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ENGLISH TITLES

AGRICULTURE SCIENCES

Effect of Cd and Pb on germination and early seedling growth of black seed (*Nigella sativa* L.)

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Abstract

The effects of cadmium and lead and their interaction on germination behavior and early seedling growth stage of the medicinal plant (*Nigella sativa* L.) were investigated. Seeds were grown in Petri dishes (9 cm diameter) in a complete randomized design with three replicates for each treatment. The heavy metals were Cd (100 and 300 mg/L), Pb (600 and 1500 mg/L) and all possible combinations. Results showed that final germination percentage and root length were greatly reduced at all heavy metals treatment. Reduction was markedly higher at higher concentrations. Root growth (length and fresh weight) was relatively higher than shoot growth at control. Dry weight showed another reduction with the increase in heavy metals concentrations. Cadmium was more toxic than lead where no growth measurements were recorded for seedlings treated with the high concentration of Cd whether applied alone or combined with Pb. The synergistic effect of Cd and Pb was stronger than their effects as single metals. The synergistic and antagonistic interactions of both heavy metals were discussed

Key words: *Nigella sativa* L., heavy metals, germination, early seedling growth .

ENGINEERING

Improving the performance of WPAN during remote E-Health monitoring in crowded public patients room

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Abstract

Wireless Personal Area Network (WPAN) represents the first wireless network contact with patients in the applications of remote E-health monitoring using Wireless Sensor Network (WSN). In this paper, a way to improve the performance of the WPAN in the crowded public patient room was presented using a multiplied decreasing for both of packet size and packet inter-arrival time, as well as a multiple coordinating to achieve the best results in throughput and delay.

Key words: wireless, WPAN, WSN, Zigbee.

GEOLOGY

Geology and geochemistry of the upper proterozoic granites of As – said intrusive complex in Lawder – Mudia districts Abyan Governorate

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Abstract

The study area encompasses about 135km² located between latitudes 13° 51' 35" and 13° 56' 20" north and longitudes 45° 56' 40" and 46° 04' 52" east, within the south eastern region of Abyan Governorate, situated to the north east of Aden at a distance of 176km. The area is occupied by the geological map sheet D38 80 and D38 81.

The main rock types of the intrusion includes in the series: biotite granite, monzogranite, syenogranite, rarely gneissose granites.

The petrographic, mineralogical and geochemical studies revealed that there is no considerable differences between the main massifs; suggesting that these granite massifs represent outcrops of the same magmatic origin.

The massifs of As – Suwayda, Am-Salaa, Al – Hamrah and Al – Hafa (um Zareb), and Am-Maisam, geochemically originated from peraluminous calc alkaline magma and considered as post – tectonic granites intruded at pressure between 1-3kb within crustal depth, greater than 30km of the lithosphere.

Key words: Geology, Geochemistry, Upper Proterozoic granites, As-Said intrusive complex, Lawder – Mudia, Abyan.

Geological engineering description of the exposed surface rocks in wadi Dawa'an, Hadramout Governorate, Republic of Yemen

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Abstract

The present study deals with engineering geological characteristics of the rock mass encountered in and on sides of Wadi Dawa'an, Hadramout governorate.

During the present investigation, detailed studies were carried out on lithology, discontinuities, etc. and basic Geotechnical Description (BGD) of rock mass. The results revealed that, the Limestone (Umm erRhaduma Formation) has been classified into three zones (Zone I to Zone III), and the exposed parts of Sandstone (Mukalla Formation) into two zones (Zone I and Zone II).

The Limestone (very steep cliff) varies from dark brown and moderately weathered in bottom, to dark grey and fresh in the upper most layer. Further, the exposed parts of Sandstone Rocks vary from highly and completely weathered, very low compressive strength to moderately weathered and low compressive strength.

Keywords: Rock mass; Engineering geological characteristics; BGD; Wadi Dawa'an; Hadramawt Governorate; Yemen.

