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ENGLISH TITLES

CHEMISTRY

Synthesis and characterization of some new heterocyclic compounds with two Heteroatom's (Nitrogen) in their cyclic

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Abstract

The Pyrimidines derivatives play an essential role in several biological processes and have considerable important compounds for pharmaceutical medicinal and industrial material applications. The work describes the synthesis and characterization of some new pyrimidines derivatives: 2- mercapto 3,4 di hydro -4-oxo -[6- (4- alkoxy phenyl)- 4H] pyrimidine -5- carbonitriles and 2- mercapto 3,4 di hydro -4-oxo -[6-(4- substituted benzene - 4-H) pyrimidines -5- carbonitriles(3a- d). These Compounds (3a-d) were prepared from the reaction between **ethylcyano acetate** (0.01mole)and numbers of substituted benzaldehydes compounds (0.01mole) as starting materials. The compounds (4a-d) were obtained from the reaction of (3a-d) with aryl halide or alkyl halide under reflux for 5hrs, while the compounds (5a-d) were formed from the reaction of (4a-d) with phosphorous oxy chlorid. The compounds (6a-d) were synthesized from the reaction of (5a-d) with thiourea under reflux for 6hrs and the compounds (8a-d) were obtained from the reaction between (6a-d)with chloro acetic acid (0.01mole) under refluxed for 3hrs. All the synthesized compounds of pyrimidines derivatives were identified by the physical properties by it's melting points and colors, and the yields were characterized by the elemental (CHN)analysis, IR, UV, and visible spectra data

Key words: Ethyl cyano acetate, substituted benzaldehydes, aryl and alkyl halides, phosphorous oxy chloride, thiourea, chloro acetic acid, sodium ethoxidepyrimidines derivatives, elemental analyzer (CHN), IR, UV spectrum

Extraction and immobilization of Proteolytic Enzyme from local Yemeni Bean Seeds (*Dolichos Lablab L.*)

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Abstract

The aim of this study is to prepare immobilized protease with high hydrolytic activity for biotechnological applications. Local Bean Seeds (*Dolichos Lablab L.*) were used for the extraction of acid protease using tris-buffer, pH 4.5 as enzyme solvent. Free acidic protease was immobilized on entrapment in calcium alginate gel (*in situ* activated) by covalent binding method. Their activity and immobilization efficiency for hemoglobin hydrolysis was investigated. Temperature and pH maxima of the immobilized protease showed no changes before and after immobilization. The immobilized protease exhibited good thermal stability and re-usability.

Key words: Acid protease, Yemeni Bean Seeds, Immobilization, Optimization.

Geochemical forms and risk assessment of some heavy metals in Aden coasts sediments, Yemen

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Abstract

The objective of the present study is to investigate risk assessment and geochemical forms of Pb, Mn, Zn and Cu in Aden Coasts sediments as well as the content of sediment texture, organic carbon, and carbonates. Sequential extraction technique was applied to estimate the metals in five different fractions; exchangeable, bound to carbonate, bound to oxides, bound to organic matter and residual. The results indicated that the metals bound to non-residual fraction (anthropogenic input) represent 72.8 % of the total extractable fractions for Pb, 79.7 % for Mn, 87.4 % for Zn, and 87.3 % for Cu. The five fractions of the metals in the present study could be arranged in the following sequence:

Residual > Exchangeable > Oxide form > Organic form > Carbonate for Pb; Residual > Oxides form > Organic form > Carbonate > Exchangeable for Mn or Zn; Organic form > Residual > Oxide form > Carbonate > Exchangeable for Cu.

The risk assessment of the metals showed medium risk for Pb at all sampling sites except Sira zone which revealed very high risk to aquatic environment. Fractionation pattern of Zn and Cu showed low risk, while Mn showed low (most sites) to medium risk (Sira and Caltex) to

aquatic environment. In general, the risk assessment of the metals in the study area decreased as follows: Pb>Mn>Zn> Cu.

