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ENGLISH TITLES

BIOLOGY

**Preliminary study of antimicrobial activity of fruiting bodies extracts of
Ganoderma spp**

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Abstract

Ganoderma is a genus of polypore mushrooms which grows on wood and belongs to the family *Ganodermataceae*. A literature survey revealed that species of *Ganoderma* are used to cure many ailments, including antimicrobial and antiviral activity used as local medicine. Basidiocarps of *Ganoderma* species have been analyzed for the present research wor. Air-dried powder of the fruiting bodies were extracted with ethanol and concentrated by using water bath at room temperature. The plant extract activity was tested by well assay method. The results revealed that ethanol extracts inhibited, to some extent in the growth of all human pathogenic microorganisms tested in the current study such as *Escherichia coli* (909-825-1793), *Pseudomonas aeruginosa* (300-966-1793), *Streptococcus faecalis* (1-800-445-9890), *Bacillus coagulans* (605-364-6891), *Salmonella typhi* (596-861-3691), *Staphylococcus aureus* (305-864-6691), *Candida tropicalis*, *Trichophyton uerrucosum*, and *Trichophyton mentagrophytes* (1-800-445-9890). It is strongly recommended that Yemeni species of *Ganoderma* could be used as an alternative antibiotic .

Key words: Antimicrobial, *Ganoderma* spp extract, inhibition.

Abbreviations: *GA-1*=*Ganoderma applanatum*, *GA-2*= *Ganoderma lucidum* .

ENGINEERING

**Design of an improved transistor performance for RF application using
Bipole3 Simulator**

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Abstract

This paper presents a bipolar junction transistor simulation working at radio frequency (RF) applications, using the device simulator Bipole3. First, the simulator was calibrated with physical parameters, after that calibration was made for data measurement,

then the transistor was simulated.

A key figure of merit of a transistor is the transit frequency f_T . However, this improvement comes at the expense of increased base resistance R_b and reduced early voltage V_A (linearity), both of which are detrimental to RF performance. The higher base doping concentration provides advantages in both higher early voltage, due to less modulation of the space region into the neutral base, and a low noise figure $1/f$, due to the low R_b , and high current gain (β), which are translated into performance advantages for RF applications [4].

Key words: *SiGe HBT, RF Transistor, Bipole3 Simulator*

ENVIRONMENT

Airport air pollution: A case study

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Abstract

This paper deals with estimating aircraft landing and take-off (LTO) emissions (SO₂, CO, CO₂, NO_x, NMVOCs, CH₄, N₂O) at Aden International Airport. The calculation model is based on number of flights movements, both local and international, obtained from the Central Statistical Organization in Yemen. For emission calculations, the IPCC guidelines for the National Greenhouse Gas Inventories are used.

It is estimated that, in year 2008, about 3350 (LTO) operations were performed consuming about 5200 tons of fuel and producing 16437 tons of CO₂, 87 tons of CO, 78 tons of NO_x, in addition to other pollutants which are harmful to human health.

Key words: Air Pollution, LTO, Air Transport, Aden airport.

MATHEMATICS

Certain fractional calculus results involving the generalized Voigt functions

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Abstract

In many recent works, several authors have demonstrated the usefulness of fractional calculus operators in many different directions. The aim of this work is to present a number of key results for the generalized Voigt functions involving the Riemann-Liouville operator, the Weyl operator, and Cauchy-Goursat integral formula. Various particular cases and consequences of our main results are also considered.

Key words: Fractional calculus, Generalized Voigt functions, Riemann-Liouville operator, the Weyl operator, Cauchy-Goursat integral formula, Hypergeometric functions.

MEDICINE

Allergic rhinitis among patients seen at a private ENT-Clinic, Aden: 2009

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Abstract

Allergic rhinitis is a global health problem that causes major illness and disability worldwide. The objective of this study is to describe the frequency of allergic rhinitis. It is a descriptive and prospective study, based on data of new patients seen at a private ENT Clinic in Aden during the year 2009. Data were handled by SPSS 17 Program 335 symptomatic patients of allergic rhinitis (75.2% females, 24.8% males) were seen during the study period.

The age of patients ranged between 6 to 70 years and the mean age was 28.4 ± 12.7 years. The age group of 21-30 years was predominant ($p < 0.05$).

The patients were characterized as follows: (54%) housewives and retired individuals, (25.7%) pupils & students, and (20.3%) employees ($p < 0.05$). Family history of allergies was in 41.2% of patients.

Topical nasal steroids spray and oral anti-histaminic drugs were the most frequently prescribed medications.

