic carbon (SOC), total sulphur (S_t) , and cation exchange capacity (CEC), as well as crystalline and amorphous Feand Mn-oxides. The residual fraction was dominant for Cr. the organic bound for Cu. and crystalline Fe oxides for Zn. The potential mobile fraction (PMF= ΣFI -F6) ranged from 38.4 to 71.4, 63.9 to 85.1, and 51.5 to 83.3 % of the total Cr, Cu, and Zn, respectively. However, the mobile fraction (MF= $\sum F1$ -F2) ranged from 0.96 to 1.84, 2.1 to 4.1, and 9.1 to 28.7 % of the total concentrations of Cr, Cu, and Zn, respectively. The order of the PMF in the studied soil profiles was Cu > Zn > Cr, while the order of the MF was Zn > Cu > Cr. The PMF of the three metals was positively correlated with SOC and Mn oxides. The PMF was positively correlated with CEC (Cr, Zn), S_t (Cr), and Fe oxides (Zn). The PMF of Cu and Zn correlated negatively with clay. The MF of the three metals was correlated negatively with soil pH. The MF of Zn was correlated positively with clay, SOC, and S_r . The MF of Cr was correlated positively with clay, while it correlated negatively with SOC, S_t , CEC, and Fe-Mn oxides. The Fluvisols revealed higher total concentrations and potential motilities of Cr, Cu, and Zn compared to the Gleysols. However, the Gleysols had a higher metal mobility compared to Fluvisols due to their longer flooding duration. The solubility of Cr below the average water level in the studied profiles was higher than above the water level, while the solubility of Cu and Zn above the water level was higher than below the water level in both soil groups. The potential mobility of the studied metals (especially of Cu followed by Zn), and thus the transfer of these metals into the grassland and food chain, should be high, which might be harmful to the floodplain ecosystem.



Ecological Engineering, Vol. 74, p, 319-326

Impact Factor = 3.041



IMPACT OF EMERGING AND LOW COST ALTERNATIVE AMENDMENTS ON THE (IM)MOBILIZATION AND PHYTOAVAILABILITY OF CD AND PB IN A CONTAMINATED FLOODPLAIN 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.



Contamination of wetland ecosystems by cadmium (Cd) and lead (Pb) is a serious concern because of its high health risk via the food chain. Therefore, an ecological solution is required to effectively remediate contaminated floodplain soils by toxic metals. This study aimed to assess the effects of various emerging amendments (e.g., nano-hydroxyapatite, biochar, chitosan, and organo-clay) and several of low cost amendments (e.g., activated carbon, bentonite, cement kiln dust, fly ash, lime stone, sugar beet factory lime, and zeolite) on the (im)mobilization of Cd and Pb and their uptake by rapeseed (Brassica napus) in a contaminated floodplain soil. The amendments (except organo-clay) improved the plant growth and decreased soluble + exchangeable Cd (4-60%) compared to the control. Although the cement kiln dust, sugar beet factory lime, and lime stone showed the highest decreasing rate of soluble + exchangeable Cd, they increased the carbonate fraction and Cd in plants, which might be due to dissolving of carbonates and release of Cd in the rhizosphere. The zeolite, bentonite, activated carbon, biochar, and chitosan decreased Cd in plants (22-36%). The amendments (except organoclay and zeolite) decreased soluble + exchangeable Pb by 6-87% and decreased Pb in the plant by 35-99% compared to the control. The sugar beet factory lime, cement kiln dust, and lime stone showed the highest decreasing rate of soluble Pb and nano-hydroxyapatite showed the highest decreasing rate of Pb uptake which highlights the high potential of these amendments for *Pb immobilization in the soil and reduce Pb accumulation by plants.*



Soil Science Society of America Journal, Vol. 78(3), p,1065-1078

Impact Factor = 2.0



BIOGEOCHEMICAL FACTORS GOVERNING CO, NI, SE, AND V DYNAMICS IN PERIODICALLY FLOODED EGYPTIAN NORTH NILE DELTA RICE SOILS

Sabry M. Shaheen¹, Jörg Rinklebe², Tina Frohne², John R. White³ and Ron D. DeLaune³

¹University of Kafrelsheikh, Faculty of Agriculture, Department of Soil and Water Sciences, 33 516 Kafr El-Sheikh, Egypt

²University of Wuppertal, Department D, Soil- and Groundwater-Management, Pauluskirchstraße 7, 42285 Wuppertal, Germany

³Louisiana 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 mobility of water soluble cobalt (Co), nickel (Ni), selenium (Se), and vanadium (V) was determined in fluvial and lacustrine soils used for rice (Oryza sativa L.) production in the northern portion of the Egyptian Nile Delta. The impact of redox potential (E_H) , soil pH, dissolved organic carbon (DOC), dissolved aromatic carbon compounds (DAC), iron (Fe), manganese (Mn), and sulfate (SO_4^{2-}) on the dynamics of the studied metals was quantified in soil suspensions using an automated biogeochemical microcosm apparatus. The experiment was conducted stepwise from reducing (-307 mV) to oxidizing (+564 mV) soil conditions. We found a significantly positive correlation between soil E_H and pH in both soils. Concentrations of Co, Ni, Se, DOC, Fe, and Mn were higher under reducing conditions than under oxidizing conditions. This suggests that the changes of E_H/pH , Fe, Mn, and DOC might be linked to the dynamics of Co, Ni, and Se in both soils. The specific UV absorbance (SUVA) and concentrations of V were higher under oxidizing conditions than under reducing conditions especially in the fluvial soil. This result implies that release of aromatic carbon compounds might be related to release of V in this soil. Our findings suggest that a release of Co, Ni, Se, and V in temporally flooded rice soils should be considered due to increased mobility and the potential environmental risks including food security in using metal-enriched soils for flooded agricultural systems.



International Journal of Environmental Science and Technology, Vol. 10.1007/s13762-014-0713-x

Impact Factor = 1.794



IMPACT OF VARIOUS AMENDMENTS ON IMMOBILIZATION AND PHYTOAVAILABILITY OF NICKEL AND ZINC IN A CONTAMINATED FLOODPLAIN SOIL

S. M. Shaheen¹, J. Rinklebe, M. H. Selim

¹University of Kafrelsheikh, Faculty of Agriculture, Department of Soil and Water Sciences, 33 516 Kafr El-Sheikh, Egypt

ABSTRACT &

The immobilization of toxic metals in soils using amendments is a costeffective remediation technique for contaminated soils. Therefore, this study aimed to assess the efficiency of various amendments to immobilize nickel (Ni) and zinc (Zn) in soil and reduce their phytoavailability. A greenhouse pot experiment was established with a contaminated agricultural floodplain soil. The soil was treated with activated carbon (AC), bentonite (BE), biochar (BI), cement bypass kiln dust (CBD), chitosan (CH), coal fly ash (FA), lime stone (LS), nano-hydroxyapatite (HA), organo-clay (OC), sugar beet factory lime (SBFL), and zeolite (Z) with an application rate of 1 % (0.2 % for HA) and cultivated by rapeseed (Brassica napus). After plant harvesting, the soil was analysed for water soluble and geochemical fractions of Ni and Zn. Additionally, both metals were analysed in the above ground biomass. Application of the amendments increased significantly the biomass production of rapeseed compared to the control (except for OC, HA, and FA). Water soluble Ni and Zn decreased significantly after adding the amendments (except OC, Z, and CH). The SBFL, CBD, LS, BE, AC, and BI were most effective, resulting in a 58-99% and 56-96% decrease of water soluble Ni and Zn, respectively. The addition of SBFL, CBD, and LS leads to the highest decreasing rate of concentrations of Ni in plants (56 to 68%) and Zn (40 to 49 %). The results demonstrate the high potential of CBD, SBFL, LS, BE, AC, and BI for the immobilization of Ni and Zn in contaminated floodplain soils.



Water Air Soil Pollution, Vol. 225(8),p, 2039-2058

Impact Factor = 1.685



ASSESSING THE MOBILIZATION OF CADMIUM, LEAD, AND NICKEL BY A SEVEN STEP SEQUENTIAL EXTRACTION TECHNIQUE IN CONTAMINATED FLOODPLAIN SOIL PROFILES ALONG THE CENTRAL ELBE RIVER, GERMANY

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 mobilization of toxic metals (TMs) in soils strongly depends on their bounding in different geochemical fractions. However, the relations between soil properties and the vertical horizon-specific distribution of different geochemical fractions of cadmium (Cd), lead (Pb), and nickel (Ni) in various floodplain soil types is limited and have not been studied up to date. Therefore, seven soil profiles in three areas along the Elbe River, Germany, which represent the two soil groups Mollic Fluvisols and Eutric Gleysols were selected to determine geochemical fractions of Cd, Pb, and Ni. A sequential extraction procedure which fractionate metals into the seven fractions: F1: soluble + exchangeable, F2: easily mobilizable, F3: bound to Mn oxides, F4: bound to soil organic matter, F5: occluded into amorphous Fe oxides, F6: occluded into crystalline Fe oxides, and F7: residual fraction was used.

Concentrations of pseudo-total Cd, Ni, and Pb were exceeded the international trigger action values and governed mainly by soil organic carbon (SOC), cation exchange capacity, and Fe-Mn sesquioxides. The mobile fraction ($\Sigma F1$ -F2) was dominant for Cd, whereas Pb was mainly bounded in F4/F5, and Ni in F7/F6. Cadmium and Pb reveal a higher potential mobility ($\sum F1$ -F6) than Ni. The potential mobile fraction ranged from 90 to 97, 44 to 61, and \$\overline{83}\$ to 92 % of the (pseudo)total Cd, Ni, and Pb, respectively. The Glevsols showed a higher mobile fraction and potential mobile fraction than Fluvisols. The mobile fraction of the metals correlated positively with clay, SOC, and total sulfur (S_t) , and negatively with pH and Fe-Mn oxides. Our results indicate that the studied soils exhibit elevated concentrations of Cd, Ni, and Pb, as well as a high mobilization and potential mobilization of these metals. Our findings suggest that a release of these toxic metals in floodplain soils should be considered due to an increased mobilization and the potential environmental risks such as an uptake by plants and thus the transfer of these metals into the grassland and food chain, as well as transport via waters during periods of flooding.



Water Air Soil Pollution, Vol. 225, p, 2014-2025

Impact Factor = 1.685



STABILIZATION OF SEWAGE SLUDGE BY USING VARIOUS BY-PRODUCTS: EFFECTS ON SOIL PROPERTIES, BIOMASS PRODUCTION, AND BIOAVAILABILITY OF COPPER AND ZINC

S.M. Shaheen^a, M.S. Shams^a, S.M. Ibrahim^a, F.A. Elbehiry^a, V. Antoniadis^b, P.S. Hooda^c

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

^b Department of Agriculture, Crop Production and Rural Environment, University of Thessaly, Fytokou Street, Volos, 384 46, Greece

^c Centre for Earth and Environmental Science Research, Kingston University London, Kingston upon Thames KT1 2EE, UK

🛪 ABSTRACT 🧭

Stabilisation of sewage sludge (SS) prior to its land disposal may help control the mobility of SS-borne contaminants, particularly potentially toxic metals. We examined the effects of stabilized-SS application on soil properties, biomass production, and phytoavailability of Cu and Zn to plants grown in two contrasting soils, Entisol and Aridisol. Stabilized-SS mixtures were created by mixing SS in a 3-to-1 ratio with bentonite (B), sugar beet factory lime (SL), brick factory fly ash (BFA), rice straw (RS), water hyacinth (WH), and 50:50 mixture of RS and SL. Mixtures were applied at 50 Mg ha⁻¹ and Sorghum vulgare L. and Eurica sativa were grown in a pot experiment. All the amendments increased plant availability and uptake of both Cu and Zn compared to the unamended control. The application of stabilized-SS increased significantly dry plant biomass and decreased DTPA-extractable elements compared to the non-stabilized-SS treatment. We conclude that of the six amendments studied, especially sugar beet factory lime (SL) and bentonite (B) are promising for stabilization of metalcontaminated biosolids and should be tested under field conditions.



Journal of Plant Nutrition and Soil Science, Vol.178, p, 112-117

Impact Factor = 1.663, Published 2015



IMMOBILIZATION OF SOIL COPPER USING ORGANIC AND INORGANIC AMENDMENTS

Sabry M. Shaheen¹, Christos D. Tsadilas² and Jörg Rinklebe³

¹ Department of Soil & Water Sciences, Faculty of Agriculture, University of Kafrelsheikh 33 516- Kafr El-Sheikh, Egypt.

² National Agricultural Research Foundation, Institute of Soil Mapping and Classification, Theophrastos street, 413 35 Larissa, Greece.

³ Soil- and Groundwater-Management, Department D, University of Wuppertal, 42285 Wuppertal, Germany.

ABSTRACT &

This experiment aimed to immobilize copper (Cu) in polluted agricultural soils via the application of agrochemicals to reduce its bioavailability to plants. A greenhouse pot experiment was established using a Cu contaminated vineyard topsoil collected from a farm in Greece. The soil was mixed with inorganic [i.e., zeolite (Z), aluminium oxide (AX), manganese oxide (MX), and phosphate rock (PR)] as well as organic amendments [i.e., activated charcoal (AC), commercial peat soil material (CP), and compost from olive oil processing wastes (COW)] with an application rate of 2.5 % and cultivated by corn (zea maize). After plant harvesting, Cu was measured separately in the above ground biomass and roots, respectively, whereas the soil samples were analyzed for DTPA-extractable and geochemical fractions of Cu (soluble + exchangeable fraction, sorbed and carbonate fraction, Fe-Mn oxides fraction, and organic fraction). The immobilizing agents except MX reduced the soluble plus exchangeable Cu in the treated soil. The lowest concentrations of the soluble plus exchangeable Cu occurred in the soil amended with AC followed by CP, AX, COW, PR, and Z, respectively. The amendments decreased the uptake of Cu by corn. Concentrations of Cu were between 11 and 38 % lower in the above ground biomass and 19 and 48 % lower in the roots than the control. The organic amendments were more effective than the inorganic additives. The AC was the most effective organic additive and AX was the most effective inorganic amendment.



Journal of Food, Agriculture&Environment, Vol. 12(3-4), p,217-222

Impact Factor = AVG 5 YEAR 0.435



IMPACT OF NITROGEN FERTILISATION AND IRRIGATION ON WATER UTILIZATION EFFICIENCY, N ACCUMULATION, GROWTH AND YIELDS OF ZEA MAYS L.

Waleed Hassan Abou El-Hassan ¹, Emad Maher Hafez ², Alaa A. Ahmed Ghareib ¹, Mohamed Ragab Freeg ¹ and Mahmoud Fathy Seleiman ^{3, 4}*

¹ Water Management Research Institute, National Water Research Center, P. O. Box 13621/5, Delta Barrage, Qalubia, Egypt.

² Agronomy Department, Faculty of Agriculture, Kafr El-Sheikh University, P. O. BOX 33516, Kafr El-Sheikh, Egypt.

Department of Agricultural Sciences, P. O. Box 27, FIN-00014 University of Helsinki, Finland.
 4 Department of Crop Sciences, Faculty of Agriculture,
 Minufiya University, 32511 Shibin El-kom, Egypt.

⋈ ABSTRACT ⋈

Water and N are considered the most limiting factors for the growth and yield during the grain filling stage, particularly in the arid, semi-arid zones. The aim of the study was to investigate the effect of N applications (0, 140, 280 and 420 kg ha⁻¹) and water regimes ($I_1 = 100\%$, $I_2 = 80\%$ and $I_3 = 60\%$ of field capacity) on nitrogen use efficiency (NUE), water utilization efficiency (WU_tE) and related parameters and grain yield and its components of Zea mays L. (cv maize hybrid Giza 10). The highest N application resulted in a significant increase in grain yield and its components, accumulated N in grains and shoots. However, it significantly decreased apparent N fertiliser recovery (ANR) and N utilisation efficiency when all water regimes were applied. N application of 280 kg ha⁻¹ was the optimal in our study for such environmental conditions. Yield and its components were increased with increasing soil field capacity from 60 to 100%. There was a significant effect of the interaction between irrigation and N treatments on N efficiencies, growth and consequently on yields. The results showed that the yield of maize can be increased through the reasonable N application (i.e., declining the gap between the recommended N levels and the estimated levels) and suitable irrigation regime (I_2) . Also, the optimal management of N practices is highly recommended to avoid the loss of the N when there is a deficiency or excessiveness in water supplied to the soil.

Key words: field capacity, grain yield, maize, N accumulation, N application, NUE, WUtE



African Journal of Micribiological research, Vol. 8(32)p, 3052-3063

Impact Factor = AVG 5 YEAR 0.539



INCIDENCE OF KERNEL SMUT CAUSED BY TILLETIA BARCLAYANA IN EGYPTIAN RICE CULTIVARS

Mohamed Kamal El-kazzaz¹, Gabr Abd El-wanees NasrEl-Kot¹, Kamal Elsayed Ghoneim¹, Mohsen Mohamed Elsharkawy¹, Zeinab Abd Elnady Kalboush² and Mitsuro Hyakumachi^{3*}

¹ Department of Agriculture Botany, Faculty of Agriculture, Kafr El-Sheikh University, 33516, Kafr El-Sheikh, Egypt.

² Rice Research and training Center, Sakha, Kafr El-Sheikh, Egypt.

³ Laboratory of Plant pathology, Faculty of Applied Biological Sciences, Gifu University, 1-1 Yanagido, Gifu, Gifu 501-1193, Japan



The study was conducted to determine the effects of cultivars susceptibility to infection with the pathogen and the pathogenic isolates on the pathogenicity of rice kernel smut fungus (Tilletia barclayana). Rice (Oryza sativa L.) cultivars vary in susceptibility to kernel smut disease. The susceptibility of 18 commercial rice cultivars to T. barclayana was evaluated. Moreover, pathogenicity of 46 isolates of T. barclayana which had been isolated from six governorates in Egypt was studied using Giza 178 rice cultivar and Hybrid 1. The activities of certain oxidative enzymes, e.g. peroxidase (POX) and polyphenoloxidase (PPO) and total protein were determined in healthy and inoculated cultivars. Intron-exon splice junctions (ISJ) protocol was used to study the relationship among rice cultivars differing in their susceptibility to infection with the pathogen. Results showed that Giza 178 rice cultivar and Hybrid 1 were the most susceptible cultivars for rice kernel smut disease. Isolate no. 35 from the pathogenic fungus was the most aggressive isolate. Additionally, an increment in the defense-related enzymes and total protein was observed in rice cultivars as a result of inoculation with T. barclayana. ISJ technique showed the relationship between the studied rice cultivars and lines upon susceptibility to T. barclayana. It can also differentiate between the isolated T. barclayana isolates upon virulence on the studied rice cultivars and lines.



Egyptian Journal of Biological Pest Control, Vol. 23(2)269-276

Impact Factor = 0.408 Published, 2013



NEW APPROACHES TOWARD USING BIO-CONTROL AGENTS FOR CONTROLLING SOME SOIL-BORNE DISEASES OF FABA BEAN (VICIA FABA L.)

El-kot, G. A. N.

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

ABSTRACT &

New approaches of using prepared bio-control formulations of certain antagonistic fungal and bacterial bioagents were applied as seed treatment and some commercial products were evaluated under greenhouse conditions against some soil-borne pathogens causing faba bean damping-off and root rot diseases. The tested pathogenic fungi were Fusarium moniliforme and Rhizoctonia solani, meanwhile the tested bioagents were Bacillus subtilis (2 isolates), B. pumilus, Pseudomonas fluorescens, Epicoccum nigrum. The used commercial products were, Kanze, Matador, Chito-care, Agrodefender, bentocide and Rizolex T50%. A significant reduction in pre- and postemergence stages was observed among the used treatments compared to the control. The treated seeds showed a protective effect for seeds germination against the invasion of the tested pathogenic fungi. Obtained results revealed that the bio-control formulation of B. subtilis (isolate, 1) showed a significant superior effect in reducing disease incidence, followed by B. subtilis (isolate, 2). Also, bioformulation of P. flourescence and B. pumilus ranked second for reducing damping-off incidence. The treatment of E. nigrum bioformulation had the lowest effect in damping-off disease incidence. Similarly, there was a significant reduction in the studied plant parameters as a result of using the aforementioned commercial products, especially the Chito-Care and Agrodefender. On the other hand, polyphenoloxidase and peroxidase enzymes activity increased significantly in the treated faba bean roots compared to untreated plants. Plant growth vegetation parameters, i.e. plant height, seeds bud, total chlorophyll, root length and seed yield were significantly better in the treated plants than in the untreated ones.



African Journal of Biotechnology, Vol. 12(27), p,4324-4337

Impact Factor = AVG 5 YEAR 0.573 Published, 2013



PHYLOGENETIC AND CHARACTERIZATION OF SALT-TOLERANT RHIZOBIAL STRAIN NODULATING FABA BEAN PLANTS

Elsayed B. Belal^{1*}, Hassan, M. M.^{2,3} and El-Ramady, H. R.⁴

¹Agricultural Botany Department (Agricultural Microbiology), Faculty of Agriculture, Kafrelsheikh University, 33516, Kafr El-Sheikh, Egypt.

²Genetics Department, Faculty of Agriculture, Minufiya University, Shebin El-Kom, Egypt.
 ³Scientific Research Center, Biotechnology and Genetic Engineering Unit, Taif University, KSA.
 ⁴Soil Sciences Department, Faculty of Agriculture, Kafrelsheikh University, 33516, Kafr El-Sheikh, Egypt.

MARGE ABSTRACT &

Improvement of faba bean production in the new reclamation land in Egypt requires isolation and selection of effective abiotic stress tolerant rhizobial strains. Three rhizobial strains were isolated from healthy faba bean plants growing in different geographic areas in Egypt. These isolates were adapted against different concentrations of NaCl (100, 150 and 200 mM) by using the enrichment method. They were evaluated by measuring the symbiotic N2fixation parameters under greenhouse and field conditions during two seasons (2010/2011 and 2011/2012). One rhizobial strain exhibited the highest values of symbiotic N₂-parameters, nitrogenase activity and proline content. Based on 16S rDNA and nifH gene sequence, this strain was shown to belong to the Rhizobium leguminosarum by. viciae. A strong similarity was found between the 16S rDNA and nifH gene sequence of the strain E15 and R. leguminosarum bv. viciae 3841 (100% similarity for 16S rDNA and 95% similarity for nifH gene). The results show that the maximum growth of this strain was obtained at pH 7 and 30°C. This strain was tolerant to drought stress till 20% polyethylene glycol and it yielded the highest concentrations of indole-3-acetic acid (IAA) at the end of the logarithmic phase. This strain solubilized inorganic phosphorus. R. leguminosarum bv. viciae was able to survive, persist, grow and effectively nodulated faba bean plants at high salt concentrations under greenhouse and field conditions and it could be used for biofertilization to reduce the severe effects of salinity and drought stress in the new reclamation land in Egypt.



AMA AGRICULTURAL MECHANIZATION IN ASIA, AFRICA, AND LATIN AMERICA, Vol. 45 (4), p, 32-38

Impact Factor = 0.054



MANUFACTURE EVOLUTION OF A MICROBIAL CONTAMINATION DETECTION UNIT FOR PROCESSED TOMATOES INSIDE FOOD FACTORIES

Wael Mohamed Elmessery and Said Elshahat Abdallah

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

ABSTRACT &

Extremely needed of foodborne toxins in-situ monitoring, in the Egyptian food processing plants, is due to frequent food poisoning cases. The new method was developed in real time program. Near infrared data were acquired with fresh and spoiled tomato juices. The spectral data were studied using discriminant analysis. A test set of two groups of tomato juices (fresh and spoiled) were used for testing the developed model. Fresh and spoiled juices were classified with an accuracy of 75 and 80 %, respectively. Manufactured firmness tester was used to categorize the tomatoes in groups for this experiment before juice extraction.



AMA AGRICULTURAL MECHANIZATION IN ASIA, AFRICA, AND LATIN AMERICA, Vol. 45, (2), p, 19-25

Impact Factor = 0.054



PROCESSING NON-CONVENTIONAL FORAGES VIA BALING CROP RESIDUES

Said Elshahat Abdallah

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



Selection of balers for a particular application is largely a decision based on what is available and the types of balers currently used widely. Some very recent developments in baling technology are highlighted. An investigation of the possible use of pickup baler was carried out, in order to approach zerowaste from rice and wheat straw. This research is aimed at proposing and testing an alternative method for producing non-conventional forages via chopping and compressing crop residues. There is a huge nutritional gap between the number of animal heads and the available quantity of forages, in Egypt. Therefore, the essential aim of the current study was to develop a John Deere pickup baler for chopping and compressing rice and wheat straw for processing non-conventional forages. This study was conducted by using a developed John Deere pickup baler to investigate the influence of rice and wheat straw moisture contents of (36, 30, 24 and 16%wb) and (28, 25, 22 and 18%wb) respectively, baler forward speeds of (1.8, 2.3, 3.5 and 4.4km/h) and knives speeds of (18, 20, 23, and 26m/s) on the cut lengths, efficiency of straw bales, effective field capacity, energy requirements and unit cost. The results illustrated that increasing baler forward speed from 1.8 to 4.4km/h at knives speed of 26m/s and rice straw moisture content of 30%, wheat straw of 25%wb tends to decrease the cut lengths of rice straw from 63 to 32mm and from 60 to 28mm of wheat straw, increasing the effective field capacity from 0.61 to 1.14 and from 0.655 to 1.4fed/h respectively, decreasing energy requirements from 60.65 to 32.457 and from 56.92 to 26.42kWh/fed respectively and decreasing unit cost from 87.06 to 46.58 and from 81.7 to 37.93LE/ fed respectively. Furthermore rice straw moisture content of 36%wb and 28%wb wheat straw gave the highest values of chopping length, efficiency of straw bales, energy requirements and unit cost at forward speed of 1.8km/h and knives speed of 18m/s.



FACULTY OF

VETERINARY MEDICINE





Life Science Journal, Vol. 10, p3365-3369

Impact Factor = 0.165



ASSESSMENT OF AFLATOXIN M1 RESIDUES IN RAW COW MILK AT AL- RIYADH AREA WITH REFERENCE TO SOME DETOXIFICATION APPLICATIONS

Yosef, T.A.¹; Al-Julaifi, M.Z.²; Salah-El-Dein W.M.³ and AL-Rizqi, A.M.²

¹Dept. of Forensic Med. and Toxicology, Fac. of Vet. Med., Kafrelshiekh Univ., 33516, Egypt.

²Toxicology lab. Management of Vet. Laboratories, Min. of Agric, Riyadh, 11418, KSA. ³Animal Health Research Inst., Dept. of Food Hygiene, Zagazig Provincial Lab., 44516, Egypt.

ABSTRACT 🗷

This study was carried out to evaluate the levels of aflatoxin M1 (AFM1) in sixty raw cow milk samples collected from different farms at Al- Riyadh area, Saudi Arabia, besides reviewing the reduction effects of some detoxification methods on it. Results of the field study revealed that the mean concentration of AFM1 was 0.185 ± 0.0181 ppb. On the other hand, 43 (71.7%), out of 60 examined samples, contained AFM1 residues in levels exceeded the EU maximum limit for raw milk (0.05 μ g/l). Meanwhile 32 (53.3%), out of 60 samples, surpassed the Gulf maximum limit for raw milk (0.2 µg/l). For experimental study, negative milk samples for AFM1 were mixed and divided into 4 main groups which inoculated with 10, 5, 2.5 and 1.25 µg/l AFM1 standard respectively. Each group subdivided into 4 subgroups of 5 samples (100 ml each). The 1st subgroup let as control, the 2nd subgroup undergo pasteurization at 65°C for 30 minutes following by sudden cooling at 4°C, the 3rd subgroup treated by boiling at about 100°C for 10 minutes; while, the 4th one exposed to microwave radiation for 2 minutes in microwave oven at high energy level. The obtained results exhibited a significant reduction in AFM1 concentrations by all treatment methods comparing with the actual positive control levels. The reduction rate were ranked as follow: microwave radiation exposure (52.08%) > boiling treatment (23.93%) > pasteurization treatment (12.90%). Accordingly, microwave irradiation of AFM1 contaminated cow milk may be valuable to reduce its levels and subsequently minimize its hazardous on the public health.



Tropical Biomedicine, Vol. 31(2), p 378-380 (2014)

Impact Factor = 0.816



FIRST RECORD OF CHEWING LOUSE HETERODOXUS SPINIGER (INSECTA, PHTHIRAPTERA, BOOPIDAE) ON STRAY DOGS FROM NORTHERN REGION OF EGYPT

Sultan, K. and Khalafalla, R.E.

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

ABSTRACT 🗷

Heterodoxus spiniger is a rare chewing louse; infest dogs and occasionally cats with expanding geographical distribution. This preliminary report is aimed to record infestation of stray dogs in Kafr El-Sheikh city, Egypt by H. spiniger. Two dogs out of 10 were naturally infected with H. spiniger. This report is the first to demonstrate H. spiniger infestation on dogs in northern regions of Nile-delta of Egypt.

Theriogenology, Vol. 83, p 175-185

Impact Factor = 1.845 PUBLISHED 2015



DESALTED AND LYOPHILIZED BOVINE SEMINAL PLASMA DELAYS INDUCTION OF THE ACROSOME REACTION IN FROZEN-THAWED BOVINE SPERMATOZOA IN RESPONSE TO CALCIUM IONOPHORE

Essam Almadaly ^{a, b}, Youichirou Hoshino ^c, Takuya Ueta ^c, Koushi Mukoujima ^c, Mostafa Shukry ^d, Foad Farrag ^d, Ismail El-Kon ^b, Kazuo Kita ^c, Tetsuma Murase ^{a, *}

^a Laboratory of Theriogenology, Faculty of Applied Biological Sciences, Department of Veterinary Medicine, Gifu University, Gifu, Japan

^b Faculty of Veterinary Medicine, Department of Theriogenology, Kafrelsheikh University, Kafrelsheikh, Egypt

^c Hida Beef Cattle Research Department, Gifu Prefectural Livestock Research Institute, Takayama, Japan ^d Faculty of Veterinary Medicine, Kafrelsheikh University, Kafrelsheikh, Egypt

ABSTRACT

Cryopreservation is partially damaging and induces capacitation-like changes in sperma- tozoa. Seminal plasma (SP) contains a variety of biochemical components, such as protein and lipids, which are specific for the regulation of sperm cell function including those effective for decapacitation of spermatozoa. Therefore, this study tested the hypothesis that desalted and lyophilized SP could prevent premature capacitation (cryocapacitation) of Japanese Black bull spermatozoa. Seminal plasma was desalted by using Sephadex G-25 desalting column and lyophilized before added to semen extender at final concentrations 0, 2.5, 12.5, and 25 mg/mL. Frozen-thawed sperm progressive motility, acrosomal integrity, abnormal morphology, and the calcium ionophore A23187-induced acrosome reaction were assessed. Protein and lipid compositions in SP were analyzed by SDS-PAGE and thinlayer chromatography, respectively. The results revealed that progressive motility, intact acrosome, and abnormal morphology were not substantially modified by addition of SP. Stimulation of spermatozoa with calcium ionophore A23187 resulted in a time-dependent induction of the acrosome reaction, which was delayed by the desalted and lyophilized SP. There was no difference in the protein profile of SP before and after gel filtration. In total,19 protein bands with molecular masses ranging from 5.2 to 185.8 kDa were detected and those of 185.8, 80, 34, 20.8, 18.8, 17.5, and 10 kDa were considered as novel proteins. Neutral lipids and phospholipids before and after gel filtration were the same, and the detected neutral lipid spots were monoacylglycerol, cholesterol, 1,2- and 1,3-disaturated diacylglycerol, 1,2- and 1,3-saturated, unsaturated diacylglycerol, whereas the detected phospholipid spots were sphingomyelin, phosphatidylcholine, phosphatidylserine, and three species of phosphatidylinositol, phosphatidylethanolamine, cerebroside, and polyglycerol phosphatide. The results suggest that premature capacitation during freeze-thaw processes could be reduced by adding desalted and lyophilized SP.