MATHEMATICS

Integrals formulas involving confluent hypergeometric Functions of three variables $\Phi_2^{(3)}$ and $\Psi_2^{(3)}$

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Abstract

The aim of this paper is to establish two general integral formulas involving confluent hypergeometric functions of three variables $\Phi_2^{(3)}$ and $\Psi_2^{(3)}$ with the help of two extension formulas for Lauricella's functions of three variables $F_A^{(3)}$ and $F_D^{(3)}$ due to Atash [1] and Atash and Bellehaj [2]. Some applications of our main results are also presented.

Key words: Integral formulas, Hypergeometric functions, Dixon's theorem, Kummer's theorem

Obtaining generating relations associated with the generalized Gauss hypergeometric function

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Abstract

In this paper, some new generating relations involving the generalized hypergeometric function and the generalized confluent hypergeometric function are established by mainly applying Taylor's Theorem. Due to their very general nature, the main results can be shown to be specialized to yield a large number of new, known, interesting and useful generating relations involving the Gauss hypergeometric function and its related functions.

Key words: Gamma function; Beta function; Generalized Beta type function; Generating functions; Generalized confluent hypergeometric function; Generalized Gauss hypergeometric function; Hadamard product.

Some types of generalized βH –Birecurrent Finsler space

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Abstract

In this paper, we defined a Finsler space whose Berwald curvature tensor H_{jkh}^i satisfies the condition $\mathcal{B}_m \mathcal{B}_n H_{jkh}^i = a_{mn} H_{jkh}^i + b_{mn} (\delta_k^i g_{jh} - \delta_h^i g_{jk}) - 2y^r \mu_n \mathcal{B}_r (\delta_k^i C_{jhm} - \delta_h^i C_{jkm})$, where $\mathcal{B}_m \mathcal{B}_n$ are Berwald covariant derivative of second order with respect to x^m and x^n , respectively, a_{mn} and b_{mn} are non-zero covariant tensors field .

The purpose of this paper is to develop the generalized βH –birecurrent space by studying some properties of generalized βH – birecurrent affinely connected space, P_2 – like generalized βH – birecurrent space and P^* – generalized βH –birecurrent space .Some theorems and conditions have been pointed out which reduce a generalized βH –birecurrent affinely connected space F_n ($n > 2$) into a Finsler space of curvature scalar.

Key words: Finsler space, Generalized βH – birecurrent affinely connected space ,Finsler space of curvature scalar, P_2 –like generalized βH –birecurrent space , P^* – generalized βH –birecurrent space.

On a generalized βK –Birecurrent Finsler space

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Abstract

In the present paper, we introduced a Finsler space whose Cartan's fourth curvature tensor K_{jkh}^i satisfies the condition

$$\mathcal{B}_n \mathcal{B}_m K_{jkh}^i = a_{mn} K_{jkh}^i + b_{mn} (\delta_k^i g_{jh} - \delta_h^i g_{jk}) - 2y^r \mu_n \mathcal{B}_r (\delta_k^i C_{jhm} - \delta_h^i C_{jkm}),$$

where $\mathcal{B}_n \mathcal{B}_m$ are Berwald's covariant differential operator of the second order with respect to x^m and x^n , successively, \mathcal{B}_r is Berwald's covariant differential operator of the first order with respect to x^r , a_{mn} and b_{mn} are non-zero covariant tensors field of second order called *recurrence tensors field* and μ_n is non-zero covariant vector field, such space is called as a *generalized βK –birecurrent space*.

The aim of this paper is to prove that the curvature tensor H_{jkh}^i satisfies the generalized birecurrence property. We proved that Ricci tensors H_{jk} , K_{jk} , the curvature vector H_k and the curvature scalar H of such space are non-vanishing and under certain conditions, a generalized βK –birecurrent space becomes Landsberg space. Also, some conditions have been pointed out which reduce a generalized βK –birecurrent space $F_n (n > 2)$ into Finsler space of curvature scalar.

Key words: Finsler space, Generalized βK –birecurrent space, Ricci tensor, Landsberg space, Finsler space of curvature scalar.

The generalized q-Analogue Hermite Polynomials of two variables

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Abstract

In this paper, we introduce the q-analogue generalized Hermite polynomials of two variables. Some recurrence relations for these q-polynomials are derived.