We conclude that the study provides rough indicators to the frequency of allergic rhinitis among our patients. Further studies are needed to find out the true indices of the prevalence and incidence of different types of allergic rhinitis in Aden.

Key words: Allergic rhinitis, Private ENT-Clinic, Aden.

Analysis of 50 cases of male infertility in a private urology clinic, Aden

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Abstract

Male infertility is a common condition worldwide. The aim of this one-year prospective study is to analyze male infertility cases and to describe the effect of diseases and habitual factors on the fertility profile of affected men in a private urology clinic in Aden.

A total of 50 men aged 17-56 years were diagnosed with infertility during the period. The mean age of patients was 30.4 ± 8.4 years. The majority of male infertility (84%) was

more common in patients of the age group 21-40 years ($p < 0.05$). Thirty one (62%) had primary infertility, while 19 (38%) had secondary infertility. Twenty one (42%) of the patients were reported having varicocele in the past, or presented with the disease, and 7(14%) with mumps in their childhood.

Hypospermia was found in 44%, azoospermia in 14%, oligospermia in 54% and asthenospermia in 94% of the study patients. There was association between low semen count and the two habitual risk factors, smoking and chewing Qat ($p < 0.05$).

We conclude that the most frequent cause was varicocele. Qat chewing and smoking were associated with decreased sperm count. Further comprehensive studies are needed to find out the magnitude of male infertility in Aden and the effect of environmental and habitual risk factors on male infertility.

Key words: Male infertility, urology, private clinic, Aden.

Causes of non-traumatic acute abdomen of patients Algamhoria Teaching Hospital, Aden: 2008-2009

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Abstract

The aim of the study is to study the type of causes and frequency of acute abdomen.

This is a retrospective descriptive study conducted at Algamhoria Teaching Hospital, in Aden. The data were retrieved from records of patients admitted to the surgical wards via the Emergency Department as non-traumatic acute abdomen, during the period January 2008 to December 2009.

Our study included 812 patients with a mean age of 23.3 ± 14.9 years; 58.5% of these patients were males. Regarding the frequency of the different acute abdomen operative findings, acute appendicitis was the main cause (78.2%), followed by intestinal obstruction (10.6%), and cholecystitis (3.2%). The majority of causes were in males ($p < 0.05$).

We found a significant difference between the age of patients and the frequency of acute abdomen causes ($p < 0.05$).

The gynecological causes were (2.7%). There were found more in females ageing 10 – 29 years and the most common is rupture ovary cyst. 88.3% of those patients underwent emergency explorations and (11.7%) cases were managed conservatively.

The average hospital stay of these patients was 5.3 days. Ten of the patients (1.3%) died.

We conclude that, in our study, acute appendicitis represented higher percentage compared to other studies, and pattern of causes for the acute abdomen should be determined more precisely. Supporting evidence for our results, further prospective studies should be conducted.

Key words: Emergency, causes, frequency, acute abdomen.

Benign breast diseases: A study of 482 cases in Aden

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Abstract

This is A retrospective study to describe the patterns of benign breast diseases. Pathology was based on records from IBN SINA histopathology laboratory in Aden of 482 with positive biopsy and mastectomy findings from February 2006 to 20 December 2009. 436 were females (90.0%) and 46 were males (9.5 %). Benign breast diseases (BBD) were classified into benign tumors, inflammatory and others breast diseases .

Benign lesions were found in 78.45% of cases. Fibroadenoma was the most prevalent lesion (34.2%) with a mean age at presentation of 28 years, followed by fibrocystic disease (27.4%) with a mean age at presentation of 31 years and breast inflammation (16.0%%), and others breast lesions comprise 26 cases (5.4%). The age group most affected was 20–30, most were females.

Key words: Benign breast diseases, Fibroadenoma, Fibrocystic diseases, Breast inflammation, Aden.

Histological findings of colonoscopy mucosa biopsies in 167 Cases

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Abstract

This is a retrospectively study of colonoscopy biopsies conducted from July 2000 to July 2010 in Ibin Sina Laboratory in Aden. The data were analyzed on the basis of the histopathological types, age and sex to determine the most common lesion in relation to,age group and sex. Among167 Patients there were 89 males and 78 females, so the ratio of males to females is 1.4:1. Colorectal diseases were classified into colorectal neoplasia, inflammatory and polyps.

The colorectal tumors was 80 cases (48 %) and the most commonest tumor was well differentiated adenocarcinoma representing the majority of cases occurring in patients of the age at 41-60 years, follow by poorly differentiated carcinoma after 60 years.