Epidemiology and Infection, Page 1 of 8. © Cambridge University Press 2014

Impact Factor = 2.491



CAMPYLOBACTER INFECTIONS IN CHILDREN EXPOSED TO INFECTED BACKYARD POULTRY IN EGYPT

W. F. EL-TRAS¹, H. R. HOLT², A.A.TAYEL^{3,4} AND N.N. EL-KADY⁵

- ¹ Department of Hygiene and Preventive Medicine (Zoonoses), Faculty of Veterinary Medicine, Kafrelsheikh University, Egypt
 - ² Department of Production and Population Health, Royal Veterinary College, London, UK
 - ³ Genetic Engineering and Biotechnology Research Institute, Menufya University, Egypt
 - ⁴ College of Agricultural and Veterinary Medicine, Qassim University, KSA
 - ⁵ Childhood and Motherhood Care Unit, Gharbia Health Management, Ministry of Health and Population, Egypt

ABSTRACT 🗷

Campylobacteriosis is a zoonotic disease which has a worldwide public health impact. The disease is endemic in Egypt; however, the epidemiology in animals and humans has not been fully characterized. The objective of this study was to compare the risk of Campylobacter faecal carriage in children exposed to Campylobacter-infected vs. non-infected backyard poultry and to identify risk factors for a backyard being classified as infected. A total of 103 households which owned backyard poultry were sampled from a rural community in Egypt. Within these households 379 poultry and 106 children were tested for C. jejuni and C. coli; 23.5% and 5.5% of poultry were positive for C. jejuni and C. coli, respectively. In the studied households; 12.3% of children were positive for C. jejuni, and 2.8% were positive for C. coli. Using logistic regression, households with poultry positive for C. jejuni had 3.86 (95% confidence interval 1·0–15·0) times the odds of having children positive for C. jejuni compared to those housed with poultry which all tested negative. Backyard poultry may present a transmission route of C. jejuni to children. Backyards with poor cleaning and disinfection, wet litter and manure disposed of within the backyard had increased odds of being positive for C. jejuni. Enhancing biosecurity and management in poultry backyards may reduce the risk of the disease.



Rev Argent Microbiol. 2013;45(4):1-6

Impact Factor = 0.663 Published 2013



PRODUCTION OF ANTICANDIDAL COTTON TEXTILES TREATED WITH OAK GALL EXTRACT

Ahmed A. Tayel^{a,e,*}, Wael F. El-Tras^b, Omnia A. Abdel-Monem^c, Sabha M. El-Sabbagh^d,

Abdullah S. Alsohim^e, Elham M. El-Refai^c EL-KADY⁵

^a Genetic Engineering and Biotechnology Research Institute, El- Sadat City, Egypt

^b Department of Hygiene and Preventive Medicine (Zoonoses), Faculty of Veterinary Medicine, Kafrelsheikh University, Kafrelsheikh, Egypt

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

^d Department of Botany, Faculty of Science, Minoufya University, Egypt

^e Faculty of Agriculture and Veterinary medicine, Qassim University, Saudi Arabia



Candida albicans, one of the most dreadful fungal pathogens threatening humans, could not be easily prevented. The anticandidal activity of oak gall extract, Quercus infectoria (QIE), was investigated as a potential natural alternative to synthetic and chemical fungicides. QIE anticandidal potentiality was confirmed using both qualitative and quantitative assays. Cotton textiles were treated with QIE and then evaluated as anticandidal fabrics. QIE-treated textiles had a potent anticandidal activity, which could completely inhibit the inoculated C. albicans cells. The durability of anticandidal activity in QIE-treated textiles almost completely disappeared after the fourth laundering cycle. QIE could be recommended, however, as a potent anticandidal agent for preparing antiseptic solutions and emulsions and as a finishing agent for manufacturing anticandidal disposable diapers and hygienic clothes.



Journal of Food, Agriculture&Environment Vol.12 (2):24-29.2014

Impact Factor = AVG. 5 YEAR 0.435



CONTROL OF EGG CONTAMINATION WITH ENTERIC SALMONELLA USING PLANT EXTRACTS

Ahmed A. Tayel ^{1, 2*}, Ahmed A. Al-Hassan ², Wael F. El-Tras ³ and Shaaban H. Moussa ^{1, 4}

¹ Genetic Engineering and Biotechnology Research Institute, University of Sadat City, El-Sadat City, P. O. Box: 79/32897, Egypt

² Department of Food Science & Human Nutrition, College of Agriculture & Veterinary Medicine, Qassim University, P. O. Box 6622, Buraydah 51452, Saudi Arabia

³ Department of Hygiene and Preventive Medicine (Zoonoses), Faculty of Veterinary Medicine, Kafrelsheikh University, Kafrelsheikh, Egypt

⁴ Promising Research Center in Biological Control and Agricultural Information, Qassim Univ., Saudi Arabia



Human illness caused by infection with enteric Salmonella dramatically increased worldwide and continued to be a disastrous public health concern. Salmonella enterica serovar Typhimurium (S. Typhimurium) and serovar Enteritidis (S. Enteritidis) are the primary and predominant causes of foodborne salmonellosis, that routinely contaminate eggs, in the laying farms. The antimicrobial activity of eight plant extracts against S. Typhimurium and S. Enteritidis was in vitro determined using both quantitative and qualitative assays, as natural and powerful alternatives to synthetic and chemical biocides. The most effective plant extracts, i.e. oak galls (Quercus infectoria), pomegranate peels (Punica granatum) and senna leaves (Senna alexandrina), were applied as immersion solutions and aerosols for disinfecting the experimentally contaminated eggs and sanitizing aerosolization room. Each of the examined extracts could efficiently inhibit Salmonella growth. The combination between the minimal inhibitory concentrations (MIC) from the three extracts increased their antibacterial potentiality and resulted in a complete inhibition of contaminating S. Enterica growth. The application of plant extracts, however, could be recommended as eco-friendly, safe and powerful alternatives to the frequently applied chemical sanitizers and disinfectants against the invasion of enteric Salmonella in egg farms.



Veterinary Pathology, Vol. 51(3) p, 581-590

Impact Factor = 2.083



SUSCEPTIBILITY OF BALB/C-NU/NU MICE AND BALB/C MICE TO EQUINE HERPESVIRUS 9 INFECTION

El-Nahass E, El-Dakhly KM, El-Habashi N, Anwar SI, Sakai H, Hirata A, Okada A, Abo-Sakaya R, Fukushi H, Yanai T.

ABSTRACT 🗷

This study aimed to clarify the timing and infectivity of equine herpesvirus 9 (EHV-9) infection in BALB/c-nu/nu mice and their immunocompetent counterpart (BALB/c). Following inoculation with 10(5) PFU of EHV-9, specimens from 8 mice per group were collected at different times postinoculation (PI) and assessed using histopathology, immunohistochemistry for viral antigen, and quantitative real-time polymerase chain reaction for ORF30 gene expression. In BALB/c-nu/nu mice, EHV-9 antigen was abundant in olfactory epithelia of all inoculated animals, and in the olfactory bulb of 1 animal. In contrast, only 1 BALB/c mouse per time point had rhinitis, with mild to moderate immunopositivity starting from 12 to 48 h PI, followed by a gradual virus clearance at 72 h PI. Statistically, significant differences were noted in the immunohistochemistry reactions between the 2 mouse strains, indicating that BALB/c-nu/nu is more susceptible to infection. Relative expression levels of ORF30 gene in olfactory epithelia were significantly different between the 2 groups, with the exception of 12 h PI, when BALB/c-nu/nu animals showed dramatic increases in ORF30 gene expression level until 48 h PI, followed by a decline in expression level until the end of experiment. In contrast, the expression level in brains showed no differences between mouse strain except at 96 h PI. In both strains, the highest messenger RNA expression was detected at 48 h PI, followed by a decline in BALB/c mice, proving a rapid clearance of virus in BALB/c and a gradual slowing down of the increased expression levels in BALB/cnu/nu.



J. Comp. Path., Vol.151, p 400-409

Impact Factor = 1.1



PATHOLOGICAL FINDINGS OF EQUINE HERPESVIRUS 9 (EHV-9)-INDUCED ABORTION IN RATS

N. El-Habashi*, E. El-Nahass*, M. Haridy*, M. Nayel*, A. A. Abdelaziz*, H. Fukushi*, K. Kuroda*, H. Sakai*, and T. Yanai*

*Department of Veterinary Pathology, Faculty of Veterinary Medicine, Kafr El-Sheikh University, Kafr El-Sheikh, Egypt, *Departments of Veterinary Pathology, Faculty of Veterinary Medicine, Beni-Suef University, Egypt, *Department of Pathogenetic Veterinary Sciences, United Graduate School of Veterinary Sciences, Gifu University, 1-1 Yanagido, Gifu 501-1193, Japan, †Department of Pathology and Clinical Pathology, Faculty of Veterinary Medicine, South Valley University, Qena 83523, Egypt, *Department of Animal Medicine and Infectious Diseases, Faculty of Veterinary Medicine, Menofiya University, Sadat City, Egypt and †Department of Poultry and Rabbit Medicine, Faculty of Veterinary Medicine, Suez Canal University, Egypt

MABSTRACT &

Pregnant rat dams were experimentally infected with EHV-9, a new neurotropic equine herpesvirus serologically close to EHV-1, at the first and third trimesters. The inoculated dams had mild to severe neurological signs, and gave birth to dead or undersized fetuses. Both rats inoculated at the first and last trimesters had varying degrees of encephalitis as well as abnormality of the placentas in the form of marked maternal blood sinusoids dilatation, varied degrees of atrophy and necrosis of the trophoblastic cells of the labyrinth, the spongiotrophoblasts and giant-cells layers. The virus antigen was detected by immunohistochemistry in the brain and the trophoblastic cells of labyrinth, the spongiotrophoblasts and giant-cells layers of the placenta in rats inoculated in the first trimester. Virus antigen was detected in feti obtained from rats inoculated in the first and last trimesters. Virus DNA was successfully amplified by PCR in the placenta and feti of inoculated rats. EHV-9 may induce a serious impact including fetal death and abortion in the pregnant dams possibly caused by direct EHV-9 infection to the placenta and/or fetus as well as secondary effect of vascular injury.



Pakistan Veterinary Journal, Vol. 33(4), p 529-531

Impact Factor = 1.392 Published 2013



TOXOPLASMOSIS IN THE EASTERN GREY KANGAROO, MACROPUS GIGANTEUS AND THE CAPE HYRAX, PROCAVIS CAPENSIS IN JAPAN

Khaled Mohamed El-Dakhly^{1,4}, Nagwan El-Habashi², El-Shaymaa El-Nahass^{3,4}, Hiroki Sakai⁴ and Tokuma Yanai^{4,*}

¹Department of Veterinary Parasitology, Faculty of Veterinary Medicine, Beni-Suef University, Beni-Suef 62511, Egypt; ²Department of Veterinary Pathology, Faculty of Veterinary Medicine, Kafr-El-Sheikh University, Egypt; ³Department of Veterinary Pathology, Faculty of Veterinary Medicine, Beni-Suef University, Beni-Suef 62511, Egypt; ⁴Laboratory of Veterinary Pathology, Faculty of Applied Biological Sciences, Gifu University, 1-1 Yanagido, Gifu 501-1193 Japan

ABSTRACT

Toxoplasmosis was investigated in an eastern grey kangaroo, Macropus giganteus, and four cape hyraxes, Procavia capensis, in a Japanese zoo. Clinically, the kangaroo showed neurological signs, emaciation, diarrhea, elevated AST and CK, and subjected to coma before death. One young cape hyrax had severe anorexia, while the other three died without exhibiting clinical signs. Grossly, lungs of the kangaroo were dark red in color, while hyraxes, besides, showed hepatic multifocal white foci, and intestinal multifocal hemorrhages. Histologically, the kangaroo had frequent Toxoplasma gondii pseudocysts in brain, heart and skeletal muscles. All hyraxes had multifocal necrosis with cysts containing numerous bradyzoites in liver and spleen, along with necrotic gastroenteritis and intestinal hemorrhages. Immunohistochemically, cysts showed positive reaction to anti-T. gondii antibodies. These findings indicate possible outbreaks of toxoplasmosis in eastern grey kangaroos and cape hyraxes, zoo habitants; therefore, they could be susceptible intermediate hosts for T. gondii in terms of zoonosis. This is the first report of toxoplasmosis in eastern grey kangaroos and cape hyraxes in Japanese zoos.



Pakistan Veterinary Journal, vol34 (3), p 337-340

Impact Factor = 1.392



PROTECTIVE EFFECT OF S-METHYL CYSTEINE AGAINST TILMICOSIN-INDUCED CARDIOTOXICITY IN RATS

Mohamed Fahmy Abou Elazab¹, Ghada M. Gomaa² and Walied Abdo³

¹Department of Clinical Pathology; ²Department of Forensic Medicine and Toxicology; ³Department of Pathology, Faculty of Veterinary Medicine, Kafrelsheikh University, 33516, Kafr Elsheikh, Egypt

ABSTRACT &

The present study was carried out to investigate whether S-methyl cysteine (SMC) would ameliorate the acute cardiotoxic effect of tilmicosin antibiotic in treated Wister rats. Thirty-two male rats were equally divided into four groups: control, SMC (100 mg/kg orally for five consecutive days), tilmicosin (a single dose, 75mg/kg BW, S/C on the sixth day) and SMC+Tilmicosin (pretreated with SMC and coinjected with 75 mg/kg of tilmicosin at the sixth day). The biochemical resultsdemonstrated marked increase in serum aspartate transaminase (AST), lactate dehydrogenase (LDH), creatine kinase (CK) activities and cardiac troponin T (cTnT) concentrations in tilmicosin-treated rats indicating severe cardiotoxicity. On the other hand, pretreatment of rats with SMC revealed marked decrease in cardiac biochemical parameters toward the normal limits. Histopathological findings of the heart sections revealed multifocal myocarditis in tilmicosin-treated rats *meanwhile*,(SMC+Tilmicosin) treated group showed slight vacuolation of myocardial fiber. Furthermore, the ultrastructure findings revealed myolysis and necrosis in tilmicosintreated rats compared with intact *myocardial fiber in (SMC+Tilmicosin) group.*



Bioresource Technology, Vol.159,p. 80-87

Impact Factor = 5.039



ENHANCEMENT OF METHANE PRODUCTION FROM CO-DIGESTION OF CHICKEN MANURE WITH AGRICULTURAL WASTES

Fatma Abouelenien ^a, Yuzaburo Namba ^b, Maria R. Kosseva ^c,

Naomichi Nishio ^b, Yutaka Nakashimada ^b

^a Department of Hygiene and Preventive medicine, Faculty of Vet Med, Kafer Elshikh University, Egypt

 Department of Molecular Biotechnology, Graduate School of Advanced Sciences of Matter, Hiroshima University, Kagamiyama 1-3-1, Higashi-Hiroshima 739-8530, Japan
 c Department of Chemical & Environmental Engineering, The University of Nottingham Ningbo Campus, 199 Taikang East Road, Ningbo 315100, China

⋈ ABSTRACT ⋈

The potential for methane production from semi-solid chicken manure (CM) and mixture of agricultural wastes (AWS) in a co-digestion process has been experimentally evaluated at thermophilic and mesophilic temperatures. To the best of author's knowledge, it is the first time that CM is co-digested with mixture of AWS consisting of coconut waste, cassava waste, and coffee grounds. Two types of anaerobic digestion processes (AD process) were used, process 1 (P1) using fresh CM (FCM) and process 2 (P2) using treated CM (TCM), ammonia stripped CM, were conducted. Methane production in P1 was increased by 93% and 50% compared to control (no AWS added) with maximum methane production of 502 and 506 mL g_1 VS obtained at 55 _C and 35 _C, respectively. Additionally, 42% increase in methane production was observed with maximum volume of 695 mL g_1 VS comparing P2 test with P2 control under 55 _C. Ammonia accumulation was reduced by 39% and 32% in P1 and P2 tests.



Journal of American Science 2013;9 (10)

Impact Factor = 1.099



REGULATION OF GLUCOSE LEVEL DURING LATE PREGNANCY AND ONSET OF LACTATION IN EGYPTIAN FEMALE BALADI GOATS

Shawky Mahmoud^a, , Mohamed Azab^b

^aDep. of Physiology, Fac. Vet. Med., Kafrelsheikh Univ., Egypt

^bDep. of Physiology, Fac. Vet. Med., Benha Univ., Egypt



The present study aimed to evaluate the hormonal regulation of blood glucose level during late pregnancy and onset of lactation in Egyptian female Baladi does. Seven healthy female Baladi goats were used to study glucose levels and its hormonal regulation during late pregnancy and early lactation. Blood Samples were collected at late pregnancy (6, 5, 4, 3, 2, 1, weeks, and one day before parturition); day of parturition and early lactation (1,2,3) and (1

A significant increase was noticed at 2 weeks, 1 week and one day before parturition. Insulin concentrations decreased markedly on the day of parturition, then increased (P < 0.05) during the postpartum period. Plasma glucose concentrations remained low during late pregnancy then increased at one day before parturition, on the day of parturition and remained elevated during postpartum period. It could be concluded that late pregnancy and early lactation in does were accompanied by significant changes in plasma cortisol, insulin and glucose concentrations. Glucose levels during late pregnancy and early lactation are highly correlated with cortisol and less correlated with insulin. The results obtained point out justification of administration of cortisol. This will help in treatment of pregnancy toxaemia in does and ensure good health during the very demanding physiological states of late pregnancy and early lactation.



American Journal Of Veterinary Research, Vol. 76, p149-154

Impact Factor = 1.214 Published 2015



INTRAOCULAR PRESSURE IN CLINICALLY NORMAL DROMEDARY CAMELS (CAMELUS DROMEDARIUS)

Mohamed A. Marzok, Sabry A. El-khodery²

Department of Veterinary Surgery, Faculty of Veterinary Medicine, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt (Marzok); and the Department of Internal Medicine and Infectious Diseases, Faculty of Veterinary Medicine, Mansoura University, Mansoura 35516, Egypt (El-khodery

MARSTRACT &

dromedary camels (Camelus dromedaries), also known as Arabian camels, are single-humped camels that are an important livestock species for people in harsh and difficult environments.1 Camels are maintained for the production of meat, milk, leather, and wool and are also used as pack animals and for sport, transport, riding, and tourism purposes. 2 Despite the dromedary camel's popularity, information regarding various ophthalmologic conditions in this species, including reference limits for various ophthalmic variables and diagnostic tests for ocular diseases, is limited.3–5 Measurement of IOP, or tonometry, is an important part of the routine ophthalmic examination in animals,6 and knowledge of IOP values in clinically normal animals is important for the diagnosis and monitoring of ocular disorders such as focal or diffuse corneal edema, red or painful eyes, orbital trauma, lens luxation, glaucoma, and uveitis.6–9 Indentation, applanation, and rebound tonometry have traditionally been used to measure IOP indirectly in veterinary ophthalmology.10,11 In recent years, measurement of IOP in animals has evolved tremendously with the development of portable handheld digital tonometers.8

Applanation tonometry has been used to measure IOP in numerous clinically normal domestic and nondomestic animals, including dogs, 12–14 cats, 15, 16 horses, 17 ponies, 18 dairy cattle, 19 sheep, 20 goats, 21, 22 llamas, 23, 24 alpacas, 23, 24 rabbits, 25, 26 rats, 27 ferrets, 28, 29 chinchillas, 30 capybaras, 31 hedgehogs, 32 beavers, 33 Nubian ibex (Capra nubiana), 7 Grant zebras (Equus quagga boehmi), 7 oryxes, 34 Arabian oryxes (Oryx leucoryx), 7 Thomson gazelles (Eudorcas thomsonii), 35 elands, 36 fallow deer, 36 addax antelope, 34 impalas, 34 wildebeests, 34 rhinoceroses, 34 capuchin monkeys, 37 koalas, 38 and lions. 39 However, to our knowledge, the IOP for clinically normal dromedary camels has not been reported. The purpose of the study reported here was to use applanation tonometry to determine the IOP in clinically normal dromedary camels.



Veterinary Ophthalmology, Vol. 17, p 149-153

Impact Factor = 1.087



EFFECT OF INTRAVENOUS ADMINISTRATION OF ROMIFIDINE ON INTRAOCULAR PRESSURE IN CLINICALLY NORMAL HORSES

Mohamed A. Marzok, Sabry A. El-khodery and Aiman H. Oheida

Department of Veterinary Surgery, Faculty of Veterinary Medicine, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt; †Department of Internal Medicine and Infectious Diseases, Faculty of Veterinary Medicine, Mansoura University, Mansoura 35516, Egypt; and †Department of Anatomy, Histology and Embryology, Faculty of Veterinary Medicine, University of Tripoli, Tripoli 13662, Libya

ABSTRACT &

Objective To evaluate the effect of intravenous administration of romifidine on the intraocular pressure (IOP) in horses. Animals studied Twenty-four horses with no ocular abnormalities. Procedure Horses were randomly assigned into two equal groups (treatment and control). All horses in the treatment group received an intravenous (IV) injection of romifidine (40 lg/kg). The horses in the control group were administrated an intravenous injection of 0.9% saline (0.4 mL/100 kg). In both groups, the IOP values were measured immediately (T0) pre-administration and at 5 (T5), 15 (T15), 30 (T30), 45 (T45), 60 (T60), 90 (T90), and 120 (T120) min after drug administration. Results The pre-treatment values (T0) of IOP for right and left eyes were 24.25+3.5 and 25.16 + 3.4 mmHg, respectively. A significant decrease in IOP values was observed in both right and left eyes of the horses in treatment group at T5, T15, T30, T45, T60, and T90 in comparison with the baseline values (P < 0.05). The lowest level of IOP in romifidine-treated groups was recorded at T45 for the right and left eyes (10.25 \pm 2.3 and 11.25 ± 3.5 mmHg, respectively). Conclusion Romifidine significantly decreased IOP in clinically normal horses and may be used safely for surgery or diagnostic ocular procedures in horses when specific control of IOP is required.



Veterinary Anaesthesia And Analgesia, Vol. 42(2):p215-219

Impact Factor = 1.776



COMPARATIVE ANALGESIC AND SEDATIVE EFFECTS OF TRAMADOL, TRAMADOL-LIDOCAINE AND LIDOCAINE FOR CAUDAL EPIDURAL ANALGESIA IN DONKEYS (EQUUS ASINUS)

Mohamed A Marzok* & Sabry A El-khodery*

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

[†]Department of Internal Medicine and Infectious Diseases, Faculty of Veterinary Medicine, Mansoura University, Mansoura, Egypt

⋈ ABSTRACT ⋈

Objective To compare anti-nociceptive and sedative effects of tramadol, a combination of tramadollidocaine, and lidocaine alone for perineal analgesia in donkeys. Study design Experimental 'blinded' randomized cross-over study. Animals Six healthy adult donkeys. Methods Treatments were tramadol (TR) (1.0 mg kg_1), tramadol-lidocaine (TRLD) (0.5 and 0.2 mg kg_1 respectively) and lidocaine (LD) (0.4 mg kg_1) given into the epidural space. The volume of all treatments was 0.02 mL kg_1. Nociception was tested at the perineal region by pin prick, followed, if no reaction, by pressure from a haemostat clamp. Times to onset, degree and duration of antinociception of the perineal region were recorded. Response was tested immediately after drug administration and at: 2, 5, 10, 15, 30, 45, and 60 minutes post-administration and then at 30 minute intervals thereafter until a response reoccurred. Physiologic data and degree of sedation and ataxia were recorded preadministration and at intervals for 240 minutes post-administration. Results were analyzed using ANOVA, Kruskal-Wallis tests, and Wilks' Lambda test as relevant. Significance was taken as p < 0.05. Results Times (minutes, mean SD) to onset and duration of anti-nociception, respectively were; TR 13 _ 1.6 and 220 ± 4.6; TRLD 6 \pm 0.8 and 180 \pm 8.5; LD 4 \pm 1.4 and 75 \pm 4. Onset and duration times were significantly longer with TR than the other two treatments. TR never produced complete anti-nociception, whereas the TRLD and LD induced complete antinociceptive effects. Duration was significantly longer with TRLD than with LD alone. Epidural injections of TR and TRLD induced mild sedation. Conclusions and clinical relevance Epidural combination of TRLD produced an anti-nociceptive effect in the perineum, which was rapid in onset and had a longer duration of action than LD alone. An epidural single dose of TRLD combination would appear to provide an acceptable analgesic effect in the perineal region of donkeys.



Turkish Journal of Fisheries and Aquatic Sciences, Vol. 14, p413-419

Impact Factor = 0.384



ASSESSMENT OF PROLIFERATIVE ACTIVITY BY PROLIFERATIVE CELL NUCLEAR ANTIGEN (PCNA) AND ANTI-BROMODEOXYURIDINE (BRDU) IMMUNOLABELING IN THE TISSUES OF JAPANESE EELS (ANGUILLA JAPONICA)

Walied Abdo^{1,2}, Sawsan Ghattas³, Hiroki Sakai¹, Akihiro Hirata¹, Tokuma Yanai¹,

¹ Gifu University, Faculty of Applied Biological Science, Department of Veterinary Pathology, 1-1 Yanagido, Gifu 501-1193 Japan.

² Kafrelsheikh University, Faculty of Veterinary Medicine, Department of Veterinary Pathology, El-Gaish Street, 33516, Kafr El-Sheikh, Egypt

³ Kafrelsheikh University, Faculty of Veterinary Medicine, Department of Veterinary Histology and Cytology, 33516, Kafr El- Sheikh, Egypt

⋈ ABSTRACT ⋈

Five Japanese eels (Anguilla japonica) were examined by immunolabeling with proliferating cell nuclear antigen (PCNA) and bromodeoxyuridine (BrdU) incorporation for assessment of proliferative activities in various tissues of Japanese eels. PCNA protein was expressed in all tissues of eels, mainly in the haematopoietic tissues, especially in the anterior kidneys, an indication for the role of PCNA in haematopoiesis. Also, positive PCNA immunolabeling was frequently seen in the spleen. PCNA labeling index in kidney and spleen of Japanese eels was correlated well with BrdU incorporation which could be indicating higher proliferative activity of these organs. Absence of correlation between PCNA and BrdU in the testes may might refer to the expression of PCNA in germ and other somatic cells, while BrdU immunostaining was only noticed in phase dividing spermatogenic cells. Therefore, our results demonstrated over expression of PCNA in haematopoietic tissues and testes suggest the role of PCNA in haematopoiesis and spermatogenesis in Japanese eels. Moreover, PCNA and BrdU labeling indices could be a valuable approach for analyzing cell proliferation activity in the kidney and spleen of eel tissues.



Int. J. Morphol, Vol.32(3)p 966-977

Impact Factor = 0.2



PINEAL GLAND PLAYS A ROLE IN GONADAL DEVELOPMENT AFTER EYELIDS SEPARATION IN PUPPIES

Khalil Abou-Easa; Mohammed Abu El-Magd; Ehab Tousson; Amin Hassanin; Mustafa Shukry; & Mohammed Salama

** Kafrelsheikh University, Faculty of Veterinary Medicine, Department of Veterinary Histology and Cytology, 33516, Kafr El- Sheikh, Egypt

ABSTRACT &

Several functional and morphological studies have been conducted on the pineal gland in many mammalian species; however, no published reports are available on the role of pineal gland on the gonadal development before and after eyelids separation in puppies. Therefore, this study aimed to trace the postnatal histo-morphological changes in the pineal gland and gonads of puppies before (2, 10 and 11 days old) and after (25, 35 and 40 days old) eyelids separation in an attempt to investigate the possible role of pineal gland on the gonadal development. In general, the differentiation of pineal cells, interstitial endocrine cells of testes and stromal ovarian cells coincides with the start of eyelids separation in puppies. Histological examination of stained pineal and gonadal slices of puppies after eyelids separation revealed a remarkable differentiation of pinealocytes and testicular interstitial endocrine cells, as well as presence of some evidence of folliculogenesis in ovary. Surprisingly, melatonin receptor (MT1) protein expression levels were significantly increased in the ovaries and testes of puppies after eyelids separation. Moreover, the mRNA and protein expression of AANAT, a ratelimiting enzyme in melatonin biosynthesis, was notably increased in the pineal gland of opened eyes puppies. Our results suggest an increase of melatonin production from the pineal gland of opened eyes puppies and this could play a vital role in the developmental changes observed in the gonads of these puppies.



International Journal of Food Microbiology, vol 189, p 39-44

Impact Factor = 3.155



CHARACTERIZATION OF INTEGRONS AND RESISTANCE GENES INMULTIDRUG-RESISTANT SALMONELLA ENTERICA ISOLATED FROM MEAT AND DAIRY PRODUCTS IN EGYPT

Ashraf M. Ahmed a, Toshi Shimamoto b, Tadashi Shimamotob

^a Department of Bacteriology, Mycology and Immunology, Faculty of Veterinary Medicine, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt

^b Laboratory of Food Microbiology and Hygiene, Graduate School of Biosphere Science, Hiroshima University, Higashi-Hiroshima 739-8528, Japan

ABSTRACT

Foodborne pathogens are a leading cause of illness and death, especially in developing countries. The problem is exacerbated if bacteria attain multidrug resistance. Little is currently known about the extent of antibiotic resistance in foodborne pathogens and the molecular mechanisms underlying this resistance in Africa. Therefore, the current study was carried out to characterize, at the molecular level, the mechanism of multidrug resistance in Salmonella enterica isolated from 1600 food samples (800 meat products and 800 dairy products) collected from different street venders, butchers, retail markets and slaughterhouses in Egypt. Fortyseven out of 69 isolates (68.1%) showed multidrug resistance phenotypes to at least three classes of antimicrobials. The incidence of multidrug-resistant isolates was higher in meat products (37, 69.8%) than in dairy products (10, 62.5%). The multidrug-resistant serovars included, S. enterica serovar Typhimurium (24 isolates, 34.8%), S. enterica serovar Enteritidis, (15 isolates, 21.8%), S. enterica serovar Infantis (7 isolates, 10.1%) and S. enterica non-typable serovar (1 isolate, 1.4%). The highest resistance was to ampicillin (95.7%), then to kanamycin (93.6%), spectinomycin (93.6%), streptomycin (91.5%) and sulfamethoxazole/trimethoprim (91.5%). PCR and DNA sequencing were used to screen and characterize integrons and antibiotic resistance genes and 39.1% and 8.7% of isolateswere positive for class 1 and class 2 integrons, respectively. β-lactamase-encoding genes were identified in 75.4% of isolates and plasmid-mediated quinolone resistance genes were identified in 27.5% of isolates. Finally, the florphenical resistance gene, floR, was identified in 18.8% of isolates. PCR screening identified S. enterica serovar Typhimurium DT104 in both meat and dairy products. This is the first study to report many of these resistance genes in dairy products. This study highlights the high incidence of multidrug-resistant S. enterica in meat and dairy products in Egypt, with the possibility of their transfer to humans leading to therapeutic failure. Therefore, the overuse of antibiotics in animals should be drastically reduced in developing countries.