Key words: The generalized q- analogue Hermite polynomials, generating functions, recurrence relations.

MEDICINE

Study of complications of laparoscopic cholecystectomy

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Abstract

Laparoscopic cholecystectomy has become the standard operative procedure for treating cholelithiasis. The incidence of laparoscopic complications is 1.1% to 5.2% in minor procedures and 2.5% to 6% in major ones.

We retrospectively analyzed the data of 1112 patients underwent laparoscopic cholecystectomy during the period between January 2002 and January 2014 in Departments of Surgery in Aden General Hospital, Saber and Alwaly private hospitals in Aden city. Of the 1112 patients in whom laparoscopic cholecystectomy was attempted, 62 (5.6%) required conversion to open cholecystectomy. The most common intraoperative complications are adhesions (8.9%) and inflammation (6%). Postoperative complications were developed in 137 patients (12.3%).

There are many cases of symptomatic gallstones with anatomic or pathologic considerations that prevent the laparoscopic cholecystectomy, and need to convert to laparotomy.

Keywords: Complication, laparoscopic cholecystectomy, conversion, adhesions, cholelithiasis.

Pattern of skin cancer in north western region of Yemen

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Abstract

The pattern of skin cancer differs in different countries. The aim of this study is to identify the pattern of skin cancer in northwestern region in Yemen and to compare it to similar studies done in southern Yemeni governorates and in neighborhood.

This is a descriptive prospective study of patients data with histologically diagnosed skin cancers carried out in the Saudi hospital in Sa'adah and Hajjah governorates in

Yemen between Jan.2007 and Dec.2014. The data were collected and recorded on proforma and was analyzed according to the type of tumor, age and gender of the patients and anatomical site involved. Two histopathologists investigated the specimens. There were 324 Yemeni patients with skin malignancy, 204 were males (63%) and 120 were females (37%), the M: F ratio was 1.7:1. Most of the patients were over the age of 60 years and the mean age of all cases was 66.4 years. Squamous cell carcinoma was the most frequent (50%), followed by basal cell carcinoma (29%), Non-Hodgkin's lymphoma (4.9%), malignant melanoma (4%), and Kaposi's sarcoma (3.7%). Other rare primary skin cancers such as basosquamous carcinoma, adnexal carcinoma, dermatofibrosarcoma protuberans, neuroendocrine carcinoma, extramammary Paget's disease and aggressive angiomyxoma were recorded. Metastatic skin lesions were seen in six patients.

The patterns of skin cancer in northwestern governorates of Yemen are nearly similar to international studies with higher incidence of squamous cell carcinoma. Head and neck was the most common affected site, followed by lower extremities. Community education about the risk of long exposure to sunlight is important, including coverage of the head and neck when working outdoor under sunny weather.

Key words: Skin Cancer, Northwestern Region, Yemen.

Effectiveness of surgical treatment of otitis media with effusion , as a silent killer of hearing in children:, in Aden

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Abstract

The aim of the study was to assess the effectiveness of surgical treatment for otitis media with effusion (OME). It was designed as retrospective study and conducted in Aden during a period of six years. 132 children were diagnosed with otitis media with effusion. Males were 59.8% and females 40.2% and the mean age was 9.9 ± 2.8 years. Most of the patients were from rural areas (78.8%). The mean duration from starting symptoms was 11.3 ± 4.2 months. The most common cause was adenoids (45.5%). All preoperative tympanograms for both ears were type B.

The postoperative tympanogram was in the right ear 88.7% type A, 3.0% type B and 8.3% type C. In the left ear were 87.9% type A, 1.5% type B and 10.6% type C. The surgical procedures were adenoidectomy with tympanostomy tube, adenotonsillectomy with tympanostomy tube, and myringotomy with tympanostomy tube. The most frequent, complication was myringosclerosis 12(9.1%). The mean of preoperative hearing threshold of the right ear was 33.7 dB \pm standard deviation (SD) 16 dB, also for the left ear was 33 dB \pm SD 15.7 dB ($p < 0.05$).