Inflammatory lesion comprise 76 cases (45.5%), of which predominantly Non-Specific Colitis were 55 cases, followed by Proctitis 13 cases and they occurred at young adults. The benign polyps seen were 6.5% , the most were Inflammatory Pseudopolyp and tubulo-adenomatous polyp, with one malignant transformation.

Key words: Inflammation of the colon, non neoplastic polyp, tumors of the colon, sex and age groups.

Dengue hemorrhagic fever in children at Al-Wahda Teaching Hospital, Mar – June 2010

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Abstract

This prospective-descriptive study was performed on children admitted with dengue hemorrhagic fever in Al-Wahda T. Hospital, during the period March-June 2010, to illustrate the main clinico-epidemiological aspects of the disease and its outcome.

A total of 28 children with Dengue hemorrhagic fever (DHF) were included, representing 17% of the 165 patients admitted with dengue fever during the period of study.

The majority of the patients (89.3%) were 5 years of age or more and the ratio of males to females was 1.2:1.

The duration of illness before admission ranged from 2-14 days and the median was 6 days.

Bleeding was most frequently spontaneous (96.4%) and from the nose (epistaxis) 57.1%.

The main clinical features were: fever (100%), musculoskeletal pain (92.9%), loss of appetite (89.3%), headache (78.6%), vomiting 67.9), pallor (50.0%), and skin rash (46.4%). All the patients had thrombocytopenia and leukopenia (85.7%) is a prominent laboratory finding.

Dehydration (60.7%) was the most common complication and shock syndrome was documented in 4 patients (14.3%). The case fatality was 10.7% and shock was a leading cause of death.

It could be concluded, from this study, that DHF is an important health problem in our community and is a leading cause of hospitalization and death in children, particularly in those at 5 years of age or more. Therefore, great efforts are highly recommended to initiate preventive measures for the control of mosquitoes, along with early recognition and proper treatment of patients

Key words: Epistaxis, musculoskeletal pain, dehydration, shock and leukopenia.

Diet, physical activity and obesity in primary school children in Aden.

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Abstract

To evaluate diet behavior and physical activity-related factors in relation to overweight and obesity, among primary school children of Aden Governorate (Yemen), a cross-sectional study was performed on 1885 students aged 6-16 years during the year 2009. Data about diet behavior and physical activity was collected through self-administered questionnaire sent to the parents. The children were classified into wasted, normal-weight, overweight and obese, according to BMI values calculated from the measured weight and height. The prevalence of wasted was 10.1%, normal-weight 69.2%, overweight 12.7%, and obese 8.0%. There were statistically significant relationships between overweight/obesity and skipping breakfast, daily consumption of fruits, green salad, and sugar-sweetened beverages. The prevalence of overweight/obesity was higher in children with < 1hour playing outside, ≥3 hours screen-

time (TV and computer), and <8 hours sleep time, but the difference was statistically significant only for playing time outside. Measures should be implemented to prevent overweight/obesity in this population.

Key words: obesity, diet, physical activity, children, Aden.

Analysis and evaluation of dental periapical radiographs taken in dental private clinics, Aden Governorate

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Abstract

The aim of this study is to assess the common radiographic errors of dental periapical radiographs taken in different private clinic in the city of Aden. 727 periapical radiographs were taken by using bisecting finger holding method technique, and all radiographs, processed manually, were evaluated. The unacceptable radiographs were categorized into 3 groups according to the type of errors (technical errors, processing errors and combination of technical and processing errors).

The percent of radiographs, with errors was 76%. Technical errors were observed in 57 % of dental periapical radiographs, film processing errors in 13%, combination of technical and processing errors in 6% of radiographs and only 24% of dental periapical radiographs were diagnostically acceptable.

The errors seen in dental periapical radiographs taken and by using bisecting finger holding method technique in dental private clinics in Aden were high and demonstrated a worrying level of unacceptable films (76 %).

Key words: Dental radiology, dental periapical radiographic error, dental periapical radiography.

PARASITOLOGY

Detection of Cryptosporidia in some water sources in Taiz Governorate using modified Ziehl-Neelsen stain and immunochromatographic assay

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Abstract

Polluted water is a potential source for protozoal infections particularly *Cryptosporidium*. The aim of this study is to identify *Cryptosporidia* in some water sources in Taiz Governorate using modified Ziehl Neelsen Stain and immunochromatographic assay. *Cryptosporidium* was detected in contaminated tap water, tanks water, and in water samples of ponds and streams. Modified Ziehl-Neelsen stain was less sensitive in detecting *Cryptosporidium* than

qualitative immunochromatographic assay. However, the use of quantitative technique is effective in identifying other protozoa as *Giardia lamblia* and *Blastocystis hominis*.