International Journal of Food Microbiology, Vol.193, p68-73

Impact Factor = 3.155, Published 2015



MOLECULAR ANALYSIS OF MULTIDRUG RESISTANCE IN SHIGA TOXIN-PRODUCING *ESCHERICHIA COLI* O157:H7 ISOLATED FROM MEAT AND DAIRY PRODUCTS

Ashraf M. Ahmed a, Tadashi Shimamotob

- ^a Department of Bacteriology, Mycology and Immunology, Faculty of Veterinary Medicine, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt
- ^b Laboratory of Food Microbiology and Hygiene, Graduate School of Biosphere Science, Hiroshima University, Higashi-Hiroshima 739-8528, Japan

ABSTRACT &

Shiga toxin-producing Escherichia coli (STEC) O157:H7 is an important food-borne pathogen that has been implicated in numerous disease outbreaks worldwide. Little is known about the extent and molecular basis of antimicrobial resistance in STEC 0157:H7 of food origin. Therefore, the current study aimed to characterize the genetic basis of multidrug resistance in 54 STEC 0157:H7 strains isolated from 1600 food samples (800 meat products and 800 dairy products) collected fromdifferent street venders, butchers, retail markets, and slaughterhouses in Egypt. Thirty-one of 54 (57.4%) isolates showed multidrug resistance phenotypes to at least three classes of antimicrobials. The highest incidence of antimicrobial resistance was to kanamycin (96.8%), followed by spectinomycin (93.6%), ampicillin (90.3%), streptomycin (87.1%), and tetracycline (80.6%). PCR and DNA sequencing were used to screen and characterize integrons and antibiotic resistance genes, and 29.6% and 5.6% of isolates were positive for class 1 and class 2 integrons, respectively. B-Lactamase-encoding geneswere identified in 63.0% of isolates as follows: blaTEM-1 and blaTEM-52 in 35.2% and 1.9% isolates respectively; blaCMY-2 in 13.0% isolates; blaCTX-M in 5.6% isolates; blaSHV-12 in 5.6% isolates; and blaOXA-1 in 1.9% isolate. The plasmid-mediated quinolone resistance genes were identified in 13.0% of isolates as follows: qnrB, qnrS, and aac(6')-Ib-cr in 5.6%, 3.7%, and 3.7% isolates, respectively. Finally, the florfenicol resistance gene floR was identified in 7.4% of isolates. This study demonstrated that meat and dairy products are potential sources of multidrug resistant STEC 0157: H7. To our knowledge, this is the first report of the occurrence of class 2 integrons, qnrB, gnrS, and aac(6')-Ib-cr in STEC 0157:H7.



International Journal of Food Microbiology, Vol.194, p78-82

Impact Factor = 3.155 Published 2015



MOLECULAR CHARACTERIZATION OF MULTIDRUG-RESISTANT SHIGELLA SPP. OF FOOD ORIGIN

Ashraf M. Ahmed a, Tadashi Shimamotob

- ^a Department of Bacteriology, Mycology and Immunology, Faculty of Veterinary Medicine, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt
 - ^b Laboratory of Food Microbiology and Hygiene, Graduate School of Biosphere Science, Hiroshima University, Higashi-Hiroshima 739-8528, Japan

🖎 ABSTRACT 🗷

Shigella spp. are the causative agents of food-borne shigellosis, an acute enteric infection. The emergence of multidrug-resistant clinical isolates of Shigella presents an increasing challenge for clinicians in the treatment of shigellosis. Several studiesworldwide have characterized the molecular basis of antibiotic resistance in clinical Shigella isolates of human origin, however, to date, no such characterization has been reported for Shigella spp. of food origin. In this study, we characterized the genetic basis of multidrug resistance in Shigella spp. isolated from 1600 food samples (800 meat products and 800 dairy products) collected from different street venders, butchers, retail markets, and slaughterhouses in Egypt. Twenty-four out of 27 Shigella isolates (88.9%) showed multidrug resistance phenotypes to at least three classes of antimicrobials. The multidrug-resistant Shigella spp. were as follows: Shigella flexneri (66.7%), Shigella sonnei (18.5%), and Shigella dysenteriae (3.7%). The highest resistance was to streptomycin (100.0%), then to kanamycin (95.8%), nalidixic acid (95.8%), tetracycline (95.8%), and sulfamethoxazole spectinomycin (93.6%), ampicillin (87.5%), /trimethoprim (87.5%). PCR and DNA sequencing were used to screen and characterize integrons and antibiotic resistance genes. Our results indicated that 11.1% and 74.1% of isolates were positive for class 1 and class 2 integrons, respectively. Beta-lactamase-encoding genes were identified in 77.8% of isolates, and plasmid-mediated quinolone resistance genes were identified in 44.4% of isolates. These data provide useful information to better understand the molecular basis of antimicrobial resistance in Shigella spp. To the best of our knowledge, this is the first report of the molecular characterization of antibiotic resistance in Shigella spp. isolated from food.



Emerging Infectious Diseases, Vol. 20, (7), p 1231-1234

Impact Factor = 7.327



MERS CORONAVIRUS IN DROMEDARY CAMEL HERD, SAUDI ARABIA

Maged G. Hemida, Daniel K.W. Chu, Leo L.M. Poon, Ranawaka A.P.M. Perera,
Mohammad A. Alhammadi, Hoi-yee Ng, Lewis Y. Siu, Yi Guan,
Abdelmohsen Alnaeem, and Malik Peiris

➢ ABSTRACT ∞

A prospective study of a dromedary camel herd during the 2013–14 calving season showed Middle East respiratory syndrome coronavirus infection of calves and adults. Virus was isolated from the nose and feces but more frequently from the nose. Preexisting neutralizing antibody did not appear to protect against infection.

Ongoing transmission of Middle East respiratory syndrome coronavirus (MERS-CoV) to humans underscores the need to understand the animal sources of zoonotic infection (1,2). MERS-CoV RNA has been detected in dromedary camels (3,4), and dromedary infection precedes human infection (5). We conducted a prospective study in dromedary herds in Al-Hasa, Saudi Arabia, through the peak calving season (December 2013–February 2014) to document virologic features of MERS-CoV infection in these animals.



Rapid communications, Vol. 19(23) p, 20-28

Impact Factor = 2.642



SEROEPIDEMIOLOGY OF MIDDLE EAST RESPIRATORY SYNDROME (MERS) CORONAVIRUS IN SAUDI ARABIA (1993) AND AUSTRALIA (2014) AND CHARACTERISATION OF ASSAY SPECIFICITY

G Hemida^{1,2,3}, R A Perera^{1,4}, R A Al Jassim⁵, G Kayali⁶, L Y Siu⁷, P Wang^{7,8}, K W Chu⁴, S Perlman⁹, M A Ali¹⁰, A Alnaeem¹¹, Y Guan⁴, L L Poon⁴, L Saif¹², M Peiris ^{4,7}

¹ These authors contributed equally to this work

² Department of Microbiology and Parasitology, College of Veterinary Medicine, King Faisal University, Saudi Arabia

³ Department of Virology Faculty of Veterinary Medicine, Kaferelsheik University, Egypt

⁴ Centre of Influenza Research and School of Public Health, The University of Hong Kong, Hong Kong SAR, China

⁵ School of Agriculture and Food Sciences Faculty of Science, The University of Queensland, Gatton, Australia

⁶ St Jude Children's Research Hospital, Memphis, TN, United States

⁷ HKU-Pasteur Pole, The University of Hong Kong, Hong Kong SAR, China

⁸ Key Laboratory of Protein and Peptide Pharmaceuticals, Chinese Academy of Sciences - University of Tokyo Joint Laboratory, of Structural Virology and Immunology, Beijing, China

⁹ Department of Microbiology, University of Iowa, United States

¹⁰ Division of Environmental Research, National Research Centre, Giza, Egypt

Department of Clinical Studies, College of Veterinary Medicine, King Faisal University, Saudi Arabia
Department of Clinical Studies, College of Veterinary Medicine, King Faisal University, Saudi Arabia
Department of Clinical Studies, College of Veterinary Medicine, King Faisal University, Saudi Arabia
Department of Clinical Studies, College of Veterinary Medicine, King Faisal University, Saudi Arabia
Department of Clinical Studies, College of Veterinary Medicine, King Faisal University, Saudi Arabia
Department of Clinical Studies, College of Veterinary Medicine, King Faisal University, Saudi Arabia
Department of Clinical Studies, College of Veterinary Medicine, King Faisal University, Saudi Arabia
Department of Clinical Studies
Department of Clinical Studies</p

⋈ ABSTRACT ⋈

The pseudoparticle virus neutralisation test (ppNT) and a conventional microneutralisation (MN) assay are specific for detecting antibodies to Middle East respiratory syndrome coronavirus (MERS-CoV) when used in seroepidemiological studies in animals. Genetically diverse MERS-CoV appear antigenically similar in MN tests. We confirm that MERS-CoV was circulating in dromedaries in Saudi Arabia in 1993. Preliminary data suggest that feral Australian dromedaries may be free of MERS-CoV but larger confirmatory studies are needed.



Acta Histochemica, Vol. 116, p577-582

Impact Factor = 1.67



REGULATION OF CHICK EARLY B-CELL FACTOR-1 GENE EXPRESSION IN FEATHERDEVELOPMENT

M Mohammed Abu El-Magda, Ahmed Sayed-Ahmedb, Ashraf Awadc, Mustafa Shukry

ABSTRACT 🗷

The chick Ebf1 (early B-cell factor-1) gene is a member of a novel family of helix loop helix transcription factors. The expression profile, regulation and significance of this gene have been extensively studied in lymphatic, nervous, adipose and muscular tissues. However, cEbf1 expression, regulation and function in the feather of chick embryo have not yet been investigated. cEbfl expression was first detected throughout the mesenchymal core of some few feather placodes (D7– D7.5). After feathers became mature and grew distally (D9 and D10), the mesenchymal expression of cEbf1 became confined to the caudal margin of the proximal half of all formed feather buds. Because this dynamic pattern of expression resembles that of Sonic Hedgehog (Shh) protein and bone morphogenetic protein (Bmp4) plus the crucial role of these two major signals in feather development, we hypothesized that cEbf1 expression in the feather may be regulated by Shh and Bmp4. In a feather explant culture system, Shh signals are necessary to initiate and maintain cEbf1 expression in the posterior half of the feather bud, while Bmp4 is crucial for the initialcEbf1 expression in the anterior half of the feather bud. Inhibition of Shh, not only down-regulates cEbf1, but also changes the morphology of feather buds, which become irregular and fused. This is the first study to demonstrate that cEbf1 expression in the feather bud is under the control of Shh and Bmp4 signals and that expression may play a role in the normal development of feathers.



Trop Anim Health Prod, Vol. 46 Issue 6, p947- 952

Impact Factor = 0.97



ASSOCIATION OF A NOVEL SNP IN EXON 10 OF THE IGF2 GENE WITH GROWTH TRAITS IN EGYPTIAN WATER BUFFALO (BUBALUS BUBALIS)

Haitham G. Abo-Al-Ela & Mohammed Abu El-Magd & Abeer F. El-Nahas & Ali A. Mansour



Insulin-like growth factor 2 (IGF2) plays an important role in muscle growth and it might be used as a marker for the growth traits selection strategies in farm animals. The objectives of this study were to detect polymorphisms in exon 10 of IGF2 and to determine associations between these polymorphisms and growth traits in Egyptian water buffalo. PCR single-strand conformation polymorphism (SSCP) and DNA sequencing methods were used to detect any prospective polymorphism. A novel single nucleotide polymorphism (SNP), C287A, was detected. It was a non-synonymous mutation and led to replacement of glutamine (Q) amino acid (aa) by histidine (H) aa. Three different SSCP patterns were observed: AA, AC, and CC, with frequencies of 0.540, 0.325, and 0.135, respectively. Association analyses revealed that the AA individuals had a higher average daily gain (ADG) than other individuals (CC and AC) from birth to 9 months of age. We conclude that the AA genotype in C287A SNP in the exon 10 of the IGF2 gene is associated with the ADG during the age from birth to 9 months and could be used as a potential genetic marker for selection of growth traits in Egyptian buffalo.



Gene, Vol. 540,133-139

Impact Factor = 2.082



EFFECTS OF A NOVEL SNP OF IGF2R GENE ON GROWTH TRAITS AND EXPRESSION RATE OF IGF2R AND IGF2 GENES IN GLUTEUS MEDIUS MUSCLE OF EGYPTIAN BUFFALO

Mohammed Abu El-Magd, Haitham G. Abo-Al-Ela, Abeer El-Nahas, Ayman A. Saleh d, Ali A. Mansour

ABSTRACT 🗷

Insulin-like growth factor 2 receptor (IGF2R) is responsible for degradation of the muscle development initiator, IGF2, and thus it can be used as a marker for selection strategies in the farm animals. The aim of this study was to search for polymorphisms in three coding loci of IGF2R, and to analyze their effect on the growth traits and on the expression levels of IGF2R and IGF2 genes in the gluteus medius muscle of Egyptian buffaloes. A novel A266C SNP was detected in the coding sequences of the third IGF2R locus (at nucleotide number 51 of exon 23) among Egyptian water buffaloes. This SNP was non-synonymous mutation and led to replacement of Y (tyrosine) amino acid (aa) by D (aspartic acid) aa. Three different single-strand conformation polymorphism patterns were observed in the third IGF2R locus: AA, AC, and CC with frequencies of 0.555, 0.195, and 0.250, respectively. Statistical analysis showed that the homozygous AA genotype significantly associated with the average daily gain than AC and CC genotypes from birth to 9 mo of age. Expression analysis showed that the A266C SNP was correlated with IGF2, but not with IGF2R, mRNA levels in the gluteus medius muscle of Egyptian buffaloes. The highest IGF2 mRNA level was estimated in the muscle of animals with the AA homozygous genotype as compared to the AC heterozygotes and CC homozygotes. We conclude that A266C SNP at nucleotide number 51 of exon 23 of the IGF2R gene is associated with the ADG during the early stages of life (from birth to 9 mo of age) and this effect is accompanied by, and may be caused by, increased expression levels of the IGF2 gene.



Development Genes And Evolution, Vol. 224, p, 245-253

Impact Factor = 2.179



EFFECTS OF A NOVEL SNP OF IGF2R GENE ON GROWTH TRAITS AND EXPRESSION RATE OF IGF2R AND IGF2 GENES IN GLUTEUS MEDIUS MUSCLE OF EGYPTIAN BUFFALO

Mohammed Abu El-Magd & Ayman A. Saleh & Reda M. Abd El-Aziz & Mohammed F. Salama

ABSTRACT &

Expression of chick early B cell factor 1-3 (cEbf1-3) genes in regions of high retinoic acid (RA) activity, such as somites and pharyngeal arches (PAs), and regulation of other EBF members by RA raise the possibility that the internal cue RA may regulate cEbf1-3 expression in these tissues. To check this possibility, RA gain and loss of function experiments were conducted. Ectopic expression of RA led to upregulation of cEbf2, 3 but did not change cEbf1 expression in somites. Expectedly, inhibition of RA by disulfiram resulted in downregulation of cEbf2, 3, but did not change cEbf1 expression in somites. The same RA gain and loss of function experiments did not change cEbf1-3 expression in PAs. However, ectopic expression of RA in the cranial neural tube before migration of neural crest cells downregulated cEbf1, 3 and up-regulated cEbf2 expression in the PAs. The same experiment, but with application of disulfiram, resulted in downregulation of cEbf2, but did not alter the expression of the other two genes. We conclude that the three cEbf genes act differently in response to RA signals in somitic mesoderm. cEbfl may be not RA dependant in somites; however, the other two cEbf genes positively respond to RA signalling in somites. Additionally, only the migratory cEbf-expressing cells into the PAs are affected by RA signals.



Gene, 554,p87-95

Impact Factor = 2.082



EFFECTS SHH REGULATES CHICK EBF1 GENE EXPRESSION IN SOMITE DEVELOPMENT

Mohammed Abu El-Magd, Steve Allen, Imelda McGonnell, Ali A. Mansour, Anthony Otto, Ketan Patel



The chick early B-cell factor 1 (cEbf1) is a member of EBF family of helix loop helix transcription factors. Recently, we have proved that cEbf1 expression in feather is regulated by Shh. It is therefore possible that the somitic expression of cEbf1 is controlled by Shh signals from the notochord. To assess this hypothesis, the expression profile of cEbf1 was first detailed in somites of chick embryos (from HH8 to HH28). cEbf1 expression was mainly localized in the medial sclerotome and later around the vertebral cartilage anlagen of body and pedicles. Tissue manipulations (notochord ablation) and Shh gain and loss of function experiments were then performed to analyse whether the notochord and/or Shh regulate cEbfl expression. Results from these experiments confirmed our hypothesis that the medial somitic expression of cEbf1 is regulated by Shh from the notochord. In conclusion, cEbfl gene is considered as a medial sclerotome marker, downstream to and regulated by the notochord derived Shh, which may be functionally involved in somitogenesis.



Cells Tissues Organs, Vol. 199(4):p278-93

Impact Factor = 2.138



REGULATION OF CHICK EBF1-3 GENE EXPRESSION IN THE PHARYNGEAL ARCHES, CRANIAL SENSORY GANGLIA AND PLACODES

Mohammed Abu El-Magd^a, Ayman A. Saleh^b, Foad Farrag^a, Reda M. Abd El-Aziz^c, Haytham A. Ali^d, Mohamed F.Salama^e

^aDepartment of Anatomy and Embryology, Faculty of Veterinary Medicine, Kafrelsheikh University, Kafrelsheikh , Departments of ^b Animal Wealth Development, ^c Physiology and ^d Biochemistry, Faculty of Veterinary Medicine, Zagazig University, Zagazig , and ^eDepartment of Biochemistry, Faculty of Veterinary Medicine,

Mansoura University, Mansoura, Egypt



This study was conducted to identify the regulation of the expression of the *cEbf1–3* (chick early B-cell factor 1–3) genes in the pharyngeal arches (PAs). cranial sensory ganglia and placodes. cEbf1 and cEbf3 were mainly expressed in the cranial neural crest cells (NCCs) occupying the PAs, but cEbf2 was expressed in the mesenchymal core. cEbf1-3 were prominently expressed in the olfactory placodes, but cEbf1 and cEbf3 were only expressed in the otic vesicle. cEbf1 was expressed in all cranial sensory ganglia, cEbf2 (only) in the dorsolateral ganglia and cEbf3 in the trigeminal and vestibular ganglia. The removal of the source (the cranial neural tube) of the cranial NCCs before their migration to the PAs led to downregulation of cEbf1 and cEbf3 and upregulation of cEbf2 expression. Gain- and loss-of-function experiments showed that sonic hedgehog did not regulate cEbf1-3 expression in the PAs or associated ganglia. Bone morphogenetic protein 2 (Bmp2) can, however, directly and indirectly regulate cEbf1 and cEbf3 expression in the PAs and the proximal (NCC-derived) portion, but not the distal (placodalderived) portion of the cranial sensory ganglia. Conversely, cEbf2 expression was upregulated following injection of Noggin before the migration of NCCs, but did not change after the overexpression of either Noggin or Bmp2 in the arch after NCC migration. In conclusion, Bmp2 regulates cEbf1 and cEbf3 expression in PAs and cranial sensory ganglia both directly and indirectly, via the migration of cranial NCCs. However, cEbf2 expression in the mesenchymal core of PAs is controlled by other undetermined signals.



Veterinary and Comparative Oncology, doi: 10.1111/vco.12035

Impact Factor = Published 2013 1.448



ANALYSIS OF GENOMIC MUTATION AND IMMUNOHISTOCHEMISTRY OF PLATELET-DERIVED GROWTH FACTOR RECEPTORS IN CANINE VASCULAR TUMOURS

S. Abou Asa^{1,4}, T. Mori^{2,3}, K. Maruo^{2,3}, A. Khater⁴, A. El-sawak¹, E. Abd el-Aziz⁴, T. Yanai 1 and H. Sakai 1,³

¹Laboratory of Veterinary Pathology, Department of Veterinary Medicine, Gifu University, Gifu, Japan

²Laboratory of Clinical Oncology, Department of Veterinary Medicine, Gifu University, Gifu, Japan

³Comparative Cancer Center, Faculty of Applied Biological Sciences, Gifu University, Gifu, Japan

⁴Department of Veterinary Pathology, Faculty of Veterinary Medicine, Kafr El-Sheikh, Egypt

🖎 ABSTRACT 🧭

We examined whether mutation of the platelet-derived growth factor receptor protein tyrosinekinase (PDGFR)-a and PDGFR-B genes contributes to their overexpression in canine vasculart tumours. Genomic sequences of trans- or juxtamembrane regions of PDGFR-\alpha and PDGFR-\beta were analysed with immunohistochemical staining and polymerase chain reaction-direct sequencing using DNA from paraffin-embedded neoplastic tissues of 27 hemangiosarcomas (HSAs)and 20 hemangiomas Immunohistochemically, 75% of the HA cases were positive for PDGFR-a and almost most of the HA cases were negative for PDGFR-B. Of the HSA cases, 55.6% were negative for PDGFR-\alpha and 63% were strongly positive for PDGFR-B. Among the HA cases, 1 missense mutation was detected in PDGFR-a exon 18 and 1 in PDGFR-B exon 17. Two HSA cases had missensemutations in exon 14 and 1 in exon 17 of PDGFR-β. Thus, genomic mutation of trans- or juxtamembrane regions of PDGFRs was not the main mechanism driving the activation of receptors in HSA and HA.



Legal Medicine, Vol.15, p338-341

Impact Factor = 1.441 Published 2013



INVESTIGATION OF MTDNA CONTROL REGION SEQUENCES IN AN EGYPTIAN POPULATION SAMPLE

S. Mostafa Ali Elmadawy a,b, Atsushi Nagai a, Ghada M. Gomaa b, Hanaa M.R. Hegazy b, Fawzy Eid Shaaban c, Yasuo Bunai a

^a Department of Legal Medicine, Graduate School of Medicine, Gifu University, Gifu, Japan

^b Department of Forensic Medicine and Toxicology, Faculty of Veterinary Medicine, Kafrelsheikh University, Kafrelsheikh, Egypt

^c Department of Forensic Medicine and Toxicology, Faculty of Veterinary Medicine, Zagazig University, Zagazig, Egypt

ABSTRACT

The sequences of mitochondrial DNA (mtDNA) control region were investigated in 101 unrelated individ- uals living in the northern region of Nile delta (Gharbia, N = and Kafrelsheikh, N = 46). DNA was extracted from blood stained filter papers or buccal swabs. HV1, HV2 and HV3 were PCR amplified and sequenced; the resulted sequences were aligned and compared with Cambridge sequence (rCRS). The results revealed presence of total 93 different haplotypes, 86 of them are unique and 7 are shared haplotypes, the most common haplotype, was observed with a frequency, 2.97% of population sample. High mtDNA diversity was observed with genetic diversity and power of discrimination, 0.9982 and 0.9883, respectively. In this dataset the west Eurasian haplogroups predominated over the African haplo- groups. The results would be useful for forensic examinations and human genetic studies.



FACULTY OF MEDICINE





Pharmacological Reports vol.66, P1114-1121

Impact Factor = 2.165



EFFECT OF PROPRANOLOL ON IL-10, VISFATIN, HSP70, INOS, TLR2, AND SURVIVIN IN AMELIORATION OF TUMOR PROGRESSION AND SURVIVAL IN SOLID EHRLICH CARCINOMA-BEARING MICE

Amany A. Abdin a,*, Nema A. Soliman b, Eman M. Saied c

- ^a Department of Pharmacology, Faculty of Medicine, Tanta University, Tanta, Egypt
- ^b Department of Medical Biochemistry, Faculty of Medicine, Tanta University, Tanta, Egypt
- ^c Department of Pathology, Faculty of Medicine, Kafr El-Sheikh University, Kafr El-Sheikh, Egypt



Background: b-Adrenergic signaling could contribute to initiation and progression of breast cancer. This research investigated some potential mechanisms of propranolol in amelioration of progression and survival in breast cancer.

Methods and results: Solid Ehrlich Carcinoma (SEC) xenograft model was induced in 30mice divided into 3 groups; where group I served as untreated SEC group. In groups II and III, propranolol treatment i.p. in low (5 mg/kg) and high dose (10 mg/kg) caused significant increase in interleukin-10 (IL-10) and decrease in heat shock protein 70 (Hsp70) and inducible nitric oxide synthase (iNOS) activity with non significant change in visfatin in tumor tissues compared to untreated SEC. In untreated SEC, tumor volume (V) exhibited significant negative correlation with IL-10 levels and toll like receptor 2 (TLR2) expression with significant positive correlation with Hsp70 levels and iNOS activity. While propranolol in either doses caused reduction of tumor volume (V), and improved percentage tumor growth inhibition (% TGI) only its high dose exhibited significant impact on survival rate. Propranolol dose-dependent effect was evident for IL-10 and Hsp70, and even only the high dose significantly increased and decreased TLR2 and survivin, respectively. This comes in favor of recommending high dose of propranolol in cancer therapy. Nonetheless, use of low dose cannot be ignored when benefit to risk balance have to be considered.

Conclusions: Propranolol could provide palliative effects in progression and survival of breast cancer that are mainly mediated via direct immunomodulatory and apoptotic mechanisms and probably associated with indirect anti-angiogenic activity.



Korean J Parasitol Vol. 53,P.51-58

Impact Factor = 0.965



IMMUNOPATHOLOGICAL CHANGES IN THE BRAIN OF IMMUNOSUPPRESSED MICE EXPERIMENTALLY INFECTED WITH TOXOCARA CANIS

Mohamed M. Eid1, Samy ¹. El-Kowrany¹, Ahmad A. Othman^{1,*}, Dina I. El Gendy¹, Eman M. Saied²

¹Department of Medical Parasitology, Faculty of Medicine, Tanta University, Gharbiya, Egypt ²Department of Pathology, Faculty of Medicine, Kafr El-Sheikh University, Egypt

⋈ ABSTRACT ⋈

Toxocariasis is a soil-transmitted helminthozoonosis due to infection of humans by larvae of Toxocara canis. The disease could produce cognitive and behavioral disturbances especially in children. Meanwhile, in our modern era, the incidence of immunosuppression has been progressively increasing due to increased incidence of malignancy as well as increased use of immunosuppressive agents. The present study aimed at comparing some of the pathological and alterations immunological in the brain of normal immunosuppressed mice experimentally infected with T. canis. Therefore, 180 Swiss albino mice were divided into 4 groups including normal (control) group, immunocompetent T. canis-infected group, immunosuppressed group (control), and immunosuppressed infected group. Infected mice were subjected to larval counts in the brain, and the brains from all mice were assessed for histopathological changes, astrogliosis, and IL-5 mRNA expression levels in brain tissues. The results showed that under immunosuppression, there were significant increase in brain larval counts, significant enhancement of reactive gliosis, and significant reduction in IL-5 mRNA expression. All these changes were maximal in the chronic stage of infection. In conclusion, the immunopathological alterations in the brains of infected animals were progressive over time, and were exaggerated under the effect of immunosuppression as did the intensity of cerebral infection.



Asian Pacific Journal of Cancer Prevention, Vol.16,P.1657-1663

Impact Factor = 1.5



PLASMA NUCLEAR FACTOR KAPPA B AND SERUM PEROXIREDOXIN 3 IN EARLY DIAGNOSIS OF HEPATOCELLULAR CARCINOMA

Saber Ismail1, Wael Mayah, Hassan El Battia, Hanaa Gaballah, Asif Jiman-Fatani, Hala Hamouda, Mohamed A Afifi, Nehal Elmashad, Sherif El Saadany



Background: Early diagnosis of hepatocellular carcinoma (HCC) is the most important step in successful treatment. However, it is usually rare due to the lack of a highly sensitive specific biomarker so that the HCC is usually fatal within few months after diagnosis. The aim of this work was to study the role of plasma nuclear factor kappa B (NF- κB) and serum peroxiredoxin 3 (PRDX3) as diagnostic biomarkers for early detection of HCC in a high-risk population.

Materials and Methods: Plasma nuclear factor kappa B level (NF-kB) and serum peroxiredoxin 3 (PRDX3) levels were measured using enzyme linked immunosorbent assay (ELISA), in addition to alphafetoprotein (AFP) in 72 cirrhotic patients, 64 patients with HCC and 29 healthy controls. Results: NF-kB and PRDX3 were significantly elevated in the HCC group in relation to the others. Higher area under curve (AUC) of 0.854 (for PRDX3) and 0.825 (for NF-kB) with sensitivity of 86.3% and 84.4% and specificity of 75.8% and 75.4% respectively, were found compared to AUC of alpha-fetoprotein (AFP) (0.65) with sensitivity of 72.4% and specificity of 64.3%.

Conclusions: NF- κ B and PRDX3 may serve as early and sensitive biomarkers for early detection of HCC facilitating improved management. The role of nuclear factor kappa B (NF- κ B) as a target for treatment of liver fibrosis and HCC must be widely evaluated.



FACULTY OF SCIENCE





Journal of Luminescence, vol, 159, p. 26-31

Impact Factor = 2.367



PHOTOINDUCED INTERACTION OF CDSE QUANTUM DOT WITH COUMARINS

MagedEl-Kemary and, MohamedGaber b, Y.S.El-Sayed b, YoussefGheat ab

^a Nanotechnology Center, Faculty of Science Kafr elsheikh University, 33516 Kafr elsheikh, Egypt

^bChemistry Department, Faculty of Science, University of Tanta, Tanta, Egypt

➢ ABSTRACT *⋉*

Cadmium selenide (CdSe) quantum dots (QDs) were synthesized with a cubic shape having a diameter of _5.24 nm. he prepared CdSe QDs were characterized by using UV-visible, Fourier transform infrared (FTIR), powder X-ray diffraction (XRD) and transmission electron microscope (TEM) measurements. The UV-visible absorption spectra indicate that the optical band gap of CdSe QDsis _622 nm and the peak shift can mainly be due to the quantum size effects. The fluorescence decay kinetics for the synthesized QDs was followed by time-resolved fluorescence spectroscopy, and the spectra were analyzed in regard to a bi-exponential model to identify two lifetime values, that is, shorterlifetime 1.37 ns (55%) and onger-lifetime 6.58 ns (45%). The interaction of coumarin 152 (C152) and coumarin 153 (C153) with QDs surface brings about further considerable changes in the absorption and fluorescence patterns. The calculated binding constant from fluorescence quenchingmethod matches well with that determined from the absorption spectral changes. The static quenching mechanism was confirmed by large magnitude of KSV and unaltered fluorescence lifetime.