The mean of postoperative hearing threshold of the right ear was 22.5 dB \pm SD 11.2 dB, and for the left ear was 21.8 dB \pm SD 10.8 dB ($p < 0.05$). The hearing gain was 11.2 dB, and was equal in both ears.

We concluded that surgical treatment of OME in the form of myringotomy and tympanostomy tubes with adenoidectomy is effective, safe and rapid, helping to restore the hearing of child immediately after operation.

Key words: Otitis media with effusion, surgical treatment, effectiveness, Aden .

PHARMACY

Degradation study of different brands of Ceftriaxone injection available in Aden city

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Abstract

Forced degradation is a process that involves degradation of drug products and drug substances at conditions more severe than accelerated conditions and thus generates degradation products that can be studied to determine the stability of the drug molecules.

Five different brands of Ceftriaxone injection were collected from the market and exposed to various stress condition like alkaline, acidic, oxidative and thermal degradation .The degradation process was followed by using spectrophotometric analysis.

All the antibiotic brands undergo forced degradation at conditions in different ranges and the maximum degradation observed in the basic medium.

Key words: forced degradation , Ceftriaxone injection , Aden city

ARABIC TITLES

AGRICULTURE SCIENCES

Survey of weeds infected by plant pathogen in the Southern Coastal Plain

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Abstract

A preliminary survey of weeds infected by plantpathogen was carried out in the most important agricultural areas in the Southern Coastal Plain during the agricultural seasons 2006-2007 and 2007-2008. The results of the survey showed that 56 species of weeds belonging to 20 families, of which the most important were Fabaceae 11 species, Euphorbiaceae 6 species, Solanaceae 5 species, 4 species of each the families Amaranthaceae, Poaceae, Cappariaceae and Asteraceae, Cucurbitaceae 3 species and 1 - 2 species distributed to the rest of plant families, Species such as *Tephrosia apollinea* and *Cassia ssp. Solanum dubium*, *Heliotropium europaeum*, *Abutilon pannosum* and *Datura innoxia* were of great importance as they were widely distributed in most areas of survey. It also infected more than a pathogenic and in highly incidence of infection. The results showed also the domination of fungal pathogens where 11 species were recorded, and the genus *Alternaria* was the most important which infected 37 species of weeds, as well as *Cladosporium* 15 species, *Cercospora* 4 species, 3 species for each *Helminthosporium*, *Stemphylium*, *Fusarium* and *Macrophomina*, and two species for *Puccinia*, *Erysiphe*. *Phytoplasma* disease has a clear incidence of 15 species of weeds in the most plant families, especially on widespread weeds such as *Tephrosia apollinea* and *Cassia italica*, which are recent outbreaks in the region. Eleven species of weeds have been recorded with symptoms of virus diseases. The most common species were *heliotropium europaeum* and *Solanum dubium*, which had symptoms of *Leaf Curl virus* in most areas of survey.

Key words: survey, weeds, plant pathogens, Southern Coastal Plain.

Effect of (*Glycyrrhiza glabra* L.) extract and powder on productivity and quality of onion (*Allium cepa* L. cv. Bafatiem).

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Abstract

This investigation was carried out during 2016/2017 to study the effect of extract and powder of Licorice (*Glycyrrhiza glabra* L.) on Productivity and quality of Onion (*Allium cepa* L. cv. Bafatiem). The experiment consisted of 7 treatments: spraying licorice extract with three concentrations (5, 10, 15 g / L) and adding it to the soil at three levels (5, 10, 15 g / m²) in addition to the control.

The results showed that Onion plants that were treated with licorice extract spraying and the addition of powder to soil at all concentrations and levels caused increasing in bulb diameter and height compared with control which was the lowest value in bulb diameter and height. Most of the spraying in addition to treatments, gave bulbs that tended to be

round, whereas the control induced bulbs which tended to be oblong (1.07). Spraying and addition to soil treatments of licorice significantly increased bulb weight, compared with the control, which recorded the lowest bulb weight, reaching to 211.29 gm. The bulbs resulting from spraying at 5g/L were the highest values and reaching to 287.44 gm. Onion plants that were treated with licorice extract spraying at 5g/L and the addition to soil at 10 and 15 g/m² significantly increased the yield to 59.68, 53.20 and 54.97 ton/ha. Respectively, compared with all other treatments and control. Total soluble solids (TSS) increased in bulbs, which treated their plants by licorice extract at 5 and 15g/L. reaching 12.33% for both.