Key words: Sequential extraction; Heavy metals; Geochemical; Risk assessment; Aden coasts

ENGINEERING

The effect of information technology on seaports efficiency and improvement for the Gulf region

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Abstract

The efficiency of a port depends critically on the management system and security, the services provided, and its location as well as the skill of labor in the process of loading and unloading in a record time, using modern equipment. It has been noted from the results obtained that use of modern technology (IT) in some countries led to Increasing productivity and, therefore, an important indicator in evaluating the efficiency of port production. This paper evaluates the efficiency, performance and management of the supplies in the Gulf region. The objective of the study is to apply the DEA, CCR and BCC models in the evaluation of production efficiency using a nonlinear linear programming method in packaging data analysis (DEA), using data collected for 6 years for the period (2000-2005).

Key words: productivity, performance, DEA, seaports in GULF Countries, information technology, total quality management.

Remote system performance analysis of the virtual applications and virtual desktops by using Parallels 2X RAS technique

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Abstract

The fast spread of computer networks and broadband Internet access and also the development of different operating systems make possible the use of different virtualization techniques. Virtualization techniques provide efficient IT solutions in corporate and

educational sectors. We present an original structural framework for which the effect of virtualization technology are measured, based on a real campus wide deployment. The Virtual Desktop Infrastructure (VDI) provides academic members access to virtual applications on and off-campus for easy convenient access to academic resources in a server in data centre. In this paper, we present, at the beginning, a comparative performance analysis of Remote applications and Desktop Virtualization based on parallels 2X RAS versus Microsoft RDS. We introduce system architecture for the two tested scenario and test environment with Experiment Setup and implementations. Also, this paper provides analysis and implementation on the perceived and categorical perspectives on the usefulness, effectiveness and values of this technology in an academic environment. The main conclusions of the paper Indicated that students and academic staff have generally improved a remote accessibility to their course documents and academic materials virtually, using their own devices of different platforms which enabled them to perform course work more effectively resulting in improved system reliability, availability and scalability.

Key words: Virtualization technology, Parallels 2X RAS, Microsoft RDS, PublishingRemote Apps and VDI, performance monitoring.

GEOLOGY

Preliminary geological and geochemical study of clays at Al-Harur area Abyan Governorate, Yemen

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Abstract

The area of study comprises about 1284400 m² of Al-Harur village, which is located between latitudes 13° 13' 54.9" and 13° 14' 8" north and longitudes 45° 11' 38.5" and 45° 12' 30" east , in Abyan Governorate .Geologically, the main area is composed of Loess – Loam deposits of Upper Pleistocene to Holocene age.

Field works of Geological mapping ,Geological logging and description of pits accompanied by systematic sampling for chemical full silicate analysis was done .

The mineralogical and chemical analysis of clay revealed the presence of montmorillonite as the main constituent of clay .The results of the study showed the suitability of Clay for the production of cement.

Key words: Geology, Geochemistry, Clay, Al-Harur, Abyan.

New models for prediction of reservoir rock properties in Biyad formation of Khariroil field, Hadramout Governorate

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Abstract

Reservoir description is a process of describing various reservoir characteristics using all the available data. The nature of the description of reservoir properties is related to the availability of sample data and geologic complexity of reservoir. Reservoir characterization is needed for effective reservoir management studies. Reservoir rock properties can be estimated by several methods. Rock properties are determined by performing laboratory analyses on cores extracted from the reservoir. However, obtaining the properties from core analysis or well logging is time consuming and an expensive operation. For that, in this work, new models for estimating rock properties (porosity, permeability) are developed by adapting Artificial Neural network model (ANN). Models were successfully demonstrated for predicting reservoir rock properties (porosity and permeability) for Biyad formation of Kharir oil field. The models were tested against properties yielded from core laboratories using statistical error analysis. Result showed a great potential in predicting reservoir properties using artificial intelligence models.

Key words: new model, neural network, rock properties, Kharir oil field, Biyad formation, Hadramout Governorate.