Spectrochimica Acta Part A-Molecular And Biomolecular Spectroscopy, Vol. 137, p. 442-449

Impact Factor = 2.129



HALOGEN VS HYDROGEN BONDING IN THIAZOLINE-2-THIONE STABILIZATION WITH σ - AND π -ELECTRON ACCEPTORS ADDUCTS: THEORETICAL AND EXPERIMENTAL STUDY

Hamdy S. El-Sheshtawy a,c, Hassan M.A. Salman b, Maged El-Kemary c

^a Biotechnology and Fish Processing Department, Faculty of Aquatic and Fisheries Sciences, Kafrelsheikh University, 33516 Kafr ElSheikh, Egypt

^b Chemistry Department, Faculty of Science, South Valley University, Qena 83523, Egypt

^c Nanochemistry Laboratory, Chemistry Department, Faculty of Science,

Kafrelsheikh University, 33516 Kafr ElSheikh, Egypt

⋈ ABSTRACT ⋈

Molecular charge-transfer complexes (CT) between thiazoline-2-thione (THZ) and different σ - (I_2) and π -acceptors (Tetracyanoethylene (TCNE), 2,3-dichloro-5,6-dicyano-1,4-benzoquinone (DDQ), and 2,3,5,6- tetrachloro -1,4-benzoquinone (CHL)) were investigated. UV—Vis absorption spectroscopy and theoretical calculations using both MP2/aug-cc-pVDZ-PP and B3LYP/6-311++G(d,p) level of theory were corroborated to study the nature of the stabilizing forces for THZ-I2, THZ-DDQ, THZ-TCNE, and THZ-CHL. Halogen bonding (XB) was the stabilizing attractive force in THZ-I2 and THZ-CHL whereas; hydrogen bonding (HB) was dominated in both THZ-TCNE, and THZ-DDQ complexes. Formation constant (K), extinction coefficient (e), thermodynamic parameters such as enthalpy change (Δ H), entropy (Δ S), and Gibbs free energy (Δ G) were measured in different solvents.



Spectrochimica Acta Part A-Molecular And Biomolecular Spectroscopy, Vol. 143, p. 120-127

Impact Factor = 2.129



ORTHOGONAL HYDROGEN/HALOGEN BONDING IN 1-(2-METHOXYPHENYL)-1HIMIDAZOLE- 2(3H)-THIONE-I2 ADDUCT: AN EXPERIMENTAL AND THEORETICAL STUDY

Hamdy S. El-Sheshtawy a,c, Mohamed M. Ibrahim b,d, Ibrahim El-Mehasseb b,c, Maged El-Kemary b,c

^a Biotechnology and Fish Processing Department, Faculty of Aquatic and Fisheries Sciences, Kafrelsheikh University, 33516 Kafr ElSheikh, Egypt

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

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

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



The molecular complex between 1-(2-methoxyphenyl)-1H-imidazole-2(3H)-thione (HmimOMe) and iodine (I2) was investigated. Single crystal of [(HmimOMe)_I2] adduct was grown by slow evaporation technique from chloroform at room temperature. Spectroscopic techniques such as FT-IR and Raman techniques, as well as elemental and thermal analysis were used to characterize the complex. The crystal structure shows that the formed adduct stabilized by two noncovalent interactions, namely, hydrogen bond (HB) and halogen bond (XB). Orthogonal HB/XB associated with iodine atom (I) was observed and fully characterized. The ability of iodine to behave as hydrogen bond acceptor and halogen bond donor was held responsible for the orthogonal HB/XB presence. In addition, the structure of HmimOMe_- I2 was investigated theoretically using MP2/aug-cc-pVDZ level of theory. Natural bond orbital analysis (NBO) was used to investigate the molecular orbitals interactions and orbitals stabilization energies.



International Journal of Advanced Research Vol. 3(1),p.480-488

Impact Factor = 1.659



BINUCLEAR COPPER (II) COMPLEXES CONTAINING PYN₄ O MOIETY AS A MODEL FOR CATECHOL OXIDASE; SYNTHESIS, CHARACTERIZATION AND CATECHO OLXIDASEA CTIVITY

Shaban Y. Shaban, Maged E-Kl emary, Mohamed Mabrook, Morad El-Hendawy, HanaaM ansour, Hosni El-Baradie

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

ABSTRACT &

A new series of copper (II) complexes, $[(MepyN_4O)Cu_2^{II}(SO_4)]_2SO_4$ (1), $[(MepyN4O)Cu_2^{II}Br_2]Br$ (2), $[(MepyN_4O)Cu_2^{II}(NO_3)_2]NO_3$ (3), $[(BrpyN_4O)Cu_2^{II}(SO_4)]_2SO_4$ (4), $[(BrpyN_4O)Cu_2^{II}Br_2]Br$ (5), $[(BrpyN_4O)Cu_2^{II}(NO_3)_2]NO_3$ (6) and $[(BrpyN_4O)Cu_2^{II}Cl_2]Cl$ (7) were synthesized and completely characterized. Catalytic activity towards the oxidation of catechol and 4-tert-butylcatechol by copper complexes 1-7 has been investigated and correlated with the structure. The complexes bearing MepyN₅OH moiety have less catechol oxidase activity in respect to complexes containing BrpyN₄OH moiety. The rate of oxidation of substrate depends strongly on the anionic ligands. For instance, the activity of complexes containing BrpyN₅OH moiety was found to be in the following order: $Br > NO_3 > SO_4^{-2} > Cl$. For complexes containing MepyN₅OH moiety, the catalytic activity follows the order of $NO_3^- > SO_4^{-2} > Br$ - for oxidation of 4-tert-butylcatechol, whereas, the order of activity for oxidation of catechol is $Br > SO_4^{-2} >$ NO_3 . In a general, complexes 5 was found to be the most efficient catalysts due to the perfect match between the copper (II) centers and the incoming substrate (catecholate) to get bound effectively for subsequent redox reaction. The oxidation of 4-tert-butylcatechol is easier than catechol because of the presence of the electron-donating tert-butyl group in the 4-tert-butylcatechol.



Journal of Photochemistry and Photobiology A: Chemistry 302(2015)11-16

Impact Factor = 2.475



PHOTOINDUCED ELECTRON TRANSFER FROM SILYL END-CAPPED SEXITHIOPHENE TO BENZOQUINONE DERIVATIVES STUDIED BY LASER PHOTOLYSIS

Mohamed E. El-Khouly a, Maged A. El-Kemary a, Shunichi Fukuzumi b, Thurichi Fukuzumi

^aDepartment of Chemistry, Faculty of Science, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt

^b Department of Material and Life Science, Graduate School of Engineering, Osaka University, AlCA, Japan Science and Technology Agency (JST), Suita, Osaka 565-0871, Japan

ABSTRACT 🗷

Photoinduced electron transfer from the electron-donating bis (dimethyl- π -octylsilyl)sexithiophene, (DSi6T), to the electron-accepting benzoquinone derivatives, BQs, in polar benzonitrile has been investigated with laser photolysis method. The employed benzoquinone derivatives include 1,4benzoquinone (BO), 2,5-dichloro-1,4-benzoquinone (Cl_2BQ), dimethyl-1,4-benzoquinone (Me_2BQ) , tetrafluoro-1,4-benzoquinone (F_4BQ) and 2-methyl-1,4-benzoquinone (MeBQ). The electrochemical measurements showed pronounced effect of the substituted groups on the reduction potentials of BQs, and consequently on the driving forces of the electron transfer of the DSi6T/BQs mixture systems. Such effect of the driving forces for electron-transfer reactions of DSi6T/BQs mixture systems have been examined by utilizing the femtosecond and nanosecond laser flash photolysis, in addition the complementary steady state absorption and fluorescence techniques. Upon excitation of DSi6T with 440 nm laser light, the electron-transfer reactions from the triplet excited state of DSi6T to BQs were confirmed by observing the transient absorption bands of DSi6T radical cation in the visible region. The excellent electron donating properties of DSi6T suggests its potential to be a photoactive unit in the bulk heterojunction solar cells.



Journal of Computational and Theoretical Nanoscience, Vol. 11, 1-7, 2014

Impact Factor = 1.032



TWO-TEMPERATURE GENERALIZED THERMOELASTIC INTERACTION IN AN INFINITE FIBER-REINFORCED ANISOTROPIC PLATE CONTAINING A CIRCULAR CAVITY WITH TWO RELAXATION TIMES

Ibrahim A. Abbas^{1, 2} and Ashraf M. Zenkour^{3, 4}

¹Faculty of Science and Arts-Khulais, Department of Mathematics,
King Abdulaziz University, Jeddah, 21589, Saudi Arabia

²Faculty of Science, Department of Mathematics, Sohag University, Sohag, Egypt

³Faculty of Science, Department of Mathematics, King Abdulaziz University,
Jeddah 21589, Saudi Arabia

⁴Faculty of Science, Department of Mathematics, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt

ABSTRACT 🗷

In this work, a mathematical model of two-temperature generalized thermoelasticity with two relaxation times for an infinite fiber-reinforced anisotropic plate containing a circular cavity will be constructed in the context of Youssef model (2006). As an application of the problem, a particular type of thermal source is considered and the problem is solved numerically by using a finite element method. The effects of relaxation times and the presence and absence reinforcement on the conductive temperature, the dynamical temperature, the stresses and the displacement distributions are studied.



Acta Mechanica Solida Sinica, Vol. 26, No. 6, December 2013

Impact Factor = 0.651



THE EFFECT OF DUAL-PHASE-LAG MODEL ON REFLECTION OF THERMOELASTIC WAVES IN A SOLID HALF SPACE WITH VARIABLE MATERIAL PROPERTIES

M. Zenkour^{1,2}, D. S. Mashat¹, A. E. Abouelregal^{3,4}

¹Department of Mathematics, Faculty of Science, King Abdulaziz University, P. O. Box 80203, Jeddah 21589, Saudi Arabia

²Department of Mathematics, Faculty of Science, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt

³Department of Mathematics, Faculty of Science, Mansoura University, Mansoura 35516, Egypt

⁴Department of Mathematics, College of Science and Arts, University of Aljouf, El-Qurayat, Saudi Arabia

⋈ ABSTRACT ⋈

The present article represents an analysis of reflection of P-wave and SVwave on the boundary of an isotropic and homogeneous generalized thermoelastic half-space when the boundary is stress-free as well as isothermal. The modulus of elasticity is taken as a linear function of reference temperature. The basic governing equations are applied under four theories of the generalized thermoelasticity: Lord-Shulman (L-S) theory with one relaxation time, Green-Naghdi (G-N) theory without energy dissipation and Tzou theory with dual-phase-lag (DPL), as well as the coupled thermoelasticity (CTE) theory. It is shown that there exist three plane waves, namely, a thermal wave, a P-wave and an SV-wave. The reflection from an isothermal stress-free surface is studied to obtain the reflection amplitude ratios of the reflected waves for the incidence of P and SV-waves. The amplitude ratios variations with the angle of incident are shown graphically. Also, the effects of reference temperature of the modulus of elasticity and dual-phase lags on the reflection amplitude ratios are discussed numerically.



Composites: Part B-Engineering Vol. 56 (1), p. 484-489, 2014

Impact Factor = 2.602



ANALYSIS OF SANDWICH PLATES WITH A NEW LAYERWISE FORMULATION

D.A. Maturi a, A.J.M. Ferreira a,b., A.M. Zenkour a,c, D.S. Mashat a

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

^b Faculdade de Engenharia da Universidade do Porto, Porto, Portugal

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



In the analysis of sandwich laminates, where core and skin materials are so different, layerwise formulations should be adopted. In this paper the static and free vibration analysis of sandwich plates by the use of collocation with radial basis functions and using a new layerwise theory with independent rotations in each layer and thickness stretching was performed. With this formulation, transverse normal and shear deformations and stresses are accurately computed. The equations of motion were automatically implemented via a Unified Formulation and interpolated with radial basis functions. Finally composite laminated plate and sandwich plate examples were tested and discussed.



Journal of Computational and Theoretical Nanoscience, Vol. 11, 331–338, 2014

Impact Factor = 1.032



THE EFFECT OF ROTATION AND INITIAL STRESS ON THERMAL SHOCK PROBLEM FOR A FIBER-REINFORCED ANISOTROPIC HALF-SPACE USING GREEN-NAGHDI THEORY

Ibrahim A. Abbas^{1,2}, and Ashraf M. Zenkour³

¹Faculty of Science, Department of Mathematics, Sohag University, Sohag, Egypt

²Faculty of Science and Arts-Khulais, Department of Mathematics,

King Abdulaziz University, Jeddah, Saudi Arabia

³Faculty of Science, Department of Mathematics, King Abdulaziz University, P.O. Box 80203, Jeddah 21589, Saudi Arabia

MABSTRACT &

This article presents a two-dimensional problem of generalized thermoelasticity for a fiber-reinforcement 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 angular velocity and initial stress. The inclusion of the reinforcement parameters is also investigated.



Archives of Civil and Mechanical Engineering 14 (2014)144-159

Impact Factor = 1.331



EFFECTS OF HYGROTHERMAL CONDITIONS ON CROSS-PLY LAMINATED PLATES RESTING ON ELASTIC FOUNDATIONS

A.M. Zenkoura, b,n, M.N.M. Allamc, A.F. Radwanc

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

^bDepartment of Mathematics, Faculty of Science, Kafrelsheikh University, Kafrelsheikh 33516, Egypt

^cDepartment of Mathematics, Faculty of Science, Mansoura University, Mansoura 35516, Egypt



The influence of temperature and moisture on the hygrothermal behavior of laminated composite plates resting on elastic foundations is investigated using a refined plate theory. The material properties of the composite are affected by the variation of temperature and moisture. The present plate theory enables the trial and testing of different through-the thickness transverse shear-deformation distributions and, among them, strain distributions that do not involve the undesirable implications of the transverse shear correction factors. The governing equations are derived based on the present theory, including hygrothermal effects and elastic foundation parameters. The effects of Winkler and Pasternak foundation parameters, temperature, moisture concentration, transverse shear deformation, plate aspect ratio, side-to-thickness ratio on deflections and stresses are investigated.



Journal of Computational and Theoretical Nanoscience, Vol. 11, 642–645, 2014

Impact Factor = 1.032



DUAL-PHASE-LAG MODEL ON THERMOELASTIC INTERACTIONS IN A SEMI-INFINITE MEDIUM SUBJECTED TO A RAMP-TYPE HEATING

Ibrahim A. Abbas^{1,2}, and Ashraf M. Zenkour^{3,4}

¹Faculty of Science and Arts-Khulais, Department of Mathematics, King Abdulaziz University, Jeddah, Saudi Arabia

²Faculty of Science, Department of Mathematics, Sohag University, Sohag, Egypt

³Faculty of Science, Department of Mathematics, King Abdulaziz University,

Jeddah 21589, Saudi Arabia

⁴Faculty of Science, Department of Mathematics, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt

⋈ ABSTRACT ⋈

A finite element method is used to study the dual-phase-lag model on thermoelastic interactions in a semi-infinite medium subjected to a ramp-type heating. The governing equations are taken in a unified system from which the field equations for coupled thermoelasticity as well as for Lord and Shulman theory can be easily obtained as particular cases. Due attention has been paid to the finite time of rise of temperature, displacement and stress. The finite element method is proposed to analyze the problem and obtain the numerical solutions for the displacement, temperature and stress. Numerical results for the temperature distribution, displacement and thermal stress are represented graphically. A comparison is made with the results predicted by the three theories.



Composite Structures 109 (2014) 139-149

Impact Factor = 3.12



USE OF AXIOMATIC/ASYMPTOTIC APPROACH TO EVALUATE VARIOUS REFINED THEORIES FOR SANDWICH SHELLS

Daoud S. Mashat ^a, Erasmo Carrera ^{a,b}, Ashraf M. Zenkour ^{a,c}, Sadah A. Al Khateeb ^a

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

^b Department of Mechanical and Aerospace Engineering, Politecnico di Torino, Italy

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



This paper evaluates refined theories for sandwich shells. Layer-wise and equivalent single-layer models (including zig-zag theories) are used with linear and higher order expansion in the thickness layer/shell direction for the displacement variables. So called asymptotic/axiomatic approach is employed to establish the effectiveness of each displacements terms for a given problems: that is the initial axiomatic expansion with all the terms related to the assigned order N is asymptotically reduced to a 'best' displacement models which has the same accuracy of the full model but with less terms. The various sandwich theories are conveniently formulated by using the unified formulation by Carrera (CUF) that leads to governing equations which forms are formally the same for the different sandwich shell theories. Accuracy of a given theory is established by fixing the sandwich shell in term of geometry, boundary conditions, layout of the face/core layers (including very soft-core cases) as well as by choosing a criteria to measure the errors. Two error criteria have been adopted which are related to a fixed point and to the maximum values of displacement/stress variables in the thickness shell direction. A number of problems have been treated and the related 'best' displacement model have been obtained. The effectiveness of the asymptotic/axiamotic problems is proved by comparing with available reference solutions. It has been found that the resulting reduced 'best' theories are very much subordinated to the considered problems. These changes by changing geometrically parameters as well as by adopting a different error criteria.



International Journal of Engineering Science 75 (2014) 54-66

Impact Factor = 2.291



ON THE MAGNETO-THERMO-ELASTIC RESPONSES OF FG ANNULAR SANDWICH DISKS

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 *⋉*

In this article, the magneto-thermo-elastic response of a functionally graded annular sandwich disk is investigated. The present sandwich disk is subjected to non-uniform steady state thermal load and placed in a magnetic field. The core is made from a metal-ceramic functionally graded material while the inner and outer faces are made from metal and ceramic materials, respectively. The magnetic, thermal and mechanical properties of the functionally graded material are assumed to be temperature independent and continuously vary in the radial direction of the disk. The variation of Young's modulus, thermal expansion and conductivity coefficients are represented by a novel exponential law distribution through the radial direction of the disk. The governing differential equations are exactly satisfied at every point of the disk. Analytical solutions for the temperature, radial displacement and stresses are derived. Numerical results are presented due to the magneto-thermal bending. The distributions of these results during the radial direction of the sandwich disk are presented graphically. Finally, the significance of gradation of the metal-ceramic components and the geometry of the disk in the magneto-thermo-elastic responses of annular disks is investigated.



Zeitschrift Fur Angewandte Mathematik Und Physik Vol. 65 (1), 2014,P. 149-16

Impact Factor = 1.214



STATE-SPACE APPROACH FOR AN INFINITE MEDIUM WITH A SPHERICAL CAVITY BASED UPON TWO-TEMPERATURE GENERALIZED THERMOELASTICITY THEORY AND FRACTIONAL HEAT CONDUCTION

Ashraf M. Zenkour and Ahmed E. Abouelregal



This paper is concerned with the determination of the thermoelastic displacement, stress, conductive temperature, and thermodynamic temperature in an infinite isotropic elastic body with a spherical cavity. A general solution to the problem based on the two-temperature generalized thermoelasticity theory (2TT) is introduced. The theory of thermal stresses based on the heat conduction equation with Caputo's time-fractional derivative of order \alpha is used. Some special cases of coupled thermoelasticity and generalized thermoelasticity with one relaxation time are obtained. The general solution is provided by using Laplace's transform and state-space techniques. It is applied to a specific problem when the boundary of the cavity is subjected to thermomechanical loading (thermal shock). Some numerical analyses are carried out using Fourier's series expansion techniques. The computed results for thermoelastic stresses, conductive temperature, and thermodynamic temperature are shown graphically and the effects of two-temperature and fractional-order parameters are discussed.



Composites Part B-Engineering Vol.58, p. 544-552

Impact Factor = 2.602



ANALYSIS OF THICK ISOTROPIC AND CROSS-PLY LAMINATED PLATES BY GENERALIZED DIFFERENTIAL QUADRATURE METHOD AND A UNIFIED FORMULATION

A.J.M. Ferreira a,d, E. Carrera b,d, M. Cinefra b, E. Viola c, F. Tornabene c. N. Fantuzzi c. A.M. Zenkour d,e

^a Faculdade de Engenharia da Universidade do Porto, Porto, Portugal

^b Department of Aeronautics and Aerospace Engineering, Politecnico di Torino, Corso Duca degli Abruzzi 24, 10129 Torino, Italy

^c DICAM Department, Alma Mater Studiorum University of Bologna, Viale del Risorgimento 2, 40136 Bologna, Italy

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

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

⋈ ABSTRACT **⋈**

In this paper, the Carrera Unified Formulation and the generalized differential quadrature technique are combined for predicting the static deformations and the free vibration behavior of thin and thick isotropic as well as cross-ply laminated plates. Through numerical experiments, the capability and efficiency of this technique, based on the strong formulation of the problem equations, are demonstrated. The numerical accuracy and convergence are also examined. It is worth noting that all the presented numerical examples are compared with both literature and numerical solutions obtained with a finite element code. The proposed methodology appears to be able to deal not only with uniform boundary conditions, such as fully clamped or completely simply-supported, but also with mixed external conditions, that can be clamped, supported or free.



Composites Part B-Engineering Vol. 59, p. 269-278

Impact Factor = 2.602



FREE VIBRATION OF FGM LAYERED BEAMS BY VARIOUS THEORIES AND FINITE ELEMENTS

Daoud S. Mashat ^a, E. Carrera ^{a,b}, Ashraf M. Zenkour ^{a,c}, Sadah A. Al Khateeb ^a, M. Filippi ^b

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

^b Department of Mechanical and Aerospace Engineering, Politecnico di Torino, Italy ^c Department of Mathematics, Faculty of Science, Kafrelsheikh University,

Kafr El-Sheikh 33516, Egypt

ABSTRACT

The Carrera Unified Formulation (CUF) is used to perform freevibrational analyses of functionally graded (FG) structures. CUF is a hierarchical formulation for obtaining refined structural theories that account for variable kinematic description. These theories can be obtained by expanding the unknown displacement variables over the beam section axes by adopting any kind of function. The number of the terms in the expansions is a free parameter of the analysis. For Taylorlike expansions, the linear case can result in classical beam theories. For the first time in the 1D CUF framework, the Finite Element method is used to solve the governing equations of functionally graded beams which are derived in a weak form by means of the Principle of Virtual Displacements. These equations are written in terms of fundamental nuclei. Their forms do not depend on the expansions used. Several structures are considered, including a sandwich beam with FG core, laminated beams, thin- and thick-walled boxes as well as sandwich cylinders. The results are shown in terms of natural frequencies and compared with those available in existing literature.



Composite Structures Vol. 111 (1), p. 240-248

Impact Factor = 3.12



A REFINED FOUR-UNKNOWN PLATE THEORY FOR ADVANCED PLATES RESTING ON ELASTIC FOUNDATIONS IN HYGROTHERMAL ENVIRONMENT

Sadah A. Al Khateeb a, Ashraf M. Zenkour a,b

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

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

ABSTRACT &

This article presents the bending analysis of advanced plates resting on elastic foundations. The influence of temperature and moisture on the bending response of such plates is investigated using a refined plate theory. This theory includes the effects of transverse shear strain as well as the transverse normal strain. 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 deformation theories. The governing equations are derived based on the present theory, including the hygrothermal effects and elastic foundation parameters. The effects of Winkler's and Pasternak's foundation parameters, temperature, moisture concentration, transverse and normal shear deformations, plate aspect ratio, side-to-thickness ratio, as well as the volume fraction distribution on displacement and stresses are investigated.



Journal Of Computational And Theoretical Nanoscience Vol. 11 (7), p. 1592-1596

Impact Factor = 1.032



SEMI-ANALYTICAL AND NUMERICAL SOLUTION OF FRACTIONAL ORDER GENERALIZED THERMOELASTIC IN A SEMI-INFINITE MEDIUM

Ibrahim A. Abbas^{1,2} and Ashraf M. Zenkour^{3,4}

¹Faculty of Science and Arts-Khulais, Department of Mathematics, King Abdulaziz University, Jeddah, Saudi Arabia ²Faculty of Science, Department of Mathematics, Sohag University, Sohag, Egypt ³Faculty of Science, Department of Mathematics, King Abdulaziz University, Jeddah 21589, Saudi Arabia

⁴Faculty of Science, Department of Mathematics, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt

⋈ ABSTRACT ⋈

Semi-analytical and numerical solutions are two basic tools in the study of thermoelastic interactions problems in anisotropic media. The present investigation deals with the thermoelastic interactions in a semi-infinite medium in the context of the theory of fractional order generalized thermoelasticity. The governing equations are expressed in Laplace transform domain and solved in the domain by analytical method and finite element method. The solutions of the problem in the physical domain are obtained by using a numerical method for the inversion of the Laplace transforms based on Stehfest's method. The displacement, temperature and stress distribution are obtained and presented graphically to illustrate the effect of fractional order derivatives. The accuracy of the finite element formulation was validated by comparing the analytical and numerical solutions for the field quantities.



Mathematical Problems In Engineering Vol. 2014, p. 1-13

Impact Factor = 1.082



ANALYSIS OF FUNCTIONALLY GRADED MATERIAL PLATES USING TRIANGULAR ELEMENTS WITH CELL-BASED SMOOTHED DISCRETE SHEAR GAP METHOD

S. Natarajan,¹ A. J. M. Ferreira,^{2,3} S. Bordas,⁴ E. Carrera,^{3,5} M. Cinefra,⁵ and A. M. Zenkour^{3,6}

¹ School of Civil & Environmental Engineering, University of New SouthWales, Sydney, Australia

Faculdade de Engenharia da Universidade do Porto, Porto, Portugal
 Department of Mathematics, Faculty of Science, King Abdulaziz University,
 P.O. Box 80203, Jeddah 21589, Saudi Arabia

⁴ Institute of Mechanics and Advanced Materials, Cardiff School of Engineering, Cardiff University, UK

⁵Department of Aeronautics and Aerospace Engineering, Politecnico di Torino, Italy ⁶Department of Mathematics, Faculty of Science, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt

🗷 ABSTRACT 🗷

A cell-based smoothed finite element method with discrete shear gap technique is employed to study the static bending, free vibration, and mechanical and thermal buckling behaviour of functionally graded material (FGM) plates. The plate kinematics is based on the first-order shear deformation theory and the shear locking is suppressed by the discrete shear gap method. The shear correction factors are evaluated by employing the energy equivalence principle. The material property is assumed to be temperature dependent and graded only in the thickness direction. The effective properties are computed by using the Mori-Tanaka homogenization method. The accuracy of the present formulation is validated against available solutions. A systematic parametric study is carried out to examine the influence of the gradient index, the plate aspect ratio, skewness of the plate, and the boundary conditions on the global response of the FGM plates. The effect of a centrally located circular cutout on the global response is also studied.



Composite Structures Vol. 133, p. 446-458

Impact Factor = 3.12



HYGROTHERMAL BENDING ANALYSIS OF A SECTOR-SHAPED ANNULAR PLATE WITH VARIABLE RADIAL THICKNESS

D.S. Mashat a, A.M. Zenkour a,b

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

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

ABSTRACT &

This article is concerned with the hygrothermal bending response of the sector-shaped annular plate with variable radial thickness based on Kirchhoff plate theory. The variable radial thickness sector-shaped annular plate is imposed in a hygrothermal environment. The plate has varying radial thickness between the circular edges. The boundary conditions at the plate circular edges may be simply-supported or/and clamped. However, the straight radial edges of the sectorial annular plate are simply-supported. The analytical solutions for the bending response of hygrothermal sectorial annular plates are derived. The small parameter method and Levy-type approach are used for this purpose. The accuracy of the present model is demonstrated via problems for which the solutions and numerical results are available. Numerical results are presented for a variety of problems to serve as benchmark results for future comparisons with other investigators.



Advances in Applied Mathematics and Mechanics Vol. 6 (2), p. 233-246

Impact Factor = 0.645



ANALYSIS OF FUNCTIONALLY GRADED PIEZOELECTRIC CYLINDERS IN A HYGROTHERMAL ENVIRONMENT

M. N. M. Allam¹, A. M. Zenkour^{2,3} and R. Tantawy⁴

¹ Department of Mathematics, Faculty of Science, Mansoura University, Mansoura 35516, Egypt

² Department of Mathematics, Faculty of Science, King Abdulaziz University, P.O. Box 80203, Jeddah 21589, Saudi Arabia

³ Department of Mathematics, Faculty of Science, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt

⁴ Department of Mathematics, Faculty of Science, Damietta University, 34517, Egypt

ABSTRACT 🗷

This paper presents an analytical solution for the interaction of electric potentials, electric displacement, elastic deformations, and describes hygrothermal effect responses in hollow and solid cylinders, subjected to mechanical load and electric potential. Exact solutions for displacement, stresses and electric potentials in functionally graded piezoelectric material are determined using the infinitesimal theory. The material properties coefficients of the present cylinder are assumed to be graded in the radial direction by a power law distribution. Numerical examples display the significant of influence of material inhomogeneity. It is interesting to note that selecting a specific value of inhomogeneity parameter can optimize the piezoelectric hollow and solid cylinders responses, which will be of particular importance in modern engineering designs.



International Journal Of Pressure Vessels And Piping Vol. 119, p. 8-18

Impact Factor = 1.078



HYGROTHERMOELASTIC RESPONSES OF INHOMOGENEOUS PIEZOELECTRIC AND EXPONENTIALLY GRADED CYLINDERS

A.M. Zenkour a,b

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

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



This paper presents the interaction of electric potentials, electric displacement and elastic deformations. The analytical solution is obtained to describe the hygrothermal responses in inhomogeneous piezoelectric hollow cylinders. The present cylinder is subjected to a both mechanical load and an electric potential. The displacement, stresses and electric potentials in the inhomogeneous cylinders are determined. The material properties coefficients of the present cylinder are assumed to be changed in the radial direction by different distribution forms. Two kinds of numerical application examples are displayed. The hygrothermoelastic response of a piezoelectric inhomogeneous cylinder is presented as the first kind while the hygrothermoelastic response of an exponentially graded composite cylinder is presented as the second kind. The significance of influence of different parameters is investigated. The suitable discussions and final conclusions are made.



International Journal Of Structural Stability And Dynamics Vol. 14 (7), p. 1-17

Impact Factor = 1.059



NONLINEAR TRANSIENT THERMAL STRESS ANALYSIS OF TEMPERATURE-DEPENDENT HOLLOW CYLINDERS USING A FINITE ELEMENT MODEL

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

Department of Mathematics, Faculty of Science, King Abdulaziz University, Jeddah 21589, Saudi Arabia

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

[‡]Department of Mathematics, Faculty of Science and Arts-Khulais, King Abdulaziz University, Jeddah, Saudi Arabia §Department of Mathematics, Faculty of Science, Sohag University, Sohag, Egypt

⋈ ABSTRACT ⋈

In this paper, the nonlinear transient thermal stress analysis is conducted for temperature-dependent hollow cylinders subjected to a decaying-with-time thermal field. By the finite element method, the highly nonlinear governing equations are solved. The time histories of temperature, displacement, and stress due to the decaying-with-time thermal load are computed. A sensitivity analysis includes the effects of exponent of the decayed heat flux and temperature dependency of density and material properties is carried out. Numerical results show some interesting characteristics of the thermoelastic behaviors of the hollow cylinders studied. In particular, the effect of temperature-dependency of the material properties on the thermoelastic parameters was demonstrated to be significant.



International Journal of Mechanics and Materials in Design Vol. 10 (2), p. 213-226

Impact Factor = 0.732



HYGROTHERMAL ANALYSIS OF ANTISYMMETRIC CROSS-PLY LAMINATES USING A REFINED PLATE THEORY

A. M. Zenkour, D. S. Mashat, R. A. Alghanmi



The effect of hygrothermal conditions on the antisymmetric cross-ply laminates has been investigated using a unified shear deformation plate theory. The present plate theory enables the trial and testing of different through-the-thickness transverse shear deformation distributions and, among them, strain distributions do not involve the undesirable implications of the transverse shear correction factors. The differential equations of laminated plates whose deformations are governed by either the shear deformation theories or the classical one are derived. Displacement functions that identically satisfy boundary conditions are used to reduce the governing equations to a set of coupled ordinary differential equations with variable coefficients. A wide variety of results is presented for the static response of simply supported rectangular plates under non-uniform sinusoidal hygrothermal/thermal loadings. The influence of material anisotropy, aspect ratio, side-to-thickness ratio, thermal expansion coefficients ratio and stacking sequence on the hygrothermally induced response is studied.