Key words: Licorice extract, onion, Concentration.

BIOLOGY

Isolation and identification of pathogenic fungi associated with onion crop in the fields of Lahj Governorate

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Abstract

The study was conducted to isolate and identify some pathogenic fungi that infect onions in the field. The samples were randomly taken from farms in different regions of Lahj Governorate (Hajl, Qarishi, Hamra, Sufyan, Beit Ayyad and Oran Dian) during January-March 2017. Of pathogenic fungi namely peronospora destructor, Leveillula taurica, Sclerotium cepivorum, Botrytis allii, Alternaria porri were isolated

Key words: Onion, Fungus, Pathogenic, Lahj, Yemen.

ENVIRONMENT

Medicinal plants in flora of upper “Wadi Al-Ghaydah” in Wadi Al Ain District of Al Ain , Hadramout and its popular uses

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Abstract

The study was conducted in the period from April 2016 to March 2017 to know the relation between people and their environment, and their use of the plants in different sides of their lives. The results of the field survey showed that the inhabitants of the study area hold to their environment and the use of their plants to treat many diseases that may affect them. In this study, 63 plant species used for medicinal purposes were identified in the study area. The use of leaves was higher than other plant parts, with 35.1%, fruits yielding 21.6%, followed by seeds with 18.9%, roots with 13.8%, Green parts, park, latex was 10.8% for each of them, and the gum was 8.1% , the stem was 5.4%, while the lowest percentage was 2.7%. For the used part flower and anther.

The diseases treated by different parts of the plant have also varied between the treatment of internal diseases, such as the treatment of worms, sugar, etc., and the treatment of external diseases such as vitiligo treatment, burns and other treatment. Analysis of the method of use found that there are two methods for the use of medicinal plants: the use of the plant with the addition of other plant materials, and the use without addition of any other substances.

Key words: Plant parts, environment, plant species, therapeutic purposes.

MATHEMATICS

The essential relations in theorem of 2F mappings between Riemannian spaces which have structure $(F^3) = 0$.

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Abstract

In this paper, we have define 2F- mapping between Riemannian spaces which have the structure $(F^3) = 0$, remembering the necessary and sufficient conditions for the existence of 2F-mapping between Riemannian spaces A_n and finding the Essential relations in the theory of 2F- mapping between Riemannian spaces which have structure $(F^3) = 0$.

An example of Riemannian spaces, in to which 2F-mapping exist between them, is given.

Key words: Riemannian spaces which have structure $(F^3) = 0$

MEDICINE

In vitro study to evaluate the effect of saliva contamination on micro leakage of composite versus one kinds of glass ionomer

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Abstract

The aim of this study is to evaluate the effect of saliva contamination on microleakage around composite (Tetric N-ceram) and glass ionomer (Fuji IX™) in primary teeth, and to compare the effect of saliva contamination on microleakage between both materials.

This in vitro study contained 60 intact newly extracted human primary teeth (canines and molars). The sample has been divided randomly and equally into two groups according to restoration materials (composite Tetric N-ceram and glass ionomer Fuji IX™) and each group was divided randomly and equally into two subgroups according to the existence of the saliva contamination.

The saliva contamination has caused an increase in the degree of microleakage in two types of restoration materials, the effect has been significant only in composite. When comparing the two types of restoration materials, there have been no significant differences in the degree of microleakage for restoration with or without saliva contamination.

It is useful to use the composite when we have control on saliva contamination and when we use glass ionomer (Fuji IX™) to restore primary teeth when the control of saliva contamination is difficult.

Key words: Saliva Contamination, Microleakage, Composite, Glass Ionomer Cement, , Primary Teeth.