MATHEMATICS

On a Generalized $\mathcal{B}_m U$ -Recurrent Finsler Space

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Abstract

A Finsler space F_n for which the h(v) - curvature tensor U_{jk}^i satisfies the condition $\mathcal{B}_m U_{jk}^i = \lambda_m U_{jk}^i + \mu_m (\delta_j^i g_{kh} + \delta_k^i g_{jh})$, where λ_m and μ_m are non-zero covariant vector fields and \mathcal{B}_m is covariant derivative of first order in the sense of Berwald (Berwald's covariant differential operator). In the present paper, satisfying this condition will be called *ageneralized $\mathcal{B}_m U$ -recurrentspace*. The tensor G_{rkh}^r , the h(v)-torsion tensor U_{kh}^i , the G- Ricci tensor G_{jk} and the U- Ricci tensor U_{jk} are non-vanishing. Under certain conditions, a generalized $\mathcal{B}_m U$ - recurrent space becomes a generalized recurrent tensor. Also, we discuss the decomposing of the h(v) - curvature tensor U_{jk}^i in Finsler space.

Key words: Finsler space, generalized $\mathcal{B}_m U$ - recurrent space, generalized recurrent tensor, decompositions of tensor.

On a Generalized βH – Trirecurrent Finsler space

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Abstract

In this paper, we introduced a Finsler space for which the h– curvature tensor H_{jkh}^i (curvature tensor of Berwald) satisfies the condition

$$\beta_\ell \beta_m \beta_n H_{jkh}^i = c_{\ell mn} H_{jkh}^i + d_{\ell mn} (\delta_k^i g_{jh} - \delta_h^i g_{jk}) - 2y^r b_{mn} \beta_r (\delta_k^i C_{jhl} - \delta_h^i C_{jkl})$$

$$- 2y^r w_{\ell n} \beta_r (\delta_k^i C_{jhm} - \delta_h^i C_{jkm}) - 2y^r \mu_n \beta_\ell \beta_r (\delta_k^i C_{jhm} - \delta_h^i C_{jkm}), H_{jkh}^i = 0, \text{ where } C_{jkm} \text{ is (h)}$$

hv– torsion tensor, $\beta_\ell \beta_m \beta_n$ is Berwald's covariant differential operator of the third order with respect to x^n, x^m and x^ℓ , successively, $\beta_\ell \beta_r$ is Berwald's covariant differential operator of the second order with respect to x^ℓ and x^r , successively, β_r is Berwald's covariant differential operator of the first order with respect to x^r , $c_{\ell mn}$ and $d_{\ell mn}$ are non – zero covariant tensors field of third order, b_{mn} and $w_{\ell n}$ are non – zero covariant tensors field of second order and μ_ℓ is non – zero covariant vector field. We called this space *ageneralized βH – trirecurrent space*. The aim of this paper is to develop some properties of a generalized βH – trirecurrent space by obtaining Berwald's covariant derivative of the third order for the (h)v – torsion tensor H_{kh}^i and the deviation tensor H_k^i , the curvature vector H_k and the scalar curvature H are investigated.

Key words: Finsler space, generalized βH – trirecurrent space, Ricci tensor.

Analytic solutions for a new model of the (3+1)-Boussinesq equation

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Abstract

In this paper, we have applied the mapping method to solve the (3+1)-dimensional Boussinesq equation where we have obtained exact solutions for evolution equation to construct exact periodic and soliton solutions of nonlinear partial differential evolution equation. Many have obtained new families of exact traveling wave solutions, but the Boussinesq equation is successfully. These solutions may be significantly important for the explanation of some practical physical problems.

New exact travelling wave solutions are obtained and expressed in terms of hyperbolic functions, trigonometric functions, rational functions and elliptic functions. It is shown that

the mapping method provides a powerful mathematical tool for solving a great many nonlinear partial differential equations in mathematical physics.

Key words: Mapping Method, Exact Solutions, The (3+1)-Boussinesq Equation.