Science And Engineering Of Composite Materials Vol.21 (3), p.401-404

Impact Factor = 0.593



ANALYSIS OF THREE-LAYER COMPOSITE PLATES WITH A NEW HIGHER-ORDER LAYERWISE FORMULATION

D.A. Maturi, A.J.M. Ferreira, A.M. Zenkour and D.S. Mashat



In this paper, we combine a new higher-order layerwise formulation and collocation with radial basis functions for predicting the static deformations and free vibration behavior of three-layer composite plates. The skins are modeled via a first-order theory, while the core is modeled by a cubic expansion with the thickness coordinate. Through numerical experiments, the numerical accuracy of this strong-form technique for static and vibration problems is discussed.





Aiaa Journal Vol. 52 (7), p. 1466-1473

Impact Factor = 1.165



SIMPLIFIED THEORY FOR HYGROTHERMAL RESPONSE OF ANGLE-PLY COMPOSITE PLATES

Ashraf M. Zenkou

King Abdulaziz University, Jeddah 21589, Saudi Arabia

MARSTRACT &

A simplified four-unknown shear and normal deformation plate theory is proposed. It is used to study the response of multilayered angle-ply composite plates due to a variation in temperature and moisture concentrations. The effects of temperature and moisture concentrations on the material properties and the hygrothermal response of multilayered angle-ply composite plates are studied. A number of examples are solved to illustrate the numerical results concerning bending response of multilayered angle-ply composite plates subjected to hygrothermal effects. It is suggested that temperature-dependent and/or moisture-dependent material properties ought to be used in the analysis of laminated plates subjected to hygrothermal loads. Additional comparisons between the present theory and the classical, uniform, and parabolic shear deformation plate theories are made to show how the effect of transverse normal strain is highly significant.



Structural Engineering And Mechanics Vol. 51 (2), p. 199-214

Impact Factor = 0.803



THE EFFECT OF TWO TEMPERATURES ON A FG NANOBEAM INDUCED BY A SINUSOIDAL PULSE HEATING

Ashraf M. Zenkour^{1,2} and Ahmed E. Abouelregal^{3,4a}

¹Department of Mathematics, Faculty of Science, King Abdulaziz University, Jeddah 21589, Saudi Arabia ²Department of Mathematics, Faculty of Science, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt ³Department of Mathematics, Faculty of Science, Mansoura University, Mansoura 35516, Egypt ⁴Department of Mathematics, College of Science and Arts, University of Aljouf, El-Qurayat, Saudi Arabia

ABSTRACT &

The present investigation is concerned with the effect of two temperatures on functionally graded (FG) nanobeams subjected to sinusoidal pulse heating sources. 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 FG nanobeam is fully ceramic whereas the lower surface is fully metal. The generalized two-temperature nonlocal theory of thermoelasticity in the context of Lord and Shulman's (LS) model is used to solve this problem. The governing equations are solved in the Laplace transformation domain. The inversion of the Laplace transformation is computed numerically using a method based on Fourier series expansion technique. Some comparisons have been shown to estimate the effects of the nonlocal parameter, the temperature discrepancy and the pulse width of the sinusoidal pulse. Additional results across the thickness of the nanobeam are presented graphically.



Advances in Applied Mathematics and Mechanics Vol. 6 (6), p.783-796

Impact Factor = 0.645



ON THE GENERALIZED THERMOELASTICITY PROBLEM FOR AN INFINITE FIBRE-REINFORCED THICK PLATE UNDER INITIAL STRESS

Ahmed E. Abouelregal^{1,3} and Ashraf M. Zenkour^{2,4}

- ¹ Department of Mathematics, Faculty of Science, Mansoura University, Mansoura 35516, Egypt
- ² Department of Mathematics, Faculty of Science, King Abdulaziz University, P.O. Box 80203, Jeddah 21589, Saudi Arabia
- ³ Department of Mathematics, College of Science and Arts, University of Aljouf, El-Qurayat, Saudi Arabia
 - ⁴ Department of Mathematics, Faculty of Science, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt

🖎 ABSTRACT 🗷

In this paper, the generalized thermoelasticity problem for an infinite fiber-reinforced transversely-isotropic thick plate subjected to initial stress is solved. The lower surface of the plate rests on a rigid foundation and temperature while the upper surface is thermally insulated with prescribed surface loading. The normal mode analysis is used to obtain the analytical expressions for the displacements, stresses and temperature distributions. The problem has been solved analytically using the generalized thermoelasticity theory of dualphase-lags. Effect of phase-lags, reinforcement and initial stress on the field quantities is shown graphically. The results due to the coupled thermoelasticity theory, Lord and Shulman's theory, and Green and Naghdi's theory have been derived as limiting cases. The graphs illustrated that the initial stress, the reinforcement and phase-lags have great effects on the distributions of the field quantities.



Journal Of Thermal Stresses Vol. 37 (11), p. 1302-1323

Impact Factor = 1.169



GENERALIZED THERMOELASTIC VIBRATION OF AN AXIALLY MOVING CLAMPED MICROBEAM SUBJECTED TO RAMP-TYPE THERMAL LOADING

Ashraf M. Zenkour ab, Ahmed E. Abouelregal cd & Ibrahim A. Abbas ef

^a Department of Mathematics, Faculty of Science , King Abdulaziz University , Jeddah , Saudi Arabia

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

^c Department of Mathematics, Faculty of Science , Mansoura University , Mansoura , Egypt

^d Department of Mathematics, College of Science and Arts , University of Aljouf , El-Qurayat , Saudi Arabia

^e Department of Mathematics, Faculty of Science and Arts-Khulais , King Abdulaziz
University , Jeddah , Saudi Arabia

^fDepartment of Mathematics, Faculty of Science, Sohag University, Sohag, Egypt

🖎 ABSTRACT 🗷

In this article, the generalized thermoelastic problem of an axially moving microbeam subjected to ramp-type heating is studied. Based on the heat conduction equation containing the thermoelastic coupling term and the classical Euler—Bernoulli thin beam theory, the thermoelastic coupling differential equation of motion of the microbeam is established. The generalized thermoelasticity theory with dual-phase-lags (DPLs) model is used to solve this problem. An analytical technique is used to calculate the vibration of deflections and temperature. The effects of the PLs, the transport speed and the ramp-time parameters on the lateral vibration, temperature, displacement, stress, bending moment, and strain energy density of the microbeam are discussed. Some comparisons have been shown graphically to estimate the effects of the dimensionless speed as well as the time on all the studied fields. The through-the thickness distributions of all fields are also investigated.







Journal Of Vibration And Control Vol. 20 (12), p. 1907-1919

Impact Factor = 4.355



MAGNETO-THERMOELASTIC RESPONSE OF AN INFINITE FUNCTIONALLY GRADED CYLINDER USING THE FINITE ELEMENT METHOD

Ashraf M Zenkourand Ibrahim A Abbas



In this article, the magneto-thermo analysis problem of an infinite functionally graded (FG) hollow cylinder is studied. The radial displacement, mechanical stresses and temperature, as well as the electromagnetic stress, are all investigated along the radial direction of the infinite cylinder. 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.



Applied Mathematics And Computation Vol. 246, p. 482-490

Impact Factor = 1.6



THERMAL SHOCK PROBLEM FOR A FIBER-REINFORCED ANISOTROPIC HALF-SPACE PLACED IN A MAGNETIC FIELD VIA G-N MODEL

Ashraf M. Zenkour a,c, Ibrahim A. Abbas b,d

^a Department of Mathematics, Faculty of Science, King Abdulaziz University, Jeddah 21589, Saudi Arabia

^b Department of Mathematics, Faculty of Science and Arts-Khulais, King Abdulaziz University, Jeddah, Saudi Arabia

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

^d Department of Mathematics, Faculty of Science, Sohag University, Sohag, Egypt

⋈ ABSTRACT ⋈

The generalized magneto-thermoelasticity theory, based on Green-Naghdi model, is used to study the thermal shock problem of a fiber-reinforced anisotropic half-space. The solid half-space deforms because of thermal shock, and due to the application of the magnetic field. Maxwell's equations are formulated and the generalized coupled governing equations are derived. Finite element method with the Laplace transform technique is used to obtain the general solution. The distributions of the considered physical variables are represented graphically. The influence of the magnetic field is discussed. Some particular cases of special interest due to the application of two types of Green and Naghdi's theory have been deduced.



Journal of Vibroengineering Vol. 16 (6), p. 2747-2755

Impact Factor = 0.66



FREE VIBRATION ANALYSIS OF DOUBLY CONVEX/CONCAVE FUNCTIONALLY GRADED SANDWICH BEAMS

Ashraf M. Zenkour¹, Ibrahim A. Abbas²

¹Department of Mathematics, Faculty of Science, King Abdulaziz University, P. O. Box 80203, Jeddah 21589, Saudi Arabia

¹Department of Mathematics, Faculty of Science, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt

²Department of Mathematics, Faculty of Science and Arts-Khulais, King Abdulaziz University, Jeddah, Saudi Arabia

²Department of Mathematics, Faculty of Science, Sohag University, Sohag, Egypt

➢ ABSTRACT ☎

This paper presents the highly accurate analytical investigation of the natural frequencies for doubly convex/concave sandwich beams with simplysupported or clamped-supported boundary conditions. The present sandwich beam is made of a functionally graded material composed of metal and ceramic. The properties are graded in the thickness direction of the two faces according to a volume fraction power-law distribution. The bottom surface of the bottom face and the top surface of the top face are both metal-rich material. The core is made of a fully ceramic material. The thickness of the sandwich beam varies along its length according to a quadratic-law distribution. Two types of configuration with doubly convex and doubly concave thickness variations are presented. The governing equation and boundary conditions are derived using the dynamic version of the principle of minimum of the total energy. The objective is to study the natural frequencies, the influence of constituent volume fractions and the effect of configurations of the constituent materials on the frequencies. Natural vibration frequencies of sandwich beams versus many parameters are graphically presented and remarking conclusions are made.



Steel & Composite Structures Vol. 17 (4), p. 535-548

Impact Factor = 0.719



TORSIONAL ANALYSIS OF HETEROGENEOUS MAGNETIC CIRCULAR CYLINDER

Ashraf M. Zenkour 1,2

¹Department of Mathematics, Faculty of Science, King Abdulaziz University,
P. O. Box 80203, Jeddah 21589, Saudi Arabia

²Department of Mathematics, Faculty of Science, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt

ABSTRACT 🗷

In this paper, the exact closed-form solutions for torsional analysis of heterogeneous magnetostrictive circular cylinder are derived. The cylinder is subjected to the action of a magnetic field produced by a constant longitudinal current density. It is also acted upon by a particular kind of shearing stress at its upper base. The rigidity of the cylinder is graded through its axial direction from one material at the lower base to another material at the upper base. The distributions of circumferential displacement and shear stresses are presented through the radial and axial directions of the cylinder. The influence of the magnetostrictive parameter is discussed. The effects of additional parameters are investigated.





Applied Mathematics And Computation Vol. 248, p. 169-183

Impact Factor = 1.6



A REFINED NONLOCAL THERMOELASTICITY THEORY FOR THE VIBRATION OF NANOBEAMS INDUCED BY RAMP-TYPE HEATING

A.M. Zenkour ^{a,b}, A.E. Abouelregal ^{c,f}, K.A. Alnefaie ^d, N.H. Abu-Hamdeh ^d, E.C. Aifantis ^{d,e}

- ^a Department of Mathematics, Faculty of Science, King Abdulaziz University, P.O. Box 80203, Jeddah 21589, Saudi Arabia
 - ^b Department of Mathematics, Faculty of Science, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt
 - ^c Department of Mathematics, Faculty of Science, Mansoura University, Mansoura 35516, Egypt
 - ^d Department of Mechanical Engineering, King Abdulaziz University, Jeddah 21589, Saudi Arabia
- ^e Laboratory of Mechanics and Materials, Polytechnic School, Aristotle University of Thessaloniki, Thessaloniki GR-54124, Greece

f Department of Mathematics, College of Science and Arts, University of Aljouf, El-Qurayat, Saudi Arabia

⋈ ABSTRACT ⋈

For small volumes at the micrometer and nanometer level, classical continuum mechanics cannot be used to capture experimentally observed phenomena, such as size effects. Moreover, dissipation is much less pronounced than that in the case of macroscopic volume elements. To remedy the situation, generalized continuum mechanics theories should be used as an alternative to molecular dynamics simulations which do provide physical insight, but may not be suitable for engineering applications and the formulation of related boundary value problems. The present contribution is an example in this direction. An Euler-Bernoulli beam model is constructed to study the vibration of a nanobeam subjected to ramp-type heating. A generalized thermoelasticity theory with non-local deformation effects and dual-phase-lag (DPL) or time-delay thermal effects is used to address this problem. An analytical technique based on Laplace transform is employed. The inverse of Laplace transform is computed numerically using Fourier expansion techniques. The effects of nonlocality, DPLs, and the ramping-time parameter on the lateral vibration, the temperature, the displacement and the flexural moment of the nanobeam are discussed. The results are shown quantitatively in corresponding graphs.



Journal Of Mechanical Science And Technology Vol.28(11), p.4663-4672

Impact Factor = 0.703



EVALUATION OF REFINED THEORIES FOR MULTILAYERED SHELLS VIA AXIOMATIC/ ASYMPTOTIC METHOD

Daoud S. Mashat¹, E. Carrera^{1,2,*}, Ashraf M. Zenkour^{1,3}, Sadah A. Al Khateeb¹ and A. Lamberti²

¹Department of Mathematics, Faculty of Science, King Abdulaziz University, P.O. Box 80203, Jeddah 21589, Saudi Arabia

²Department of Mechanical and Aerospace Engineering, Politecnico di Torino, Italy

³Department of Mathematics, Faculty of Science, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt

ABSTRACT &

This paper is devoted to refined shell theories for the analysis of isotropic and laminated shells. Refined theories are built by assuming higher expansion order for the displacement field in the shell thickness directions. The implementation of these theories is made according to the Carrera unified formulation (CUF) which makes it possible to obtain shell governing equations in terms of fundamental nuclei whose form is independent of the chosen theory shell. Equivalent single layer and layer wise schemes are used. The axiomatic/asymptotic technique is employed to evaluate the effectiveness of each displacement variable in the adopted displacement expansion. The error introduced by each term deactivation is evaluated with respect to a reference solution and according to a given error criterion; if the error computed does not exceed an a priori defined threshold the term is considered as not relevant and discarded. In this way it is possible to construct reduced models for each stress/displacement component. Attention has been restricted to closed form Navier type solutions and simply supported orthotropic shells are considered in the numerical investigation. Analysis of the displacement variables relevance is performed considering the influence of the kind of material and of the geometry, specifically isotropic and laminated materials and thick and thin shells. "Best" reduced models are proposed and related distributions are discussed.



International Journal of Applied Mechanics Vol. 6 (5), p. 1-26

Impact Factor = 1.293



EFFECTS OF TRANSVERSE SHEAR AND NORMAL STRAINS ON FG PLATES RESTING ON ELASTIC FOUNDATIONS UNDER HYGRO-THERMO-

MECHANICAL LOADING

A. M. ZENKOUR¹, M. N. M. ALLAM and A. F. RADWAN²

- ¹ Department of Mathematics, Faculty of Science, King Abdulaziz University, P.O. Box 80203, Jeddah 21589, Saudi Arabia
- ¹ Department of Mathematics, Faculty of Science, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt
- ² Department of Mathematics, Faculty of Science, Mansoura University, Mansoura 35516, Egypt

ABSTRACT &

The influence of temperature and moisture on the bending behavior of composite functionally graded material (FGM) plates resting on elastic foundations is investigated. A transverse shear and normal deformation theory are used with five unknown functions as opposed to six or even greater numbers in the case of other shear and normal deformation theories. An accurate solution is presented in the hygrothermal response of the FG plate with simply-supported edges and resting on elastic foundations. The interaction between the plate and the elastic foundations is considered and included in the equilibrium equations. The influences of Winkler and Pasternak foundation parameters, temperature, moisture concentration, thickness stretching, shear deformation, plate aspect ratio, side-to-thickness ratio, and volume fraction distribution on the plate bending characteristics are studied in detail. Numerical results for the hygro-thermo-mechanical response of the FG rectangular plates is investigated and some of them are compared with those available in the literature.



IJST, Transactions of Mechanical Engineering Vol.38 (m2),p. 321-335

Impact Factor = 0.581



EFFECT OF PHASE LAGS ON THERMOELASTIC FUNCTIONALLY GRADED MICROBEAMS SUBJECTED TO RAMP-TYPE HEATING

A. E. ABOUELREGAL¹ AND A. M. ZENKOUR^{2,3}

¹Dept. of Mathematics, Faculty of Science, Mansoura University, Mansoura 35516, Egypt ²Dept. of Mathematics, Faculty of Science, King Abdulaziz University,

P.O. Box 80203, Jeddah 21589, Saudi Arabia

³Department of Mathematics, Faculty of Science, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt

ABSTRACT 🗷

This article deals with the study of generalized solution for the vibration of functionally graded (FG) microbeam in the context of the dual phase lag model. Numerical results are presented for the FG beam subjected to a ramp-type heating and has exponentially varying material properties through the thickness. The effect of the ramping time parameter is studied on the lateral vibration, temperature, displacement, stress, the moment and the strain energy of the FG microbeam. The influence of the thickness of the beam is also analyzed. A comparison of the results for different theories is presented. The results obtained theoretically have been computed numerically and are presented graphically. Some particular cases are also discussed in the context of the problem.



Applied Mathematical Modelling Vol. 38 (24), p. 6133-6143

Impact Factor = 2.185



EXACT SOLUTION OF THERMAL STRESS PROBLEM OF AN INHOMOGENEOUS HYGROTHERMAL PIEZOELECTRIC HOLLOW CYLINDER

Ashraf M. Zenkour

Dept. 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 closed-form exact solution for the hygrothermal response of inhomogeneous piezoelectric hollow cylinders is obtained. The interaction of electric potentials, electric displacement and elastic deformations is presented. The present cylinder is subjected to both a mechanical load and an electric potential. The material properties coefficients of the present cylinder are assumed to be changed in the radial direction by different distribution forms. The field quantities like displacement, stresses and electric potentials in the inhomogeneous piezoelectric cylinders are determined. The significant of influences of material inhomogeneity, initial temperature, final moisture, and the load and electric ratios in the field quantities are investigated. The concluding remarks and suitable discussions are made.



Acta Mechanica Vol. 225 (12), p. 3409-3421

Impact Factor = 1.268



VIBRATION OF FG NANOBEAMS INDUCED BY SINUSOIDAL PULSE-HEATING VIA A NONLOCAL THERMOELASTIC MODEL

Ashraf M. Zenkour, Ahmed E. Abouelregal

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

ABSTRACT &

The vibration of functionally graded (FG) nanobeams subjected to a sinusoidal pulse-heating source is investigated. Material properties of the nanobeam are assumed to be graded in the thickness direction according to a novel exponential distribution in terms of the volume fractions of the metal and ceramic constituents. The upper surface of the FG nanobeam is pure ceramic, whereas the lower surface is pure metal. The generalized nonlocal thermoelasticity model based on Lord and Shulman's theory is used to solve this problem. An analytical technique based on Laplace transform is used to calculate the vibration of deflection and temperature. The inverse Laplace transforms are computed numerically using Fourier expansion techniques. A comparison between the obtained results from the nonlocal theory and those from the local theory of coupled thermoelasticity is presented. The effect of the nonlocal parameter, the pulse width of the sinusoidal pulse, is studied on the lateral vibration, the temperature and the displacement of the nanobeam. Additional results across the thickness of the nanobeam are presented graphically.



Journal of Vibroengineering Vol. 16 (7), p. 3260-3272

Impact Factor = 0.66



BENDING OF INHOMOGENEOUS SANDWICH PLATES WITH VISCOELASTIC CORES

A. M. Zenkour¹, H. F. El-Mekawy²

1Department of Mathematics, Faculty of Science, King Abdulaziz University, P.O. Box 80203, Jeddah 21589, Saudi Arabia

¹Department of Mathematics, Faculty of Science, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt

²Quantitative Methods Unit, College of Business & Economics, Qassim University, P.O. Box 6633, Almelaida 51452, Saudia Arabia

²Department of Management Information Systems, Faculty of Economics and Administration,
Qassim University, P.O. Box 6666, Buraidah 51452, Saudi Arabia

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

Mansoura 35516, Egypt

⋈ ABSTRACT ⋈

This article presents the bending analysis of an inhomogeneous composite sandwich rectangular plate with viscoelastic core. The sinusoidal plate theory as well as other familiar shear deformation plate theories is used. Different types of intermediate plates are considered according to the thickness of all layers and the symmetry of the plate. Illyushin's approximation and the effective moduli methods are used to treat the governing equations of sandwich plates that reinforced with inhomogeneous fibers. Various results for deflections of and some stresses in such plates are presented. A comparison study is made to investigate the effect of time, inhomogeneity, and constitutive parameters as well as the effect of span-to-thickness and aspect ratios on the bending response of the sandwich plates.



Journal of Vibroengineering Vol. 16 (8), p. 3665-3678

Impact Factor = 0.66



NONLOCAL THERMOELASTIC VIBRATIONS FOR VARIABLE THERMAL CONDUCTIVITY NANOBEAMS DUE TO HARMONICALLY VARYING HEAT

Ashraf M. Zenkour¹, Ahmed E. Abouelregal²

¹Department of Mathematics, Faculty of Science, King Abdulaziz University, P.O. Box 80203, Jeddah 21589, Saudi Arabia

¹Department of Mathematics, Faculty of Science, Kafrelsheikh University, Kafr El-Sheikh 33516, Egypt

²Department of Mathematics, Faculty of Science, Mansoura University,
Mansoura 35516, Egypt

²Department of Mathematics, College of Science and Arts, University of Aljouf, El-Qurayat, Saudi Arabia

🖎 ABSTRACT 🗷

This article constructs a new model of nonlocal thermoelasticity beam theory with phase-lags considering the thermal conductivity to be variable. A nanobeam subjected to a harmonically varying heat is considered. The nonlocal theories of coupled thermoelasticity and generalized thermoelasticity with one relaxation time can be extracted as limited and special cases of the present model. The effects of the variable thermal conductivity parameter, the nonlocal parameter, the phase-lags and the angular frequency of thermal vibration on the lateral vibration, the temperature, the displacement, and the bending moment of the nanobeam are investigated.



Industrial Crops and Products Vol. 87, p. 273-283

Impact Factor = 3.208



CHEMICAL COMPOSITION, TOXICITY AND GROWTH INHIBITORY ACTIVITIES OFESSENTIAL OILS OF THREE ACHILLEA SPECIES AND THEIR NANO-EMULSIONSAGAINST TRIBOLIUM CASTANEUM (HERBST)

Gomah E. Nenaah

Zoology Department, Faculty of Science, Kafrelsheikh University, 33516 Kafr el-Sheikh, Egypt.



tEssential oils of Achillea biebersteinii, A. santolina and A. mellifolium were obtained by hydrodistillation, then analyzed using gas chromatography (GC) and GC/mass spectrometry (MS). The obtained oils showedconsiderable toxic and growth inhibitory activities against the red flour beetle, castaneum(Herbst) (Coleoptera: Tenebrionidae). The time of exposure, the technique used and the stage treated, allwere activity-determinant factors, where A. biebersteinii oil showed the strongest insecticidal activity andthe adult stage was more susceptible than larvae. Using topical application, LC50values of A. biebersteinii, A. santolina and A. mellifolium oils after 96 h of exposure of larvae were 30.3, 47.8 and 62.3 _g/mg insect, respectively. In this case, LC50sagainst adults were ranged between 21.8 and 50.7 _g/mg insects. Usingtreated filter papers, the LC50values after 96 h of exposure against larvae were ranged between 124.9and 212.0 _L/cm2, while against adults were ranged between 113.0 and 196.8 _L/cm2. In the fumigantbioassay, LC50safter 96 h of exposure against larvae were between 41.7 and 93.2 L/L air, while againstadults were between 36.1 and 80.6 _L/L air. When prepared as nano-emulsions and tested as fumigants, toxicity of oils was increased dramatically, where LC50values after 96 h of exposure against larvae andadults were ranged between 11.0 and 27.5 _L/L air and 8.8 and 21.3 _L/L air, respectively. When exposedas 2nd instar larvae to sub-lethal doses-treated grains, the developmental course, life span and Flprogenyof T. castaneum were significantly affected, where the oil of A. santolina showed the strongest activity. All of these developmental disruptions led to a great reduction in the number of adults that undergosuccessful emergence.



Journal Of Pest Science Vol. 53, p. 252-260

Impact Factor = 2.664



CHEMICAL COMPOSITION, INSECTICIDAL AND REPELLENCE ACTIVITIES OF ESSENTIAL OILS OF THREE ACHILLEA SPECIES AGAINST THE KHAPRA BEETLE (COLEOPTERA: DERMESTIDAE)

Gomah E. Nenaah

Zoology Department, Faculty of Science, Kafrelsheikh University, 33516 Kafr el-Sheikh, Egypt.

ABSTRACT &

Essential oils of Achillea biebersteinii, Achillea santolina and Achillea mellifolium were obtained by hydrodistillation and analyzed using gas chromatography/mass spectrometry. The plant oils were tested for their toxic and repellent activities against the Khapra beetle, Trogoderma granarium (Everts) (Coleoptera: Dermestidae). T. granarium was sensitive to the oils via topical application, contact and fumigation bioassays, where A. biebersteinii oil was the most toxic regardless of the technique used. Using topical application, a dosage of 15 lg/mg insect of A. biebersteinii oil was sufficient to kill 100 and 83.2.0 % after 7 days exposure of adults and 2nd instar larvae, respectively. Meanwhile, twice this concentration of A. santolina and A. mellifolium oils caused 90.4 (72.5 %) and 73.8 (60.1 %) adult and larval mortality after 7 days, respectively. Using fumigation and 7 days exposure, a concentration of 50.0 ll/l air of A. biebersteinii oil displayed the strongest activity (percentage adult and larval mortalities of 100.0 and 88.0 %), respectively, while A. santolina and A. mellifolium oils at the same concentration caused 92.5 (76.8 %) and 76.1 (61.3 %) adult and larval mortality, respectively. The three oils were strongly repellent to the larvae and adults of T. granarium. The repellent activity was time and concentration-dependent, where A. biebersteinii oil was the most effective, even though at low concentrations (percentage repellency of 100 and 81.0 % were recorded against adults and larvae after 6 h exposure to a concentration of 0.22 ll/cm2, respectively). Results suggested the potential use of Achillea oils as natural grain protectants against T. granarium.



Journal Of Asia-Pacific Entomology Vol. 17, p. 701-709

Impact Factor = 0.875



BIOACTIVITY OF POWDERS AND ESSENTIAL OILS OF THREE ASTERACEAE PLANTS AS POST-HARVEST GRAIN PROTECTANTS AGAINST THREE MAJOR COLEOPTERAN PESTS

Gomah E. Nenaah

Zoology Department, Faculty of Science, Kafrelsheikh University, 33516 Kafr el-Sheikh, Egypt.



Powders and essential oils were obtained from Achillea biebersteinii, A. fragrantissima and Ageratum conyzoides and tested for their insecticidal activity against Sitophilus oryzae, Rhyzopertha dominica and Tribolium castaneum. Composition of the oils was identified by gas chromatography (GC) and GC/mass spectrometry (MS). The tested plants showed adulticidal activity, where toxicity varied with dosage of the plant product, the insect tested and the exposure period. When mixed with grains as ground powders, a dosage of 20 g/kg grains killed 88.2, 73.6 and 64.4% of S. oryzae after 12 days of exposure with 79.6, 63.3 and 48% reduction in progeny for powders of A. biebersteinii, A. conyzoides and A. fragrantissima, respectively. Under the same assay conditions, A. biebersteinii and A. conyzoides powders killed 100% of R. dominica. T. castaneum was less susceptible to the plant powders. The LC50 values for powders were 22.8, 31.6 and 39.7 mg/g grains for A. biebersteinii, 27.1, 35.4 and 47.8 mg/g grains for A. conyzoides and 36.9, 48.3 and 78.6 mg/g grains for A. fragrantissima against R. dominica, S. oryzae and T. castaneum, respectively. Upon fumigation, a dose of 60 µl/L air of A. biebersteinii and A. conyzoides oils was sufficient to kill 100% of R. dominica after 12 days of adult exposure, while 91.3% adult mortality was recorded in the case of A. fragrantissima oil. S. oryzae and T. castaneum showed a great susceptibility to the plant oils. Powders exhibited a moderate to strong residual activitywhere A. conyzoides showed the greatest grain protecting activity.



Natural Product Research Vol.28 (24), p. 2245-2252

Impact Factor = 1.225



TOXIC AND ANTIFEEDANT ACTIVITIES OF PRENYLATED FLAVONOIDS ISOLATED FROM TEPHROSIA APOLLINEA L. AGAINST THREE MAJOR COLEOPTERAN PESTS OF STORED GRAINS WITH REFERENCE TO THEIR STRUCTURE—ACTIVITY RELATIONSHIP

Gomah E. Nenaah

Zoology Department, Faculty of Science, Kafrelsheikh University, 33516 Kafr el-Sheikh, Egypt.

ABSTRACT 🗷

Four prenylated flavonoids, isoglabratephrin, (+)-glabratephrin, tephroapollin-F and lanceolatin-A were isolated from Tephrosia apollinea L. and tested against three stored grain insects. Using the filter paper bioassay, compounds showed adulticidal activity against Sitophilus oryzae (L), Rhyzopertha dominica (F) and Tribolium castaneum (Herbst) at concentrations of 0.875, 1.75 and 3.5 mg ml⁻¹. At 3.5 mg ml⁻¹, tephroapollin-F was the most toxic (78.6, 64.6 and 60.7% mortality were recorded after 10 days exposure of S. oryzae, R. dominica and T. castaneum, respectively). The F1 progeny production of insects was affected after parental exposure to flavonoids, where S. oryzae was the most susceptible. A nutritional bioassay, employing a flour disc and test concentrations of 0.65, 1.3 and 2.6 mg g⁻¹, revealed a significant reduction in the relative growth rate (RGR), relative consumption rate (RCR) and efficiency of conversion of ingested food (ECIF) by all insects. The structure-activity relationship among the tested flavonoids was discussed.



Arabian Journal of Chemistry Vol. 7, p. 672-679

Impact Factor = 2.684



STRUCTURAL ZINC(II) THIOLATE COMPLEXES RELEVANT TO THE MODELING OF ADA REPAIR PROTEIN: APPLICATION TOWARD ALKYLATION REACTIONS

Mohamed M. Ibrahim a,b,*. A. Mosa c

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

^b Chemistry Department, Faculty of Science, Taif University, Alhawiya 888, Saudi Arabia ^c Chemistry Department, Faculty of Science for Girls, King Abd Al Aziz University, Jeddah, Saudi Arabia

⋈ ABSTRACT ⋈

The TtZn(II)-bound perchlorate complex [TtZn-OClO3] 1 (Ttxyly = hydrotris[N-xylylthioimidazolyl] borate) was used for the synthesis of zinc(II)-bound ethanthiothiol complex [TtZn-SCH2CH3] 2 and its hydrogen-bond containing analog Tt-ZnSCH2CH2-NH (C,O) OC(CH3)3 3. These thiolate complexes were examined as structural models for the active sites of Ada repair protein toward methylation reactions. The Zn[S3O] coordination sphere in complex 1 includes three thione donors from the ligand Ttixyl and one oxygen donor from the perchlorate coligand in ideally tetrahedral arrangement around the zinc center. The average Zn(1)-S(thione) bond length is 2.344 A $^{\circ}$, and the Zn(1)-O(1) bond length is 1.917 A $^{\circ}$.



Comptes Rendus Chimie Vol.17, p. 1013-1022

Impact Factor = 1.438



SYNTHESIS, SPECTROSCOPY, ELECTROCHEMISTRY, AND METHYLATION REACTION OF THE DITHIOLATE-BASED COBALT(II) COMPLEX DERIVED FROM TERT-BUTYL N-(2-MERCAPTOETHYL)CARBAMATE

Mohamed M. Ibrahim ^{a,b,*}, Gaber A.M. Mersal ^{a,c}, Nagi El-Shafai ^b, Mohamed M. Youssef ^{a,d}, Hanaa Shokry ^b

^a Department of Chemistry, Faculty of Science, Taif University, 888 Hawiya, Saudi Arabia.

^b Departmentof Chemistry, Faculty of Science, Kafr El-Sheikh University, Kafr El-Sheikh 33516, Egypt.

^c Department of Chemistry, Faculty of Science, South Valley University, Qena, Egypt.

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

> ABSTRACT &

A dithiolate-containing a carbamate mononuclear cobalt(II) complex namely, [Co(Boc-S)2] (1), was obtained by the reaction of a methanolic solution of cobalt(II) nitrate hexahydrate with two equimolar amounts of the deprotonated form of tert-butyl N-(2-mercap- toethyl)carbamate (Boc-SH). The cobalt(II) complex (1) was characterized in the solid state and in solution by using FT-IR, Raman, UV-visible, and EI-mass spectroscopies, as well as thermal and X-ray diffraction studies. Spectral data showed that the carbamate (Boc-SH) acts as a mono-anionic bidentate ligand coordinating the cobalt(II) ion through two imine nitrogen and two deprotonated thiolate sulfur donor atoms in a distorted tetrahedral geometry. The thermoanalytical data evidence that the complex is stable up to 165 8C and undergoes complete decomposition, resulting in CoO. TEM imaging of the oxide residue shows its nano size clusters, suggesting that the complex (1) may be used as a precursor for nano-oxides. X-ray powder diffraction patterns evidence an isomorphism among the complex. The redox behavior of the cobalt(II) complex was also investigated by cyclic voltammetry. The reaction of the dithiolate cobalt(II) complex (1) with methyl iodide appears to occur intramolecularly with the cobalt-bound dithiolate, forming the cobalt(II)- bound dithioether complex [Co(Boc-SCH3)2]12 (2), as a dication complex with a clean second-order reaction of 13.24 _ 10_2M_1_s_1.



Russian Journal Of Bioorganic Chemistry Vol.40(2), p.214-227

Impact Factor = 0.623



SYNTHESIS, INSECTICIDAL, AND FUNGICIDAL SCREENING OF SOME NEW SYNTHETIC OUINOLINE DERIVATIVES

M. R. E. Aly^{a, b, 2}, M. M. Ibrahim^{a,c}, A. M. Okael^d, and Y. A. M. H. Gherbawy^{e, f}

^a Chemistry Department, Faculty of Science, Taif University, Alhawyah Taif, 888 Kingdom of Saudi Arabia

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

^c Chemistry Department, Faculty of Science, Kafr El Sheikh University, Kafr El_Sheikh, 33516 Egypt

d Plant Protection Research Institute, ARC, Dokki, Cairo, Egypt
 e Biology Department, Faculty of Science, Taif University, Alhawyah_Taif, KSA
 f Botany Department, Faculty of Science, South Valley University, Qena, Egypt

ABSTRACT 🗷

This paper describes the synthesis of a series of quinolines graphted with hydrazones, pyrazoles, pyridazine, phthalazine, triazepinone, semicarbazide, and thiomorpholide moieties and four metal com_plexes. These derivatives were screened against Fusarium oxysporum and the red palm weevil (RPW) Rhyn_chophorus ferrugineus Oliver (coleopteran: Curculionidae) as palm pathogens. Only chlorinated quinolines were active against these organisms with hydrazones being good fungicides, while those modified with pyra_zoles and pyrazines showed moderate insecticidal activity. A unique trihydroxylated hydrazone was active against both organisms, while another hydrazone, the most potent fungicide in this series, exhibited insecti_cidal activity only upon complexation with Zn2+ ions.



International Journal of Electrochemical Science Vol. 10, p. 347-355

Impact Factor = 1.956



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

Aisha I. Mosa^{1,*}, Aisha M. A. Al-Turkustani¹,

Mohamed M. Ibrahim^{2,3}, Kholood S. Abo-Melha⁴

¹Department of Chemistry, Sciences Faculty for Girls, King Abdulaziz University, Jeddah, Saudi Arabia

²Department of Chemistry, Faculty of Science, Taif University, Taif, Saudi Arabia

³Departmentof Chemistry, Faculty of Science, Kafr El-Sheikh University,

Kafr El-Sheikh, Egypt

⁴Department of Chemistry, Girl's Collage of Education, King Khalid University, Abha, Saudi Arabia.

MARIE ABSTRACT

The protonation constants of monoxime HL1 and dioxime H2L2, derived from 1-(o-hydroxybenzoyl)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.



Chemphyschem Vol. 15, p. 30-47

Impact Factor = 3.36



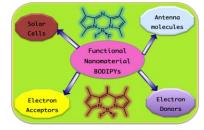
PHOTOSYNTHETIC ANTENNA-REACTION CENTER MIMICRY USING BORON DIPYRROMETHENE SENSITIZERS

Mohamed E. El-Khouly, Shunichi Fukuzumi, and Francis D'Souza

ABSTRACT

Various molecular and suprmaolecular systems have been synthesized and characterized recently to mimic functions of photosynthesis in which solar energy conversion is achieved. Artificial photosynthesis consists of light-harvesting and charge-separation processes together with catalytic units of water oxidation and reduction. Among the BF₂-chelated molecules, dipyrromethene, "porphyrin's little sister" family have been widely used in constructing these artificial photosynthetic models due to their unique properties. In these photosynthetic models, BODIPYs act as not only excellent antenna molecules but also as electron donor and acceptor molecules in both the covalently linked molecular and supramolecular systems formed either by axial coordination, hydrogen bonding, or crown ether complexation. The relations between structures and photochemical reactivities of these novel molecular and supramolecular systems are discussed in relation to the efficiency of charge separation and charge recombination. The femtosecond and nanosecond transient absorption and photoelectrochemical techniques have been employed in these studies to give clear evidences for occurrence the energy-transfer and

electron-transfer reactions and to determine their rates and efficiencies.





J. Phys. Chem. C Vol. 118, p. 2321-2332

Impact Factor = 4.835



BISDONOR-azaBODIPY-FULLERENE SUPRAMOLECULES-SYNTHESES, CHARACTERIZATION AND LIGHT INDUCED ELECTRON TRANSFER STUDIES

Venugopal Bandi,[†] Mohamed E. El-Khouly,^{‡, ‡} Kei Ohkubo,[‡] Vladimir N. Nesterov,[†] Melvin E. Zandler, [#]Shunichi Fukuzumi, ^{*,‡,§} and Francis D'Souza^{*,†}

[†]Department of Chemistry, University of North Texas, 1155 Union Circle, #305070, Denton, Texas 76203-5017, United States

[‡]Graduate School of Engineering, Osaka University, ALCA, Japan Science and Technology Agency (JST), Suita, Osaka 565-0871, Japan

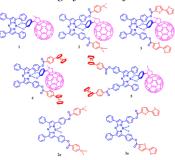
*Department of Chemistry, Wichita State University, 1845 Fairmount, Wichita, Kansas 67260-0051, United States

§Department of Bioinspired Science, Ewha Womans University, Seoul 120-750, Korea



Achieving ultrafast light induced charge separation requires carefully selected donor and acceptor entities often held together in a closer proximity. In the present investigation, two tetrads featuring near-IR emitting sensitizer, BF2-chelated dipyrromethene (azaBODIPY), covalently linked to fullerene through the central boron atom and two electron donor entities viz., N,N-dimethylaminophenyl, or bithiophene to close proximity to the fullerene entity were designed and synthesized, and the results were compared to the earlier reported bisferrocene-azaBODIPY-fullerene tetrads in this series. The tetrads synthesized by establishing a multi-step procedure exhibited typical spectral, redox and photo reactivities of the individual components with some degree of intramolecular interactions. The X-ray structure of one of the precursor triad was also solved as part of this investigation. Ultrafast photoinduced electron transfer was witnessed in the case of both tetrads by femtosecond transient absorption spectroscopy studies. The significance of electron

donor entities was clear for the tetrad derived from N,N-dimethylaminophenyl entities while for bithiophene derived tetrad, the charge separation involved mainly the azaBODIPY and fullerene entities. The charge recombination process involved populating the triplet excited state of azaBODIPY prior returning to the ground state for both tetrads, as demonstrated by nanosecond transient absorption studies.





Physical Chemistry Chemical Physics Vol. 16, p. 2443-2451

Impact Factor = 4.198



PHOTOINDUCED ELECTRON TRANSFER OF ZINC PORPHYRIN-OLIGO(THIENYLENEVINYLENE-FULLERENE[60] TRIADS; THIENYLENEVINLENES AS EFFICIENT MOLECULAR WIRES

Frédéric Oswald, D.-M. Shafiqul Islam, Mohamed E. El-Khouly, Yasuyuki Araki, Rubén Caballero, Pilar de la Cruz, Osamu Ito and Fernando Langa

ABSTRACT 🗷

Two novel donor-bridge-acceptor arrays (ZnP-nTV-C₆₀) with zinc porphyrin (ZnP) and fullerene (C_{60}), covalently connected by oligo(thienylenevinylene) (nTV) molecular wires (n = 3 and 8; 1a,b) have been prepared in a multistep convergent manner. The analysis of the influence of the nTV-length on the electrochemical and electronic properties of the D-B-A triads is reported. Interestingly, an efficient photoinduced electron transfer process occurs in both triads with formation of intermediate photoproducts (namely $ZnP-nTV^{*+}-C_{60}^{\bullet-}$). In polar and nonpolar solvents, the rate constants of charge-separation processes (k_{CS}) of 1 ZnP*-nTV- C_{60} were found to be ca. 1.20 $\times 10^{10}$ s⁻¹ for n = 3 (D-A distance = 20 Å), whereas the k_{CS} values for n = 8 (D-A distance = 60 Å) to be $6.7 \times 10^9 \text{ s}^{-1}$. These photophysical data, together with those previously obtained for n = 3 and 8 in the related ZnP-nTV- C_{60} systems, have allowed to determine attenuation factor, $\beta = 0.016$ \mathring{A}^{-1} in benzonitrile, which is among the lowest values reported so far in the literature. Based on the nanosecond transient absorption measurements in the visible and NIR regions, the lifetimes of the radical ion pairs such as $ZnP^{\bullet+}-nTV-C_{60}^{\bullet-}$ and $ZnP-nTV^{\bullet+}-C_{60}^{\bullet-}$ are found to depend on the length of nTV.



J. Phys. Chem. C Vol. 117, p. 5638-5649

Impact Factor = 4.835



SELF-ASSEMBLED VIA METAL-LIGAND COORDINATION AZABODIPY-ZINC PHTHALOCYANINE AND AZABODIPY-ZINC NAPHTHALOCYANINE CONJUGATES: SYNTHESIS, STRUCTURE, AND PHOTOINDUCED ELECTRON TRANSFER

Venugopal Bandi,[†] Mohamed E. El-Khouly,^{§, 1} Vladimir N. Nesterov,[†] Paul A. Karr,[‡] Shunichi Fukuzumi,^{*,§, ||} and Francis D'Souza^{*,†}

[†]Department of Chemistry, University of North Texas, 1155 Union Circle, #305070, Denton, Texas 76203-5017, United States

[‡]Department of Physical Sciences and Mathematics, Wayne State College, 1111 Main Street, Wayne, Nebraska 68787, United States

§Graduate School of Engineering, Osaka University, ALCA, Japan Science and Technology Agency (JST), Suita, Osaka 565-0871, Japan

Department of Bioinspired Science, Ewha Womans University, Seoul, 120-750, Korea

🖎 ABSTRACT 🗷

Using near-IR emitting photosensitizers, viz., zinc phthalocyanine (ZnPc), zinc naphthalocyanine (ZnNc), and BF2-chelated azadipyrromethene (azaBODIPY), donor-acceptor conjugates have been newly formed using the well-known metal-ligand axial coordination approach. To accomplish this task, the electrondeficient azaBODIPY was functionalized to possess either two pyridine or imidazole ligating entities. The X-ray crystal structure of one such derivative revealed the presence of axial binding capable pyridine entities on the azaBODIPY macrocycle. The structural integrity of the newly formed conjugates was established from optical absorption, emission, 1H NMR, electrochemical, and computational methods. The experimentally determined binding constants suggested moderately stable conjugates. The absence of excitation energy transfer from singlet excited azaBODIPY to either ZnPc or ZnNc in the conjugates was confirmed from the steady-state emission measurements. However, free-energy calculations suggested photoinduced electron transfer to be exothermic from singlet excited ZnPc or ZnNc to azaBODIPY. Femtosecond transient studies confirmed such predictions from where occurrence of ultrafast photoinduced electron transfer was observed. The measured rates of charge separation and charge recombination revealed charge

Award of Kafrelsheikh University

9th Edition 2014-2015

stabilization to some extent in these conjugates.



J Scientific Reports Vol. 4, doi: 10.1038/srep04208

Impact Factor = 5.078



CRYPTOSPORIDIUM PARVUM IID FAMILY: CLONAL

POPULATION AND DISPERSAL FROM WESTERN ASIA TO OTHER GEOGRAPHICAL REGIONS

Rongjun Wang¹, Longxian Zhang¹, Charlotte Axe ´n², Camilla Bjorkman³, Fuchun Jian¹, Said Amer⁴, Aiqin Liu⁵, Yaoyu Feng⁶, Guoquan Li¹, Chaochao Lv¹, Zifang Zhao¹, Meng Qi¹, Haiju Dong¹, Helei Wang¹, Yanru Sun¹, Changshen Ning¹ & Lihua Xiao⁷

¹College of Animal Science and Veterinary Medicine, Henan Agricultural University, Zhengzhou, China,
²Department for Animal Health and Antimicrobial Strategies, Swedish National Veterinary Institute,
Uppsala, Sweden, ³Department of Clinical Sciences, Swedish University of Agricultural Sciences,
Uppsala, Sweden, ⁴Department of Zoology, Faculty of Science, Kafr El sheikh University, Kafe El Sheikh,
Egypt, ⁵Department of Parasitology, HarbinMedical University, Harbin, China, ⁶School of Resource and
Environmental Engineering, East China University of Science and Technology, Shanghai, China,
⁷Division of Foodborne, Waterborne, and Environmental Diseases, National Center for Emerging and
Zoonotic Infectious Diseases, Centers for

Disease Control and Prevention, Atlanta, USA.

⋈ ABSTRACT ⋈

In this study, 111 Cryptosporidium parvum IId isolates from several species of animals in China, Sweden, and Egypt were subtyped by multilocus sequence typing (MLST). One to eleven subtypes were detected at each of the 12 microsatellite, minisatellite, and single nucleotide polymorphism (SNP) loci, forming 25 MLST subtypes. Host-adaptation and significant geographical segregation were both observed in the MLST subtypes. A clonal population structure was seen in C. parvum IId isolates from China and Sweden. Three ancestral lineages and the same RPGR sequence were shared by these isolates examined. Therefore, the present genetic observations including the higher nucleotide diversity of C. parvum IId GP60 sequences in Western Asia, as well as the unique distribution of IId subtypes (almost exclusively found in Asia, Europe, and Egypt) and in combination with the domestication history of cattle, sheep, and goats, indicated that C. parvum IId subtypes were probably dispersed from Western Asia to other geographical regions. More population genetic structure studies involving various C. parvum subtype families using high-resolution tools are needed to better elucidate the origin and dissemination of C. parvum in the world.



Plos Neglected Tropical Diseases Vol. 8 (4), p. 1-10

Impact Factor = 4.489



DISTRIBUTION AND CLINICAL MANIFESTATIONS OF CRYPTOSPORIDIUM SPECIES AND SUBTYPES IN HIV/AIDS PATIENTS IN ETHIOPIA

Haileeyesus Adamu^{1,2}, Beyene Petros², Guoqing Zhang³, Hailu Kassa⁴, Said Amer^{1,5}, Jianbin Ye^{1,6}, Yaoyu Feng⁶, Lihua Xiao¹

¹ Division of Foodborne, Waterborne and Environmental Diseases, Centers for Disease Control and Prevention, Atlanta, Georgia, United States of America, ² Addis Ababa University, Addis Ababa, Ethiopia, ³ Division of Global HIV/AIDS, Centers for Disease Control and Prevention, Atlanta, Georgia, United States of America, ⁴ Department of Public and Allied Health, Bowling Green State University (BGSU), Bowling Green, Ohio, United States of America, ⁵ Department of Zoology, Faculty of Science, Kafr El sheikh University, Kafe El Sheikh, Egypt, ⁶ State Key Laboratory of Bioreactor Engineering, School of Resources and Environmental Engineering, East China University of Science and Technology, Shanghai, People's Republic of China

ABSTRACT &

Background: Cryptosporidiosis is an important cause for chronic diarrhea and death in HIV/AIDS patients. Among common Cryptosporidium species in humans, C. parvum is responsible for most zoonotic infections in industrialized nations. Nevertheless, the clinical significance of C. parvum and role of zoonotic transmission in cryptosporidiosis epidemiology in developing countries remain unclear.

Methodology/Principal Findings: In this cross-sectional study, 520 HIV/AIDS patients were examined for Cryptosporidium presence in stool samples using genotyping and subtyping techniques. Altogether, 140 (26.9%) patients were positive for Cryptosporidium spp. by PCR-RFLP analysis of the small subunit rRNA gene, belonging to C. parvum (92 patients), C. hominis (25 patients), C. viatorum (10 patients), C. felis (5 patients), C. meleagridis (3 patients), C. canis (2 patients), C. xiaoi (2 patients) and mixture of C. parvum and C. hominis (1 patient). Sequence analyses of the60 kDa glycoprotein gene revealed a high genetic diversity within the 82 C. parvum and 19 C. hominis specimens subtyped, including C. parvum zoonotic subtype families IIa (71) and IId (5) and anthroponotic subtype families IIc (2), IIb (1), IIe (1) and If-like (2), and C. hominis subtype families Id (13), Ie (5), and Ib (1). Overall, Cryptosporidium infection was associated with the occurrence of diarrhea and vomiting. Diarrhea was attributable mostly to C. parvum subtype family IIa and C. hominis, whereas vomiting was largely attributable to C. hominis and rare Cryptosporidium species. Calf contact was identified as a significant risk factor for infection with Cryptosporidium spp., especially C. parvum subtype family IIa.

Conclusions/Significance: Results of the study indicate that C. parvum is a major cause of cryptosporidiosis in HIV-positive patients and zoonotic transmission is important in cryptosporidiosis epidemiology in Ethiopia. In addition, they confirm that different Cryptosporidium species and subtypes are linked to different clinical manifestations.





Parasitology Research Vol. 113 (6), p. 2069-2077

Impact Factor = 2.237



DEVELOPMENT OF AN IMMUNOMAGNETIC BEAD SEPARATION-COUPLED QUANTITATIVE PCR METHOD FOR RAPID AND SENSITIVE DETECTION OF CRYPTOSPORIDIUM PARVUM OOCYSTS IN CALF FECES

Shanshan Gao & Min Zhang & Said Amer & Jing Luo & Chengmin Wang & Shaoqiang Wu & Baohua Zhao & Hongxuan He

Department of Zoology, Faculty of Science, Kafr El sheikh University, Kafe El Sheikh, Egypt



Cattle feces are the environmental vehicle for the zoonotic Cryptosporidium oocysts, but there are drawbacks associated with reliability of the existing methods for the detection of oocysts in the feces. Quantification of the immunomagnetic bead separation (IMS) coupled with realtime TaqMan PCR (qPCR) was accomplished by comparing the fluorescence signals obtained from the calf fecal samples of Cryptosporidium parvum oocysts with those obtained from standard dilutions of C. parvum oocysts. TaqMan qPCR assays were developed for the detection of C. parvum based on ¹AS rDNA gene. This IMS-qPCR assay allowed a reliable quantification of C. parvum oocysts over seven orders of magnitude with a baseline sensitivity of 8.7 oocysts. The newly developed IMS-qPCR technique proved specific as confirmed by negative reactivity against a wide panel of non-parvum Cryptosporidium oocysts. As a field application: experimentally infected calves (15 infected and 9 noninfected(were screened for oocysts shedding on 16, 18, and Ydays postinfection. Acid-fast staining microscopy of infected calves revealed oocysts in the feces of 11, 7, and 4 calves, respectively, compared to 15, 15, and 12 in case of screening by IMS-qPCR. Taken together, the proposed IMSqPCR method significantly improved the diagnostic capacity for C. parvum infection in calves, making the technique a useful, sensitive, reliable, and time-saving.

Keywords: Cryptosporidium *parvum* oocysts. Immunomagnetic bead separation. Quantitative real-time PCR. 18S rDNA





PLoS One Vol. 9 (4), p. 1-6

Impact Factor = 3.538



PRELIMINARY MOLECULAR CHARACTERIZATIONS OF SARCOPTES SCAIBIEI (ACARI: SARCOPTIDAE) FROM FARM ANIMALS IN EGYPT

Said Amer^{1,2}, Taher Abd El Wahab³, Abd El Naby Metwaly³, Jianbin Ye^{1,4}, Dawn Roellig¹, Yaoyu Feng⁴, Lihua Xiao¹

¹ Division of Foodborne, Waterborne and Environmental Diseases, Centers for Disease Control and Prevention, Atlanta, Georgia, United States of America, ² Department of Zoology, Kafr El Sheikh University, Kafr El Sheikh, Egypt, ³ Animal Health

Research Institute, Kafr El Sheikh Provincial Laboratory, Kafr El Sheikh, Egypt,

⁴ State Environmental Protection Key Laboratory of Environmental Risk Assessment
and Control on Chemical Process, East China University of Science and Technology, Shanghai,

People's Republic of China

MARSTRACT 🗷

Little is known about the genetic diversity of Sarcoptes scabiei mites in farm animals in Egypt. In this study, we characterized S. scabiei in 25 skin scrapes from water buffalo, cattle, sheep, and rabbits at the nuclear marker ITS2 and mitochondrial markers COX1 and 16S rRNA. Sequences of the ITS2 showed no host segregation or geographical isolation, whereas those of the mitochondrial COX1 and 16S rRNA genes indicated the presence of both host- adapted and geographically segregated populations of S. scabiei. Host adaptation may limit interspecies transmission of. S. scabiei, thus restrict gene flow among S. scabiei from different hosts. This is the first report on the molecular characterization of sarcoptic mites in Egypt. Further genetic studies involving larger numbers of specimens, especially those from humans and companion animals, are needed to understand the molecular epidemiology of sarcoptic mange in Egypt.



Neuroscience Bulletin Vol. 30 (5), p. 838-844

Impact Factor = 1.832



SMALL-ANIMAL PET DEMONSTRATES BRAIN METABOLIC CHANGE AFTER USING BEVACIZUMAB IN A RAT MODEL OF CEREBRAL ISCHEMIC INJURY

Ying Dong^{1,#}, Fahuan Song^{2,3,4,5, #}, Jianjuan Ma¹, Xuexin He¹, Said Amer⁶, Weizhong Gu⁷, Mei Tian^{2,3,4,5}

¹Department of Oncology, ²Department of Nuclear Medicine, The Second Affi liated Hospital of Zhejiang University School of Medicine, Hangzhou 310009, China.

³Zhejiang University Medical PET Center, ⁴Institute of Nuclear Medicine and Molecular Imaging of Zhejiang University, Hangzhou 310009, China. ⁵Key Laboratory of Medical Molecular Imaging of Zhejiang Province, Hangzhou 310009, China. ⁶Department of Zoology, Faculty of Science, Kafr El Sheikh University, Kafr el-Sheikh, Egypt. ⁷Department of Pathology, The Children's Hospital of Zhejiang University School

of Medicine, Hangzhou 310003, China

⋈ ABSTRACT ⋈

To evaluate the effect of bevacizumab on cerebral ischemia, we used 2-deoxy-2-18F-fluoro-D-glucose) 18 F-FDG) small-animal positron tomography)PET) in the middle cerebral artery occlusion (MCAO(rat model. After baseline neurologic function tests and PET studies, MCAO Sprague-Dawley rats received bevacizumab or normal saline (controls). Weekly PET imaging and neurologic function tests showed that the 18F-FDG accumulation in the bevacizumab group was similar to that in the controls during the fi rst 2 weeks, but lower than in controls at weeks 3 and 4. However, no difference was found in neurological scores between the groups. The number of von Willebrand factor-positive cells in the bevacizumab group was lower than that in controls. The expression of vascular endothelial growth factor was higher than in controls at week 4. These results suggested that bevacizumab does not infl uence functional recovery in this model of cerebral ischemia during a 4-week period, but inhibits vascular formation and metabolic recovery, which may be considered in cancer patients with a recent ischemic stroke.

Keywords: cerebral ischemia; bevacizumab; positron emission tomography; cancer





Review In Medical Virology Vol. 2, p, 115-128

Impact Factor = 5.759



COMPARATIVE EPIDEMIOLOGY AND VIROLOGY OF FATAL AND NONFATAL CASES OF HAND, FOOT AND MOUTH DISEASE IN MAINLAND CHINA FROM 2008 TO 2014

She-Lan Liu¹, Hao Pan², Peng Liu³, Said Amer⁴, Ta-Chien Chan⁵, Jun Zhan⁶, Xixiang Huo⁷, Yunzhi Liu⁸, Zheng Teng², Ling Wang³, Hui Zhuang³*

¹Department of Infectious Diseases, Zhejiang Provincial Center for Disease Control and Prevention, Hangzhou, 310051, China. ²Department of Infectious Disease Control and Prevention, Shanghai Municipal Center for Disease Control and Prevention, Shanghai, 200336, China. ³Department of Microbiology and Infectious Disease Center, School of Basic Medical Sciences, Peking University Health Science Center, Beijing, 100091, China. ⁴Department of Zoology, Faculty of Science, Kafr El Sheikh University, Kafr El Sheikh, 33516, Egypt. ⁵Research Center for Humanities and Social Sciences, Academia Sinica, Taipei, Taiwan. ⁶Department of Infectious Diseases, Ningxia Provincial Center for Disease Control and Prevention, Yinchuan, 750004, China. ⁷Department of Infectious Diseases, Hubei Provincial Center for Disease Control and Prevention, Wuhan, 430079, China. ⁸Department of Infectious Diseases, Hunan Provincial Center for Disease Control and Prevention, Changsha, 410005, China

⋈ ABSTRACT ⋈

This study aimed to analyze the epidemiology and virology of fatal and nonfatal hand, foot, and mouth disease (HFMD) cases in Mainland China. A total of 10 714 237 survivors and 3046 deaths were reported from 2008 to 2014 June, with a case fatality rate of 0.03%. The morbidity of the survivors increased from 37.6/100 000 in 2008 to 139.6/100 000 in 2013 and peaked in 2012 at 166.8/100 000. However, the mortality varied around 0.03-0.04/100 000 across the time. Most of the survivors were distributed in the southern and eastern China, predominantly in the Guangxi and Hainan Province, whereas deaths were dominant in southern (Guangxi) and southwestern (Guizhou) China. The two groups showed similar seasonal fluctuations from 2008 to 2014, peaking in spring and early summer. Of the total cases, 93.97%were children less than 5 years of age, with those ≤ 2 years old accounting for 60.08% versus 84.02% in the survivor and death groups, respectively. Boys were at higher risk of infection than girls in both groups. Five years of virological surveillance showed that 43.73%, 22.04%, and 34.22%ofHFMDcaseswere due to EV71, CoxA16 and other enteroviruses, respectively. EV71was encountered in most deaths, with no substantial effect of age, gender, month, and year on incidence. Subgenotype C4a was the prevalent EV71 strain in Mainland China, with no significant difference in the VP1 gene related to virulence between the two groups. In conclusion, based on the largest population study, fatal and nonfatal HFMD cases, mainly caused by C4a of EV71, are circulating in Mainland China with a low-cause fatality rate.



Plos one Vol. 10(3), p, 1-12

Impact Factor = 3.534



MOLECULAR CHARACTERIZATION OF ECHINOCOCCUS GRANULOSUS SENSU LATO FROM FARM ANIMALS IN EGYPT

Said Amer^{1,2}, Ibrahim B. Helal³, Evelyne Kamau⁴, Yaoyu Feng^{5*}, 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 Department of Zoology, Faculty of Science, Tanta University, Tanta, Egypt. ⁴ Institute of Systems and Synthetic Biology, ISSB, Universite d'Evry val d'Essonne, France. ⁵ State Key Laboratory of Bioreactor Engineering, School of Resources and Environmental Engineering, East China

University of Science and Technology, Shanghai, People's Republic of China

ABSTRACT 🗷

Little is known on the diversity and public health significance of Echinococcus species in livestock in Egypt. In this study, 37 individual hydatid cysts were collected from dromedary camels (n=28), sheep (n=7)and buffalos (n=2). DNAwas extracted protoscoleces/germinal layer of individual cysts and amplified by PCR targeting nuclear (actin II) and mitochondrial (COX1 and NAD1) genes. Direct sequencing of amplicons indicated the presence of Echinococcus canadenesis (G6 genotype) in 26 of 28 camel cysts, 3 of 7 sheep cysts and the 2 buffalo derived cysts. In contrast, Echinococcus granulosus sensu stricto (G1 genotype) was detected in one cyst from a camel and 4 of 7 cysts from sheep, whereas Echinococcus ortleppi (G5) genotype) was detected in one cyst from a camel. This is the first identification of E. ortleppi in Egypt.



Chinese Physics Letters Vol. 31 (9), p. 1-5

Impact Factor = 0.924



THE E®ECT OF POLARIZATION POTENTIALS ON PROTON-LITHIUM INELASTIC SCATTERING

S. A. Elkilany^{1;2**}, A. A. Al-Dawy¹

¹Department of Mathematics, Faculty of Science, Ad Dammam University, Kingdom of Saudi Arabia

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

ABSTRACT 🗷

We deal with the e®ect of polarization potentials on the inelastic scattering of protons by lithium atoms as a two-channel problem in which the elastic and hydrogen (2s-state) formation channels are open at energies between 10 and 1000 keV. For this purpose, we improve the coupled-static approximation within the framework of the frozen-core picture of the target atom. We use the Lipmann{Swinger equation and an iterative numerical method to obtain the computer code. This can be carried out by calculating the reactance matrix then to obtain the transition matrix that gives partial and total cross sections. Our results and those determined by previous researchers give reasonable agreement.