Variations on uncertainty principle inequalities for Weinstein operator

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Abstract

The aim of this paper is to prove new variations of uncertainty principles for Weinstein operator. The first of these results is variation of Heisenberg-type inequality for Weinstein transform that is for $s > 0$. Then, there exists a constant $C(\alpha, s)$, such that for all $f \in L^1_\alpha(\mathbb{R}^d_+) \cap L^2_\alpha(\mathbb{R}^d_+)$

$$\| |x|^{2s} f \|_{L^1_\alpha(\mathbb{R}^d_+)} \| |\xi|^s \mathcal{F}_W(f) \|_{L^2_\alpha(\mathbb{R}^d_+)} \geq C(\alpha, s) \| f \|_{L^1_\alpha(\mathbb{R}^d_+)} \| f \|_{L^2_\alpha(\mathbb{R}^d_+)}.$$

The second result is variation of Donoho-Strak's uncertainty principle for Weinstein transform, Let $S, \Sigma \subset \mathbb{R}^d_+$ and $f \in L^1_\alpha(\mathbb{R}^d_+) \cap L^2_\alpha(\mathbb{R}^d_+)$. If f is (ε_1, α) -time limited on T and (ε_2, α) -band limited on Σ , then $\mu_\alpha(S)\mu_\alpha(\Sigma) \geq (1 - \varepsilon_1)^2(1 - \varepsilon_2^2)$.

The third result is variation of the local uncertainty for Weinstein and Weinstein-Gabor transform.

Key words: Weinstein operator; Heisenberg's uncertainty inequality, time frequency-concentration.

On strong Semi* – I – Open sets in ideal topological spaces

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Abstract

In this paper, we first introduce the concept of a strong semi*-I-open set which is weaker than the concept of a Semi-I-open set and stronger than the concept of semi*-I-open set. Moreover, we will study its properties and discuss the relationships between this concept and relevant concepts in topological and ideal topological spaces. Finally, by using the new notion, we defined the strong semi*-I-interior and strong semi*-I-closure operators and establish their various properties.

Key words: local functions, ideal topological spaces, strong semi*-I-open sets and.

MEDICINE

Pathological findings in viscera of albino rat's fetuses of mother treated by lamotrigine

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Abstract

The aim of this study is to evaluate the effects of herapeutic doses and $\frac{1}{4}$ LD₅₀ of lamotrigine on the visceral structure of albino rat fetuses. This study was conducted over a period of 6 months extending from October 1, 2011 to February 1, 2012.

Sixty adult non-pregnant female albino rats and 30 male rats of the same strain, weighed 150-200 grams, were purchased from the Animal House of The Faculty of Medicine, Assiut University.

Sixty pregnant rats were used in this study and were classified into three groups:

- a) Control Group (I): consisted of 20 pregnant females with normal saline administration.
- b) Study Group II: consisted of 20 pregnant females with therapeutic dose of lamotrigine oral administration of 5.4mg /d of lamotrigine, and (c) Study Group II: consisted of 20 pregnant females with $\frac{1}{4}$ LD₅₀ oral administrations of 32mg /d.

One hundred sixty eight fetuses (94 fetuses of GIIa and 74 fetuses of GIIb) and 134 fetuses from control group, were fixed in bouin's solution (aqueous saturated solution of picric acid 70% formalin 25% , glacial acetic acid 5%) for visceral examination. The study revealed that no internal visceral abnormalities were detected in fetuses of control and therapeutic doses of lamotrigine treated groups. Fetuses of the $\frac{1}{4}$ LD₅₀ treated group showed internal abnormalities in the heads cross sections only, while other levels sections showed no differences from control. Lamotrigine should not be regarded totally safe drug during pregnancy until its safety is established in a large scale randomized study with long term follow-up.

Key words: Lmotrigine, viscera, pathological findings, albino rats.

Emergency obstetric hysterectomy: five years review at Al Sadaqa teaching hospital

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Abstract

Emergency hysterectomy in obstetrics is rarely indicated and is always debatable. The aim of the study is to determine the incidence, sociodemographic factors, indications, maternal characteristics and maternal and perinatal outcome of emergency obstetric hysterectomy. This is a retrospective hospital based study of the cases of emergency obstetric

hysterectomy performed over a period of 5 years from Jan 2014 to November 2018. A total of 55 cases of emergency obstetric hysterectomy (EOH) were studied in the Department of Obstetrics and Gynecology, in a Al-Sadaqa Teaching Hospital, Aden.

During the study period there were 55 emergency obstetric hysterectomies and 33903 deliveries, giving an incidence of 0.16% or 1.6/1000. The majority of the cases were unbooked (36.4%). It was more common in multipara and grandmultipara (57.3%). Ruptured uterus (60.0%), atonics postpartum hemorrhage (10.9%) and morbidly adherent placenta (9.1%) were the common indications. Subtotal hysterectomy was performed in 69.1% of the cases and total hysterectomy in the rest. The perinatal mortality was (67.0%), and the maternal mortality was 1.8%.

Emergency obstetric hysterectomy is a lifesaving procedure. Uterine rupture, uterine atonia and morbid adherent placenta are the leading indications for emergency obstetric hysterectomy.

Key words: Emergency obstetric hysterectomy, Morbidly adherent placenta, Rupture uterus.

Role of sonographic features in predicting the malignant potential of thyroid nodules

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Abstract

However, while thyroid nodules are common, thyroid malignancy is relatively rare, constituting about 1% of all malignancies. The main point of the approach of the thyroid nodule is the detection of the malignant nodules and deciding for the surgical treatment. Ultrasonography (US) plays a crucial role in the diagnostic management of thyroid nodules. The aim was to assess the reliability of using hypoechoic, solid and ill-defined margin as independent predictors for the identification of malignant thyroid nodules on US. We retrospectively analysed the three suspicious US features of malignancy for 145 patients with 255 thyroid nodules who underwent thyroid resection. We used histological results as gold standard reference test. Of the 255 surgical resected nodules; hypoechoic nodules had a sensitivity of 66.7%, and positive predictive value (PPV) of 8.7%. Solid nodules had a sensitivity of 33.3% and PPV of 3.7%. Ill-defined margins nodules had a sensitivity of 66.7% and PPV of 6.9% in predicting malignancy. The present study adds further evidence on the poor PPV in our results, indicated, that individual US features are not reliable used as independent predictors for the identification of malignant potential thyroid nodules on US.

Key words: Thyroid ultrasound. Thyroid nodules. Thyroid malignancy

Characteristic of costal cartilages calcification in relation to sex and age: A forensic review in Aden population

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Abstract

In recent years, there has been renewed interest in forensic sciences about forensic age and sex estimation in living subjects by means of radiology. Costal cartilage bridges, the sternum and the ribs play a key role in the biomechanics of the chest, and is known to be calcified in local regions with age. This study aims at finding out the patterns of costal cartilage calcification in relation to sex and age, and was conducted on digital thorax X-rays to test the usefulness of some radiological changes in the costal cartilage.

A descriptive cross sectional study of 1371 radiographs of chest plates were collected from a Diagnostic Medical Center (DMC) in Aden city / Yemen, during the period January 2017 to December 2018, all data were analyzed for their calcification patterns according to the methods of McCormick et al. The incidence of calcification increased with the advancement of age and the earliest appearance of calcification in costal cartilage was seen at 18-19 years in both sexes but more significantly in females. The tendency of central calcification of cartilage was displayed in females, while the peripheral calcification preferred in males, and the mixed calcification seen in both sexes but more in males. It is safe to conclude that different patterns of calcification at rib cartilage observed in digital radiographs are sex specific, that is to say male subjects predominantly show peripheral pattern and female subjects predominantly show central pattern. Calcification of costal cartilage starts at the age of 18-19 years in both sexes and increases with age.

Key words: Costal cartilage, Calcification, Sex determination, age estimation, Ribs.