Brazilian Journal Of Physics Vol. 44, p. 629-637

Impact Factor = 0.683



EFFECT OF POLARIZATION POTENTIAL ON PROTON– SODIUM INELASTIC SCATTERING

S. A. Elkilany

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

ABSTRACT &

Inelastic collisions 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. The calculations are carried out, in each case, for seven values of the total angular momentum ℓ (0 \leq ℓ \leq 6). In the second channel, the effect of "switching on" the polarization potential of hydrogen (in 2s-state) on the coupled static cross-sections is investigated. Although the resulting hydrogen (in 2s-state) formation cross-sections are smaller than the elastic ones, their large values should draw the attention of experimental and theoretical physicists to the field of proton—alkali atom collisions. Our results for the total hydrogen (2s-state) formation cross-sections and those determined by previous authors are in reasonable agreement.



Indian J Phys Vol. 88 (1), p. 19-24

Impact Factor = 1.785



FORMATION OF ANTIHYDROGEN IN ANTIPROTON POSITRONIUM INELASTIC SCATTERING

S. A. Elkilanv^{1,2*}

¹Department of Mathematics, Faculty of Science, Kafrelsheikh University, Kafrelsheikh, Egypt

²Department of Mathematics, College of Science, Dammam University, P. O. Box 838, Ad Damma⁻m 31113, Kingdom of Saudi Arabia

MARGE ABSTRACT &

Possibility of producing antihydrogen during inelastic collisions of antiproton with atoms and ions suggests the investigation of multichannel scattering processes in which antihydrogen formation is considered. Present work deals with inelastic collisions of antiproton with positronium atoms at energies between 10 and 1000 eV. Coupled static approximation and Green's function iterative numerical technique is employed for calculating partial and total cross sections corresponding to seven values of total angular momentum '(0 B 'B 6). It is assumed that elastic and antihydrogen formation channels are open and all other channels are closed. Effects of "switching on" various polarization potentials on antiproton positronium inelastic collisions are investigated in detail within the framework of coupled static model. Our calculations have shown that at low energies, target polarization plays an important role and must be taken into account. A comparison made between our results and those determined by previous authors gives reasonable agreement.



African Journal Of Ecology Vol. 52, p. 414-426

Impact Factor = 1



GROWTH DYNAMICS OF POTAMOGETON PECTINATUS L. IN LAKE BURULLUS, EGYPT: A MODELLING APPROACH

Ebrahem M. Eid^{1*}, Kamal H. Shaltout² and Takashi Asaeda³

¹Botany Department, Faculty of Science, Kafr El-Sheikh University, 33516, Kafr El-Sheikh,

Egypt, ²Botany Department, Faculty of Science, Tanta University, 31527, Tanta, Egypt and ³Institute for Environmental Science and Technology (IEST), Saitama University, 255 Shimo-Okubo, Sakuraku, Saitama shi, 338-8750, Japan



In this study, we used a macrophyte model to describe the growth production and the interaction between aboveand below-ground organs of Potamogeton pectinatus in Lake Burullus, Egypt. Above- and below-ground biomass of P. pectinatus was sampled on a monthly basis from April to December 2011 at three sites of Lake Burullus. Shoots started to grow in April, reached the maximum biomass in September and then rapidly decreased in October when they moved into the senescence stage. Tubers biomass reduced in August due to the upward translocation to shoots, but sharply increased to the maximum in October by downward translocation from shoots and roots. Potamogeton pectinatus allocated approximately 82.3% of its total biomass to shoots, 15.5% to tubers and 2.2% to roots.

Key words: coastal lagoons, material translocation, numerical growth model, sago pondweed, seasonal biomass, submerged macrophytes





Ecological Engineering Vol. 73, p. 17-25

Impact Factor = 3.041



MONTHLY VARIATIONS OF TRACE ELEMENTS ACCUMULATION AND DISTRIBUTION IN ABOVE- AND BELOW-GROUND BIOMASS OF PHRAGMITES AUSTRALIS (CAV.) TRIN. EX STEUDEL IN LAKE BURULLUS (EGYPT): A BIOMONITORING APPLICATION

Ebrahem M. Eid a,b,*, Kamal H. Shaltout c

^a Botany Department, Faculty of Science, Kafr El-Sheikh University, 33516 Kafr El-Sheikh, Egypt ^b College of Sciences, King Khalid University, Abha, Saudi Arabia ^c Botany Department, Faculty of Science, Tanta University, 31527 Tanta, Egypt

⋈ ABSTRACT ⋈

This study was carried out in some natural stands of Phragmites australis (Cav.) Trin. ex Steudel grown in Lake Burullus, a Mediterranean lake in north Egypt, to investigate: (1) the concentration of trace elements in the organs of P. australis, (2) the extent of trace elements mobility from sediment to below-ground organs and within the plant, (3) the organs of P. australis as potential bioindicators for the contamination of the water and sediment by the trace elements, and (4) the amount of trace elements that released back into the surrounding water after decomposition of dead tissues. Above- and below-ground biomass of P. australis, water and sediment were sampled monthly for one year at six sites of Lake Burullus (three sites represent each of the northern and southern parts of the lake) using six randomly distributed quadrats (each of 0.5×0.5 m) at each sampling site. The above- and below-ground biomasses of southern sites are significantly higher than that of the northern sites. Above-ground biomass is > 2.5 folds of the below-ground biomass in the northern and southern sites. The highest concentration in the below-ground organs is Cu, Fe and Zn; and in the leaf is Cd. The monthly highest values of trace elements are Cu and Fe in February at the beginning of the growing season; and Cd and Zn in January at the end of the growing season. The annual mean of trace element concentrations (in mg kg⁻¹) in P. australis organs ranged from 11.0 to 23.8 for Cd, from 31.0 to 65.6 for Cu, from 34.4 to 97.3 for Zn, and from 505.0 to 2833.0 for Fe. The mean bioaccumulation factor of all trace elements from the sediment to the below-ground organs is greater than unity for all elements with the following sequence: Cd > Fe > Zn > Cu. Cd has the highest translocation factor from the below-ground to the above-ground organs, while Fe has the lowest. Positive linear correlations are detected between the concentrations of all elements (except Cu) in plant organs, water and sediment. The higher translocation factor of Cd in the aboveground organs of P. australis makes it suitable for the phytoextraction of this element from the water and sediment, while the lower translocation factor for Cu, Fe and Zn makes it suitable for their phytostabilization. In conclusion, all the organs of P. australis could act as bioindicators and biomonitors of the examined trace elements.



Journal Of African Earth Sciences Vol. 96, p. 122-138

Impact Factor = 1.832



PETROGRAPHY, DIAGENESIS AND RESERVOIR CHARACTERISTICS OF THE PRE-CENOMANIAN SANDSTONE, SHEIKH ATTIA AREA, EAST CENTRAL SINAI, EGYPT

Mohamed A. Kassab^a, Ibrahim M. Hassanain^a, Alaa M. Salem^b

^aDepartment of Exploration, Egyptian Petroleum Research Institute, 11727 Cairo, Egypt ^bDepartment of Geological Sciences, Kafr Elsheikh University, Kafr Elsheikh 33516, Egypt

ABSTRACT

The diagenetic influence on reservoir characteristics was investigated for the Pre-Cenomanian (Early Paleozoic and Early Cretaceous) sandstone sequence in the Sheikh Attia area, East Central Sinai. This sequence can be distinguished into four formations: Sarabit El-Khadim Formation (Cambrian) at the base, Abu Hamata Formation (Cambro-Ordovician), Adedia Formation (Ordovician-Silurian) and Malha Formation (Early Cretaceous) on the top. The sandstones of Pre-Cenomanian sequence in the Sheikh Attia area are dominantly quartz arenites and subarkoses, where the quartz grains constitute about 82.3–98.4% of the framework composition with an average value of approximately 94% of the framework composition. Feldspars range in abundance from 0% to 14.2%, with an average value of about 3% of the framework composition. The rock fragments constitute up to 9.8% of volume percent of framework grains, with an average of about 2.7%.

Diagenetic events identified in these sandstones include compaction, cementation by calcite, quartz, clay minerals and iron oxides, dissolution and alteration of unstable clastic grains, and tectonically induced grain fracturing. Unstable clastic grains like feldspars suffered considerable alteration to kaolinite.

The Pre-Cenomanian (Early Paleozoic and Early Cretaceous) sandstones possess good reservoir characteristics because they retain sufficient porosity and permeability in some intervals. These sandstones are characterized by porosity ranges between 3.80% and 27.60%, and have a permeability range from $k \le 0.03$ mD, for tight sandstones to $k \ge 50$ mD, for the more permeable parts. The Pre-Cenomanian sandstones can be classified into four petrophysical flow units (megaport, macroport, mesoport and microport) with varying reservoir performances and are distinguished by comparable ranges of R_{35} .

Petrographic observations showed that the Early Paleozoic sandstones are texturally immature owing to the abundance of angular grains, non-uniformity of grain size, high amounts of matrix clay mineral, and high amounts of feldspar grains. The Early Cretaceous sandstones have low amounts of rock fragments, clay minerals, and feldspars grains. Statistical analysis of the petrophysical data confirms that the reservoir quality of Early Cretaceous sandstone is higher than that of Early Paleozoic sandstones (the reservoir quality index of Early Cretaceous sandstone is0.383 µm and for Early Paleozoic sandstones is0.205 µm).



European Physical Journal Plus Vol. 129, p. 1-10

Impact Factor = 1.475



STRUCTURE, ELECTRIC PROPERTIES AND POSITRON ANNIHILATION STUDIES OF CUZNFE₂O₄ DOPED WITH BATIO₃

O.M. Hemeda^{1,a}, K.R. Mahmoud², and T. Sharshar^{2,3}

¹ Physics Department, Faculty of Science, Tanta University, Tanta, Egypt

² Physics Department, Faculty of Science, Kafrelsheikh University, Kafr El-Sheikh, Egypt

³ Physics Department, Faculty of Science, Taif University, Al-Hawiah, Taif, P.O. Box 888, Zip Code 21974, Saudi Arabia

🖎 ABSTRACT 🗷

Composite materials of spinel CuZnFe₂O₄ ferrite (CZF) and barium titanate BaTiO₃ (BT) were prepared by using high energy ball milling technique. The X-ray diffraction (XRD) patterns of the composite system confirmed the composite preparation with two piezomagnetic and piezoelectric phases. The results of scanning electron microscope (SEM) measurements show nearly homogeneous microstructure with good dispersion of BT grains as well as the presence of some pores. The positron annihilation lifetime (PAL) is used to probe the defects and structural changes of the BT-CZF composites. The PAL parameters $(\tau_1, I_1, \tau_2, I_2)$ and mean lifetime show that the doped BT content affects the size and concentration of the vacant type defects.



Journal Of Molecular Structure Vol. 1060, p. 80-87

Impact Factor = 1.599



MOLECULAR DYNAMICS SIMULATION AND QUANTUM CHEMICAL CALCULATIONS FOR THE ADSORPTION OF SOME AZO-AZOMETHINE DERIVATIVES ON MILD STEEL

H. Shokry

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

➢ ABSTRACT ✗

The adsorption mechanism and inhibition performance of some Azoazomethine derivatives [2-hydroxyphenylazo- 20, 40- dihydroxy-30formylbenzene(Azo-1), 2-carboxyphenylazo-20, 40dihydroxy formylbenzene (Azo-II), 2-hydroxyphenylazo- 20, 40- dihydroxy- 30- {2hydroxyphenylazomethine {(Azo-I-azomethine I) and 2-carboxyphenylazo-20,40-dihydroxy-30-{2-hydroxyazo methane} (Azo-II-azomethine II) on mild steel at temperatures ranging from 298 K to 333 K have been studied using molecular dynamics (MD) simulation and quantum chemical computational methods. The results obtained revealed that these molecules could effectively adsorb on Fe (001) surface and the active adsorption sites of these molecules are the nitrogen, oxygen atoms and special negatively charged carbon atoms. All the inhibitors studied had unique corrosion inhibition performance with Azo-II-azomethine II showing the highest inhibition performance at lower temperature ranges from 298 K to 313 K and Azo-II displaying the highest inhibition performance at higher temperature ranges of 323 K and 333 K. Some quantum chemical parameters and the Mulliken charge densities on the optimized structure of inhibitors were calculated using the 6-31/G basis set method to provide further insight into the mechanism of the corrosion inhibition process. The local reactivity was analyzed through the Fukui function and condensed softness indices in order to know the possible sites of nucleophillic and electrophillic attacks.

154



Polymer Composites Vol. 35(6), p. 1176–1183

Impact Factor = 1.455



SUSTAINED DELIVERY OF HYDROCORTISONE ACETATE BY CS/N-VINYL-2-PYRROLIDONE/CACO₃ MICROPARTICLE HYBRID HYDROGELS

Tahia B. Mostafa^a, Samia El-Sigeny^b, Manal F. Abou Taleb^{c,d,*}

^aCollege for Women, Ain-Shams University, Cairo, Egypt

^bChemistry Department, Faculty of Science, Kafrelsheikh University, 33516 Kafr ElSheikh, Egypt

^cChemistry Department, Faculty of Science and Humanities, Salman Bin Abdul Aziz University, Alkharj, Kingdom of Saudi Arabia

^dPolymer Chemistry Department, National Center for Radiation Research and Technology, P.
O. Box No. 29 Nasr city, Cairo, Egypt

⋈ ABSTRACT ⋈

The goal of this research is to develop a composite hydrogel system for sustained release of therapeutic agents. The hybrid hydrogels were prepared by radiation cross-linking on aqueous solution of Chitosan (CS)/N-vinyl-2-pyrrolidone (NVP) with different loads of CaCO3 in the presence of Hydrocortisone acetate (HCA), an anti-inflammatory drugs. Physical characteristics of CS/NVP/CaCO3 were studied using X-ray diffraction (XRD) and infrared spectrophotometery (IR). The porous structure of resulted hydrogel was confirmed by SEM micrographs. The effect of doses and calcium carbonate amount on the swelling of the hydrogels was investigated. The ability of the prepared CS/NVP/CaCO3 -based hybrid hydrogels to be used as drug carriers for anti-inflammatory -specific drug delivery system was estimated using HCA as a model drug.

Keywords: Hybrid hydrogel; Calcium Carbonate; hydrocortisone acetate; γ -irradiation; sustained-release.





Polymer Composites Vol. 35(12), p. 2353–2364

Impact Factor = 1.455

RADIATION SYNTHESIS AND CHARACTERIZATION OF STYRENE/ACRYLIC ACID / ORGANOPHILIC MONTMORILLONITE HYBRID NANOCOMPOSITE FOR SORPTION OF DYES FROM AQUEOUS SOLUTIONS

Samia El-Sigeny^a, Sahar K. Mohamed^b, Manal F. Abou Taleb^{c,d*}

^aFaculty of Science, Kafrelsheikh University, 33516 KafrElSheikh, Egypt

^b Faculty of Science ,Chemistry Department, , Helwan University, Ain-Helwan, Cairo, Egypt11795

^cFaculty of Science and Humanities, Salman bin Abdulaziz, Alkharj, Kingdom of Saudi Arabia

^dNational Center for Radiation Research and Technology, Nasr city, Cairo, Egypt

ABSTRACT &

Organophilic montmorillonite (OMMT) was synthesized by cationic exchange reaction of Na⁺-MMT and vinyl benzyl triethyl ammonium chloride (VBTAC) as a reactive organic modifier in an aqueous solution. A series of styrene (St)/acrylic acid (AA)/OMMT nanocomposite hydrogel containing different wt % of OMMT was synthesized through in situ polymerization using gamma ray. The samples were characterized using Fourier transform infrared (FTIR), X- ray powder diffraction (XRD), and transmission electron microscope (TEM), while thermal stability examined by thermogravimetric analysis (TGA). The adsorption capacity and rate for both Acid Green B (anionic) and Maxilon C.I Basic (cationic) dye including adsorption kinetics and isotherm were investigated at 30 °C. TEM measurements showed spherical nanosized particles of average diameter 30-40 nm and XRD suggested the formation of exfoliated nanocomposite. TGA measurements showed that the addition of OMMT did not enhance the thermal stability where the onset temperature of the degradation for all samples was around 125°C. The effect of some important parameters on dye adsorption such as solution pH, initial dye concentration and contact time was investigated. The equilibrium data obtained in batch experiments was correlated to Langmuir and Freundlich isotherm equations. Results showed that the adsorption of Acid Green B fitted well to the Langmuir model while the adsorption pattern of Maxilon C.I Basic followed the Freundlich isotherm which suggests heterogeneity of the adsorption sites on the nanocomposite.

Keywords: Nanocomposite; OMMT; γ-ray irradiation; TEM; Adsorption; dyes.



Phosphorus Sulfur And Silicon And The Related Elements Vol. 189, p. 400-409

Impact Factor = 0.827



SYNTHESIS AND ANTIMICROBIAL ACTIVITIES OF SOME 6-METHYL-3-THIOXO-2,3- DIHYDRO-1,2,4-TRIAZINE DERIVATIVES

Ahmed A. El-Barbary a, Ashraf A. El-Shehawy b & Nabiha I. Abdo a

^a Chemistry Department, Faculty of Science, Tanta University, Tanta, 31527, Egypt
 ^b Chemistry Department, Faculty of Science, Kafr El-Sheikh University,
 Kafr El-Sheikh, 33516, Egypt

MARIE ABSTRACT &

4-Arylidene-imidazole derivatives (4a,b) were readily prepared by reacting 4- amino- 6- methyl- 3-thioxo- 2,3 -dihydro [1,2,4] triazin -5 (4H)- one (1) with 4- arylidene-2- phenyl-4H-oxazol-5-one (2). Reaction of 1 with some aromatic aldehydes in presence of triethylphosphite exclusively afforded the corresponding aminophosphonates 5a-c. Reaction of 1 with 3- phenyl -1H-quinazoline -2,4-dione (6a) and/or 3-phenyl-2-thioxo-2,3-dihydro-1H-quinazolin-4one (6b) gave 2- (6-methyl-5-oxo-3-thioxo-2,5-dihydro -3H- [1,2,4] triazin- 4-ylimino) -3-phenyl-2,3- dihydro-1H-quinazolin-4-one (7). *Moreover, on treating 1 with 2-phenylbenzo[d][1,3]thiazine-4-thione* 6-methyl-4-(2-phenyl-4-thioxo-4H-quinazolin-3-yl)-3-thioxo-3,4-(8). dihydro-2H-[1,2,4] triazine -5-one (9) was obtained in 65% yield. Reaction of 1 with 4-sulfonylaminoacetic acid derivatives (10a,b) afforded the corresponding sulfonamides (11a,b), respectively. Acid of 11a *afforded* 7-aminomethyl-3-methyl thiadiazole[2,3-c][1,2,4]triazin-4-one (12).4-Amino-6-methyl-3-(morpholine-4-ylsulfanyl)-4H-[1,2,4]triazin-5-one (14) was prepared by reacting compound 1 with morpholine in presence of KI/I2, while *3,3_-bis*(4-amino-6-methyl-5-oxo-triazinyl)disulfide



International Journal Of Mechanical Sciences Vol.90, p.171-178

Impact Factor = 2.061



LEVY-TYPE SOLUTION FOR BENDING OF SINGLE-LAYERED GRAPHENE SHEETS IN THERMAL ENVIRONMENT USING THE TWO-VARIABLE PLATE THEORY

Mohammed Sobhy a,b

^a Department of Mathematics and Statistics, Faculty of Science, King Faisal University, P. O. Box 400, Hofuf 31982, Saudi Arabia

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

ABSTRACT &

Levy-type solution model is employed to demonstrate the bending response of single-layered graphene sheets subjected to a temperature field as well as external mechanical load. On the basis of Eringen's nonlocal elasticity equations incorporated with the two-variable plate theory, the governing differential equations of the thermomechanical response are derived by using the principle of virtual displacement. These equations are converted into a set of first-order linear ordinary differential equations with constant coefficients. The general solution of these equations can be obtained by using the state-space concept. Combinations of simply supported, clamped and free boundary conditions are considered. Comparison of the results with those being in the open literature is made. Numerical results are presented for rectangular sheets with different edge conditions, plate aspect ratios and nonlocal coefficient.



Advances in Applied Mathematics and Mechanics Vol. 7 (1), p. 116-134

Impact Factor = 0.645



THERMODYNAMICAL BENDING OF FGM SANDWICH PLATES RESTING ON PASTERNAK'S ELASTIC FOUNDATIONS

Mohammed Sobhy^{1,3} and Ashraf M. Zenkour^{2,3}

- ¹ Department of Mathematics, Faculty of Science, King Faisal University, P.O. Box 400, Hufof 31982, Saudi Arabia
 - ² Department of Mathematics, Faculty of Science, King Abdulaziz University, P.O. Box 80203, Jeddah 21589, Saudi Arabia
 - ³ Department of Mathematics, Faculty of Science, Kafrelsheikh University, Kafrelsheikh 33516, Egypt

ABSTRACT &

The analysis of thermoelastic deformations of a simply supported functionally graded material (FGM) sandwich plates subjected to a time harmonic sinusoidal temperature field on the top surface and varying through-the-thickness is illustrated in this paper. The FGM sandwich plates are assumed to be made of three layers and resting on Pasternak's elastic foundations. The volume fractions of the constituents of the upper and lower layers and, hence, the effective material properties of them are assumed to vary in the thickness direction only whereas the core layer is still homogeneous. When inplane sinusoidal variations of the displacements and the temperature that identically satisfy the boundary conditions at the edges, the governing equations of motion are solved analytically by using various shear deformation theories as well as the classical one. The influences of the time parameter, power law index, temperature exponent, top-tobottom surface temperature ratio, side-to-thickness ratio and the foundation parameters on the dynamic bending are investigated.



Journal Of Mechanics Vol. 30 (5), p. 443-453

Impact Factor = 0.314



NATURAL FREQUENCY AND BUCKLING OF ORTHOTROPIC NANOPLATES RESTING ON TWO-PARAMETER ELASTIC FOUNDATIONS WITH VARIOUS BOUNDARY CONDITIONS

Mohammed Sobhy

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



In this article, the analyses of the natural frequency and buckling of orthotropic nanoplates, such as single-layered graphene sheets, resting on Pasternak's elastic foundations with various boundary conditions are presented. New functions for midplane displacements are suggested to satisfy the different boundary conditions. These functions are examined by comparing their results with the results obtained by using the functions suggested by Reddy (Reddy JN. Mechanics of Composite Materials and Structures: Theory and Analysis. Boca Raton, FL: CRC Press; 1997). Moreover, these functions are very simple comparing with Reddy's functions, leading to ease of calculations. The equations of motion of the nonlocal model are derived using the sinusoidal shear deformation plate theory (SPT) in conjunction with the nonlocal elasticity theory. The present SPT are compared with other plate theories. Explicit solution for buckling loads and vibration are obtained for single-layered graphene sheets with isotropic and orthotropic properties; and under biaxial loads. The formulation and the method of the solution are firstly validated by executing the comparison studies for the isotropic nanoplates with the results being in literature. Then, the influences of nonlocal parameter and the other parameters on the buckling and vibration frequencies are investigated.

160



Acta Mechanica Vol. 225, p. 2521-2538

Impact Factor = 1.268



GENERALIZED TWO-VARIABLE PLATE THEORY FOR MULTI-LAYERED GRAPHENE SHEETS WITH ARBITRARY BOUNDARY CONDITIONS

Mohammed Sobhy

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

ABSTRACT 🗷

In the present study, the free vibration, mechanical buckling and thermal buckling analyses of multilayered graphene sheets (MLGSs) are investigated. Eringen's nonlocal elasticity equations are incorporated in new two-variable plate theories accounting for small-scale effects. The MLGSs are taken to be perfectly bonded to the surrounding medium. The governing differential equations of this model are solved analytically under various boundary conditions and taking into account the effect of van der Waals forces between adjacent layers. New functions for the displacements are proposed here to satisfy the different boundary conditions. Comparison of the results with those being in the open literature is made. This comparison illustrates that the present scheme yields very accurate results. Furthermore, the influences of nonlocal coefficient, moduli of the surrounding elastic medium and aspect ratio on the frequencies and buckling of the embedded MLGSs are examined.



Gondwana Research Vol. 25, p. 1242-1262

Impact Factor = 8.122



CHEMICAL VARIATIONS OF ABYSSAL PERIDOTITES IN THE CENTRAL OMAN OPHIOLITE: EVIDENCE OF OCEANIC MANTLE HETEROGENEITY

Mohamed Zaki Khedr*1,2, Shoji Arai¹, Marie Python³ and Akihiro Tamura¹

department of Earth Sciences, Kanazawa University, Kakuma, Kanazawa 920-1192, Japan

department of Geology, Faculty Of Science, Kafrelsheikh University 33516, Egypt

department of Natural History Science, Hokkaido University, Japan

ABSTRACT

Basal peridotites above the metamorphic sole outcropped around Wadi Sarami in the central Oman ophiolite give us an excellent opportunity to understand the spatial extent of the mantle heterogeneity and to examine peridotites-slab interactions. We recognized two types of basal lherzolites (Types I and II) that change upward to harzburgites. Their pyroxene and spinel compositions display severely variations at small scales over <0.5 km, and encompass the entire abyssal peridotite trend; clinopyroxenes (Cpxs) show wide ranges of Al₂O₃, Na₂O, Cr₂O₃ and TiO₂ contents. Primary spinels show a large variation of Cr# [=Cr/(Cr + Al)] from 0.04 to 0.53, indicating various degrees of partial melting. Trace-element compositions of peridotites and their pyroxenes also show a large chemical heterogeneity in the base of the Oman mantle section. This heterogeneity mainly resulted from variations of partial-melting degrees due to the change of a mantle thermal regime and a distance from the spreading ridge or the mantle diapir. It was overlapped with subsolidus modification during cooling and fluid metasomatism during emplacement. Chondrite (CI)-normalized REE patterns for pyroxenes are convex upward with strong LREE depletion due to their residual origin, similar to abyssal peridotites from a normal ridge segment. The Cpxs are enriched in fluid mobile elements (e.g., B, Li, Cs, Pb, Rb) and depleted in HFSE (Ta, Nb, Th, Zr) + LREE, suggesting no effect of melt refertilization. Their HREE contents, combined with spinel compositions, suggest two melting series with 1–5% melting for type II lherzolites, 3-<10% melting for type I lherzolites and ~15% for harzburgites. The clinopyroxenite lens crosscuts the basal lherzolites, forming small-scale (<5 cm) mineralogical and chemical heterogeneities. It was possibly formed from fractional crystallization of interstitial incremental melt that formed during decompression melting of a normal MORB mantle source. The studied peridotites possibly represent a chemical heterogeneity common to the mantle at an oceanic spreading center. Hornblendes are enriched in fluid-mobile elements relative to HFSE + U due to the invasion of the sole-derived fluids into peridotites.



Gondwana Research Vol. 26, p. 1028-1050

Impact Factor = 8.122



LATE MIOCENE K-RICH VOLCANISM IN THE ESLAMIEH PENINSULA (SARAY), NW IRAN: IMPLICATIONS FOR GEODYNAMIC EVOLUTION OF THE TURKISH—IRANIAN HIGH PLATEAU

H. ShafaiiMoghadam^a, G. Ghorbani^a, M. Zaki Khedr ^{b,c}, N. Fazlnia^d, M.Chiaradia^e, Y. Eyuboglu^f, M. Santosh ^g, C. Galindo Francisco ^h, M. Lopez Martinez ⁱ, A. Gourgaud ^j, S. Arai^b

 $^{\rm a}$ School of Earth Sciences, Damghan University, Damghan 36716-41167, Iran

^b Department of Earth Sciences, Kanazawa University, Kanazawa 920-1192, Japan

^c Department of Geology, Faculty of Science, Kafrelsheikh University, Egypt

^d Department of Geology, Urumieh University, Urumieh, Iran

^e Département de Minéralogie, Université de Genève, Genève, Switzerland

f Department of Geological Engineering, Karadeniz Technical University, 1080 Trabzon, Turkey

⁸ School of Earth Sciences and Resources, China University of Geosciences, 29 Xueyuan Road, Beijing 100083, China

h Departamento de Petrología y Geoquímica, Universidad Complutense- IGEO (UCM-CSIC), 28040 Madrid, Spain

ⁱ Departamento de Geología, Centro de Investigación Científica y de Educación Superior de Ensenada (CICESE), Carretera Ensenada—Tijuana No. 3918, 22860 Ensenada, Baja California, México

^j UMR 6524 "Magmas et volcans", OPGC-Université Blaise Pascal-CNRS, 63038 Clermont-Ferrand Cedex, France

⋈ ABSTRACT ⋈

Post-collisional volcanism in northwestern Iran is represented by the Saray high-K rocks including leucite-bearing under-saturated and leucite-free silica saturated rocks. We report Ar—Ar age data which constrain the age as ca.11Ma (lateMiocene).Most of clinopyroxene phenocrysts fromthe volcanic rocks have complex oscillatory zoning, with high Ti and Al cores, low Ti and high Almantled clinopyroxenes, grading into lowTi and Al outer rims. All the rocks are highly enriched in incompatible trace elements and have identical Sr—Nd—Pb isotopes. Enrichment in incompatible elements and other geochemical features for the Saray lavas suggest a metasomatized subcontinental lithospheric mantle (SCLM) as the magma source. The negative Nb—Ta—Ti anomalies for the Saray lavas compare with the features of subduction-related magmatism with negligible contamination with ancient crustal components. The highly radiogenic 87Sr/86Sr and 207Pb/204Pb isotopic values of the Saray lavas imply the involvement of slab terrigenous sediments and/or a continental lithosphere. Isotopically, the volcanic rocks define a binary trend, representing 5—8% mixing between the primary mantle and sediment melts. Our melting models suggest residual garnet in the source and are incompatible with partial melting of amphibole and/or phlogopite bearing lherzolites, although the complex geochemical features might indicate the result of mixing between melts produced by different sources or a homogenous melt passing through a compositionally-zoned mantle during multiple stages of partial melting and melting and melting of subduction-metasomatized (subcontinental) lithospheric mantle source in a post-collisional setting.



Journal Of Geochemical Exploration Vol. 146, p. 149-162

Impact Factor = 2.432



AMIXED HYDROGENOUS AND HYDROTHERMAL ORIGIN OF THE BAHARIYA IRON ORES, EGYPT: EVIDENCES FROM THE TRACE AND RARE EARTH ELEMENT GEOCHEMISTRY

Hassan M. Baioumy ^a, Ahmed H. Ahmed ^{b,c}, Mohamed Z. Khedr ^d

- ^a School of Physics, Universiti Sains Malaysia, 11800 USM, Penang, Malaysia
- ^b Department of Geology, Faculty of Science, Helwan University, Cairo, Egypt
- ^c Faculty of Earth Sciences, King Abdulaziz University, Jeddah, Saudi Arabia
- ^d Department of Geology, Faculty of Science, Kafr El Sheikh University, Egypt



This study utilizes the trace and rare earth element geochemistry of bulk ores and in situ LA-ICP-MS analyses of mineral grains to clarify the controversy in the origin of the Bahariya sedimentary iron ores, Egypt. Different types of iron ores were identified in the Bahariya Oasis including high grade, high-Mn, high-Ba, oolitic, and ochreous iron ores. Hematite and goethite are the main constituents of the studied ores with some manganese oxide and hydroxide minerals (pyrolusite, bisbyite, cryptomelane, aurorite, romanechite, manjiroite, and pyrochroite). Barite is common in the high-Ba ore, while some quartz, calcite, and halite are detected in the oolitic iron ore. High-Mn iron ores are characterized by higher contents of SiO2, Al2O3, MgO, CaO, Na2O, and K2O, while high-Ba iron ore has higher TiO2 contents. Analyses of bulk ores and in situ mineral grains are characterized by substantially high contents of Ba (average of 9497 ppm); also Zn and Sr occur in considerably high concentrations (averages of 4263 and 429 ppm, Zn and Sr occur in considerably high concentrations (averages of 4263 and 429 ppm, respectively). Mn-rich ores and Mn-bearing minerals showrelative enrichments of tracemetals compared to the Mn-poor ores probably due to the ability of Mn-bearing minerals to fix suchtrace metals by adsorption, absorption, and/or replacement. The Σ REE ranges between 2.6 and 80 ppm with an average of 23 ppm. High-Mn ores show higher Σ REE (average of 61 ppm) compared with the low Mn ore (average of 13 ppm). The oolitic iron ore shows very low Σ REE content (7 ppm). Red and yellow ochers from El Gedida mine have similar Σ REE values (38 and 39 ppm, respectively), while red ocher fronthe Ghorabi area has relatively higher Σ REE (57 ppm). Chondrite-normalized REE patterns of all types of iron ores, whether in the formof bulk ores or Fe- and Mn-bearing grains, have LREE enrichment relative to HREE as shown by (La/Yb)N ratios that vary from 1.7 to 29.4. Majority of the bulk samples and mineral grains have negative Fu from 1.7 to 29.4. Majority of the bulk samples and mineral grains have negative Eu anomalies with EuN/Eu* ranges from 0.68 to 0.8. However, bulk samples of one high grade and high-Ba ores as well as some of the Mnbearing grains from El Gedida ores showpositive Eu anomalies with Eu/Eu* ranges from 1.1 to 17.7. With fewexceptions, all bulk ores and mineral grains show negative Ce anomalies with Ce/Ce* range from 0.28 to 0.96. A seawater precipitation (hydrogenous to hydrothermal exhalite) is proposed for the Bahariya iron ores. The hydrogenous origin is suggested based on the occurrence of high-Mn iron ores in the base of the iron ore succession, oolitic texture of some of these ores, Si-Al plot, low La/Ce ratios, high Y/Ho ratios, and LREE-enriched patterns with negative Eu anomalies of most of the bulk ores and mineral grains. The hydrothermal contribution to the source of these iron ores can be evident from the high contents of some trace elements such as Ba, Zn, and Mo, and plots the analyzed samples in the hydrothermal fields of the Fe-M-(Ni + Co + Cu) * 10 ternary diagram, (Co + Ni)-(As + Cu + Mo + Pb +V+Zn) and (Co+Ni+Cu-Co/Zn) binary plot, low ΣREE concentrations and positive Eu anomalies and high La/Ce ratios in some of the analyzed samples. The hydrothermal contribution looks for local effect and is restricted to El Gedida area.



Mineralogy And Petrology Vol. 107, p. 807-828

Impact Factor = 1.598



ORIGIN OF NEOPROTEROZOIC OPHIOLITIC PERIDOTITES IN SOUTH EASTERN DESERT, EGYPT: CONSTRAINED FROM PRIMARY MANTLE MINERAL CHEMISTRY

Mohamed Zaki Khedr*1,2 and Shoii Arai1

1Department of Earth Sciences, Kanazawa University, Kakuma, Kanazawa 920-1192, Japan
²Department of Geology, Faculty of Science, Kafrelsheikh University 33516, Egypt



The ophiolitic peridotites in the Wadi Arais area, south Eastern Desert of Egypt, represent a part of Neoproterozoic ophiolites of the Arabian-Nubian Shield (ANS). We found relics of fresh dunites enveloped by serpentinites that show abundances of bastite-textured serpentine after orthopyroxene, reflecting harzburgite protoliths. The bulk-rock chemistry confirmed the harzburgites as the main protoliths. The primary mantle minerals such as orthopyroxene, olivine and chromian spinel in Arais serpentinites are still preserved. The orthopyroxene has high Mg# [=Mg/(Mg + g)] Fe^{2+})], ~0.923 on average. It shows intra-grain chemical homogeneity and contains, on average, 2.28 wt% AI₂O₃, 0.88 wt% Cr₂O₃ and 0.53 wt% CaO, similar to primary orthopyroxenes in modern forearc peridotites. The olivine in harzburgites has lower Fo (93-94.5) than that in dunites $(Fo_{94.3}-Fo_{95.9})$. The Arais olivine is similar in NiO (0.47 wt% on average) and MnO (0.08 wt% on average) contents to the mantle olivine in primary peridotites. This olivine is high in Fo content, similar to Mg-rich olivines in ANS ophiolitic harzburgites, because of its residual origin. The chromian spinel, found in harzburgites, shows wide ranges of Cr#s [=Cr/(Cr + Al)], 0.46–0.81 and Mg#s, 0.34-0.67. The chromian spinel in dunites shows an intra-grain chemical homogeneity with high Cr#s (0.82–0.86). The chromian spinels in Arais peridotites are low in TiO₂, 0.05 wt% and Y_{Fe} [= Fe³⁺/(Cr + Al + Fe³⁺)], ~0.06 on average. They are similar in chemistry to spinels in forearc peridotites. Their compositions associated with olivine's Fo suggest that the harzburgites are refractory residues after high-degree partial melting (mainly ~25–30% partial melting) and dunites are more depleted, similar to highly refractory peridotites recovered from forearcs. This is in accordance with the partial melting (>20% melt) obtained by the whole-rock Al_2O_3 composition. The Arais peridotites have been possibly formed in a sub-arc setting (mantle wedge), where high degrees of partial melting were available during subduction and closing of the Mozambique Ocean, and emplaced in a forearc basin. Their equilibrium temperature based on olivine-spinel thermometry ranges from 650 to 780 °C, and their oxygen fugacity is high ($\Delta log fO_2 = 2.3$ to 2.8), which is characteristic of mantle-wedge peridotites. The Arais peridotites are affected by secondary processes forming microinclusions inside the dunitic olivine, abundances of carbonates and talc flakes in serpentinites. These microinclusions have been formed by reaction between trapped fluids and host olivine in a closed system. Lizardite and chrysotile, based on Raman analyses, are the main serpentine minerals with lesser antigorite, indicating that serpentines were possibly formed under retrograde metamorphism during exhumation and near the surface at low T (<400 °C).



International Geology Review Vol. 56 (11), p. 1395-1412

Impact Factor = 2.628



SUPRA-SUBDUCTION ZONE MAGMATISM OF THE NEYRIZ OPHIOLITE, IRAN: CONSTRAINTS FROM GEOCHEMISTRY AND SR-ND-PB ISOTOPES

Hadi Shafaii Moghadam^a, Mohamed Zaki Khedr^{b,c}, Massimo Chiaradia^d, Robert J. Stern^e, Farzaneh Bakhshizad^a, Shoji Arai^b, Chris J. Ottley^f & Akihiro Tamura^b

^a School of Earth Sciences, Damghan University, Damghan, Iran

^b Department of Earth Sciences, Kanazawa University, Kanazawa 920-1192, Japan

^c Department of Geology, Faculty of Science, Kafrelsheikh University, Kafr Elsheikh, Egypt

^d Département de Minéralogie, Université de Genève, Genève, Switzerland

^e Geosciences Department, University of Texas at Dallas, Richardson, TX 75083-0688, USA

f Department of Earth Sciences, Northern Centre for Isotopic and Elemental Tracing, University of Durham, Durham, DH1 3LE, UK



The Neyriz ophiolite along the northeast flank of the Zagros fold-thrust belt in southern Iran is an excellent example of a Late Cretaceous supra-subduction zone (SSZ)-related ophiolite on the north side of the Neotethys. The ophiolite comprises a mantle sequence including lherzolite, harzburgite, diabasic dikes, and cumulate to mylonitic gabbro lenses, and a crustal sequence comprising a sheeted dike complex and pillow lavas associated with pelagic limestone and radiolarite. Mantle harzburgites contain less CaO and Al2O3, are depleted in rare earth elements, and contain spinels that are more Cr-rich than lherzolites. Mineral compositions of peridotites are similar to those of both abyssal and SSZperidotites. Neyriz gabbroic rocks show boninitic (SSZ-related) affinities, while crustal rocks are similar to early arc tholeiites. Mineral compositions of gabbroic rocks resemble those of SSZ-related cumulates such as high forsterite olivine, anorthite-rich plagioclase, and high-Mg# clinopyroxene. Initial \(\epsilon\) values range from +7.9 to +9.3 for the Neyriz magmatic rocks. Samples with radiogenic Nd overlap with least radiogenic mid-ocean ridge basalts and with Semail and other Late Cretaceous Tethyan ophiolitic rocks. Initial 87Sr/86Sr ranges from 0.7033 to 0.7044, suggesting modification due to seafloor alteration. Most Neyriz magmatic rocks are characterized by less radiogenic 207Pb/204Pb (near the northern hemisphere reference line), suggesting less involvement of sediments in their mantle source. Our results for Neyriz ophiolite and the similarity to other Iranian Zagros ophiolites support a subduction initiation setting for its generation.



Journal of Environmental Radioactivity Vol. 134, p. 35-42

Impact Factor = 3.571



FACTORS AFFECTING THE DISTRIBUTION OF NATURAL AND ANTHROPOGENIC RADIONUCLIDES IN THE COASTAL BURULLUS LAKE

H.I. El-Reefy a, H.M. Badran b,c, T. Sharshar c,d, M.A. Hilal a, T. Elnimr b

^a Hot Laboratories Center, Atomic Energy Authority, Cairo, Egypt
 ^b Physics Department, Faculty of Science, Tanta University, Tanta 31527, Egypt
 ^c Physics Department, Faculty of Science, Taif University, Al-Hawiya, Taif 21974, Saudi Arabia
 ^d Physics Department, Faculty of Science, Kafrelsheikh University, Kafr El-Sheikh, Egypt

➢ ABSTRACT *⋉*

In the present study, measurements of naturally occurring radioactive materials and ¹³⁷Cs activity in sediment were conducted for locations covering the entire Burullus Lake in order to gather information about radionuclides mobility and distribution. Low-background gspectrometry was employed to determine the activity concentrations of water and sediment samples. The activity concentrations of ²²⁶Ra and ²³²Th are close to uniform distribution in the lake environment. Among the different physical and chemical characteristics measured for water and sediment, only salinity and total organic matter content have the potential to affect the mobility of ¹³⁷Cs and ⁴⁰K. The results suggest that these two radionuclides are attached to different mobile particulates. Increasing salinity tends to strengthen the adsorption of ¹³⁷Cs and solubilization of 40K in sediment. On the other hand, sediment with high organic matter content traps ¹³⁷Cs and ⁴⁰K associated particulates to bottom sediment.



Journal of Environmental Radioactivity Vol. 134, p. 35-42

Impact Factor = 2.129



UTILITY OF POSITRON ANNIHILATION LIFETIME TECHNIQUE FOR THE ASSESSMENT OF SPECTROSCOPIC DATA OF SOME CHARGE-TRANSFER COMPLEXES DERIVED FROM N-(1-NAPHTHYL)ETHYLENEDIAMINE DIHYDROCHLORIDE

Moamen S. Refat ^{a,b}, Abdel Majid A. Adam^a, T. Sharshar ^{c,d}, Hosam A. Saad ^{a,e}, Hala H. Eldaroti ^f

^a Department of Chemistry, Faculty of Science, Taif University, Al-Haweiah, P.O. Box 888, 21974 Taif, Saudi Arabia

^b Department of Chemistry, Faculty of Science, Port Said University, Port Said, Egypt

^c Department of Physics, Faculty of Science, Taif University, Al-Haweiah,

P.O. Box 888, 21974 Taif, Saudi Arabia

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

^e Department of Chemistry, Faculty of Science, Zagazig University, Zagazig, Egypt ^f Department of Chemistry, Faculty of Education, Alzaeim Alazhari University, Khartoum, Sudan

🖎 ABSTRACT 🗷

In this work, structural, thermal, morphological, pharmacological screening and positron annihilation lifetime measurements were interactions between N-(1-Naphthyl)performed onthea ethylenediamine dihydrochloride (NEDA_2HCl) donor and three types of acceptors to characterize these CT complexes. The three types of acceptors include p-acceptors (quinol and picric acid), r-acceptors (iodine) and vacant orbital acceptors (tin(IV) tetrachloride and zinc chloride). The positron annihilation lifetime parameters were found to be dependent on the structure, electronic configuration, the power of acceptors and molecular weight of the CT complexes. The positron annihilation lifetime spectroscopy can be used as a probe for the formation of charge-transfer (CT) complexes.



Journal Of Molecular Structure Vol. 1074, p. 27-32

Impact Factor = 1.599



CHEMICAL AND PHYSICAL INVESTIGATIONS ON THE CHARGE TRANSFER INTERACTION OF ORGANIC DONORS WITH IODINE AND ITS APPLICATION AS NON-TRADITIONAL ORGANIC CONDUCTORS

Moamen S. Refat ^{a,b,*}, T. Sharshar ^{c,d}, Abdel Majid A. Adam^a, Khaled M. Elsabawy ^{a,e}, O.M. Hemeda ^f

^a Department of Chemistry, Faculty of Science, Taif University, P.O. Box 888, Al-Hawiah, Taif 21974, Saudi Arabia

^b Department of Chemistry, Faculty of Science, Port Said University, Port Said, Egypt

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

^d Physics Department, Faculty of Science, Taif University, P.O. Box 888, Al-Hawiah, Taif 21974, Saudi Arabia

^e Materials Science Unit, Chemistry Department, Faculty of Science, Tanta University, Tanta, Egypt

^f Physics Department, Faculty of Science, Tanta University, Tanta, Egypt

MARSTRACT &

The iso-leucine-iodide and methionine-iodide charge-transfer complexes were prepared and characterized using different spectroscopic techniques. The iodide charge-transfer complexes were synthesized by grinding KI-I2-amino acid with 1:1:1 M ratio in presence of few drops of methanol solvent. The structures of both solid amino acid iodide charge-transfer complexes are discussed with the help of the obtained results of the infrared and Raman laser spectra, Uv—vis. electronic spectra and thermal analyses. The electrical properties (AC resistivity and dielectric constant) of both complexes were investigated. The positron annihilation Doppler broadening (PADB) spectroscopies were also used to probe the structural changes of both complexes. The PADB line-shape parameters (S and W) were found to be dependent on the structure, electronic configuration of the charge transfer complex. The PADB technique is a powerful tool to probe the structural features of the KI-I2-amino acid complexes.



Journal Of Radioanalytical And Nuclear Chemistry Vol. 302, p. 1103-1117

Impact Factor = 1.415



ENVIRONMENTAL IMPACT OF SOME CEMENT MANUFACTURING PLANTS IN SAUDI ARABIA

M. M. Al-Dadi, H. E. Hassan, T. Sharshar, H. A. Arida, H. M. Badran



This work is concerned with the environmental impact of the cement industry in the west of Saudi Arabia represented in two cement plants and one cement depository. The concentrations of natural and artificial radionuclides in samples of cement (raw materials and end product) and soil, collected from the cement plant and its surrounding area, were measured using gamma-ray spectrometer employing a HPGe detector. In addition, the levels of 19 major and trace elements were also determined in these samples using the inductively coupled plasma atomic emission spectroscopy. The concentrations of the ²³⁸U series isotopes in soil samples show a clear radiological impact of the cement industry upon the environment. Possible contamination with Ca and some other elements in soil samples that are rich with the fine grain size was observed. Cluster analysis of soil samples using convenient attributes shows an obvious evidence of the cement industry impact upon the environment. The hidden effect of the cement industry upon the environment was observed when the convenient measured attributes were used in cluster analysis of soil samples.



Isotopes In Environmental And Health Studies Vol.50(2),p.235-256

Impact Factor = 1.294



EFFECT OF SALINITY ON THE CONCENTRATIONS OF RADIOISOTOPES IN THE AQUATIC ENVIRONMENT OF A HYPERSALINE COASTAL LAGOON

Khaled A. Ramadan^{ab}, Mostafa K. Seddeek^{cd}, Taher Sharshar^{ef},

Tarek Elnimr^a & Hussein M. Badran^{af}

^a Physics Department, Faculty of Science, Tanta University, Tanta, Egypt
 ^b Physics Department, Faculty of Science, Al-Azhar University, Gaza, Palestine
 ^c Physics Department, Faculty of Education, Suez Canal University, Al-Arish, Egypt
 ^d Physics Department, Oklat Al-Skoor College of Science & Arts, Qassim University, Qassim, Saudi Arabia

^ePhysics Department, Faculty of Science, Kafrelsheikh University, Kafr El-Sheikh, Egypt ^fPhysics Department, Faculty of Science, Taif University, Al-Hawiya, Taif, Saudi Arabia

🖎 ABSTRACT 🗷

Research of the effect of salinity on the fate of radionuclides has been focused on seas or estuarine systems while there is almost no information on marine environments with a salinity higher than that of sea water. The hypersaline Bardawil lagoon is a concentration basin, with evaporation exceeding precipitation. This study presents the characteristics of some environmental factors including salinity and their influence on the distribution of natural and artificial radionuclides in different compartments of the lagoon. The concentrations of ²³⁸U, ²³⁴Th, ²²⁸Ra and ¹³⁷Cs in sediments show some degree of dependency on the water's salinity. Migration of these radionuclides in the lagoon's sediments must take place from high salinity to low-salinity regions. Cluster analysis revealed the data structure for sediment by separating ¹³⁷Cs and 40K from ²³²Th, ²²⁶Ra, and ²³⁴Th and for sand by separating ⁴⁰K from the other radioisotopes.



International Journal of Electrochemical Science Vol. 9, p. 3222-3245

Impact Factor = 1.956



PHYSICOCHEMICAL STUDIES OF FLUORESCENT DYES DOPED IN POLYMER SHEET AND ITS APPLICATION IN SOLAR ENERGY: EFFECT OF GAMMA IRRADIATION ON CHARGE-TRANSFER COMPLEX OF 1,8-NAPHTHALIMIDE DERIVATIVE WITH CHLORANILIC ACID

M.S. Al-Amoudi^{1*}, H.E. Hassan^{2,3}, M.M. Al-Majthoub¹, T. Sharshar^{2,4}, Moamen S. Refat^{1,5},

¹ Chemistry Department, Faculty of Science, Taif University, P.O. Box 888, Al-Hawiah, Taif 21974, Saudi Arabia

² 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, Kafrelsheikh University, Kafr El-Sheikh, Egypt

⁵ Chemistry Department, Faculty of Science, Port Said University, Port Said, Egypt

⋈ ABSTRACT ⋈

Charge-transfer complex formed from the reaction of 2-(4-isobutoxyphenyl)-6hydrazino-1,8-naphthalimide dye with chloranilic acid (CLA) has been studied in methanol at room temperature. The final reaction product has been isolated and characterized using UV-Vis. and infrared spectra. The thermal stability measurements (TG/DTG) as well as elemental analysis of carbon, hydrogen and nitrogen elements were also performed for this sample. The photometric titration curves for the reaction indicated that the data obtained refer to 1:2 (CLA:dye) charge transfer complex [(nap)2(CLA)] was formed. The activation parameters ΔE , ΔH , ΔS and ΔG were obtained from the DTG diagrams by using Coats-Redfern method. The infrared spectra interpreted the mode of charge-transfer interaction associated with the hydrogen bonding exist between a two protons (-OH) of phenolic groups of CLA acidic central positions of acceptors and the terminal amino group for two dye moieties. Gamma irradiation was tested as a method for stabilization of fluorescent dyes doped in polymer sheets. The effect of gamma irradiation of 70 kGy dose on the properties of the charge transfer was studied using different techniques such as photolumencies (PL) and positron annihilation spectroscopy. The positron annihilation lifetime parameters and the doppler broadening line-shape S parameter were found to be dependent on the structure, electronic configuration the charge transfer complex. The positron annihilation spectroscopy can be used as a probe to study the stability of the fluorescent dyes.



Life Science Journal Vol. 11 (7), p. 791-802

Impact Factor = 0.165



EFFECTS OF IMMUNOMODULATOR "CYCLOSPORINE" ON REGENERATIVE CAPACITY OF AMPUTATED HINDLIMBS IN LARVAL STAGES OF THE SAUDI TOAD, BUFO ARABICUS

Eman Abbas Moussa and Gehan Hassan Fahmy

*Faculty of Science, Zoology Department, Kafr El-Sheikh University, Kafr El-Sheikh, Egypt.

*Faculty of Science, Biology Department, King Faisal University, Al-Hasa, Saudi Arabia...



The regeneration of the amputed hindlimbs of stage (54) of tadpole larvae of Bufo arabicus was studied after amputing their hind limbs at the mid shank level. The immunomodulator Cyclosporine A (CsA) was selected to determine its effect on regeneration. Two kinds of experiments were desigened. The first of experimental design is by immersing the tadpole larvae in a solution of CsA (0.02, 0.2 and 0.5 mg/mL) for five hours daily for three consecutive days, starting the treatment twelve hours after amputation. The second one is by intraperitoneal injection of CsA solution (0.02 and 0.2 mg/mL) administering 1 μ of CsA solution every other day starting from one day pre-amputation to day eleven post amputation. Regarding the effect of CsA on regeneration on stage 54, CsA significantly promoted regeneration in both kinds of experiments(immersion and injection), and this effect was dose-dependent. The regerative ability increases with increase of CsA concentations. Significant number of cases regenerated complete hind limbs with five or four toes, 86.3%, 66.7% and 100% of CsA treated cases (0.02, 0.2 and 0.5 mg/mL respectively) versus 45% of control cases when treated by immersion. In the other experiment, which is by injection, 90.5% and 93.3% of CsA treated cases (0.02 and 0.2 mg/mL respectively) restored hind limbswith five or four toes versus 45% of control cases. Histologically, CsA was associated with acceleration in the processes of dedifferentiation, differentiation and histogenesis in comparison with their control counterparts. Moreover, CsA treatment delayed the dermal differentiation underneath the epithelium. An observation which certainly favors regeneration as the absence of dermis allows direct communication between the above epithelium and the underlying cells for better blastema formation. CsA tratment in both experiments was also associated with early dedifferentiation of mesenchyme cells forming a well-formed blastema, and early differentiation of skeletal elements of the regenerates in compaison with their control counterparts. Adminstration of CsA to the tadepole larvae (54 stage) by injection resulted in better regenerative outcomes than adminstration by immersion. CsA significantly promoted and accelerated regeneration of their hind limbs after ambutation at the mid shank level. In addition, CsA effect was dose-dependent. We also consider that these data will give us deeper insights on the mechanisms taking place in higher vertebrates and in human.

Key words: Immunomodulator, Cyclosporine, amputated hindlimbs, larval stages and *Bufo arabicus*





FACULTY OF ARTS





DiG, Vol. 22, p, 91-122

Impact Factor = 0.167



ON PHONOLOGICAL VARIATIONS IN KAFRELSHEIKH EGYPTIAN ARABIC

Laila Abdel-Aal Al-Ghalban



This study attempts a close investigation of areal variation in the major phonological features of the Egyptian Arabic spoken in the agrarian northern region of Kafrelsheikh (KEA): their contexts and patterns. Targeting old, rural speech, a survey of all the localities is conducted through recordings of natural speech and a questionnaire. The instrumentally investigated phonological variables in KEA include major allophonic variants, and some typical instances of assimilation, dissimilation, metathesis, sound addition and sound deletion. Most instances of variation in the present data prove to be linguistically conditioned. Analysis shows that the differences between the dialect areas do not involve all the previous variants. KEA roughly seems to have five speech areas, with each enjoying intra-variation and comprising many relic features. Finally, the findings are interpreted with reference to the phonological system of (Egyptian) Arabic as a whole and various models of language variation patterning.



Pragmatics and Society, Vol. 5(1), p, 128-146

Impact Factor = 0.462



WHOSE FACE TO BE SAVED? MUBARAK'S OR EGYPT'S? A PRAGMA-SEMANTIC ANALYSIS

Amir H. Y. Salama



The 25th of January, 2011 witnessed a wave of political unrest all over Egypt, with repercussions that have re-shaped the future of contemporary Egypt. For the first time in the modern history of Egypt since the 1952 Nasserite revolution, grass-root protestors went to streets chanting slogans against the military regime headed by the (since then ex-) President of Egypt, Hosni Mubarak. This placed the then regime, as well as its mainstay, the National Democratic Party (NDP), in a political crisis on both local and international scales. It is this critical moment that led Mubarak to give his unprecedented speech on February 1st, 2011. The speech has brought about epoch-making political changes in the history of contemporary Egypt. Under public pressure, two seminal declarations were made in this speech: (1) Mubarak's intention not to nominate himself for a new presidential term; (2) a call on the Houses of Parliament to amend articles 76 and 77 of the constitution concerning the conditions on running for presidency and the period for the presidential term in Egypt.

The present paper seeks to answer the following overarching question: what are the discursive strategies used for saving the political face of Mubarak in his speech on February 1st, 2011? I follow a text-analytic framework based on the socio-semantic theory of social actors and the pragmatic models of speech acts and face-threatening acts. The analysis reveals Mubarak's attempt to save his positive political face as a legitimate President who regarded himself as the official ruler invested with absolute power over Egypt.



FACULTY OF ENGINEERING





Int. J. of Bio-Inspired Computation, Vol. 6, p, 275-289

Impact Factor = 1.681



MULTI-PHASE SEARCH OPTIMISATION ALGORITHM FOR CONSTRAINED OPTIMAL POWER FLOW PROBLEM

Ragab A. El-Sehiemy* and Muhammad B. Shafiq

Electrical Engineering Department, Faculty of Engineering, Kafrelsehiekh University, Kafrelsehiekh, Egypt

➢ ABSTRACT *⋉*

This paper proposes an enhanced solution for security constrained optimal power flow (SC-OPF) problem based on multi-phase search optimisation algorithm (MSOA). The objective is to minimise the generation costs by optimising the control variables, such as generator power, and satisfying system constraints. MSOA simulates the performance of humans' intelligent search with memory, experience and uncertainty reasoning. The proposed algorithm is integrated with Lagrangian relaxation factors to deal with network constrains. The proposed technique is carried out on the IEEE 30-bus, 57-bus test systems and a real power system at West Delta Network as part of the *Unified Egyptian Network. The space reduction strategy succeeded to* decrease the search space in each generation causing fast convergence to the optimal solution. The obtained results are compared with particle swarm optimisation technique to prove the effectiveness of MSOA in solving SC-OPF problems in normal and emergency conditions.



Energy, Vol. 68, p218-228

Impact Factor = 4.159



EXPERIMENTAL STUDY OF A HUMIDIFICATION-DEHUMIDIFICATION SOLAR TECHNIQUE BY NATURAL AND FORCED AIR CIRCULATION

A.E. Kabeel a,*, Mofreh H. Hamed b,c, Z.M. Omara b, S.W. Sharshirb

^a Mechanical Power Engineering Department, Faculty of Engineering, Tanta University, Tanta, Egypt

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

^c Mechanical Engineering Department, Faculty of Engineering, IUM, Saudi Arabia



An experimental investigation of a desalination system based on the HDH (humidification and dehumidification) of air is studied. The experiments were carried out in the premises of an open roof (six floors) of a Faculty of Engineering, Kafrelsheikh University, Egypt which lies at latitude 31.07°N and longitude 30.57°E.The evaporator (humidifier) unit is based on a cellulose paper as packing materials substratum through which water flows, and has a large area of favor evaporation. Cellulose papers with different wet surface area are used and studied. A modified design of condenser (dehumidifier) is proposed in HDH process to evaluate the performance of the unit. The condenser unit is a liquid-gas heat exchanger, where water vapor is condensed. The working principle of the set-up is based on the idea of open-water and closed-air cycles. An evacuated solar water heater is integrated with the desalination unit. The air is circulated either by natural or forced circulation. The effect of three types of forced circulating air (up, down and up-down) on the unit performance is considered. Also, the influence of inlet water temperature and inlet water mass flow rate to the humidifier on the performance HDH unit is studied. In addition the optimal ratio of cold water at condenser inlet to hot water at evaporator inlet (C/H) is obtained. The results show that the maximum productivity is obtained when C/H is twice. Also it is found that forced down air circulation gives higher performance than that obtained for forced up, forced up-down and natural air circulation. At C/H = 2, inlet water mass flow rate to the humidifier is 4 kg/min and forced down air circulation the unit productivity is about 23.6 kg/h with water temperature 90 °C at humidifier inlet. Results of the proposed design are compared with that for conventional type and the comparison shows that the propped design gives a higher performance. Hence, the modified condenser design increases the condenser effectiveness to be about 0.71 while, for conventional type of 0.49.



Energy Conversion and Management, Vol. 86, p, 268-274

Impact Factor = 3.59



IMPROVING THE PERFORMANCE OF SOLAR STILL BY USING NANOFLUIDS AND PROVIDING VACUUM

A.E. Kabeel¹, Z.M. Omara², and F.A. Essa²

¹ Mechanical Power Engineering Department, Faculty of Engineering, Tanta University, Tanta, Egypt.

² Mechanical Engineering Department, Faculty of Engineering, Kafrelsheikh University, Kafrelsheikh, Egypt.



The experimental modifications were carried out into the conventional solar still, considerably increasing the distillate water productivity. The effects of using different types of nanomaterials on the performance of solar still were studied. The investigated solid nanoparticles are the cuprous and aluminum oxides. The performance was investigated at different weight fraction concentrations of nanoparticles in the basin water with and without providing vacuum. These additions and modifications greatly improve the evaporation and condensation rates and hence the distillate yield was augmented. The research was conducted for range of concentrations starting from 0.02% to 0.2% with a step of 0.02%. The maxima productivity was obtained for using the cuprous oxide nanoparticles with a concentration of 0.2% with operating the vacuum fan. The results obtained that using cuprous oxide nanoparticles increased the distilled productivity by 133.64% and 93.87% with and without the fan respectively. On the other hand, using aluminum oxide nanoparticles enhanced the distillate by 125.0% and 88.97% with and without the fan respectively as compared to the conventional still. The estimated cost of 1.0 l of distillate are approximately 0.035\$, 0.045\$ when using the cuprous oxide nanomaterial with and without the fan and, as well as the aluminum oxide nanoparticles, 0.038\$ and 0.051\$ respectively, and for the conventional still is 0.048\$.

Keywords: Distillation, Solar Still, Nanofluids, Vacuum, Aluminum Oxide, Cuprous Oxide





Electric Power Components and Systems, Vol. 42, (3-4), p, 306-314

Impact Factor = 0.664



LETTER TO THE EDITOR: A BRIEF OVERVIEW OF NANOTECHNOLOGY APPLICATIONS IN SMART POWER GRID

Hany A. Abdelsalam^a and Almoataz Y. Abdelaziz^b

^aDepartment of Electrical Engineering, Faculty of Engineering , Kafrelsheikh University, Kafrelsheikh, Egypt

^bDepartment of Electrical Power and Machines, Faculty of Engineering , Ain Shams University, Cairo, Egypt

ABSTRACT

The smart power grid is the future conversion for the methods and strategies of production and consuming of electrical energy and the interaction between all the components of power grid. The smart power grid rate of achievement is accelerating with the fast growth of related technologies. Nanotechnology science is a trend in improvement and changing of material characteristics, behavior, and cost. Application of nanotechnology in electrical energy production and storage is in the early stages of development and research. This article presents a brief overview for recent and expected advancements in the smart power grid in the environment of nanotechnology discoveries, specifically describing applications and benefits of nanotechnology in photovoltaic cells, wind turbines, fuel cells, plug-in electric vehicles, energy storage batteries, and smart sensors. The use of nanotechnology in smart grid power electronics, computing, and communications is also introduced. This overview gives a promising outline for the future smart grid.