PHARMACY

Anti-diabetics and glycemic control among type 2 Diabetic patients in out-patients clinics

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Abstract

The present study evaluates the anti-diabetics and glycemic control of type 2 diabetic patients attending the out-patients clinics Aden. It is a cross-sectional study carried out in Aden Diabetic Center at Al-Gamhouria General Modern Hospital, Aden. Thirty two type-2-patients attended the center during the period from 15 January to 15 February 2018, using anti-diabetic drugs for more than one year, were included. Data were collected through direct interviews using a structured questionnaire, including patients characteristics as well as medical and medications characteristics. Blood samples were drawn to measure glycated hemoglobin HbA1c. Data were analyzed by using SPSS. (Version 22). Thirty seven and a half percent were females and 62.5% males. The mean age of the participants was 55 ± 8.23 years. 56.2% of the patients showed good adherence to the exercise with the preponderance to the males, $p=0.043$. The mean BMI of the participants was $26.62 \pm 3.89 \text{ Kg/m}^2$, with half of them considered overweight ($25\text{-}29.9 \text{ Kg/m}^2$), while almost one fifth of the samples were obese. Half of the patients had hypertension and high cholesterol as comorbid conditions. The most frequent antidiabetic classes utilized by the patients were sulfonylureas, 62.5% and biguanides 62.5%. There was a limited use of DPP-4 inhibitors, sitagliptin and alogliptin (6.2%). 53.1% of the studied patients utilized monotherapy, followed by a combination of oral antidiabetics 37.55%, and a combination of oral antidiabetics and insulin (9.3%). The mean value of HbA1c of the samples studied was $9.65 \pm 2.33\%$. Only 12.5% of the patients had good glycemic control and 87.5% of the participants had HbA1c of $\geq 7\%$. Almost forty percent of the patients with HbA1c $\geq 7\%$ had cardiovascular diseases such as hypertension and higher cholesterol ($p=0.019$). In conclusion, the most frequent antidiabetic classes utilized by type-2-patients who attended outpatients clinics were sulfonylureas and biguanides with a tendency to use combination regimens. The majority of patients had poor glycemic control associated with cardiovascular morbidity. Attention should be given on the treatment regimens and dosage.

Key words: Type 2 diabetes, Morbidity, Anti-diabetic drugs, Glycemic control.

ARABIC TITLES

AGRICULTURE SCIENCES

Effect of Zinc Spraying on floral and fruit traits for Tomato plant (*Lycopersicon esculentum* Mill)

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Abstract

This research was conducted to study the effect of Zinc Sprinkle on Floral and Fruit Traits For Tomato Plant with different concentrations. Four different levels of zinc were used (25, 50, 100, 200 mg / L), as well as the control (without spraying) and three timings. The first spray was after the emergence of 6-4 of the real sheets and the second one after a month of the first spray. The results showed that all the paper spray treatments of zinc on the tomato plants recorded the highest level for the floral and fruit traits, compared to the control. 50 mg / L was used to speed up the flowering process and fruiting, compared to the other treatments, while the treatment of 200 mg / L exceeded the other treatments in the number of flowers, the date of maturity and weight of fruits and the quantity of the crop.

Key words: Tomato, zinc, foliar fertilizer, date of flowering, number of flowers, fruit maturity, fruit weight, yield quantity.

Effectiveness of the aqueous extracts of fermented plant wastes in inhibiting the growth of *Fusarium oxysporum f. sp. lycopersici*, the causal agent of vascular wilt disease in Tomato

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Abstract

Fermented plant residues play a role in inhibiting the growth of soil-borne pathogens by stimulating the growth of competing soil microbes. In order to evaluate the effectiveness of the aqueous extracts of fermented plant residues in inhibiting the growth of *Fusarium oxysporum f. sp. lycopersici*, the causal agent of fusarium wilt disease in tomato, the experiment was carried out by fermentation of the *Azadirachta indica*, *Prosopis juliflora*, *Calotropis procera*, *Euphorbia hirta* and *Arvajanica* during the period between 2016-2018. The obtained results showed the effectiveness of the aqueous extracts of the fermented wastes of the mentioned plants in inhibiting the growth of *F. oxysporum f. sp. lycopersici* when added in concentrations of 1%, 5%, 10%, compared to the control (without any addition). The highest effect of plant extracts was shown by *Calotropis procera* at the concentration of 5%

and 10%, where the growth of the fungus was inhibited by 88.10% and 88.20% respectively. followed by the extract of *Azadiractaindica* at the same concentrations where the growth of the fungus was inhibited by 87.50% and 88.10% respectively. *Euphorbia hirta* by concentration of 1% exhibited the lowest inhibition rate of 79.42%. It is concluded from the obtained results that the aqueous extracts of the fermented plant wastes have the potential to inhibit the growth of the fungus *F. oxysporumf.sp .lycopercisi*, the causal agent of vascular wilt disease in tomatoes

Key words: Tomato, *Fusariumoxysporumf. sp.Lycopercisi*, Aqueous Extracts Of Fermented Plant Wastes.

Effect of some powders (plants and mineral) and storage methods on germination for seeds of *Sorghum bicolor* (L.) Moench

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Abstract

For one year, duringThis research was carried in two season during (2016/2017, 2017/2018) in the Food and After-harvest Technical Center laboratory in KhawrMaksar, Aden, by using the powders of (*Azadiractaindica* leaves, *Capsicum annum* result, *Acaciatortilis* ash and Mineral rocks) Which used in an average of 25gm/kg seeds as well as storing tools (metal, plastics, jiu). The laboratory tests were done during 3,6,9,12 months for the two planting seasons and the results has been analyses by using the factorialexperiment conducted four times for each operation. The results of this study indicated that *Azadiractaindica* is the best for saving these seeds (%95.7,%97.6 respectively), whereas mineral rocks the less effect on saving the planting activity (%94.2,%95.4) respectively of kind of seeds (Sanisalah) of *Sorghum bicolor* (L.) Moench. The study also indicated that the best containers used for saving seeds very well is the metal containers (%94.9,%95.9 respectively) whereas Jiu sacks were of less effect in saving the planting activity (%92.6,%93.7 respectively). The results of the study showed an interaction between the elements and vessel used; the highest effect was in maintaining the vitality of seeds germination treated with nemm powder and stored in metal containers for the two seasons (%92.6,%93.2 respectively) and the lowest effect was in seeds treated with mineral rock powder and stored in Jiu sacks for the first and second seasons (%90.9,%91.0). Also, the results indicated that the percentage of planting seeds was reduced as the storing period increased after (3) months becoming (%96.6,%97.1) and after 12 months became %91.9,%92.25 respectively for the two seasons. Depending on the results of the statisticians analysis of the Sanisalah, the planting rate, after one year from storage period of the two seasons in Sanisalah, it become %93.822, %95.621.

Key words: Plant Powders, Mineral rocks, Store tools, Activity of *Sorghumbicolor* seeds (Sanisalah).

Effect of different levels of indole butyric acid (IBA) concentrations and cutting type on rooting and vegetative growth of potato (*Solanum tuberosum* L. var. Panamera) stem cuttings under plastic tunnel conditions

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Abstract

Potato crops occupy high rank among different agricultural crops as per its production and consumption despite its propagation high cost by tubers due to the rising of its import quotation. Thus a lot of attempts were done to propagate it vegetatively in order remain its genotype constant. For this purpose, two experiments were independently carried out, the first one was in Sana'a-Yemen by using perlite medium and the other one was in Mitem, Ibb governorate by using sand medium, both were under plastic tunnel conditions, in April during summer agriculture season. The aim of this research was to study the effect of different concentrations (0, 150, 300, 450 and 600 ppm) of indole butyric acid (IBA) and three types of cuttings (terminal, medium and basal) on rooting and growth of potato cuttings. The result showed that IBA at 450ppm recorded the best values for all studied parameters in perlite medium. Terminal cutting gave the highest values for all investigated parameters irrespective of cutting type. Interaction between IBA at 450ppm and terminal cuttings was the best significantly at all studied parameters. Almost all results by the use of sand medium with the three types of cuttings and IBA with its determined concentrations were similar to those produced by perlite medium in general. This investigation demonstrated the probability of propagation of potato crops vegetatively by using stem cutting.

Key words: perlite, sand, cuttings, IBA, potato.

Effect of Nitrogen and Phosphorus on growth and yield of two pearly millet (*Pennisetum glaucum* (L.) R.Br) cultivars in Dulta Tuban

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Abstract

A field experiment was carried out at the experimental farm of livestock Research Centre / Lahj in 2014 and farm of Ali Bin Ali Haj, Beer Ahmed, region in 2016, to study the influence of 4 levels of nitrogen (urea 46%) (0, 30, 60, 90 kg N/ha) and phosphorus (P₂O₅)

46%) (0, 15,30,45 kg/P/ha) on the growth and yield of two pearly millet cultivars (Kadan 1 and Kadan 5). Treatments arranged in split plot design with four replication where nitrogen assigned randomly in the main plots, phosphorus in sub-plots and cultivars in sub-sub plots. Results indicated that the highest levels of both nitrogen (90 kg/ha) and phosphorus (45 kg/ha) show superiors where nitrogen gave highest values in plant height (210 cm) in the first season and 1000 grain weight (11.4 and 10.9 gm), while phosphorus gave the highest values in plant height (194 and 210) least No. of days to 50% of flowering (43.9 and 50.3 days) for both seasons respectively. Kadan5 cultivar achieved significantly the highest values in grain and straw yield (2509, 2462) and (4360, 6329 kg/ha) compared to kadan1. Interaction between the highest levels of nitrogen (90 kg/ha) and phosphorus (30 kg/ha) significantly increased grain (2661, 2874) and straw (4780, 6916 kg/ha) yield for both seasons respectively. Interaction with the same nitrogen and phosphorus levels with kadan 5 cultivar gave the highest values of straw yield (6820 and 6941 kg/ha) for both seasons respectively.

Key words: Nitrogen, phosphorus, pearly millet, cultivars, growth, yield.

BIOGOGY

Effect of emotional stress on some indicators of the blood

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Abstract

This study was conducted on sexually mature male rats weighing 200-230gms. Topographic characteristics of an individual animal under experiment were studied in an open field manner (10). The rats were divided into three groups: stimulated, balanced and inhibited by the nervous system.

Emotional stress leads to the activation of the peroxide oxidation of fat as a result, biological antioxidants as a result of the enzymes of this system.

Results showed substantial transformations due to emotional stress in the microvascular circulation system (slow electrical movement red blood cells, blood flow velocity, vascular cavity change, high blood vessel deposition velocity, redness and transport function of red blood cells [Co₂, O₂]).

Resistance of red blood cells peroxide was insignificantly lower in balanced animals compared to stimulated animals, while in inhibited animals there was an increase, compared to balanced animals.

Key words: Emotional stress, blood, peroxide oxidation of fat, antioxidants, red blood cells.

PHYSICS

Calculation of linear attenuation coefficient and path rate of x-ray for low-density polyethylene reinforced with Walnut shells powder

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Abstract

In this research, the calculation of the Attenuation of X-Ray for low density polyethylene composites with Walnut shells powder. Low density polyethylene (LDPE) production by the State Company for Petrochemical Industries (Basra-Iraq), the range of the added of Walnut shells powder have the values 2.5%, 5%, 10%, 15%, 20%, and 30% for low density polyethylene weight ratio and the added Walnut shells powder with the particular size ($\leq 250 \mu\text{m}$), whereas the practical study was by using the beam of X-Ray at (33 kV) and operation voltage of Geiger-Müller tube was ($V_{\text{G.M}} = 600 \text{ Volt}$). The results showed increasing fillers content leading to an increase in the total linear attenuation coefficient, while the mean free path decreases. The path rate (λ) at 5% is 18.5 cm, while at 30% is 2.5 cm. The value of the linear attenuation coefficient (μ) at 30% it is 0.4 cm^{-1} , while it is 0.054 cm^{-1} at 15%.

Key words: Low density polyethylene, Walnut shells powder, X-Ray, Fillers, linear attenuation coefficient (μ), path rate (λ).