Key words: Cryptosporidia, water sources, Ziehl Neelsen, immunochromatographic assay.

PHARMACY

Comparative evaluation of the effect of the anti-diabetic agents glibenclamide 5 mg of six commercial brands spectrophotometrically

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Abstract

The aim of this study is to compare and to assess the quality and quantity analysis of the six commercial brands of glibenclamide 5 mg, marketed in Yemen, by applying the Pharmacopoeias requirements.

Glibenclamide (GBD) is an oral hypoglycemic of the sulphonylureas 2nd generation drug that is frequently prescribed for the treatment of Non-Insulin Dependent Diabetes Mellitus (NIDDM). Glibenclamide is chemically 1-[[p- [2-(5-chloro-o-anisamido) ethyl] phenyl] sulphonyl]-3-cyclohexylurea.

We have selected six types of glibenclamide 5 mg tablets, which are registered in Yemeni Supreme Board of Drugs and Medical Appliance, as follows: Euglucon® (Roche, Switzerland), Diatab® (Spimaco, K.A.S), Daonil® (Hoescht, Germany), Diaben® (Pharco, Egypt), Glynase® ((Julphar, England) and Glicon® (Efroze, Pakistan).

The qualitative and quantitative analysis were carried out to compare and evaluate the six commercial brands of glibenclamide 5 mg tablets.

We determined the uniformity of weight, disintegration, the friability, the dissolution tests and the assays of six commercial brands of glibenclamide 5 mg tablets according to the British Pharmacopoeia, In House methods, US Pharmacopoeia requirements and Indian Pharmacopoeia (I.P). The dissolution tests of different commercial brands of glibenclamide 5 mg tablet were not less than 70% dissolved of the label amount during 90 minutes, and complied with In House Method, US Pharmacopoeia requirements. The assays of different commercial brands of glibenclamide 5 mg tablet contents (95.72-108.96) were complied with the Indian pharmacopoeia requirements (90 – 110%). The results of the analysis of six commercial brands of glibenclamide tablets 5 mg showed that the qualitative and quantitative analysis complied with the Indian, the British, IN-House method and US Pharmacopoeia requirements, and there was no significant difference between the results of the assays of commercial companies.

Key words: Glibenclamide tablets 5 mg, Qualitative and Quantitative Analysis, Spectrophotometer, Diabetes Mellitus.

Equilibrium and kinetics studies: Adsorption of ampicillin on magnesium trisilicate.

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Abstract

The present investigation deals with the adsorption of antibiotic ampicillin from aqueous solution on magnesium trisilicate. The experiments were carried out to follow the effect of contact time, initial ampicillin concentrations, adsorbent dose and solution pH on the adsorption process. The Langmuir and Freundlich isotherm equations and pseudo-first order and pseudo-second order models were used to evaluate the process. The results revealed that the adsorption of ampicillin increases with the increase of initial ampicillin concentration and decreases with the increase of the solution pH values. Kinetic process of ampicillin on magnesium trisilicate was studied by the pseudo-first order and pseudo-second order rate equations. The adsorption process obeyed pseudo-second order model and the process, followed Freundlich adsorption isotherm more than Langmuir adsorption isotherm.

Key words: Adsorption, ampicillin , magnesium trisilicate, equilibrium , kinetics .

PHYSICS

Determination of minor and trace elements concentrations in some Yemeni dates using neutron activation analysis technique

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Abstract

In this research, eight date samples were taken from some regions of Yemen. Thermal and fast neutrons have been used for neutron activation analysis technique ($^{241}\text{Am-Be}$) as an isotopic neutron source. Yemeni date samples were irradiated with standard samples by isotopic neutron source ($^{241}\text{Am-Be}$). After irradiation, the spectra of irradiated samples were measured using multichannel analyzer (MCA) that was connected with a measurement system for this purpose. A high purity germanium (HpGe) detector, with resolution of (2.11keV) at gamma-line(1332keV) of radioactive source(^{60}Co), was used for detecting the radioisotopes. The interferences were solved and precision has been calculated. The concentrations of elements Ca, K, Na, Mg, P, Mn, Fe, Zn, Br, Cl and Cu in Yemeni date samples have been calculated .

Key words: Minor and trace elements, dates, neutron activation analysis technique.

ARABIC TITLES

AGRICULTURAL SCIENCES

Effect of different growing media on the germination and seedling growth of papaya cultivar “Honey Dew”

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Abstract

This experiment was conducted at the green house of Horticultural Department in Nasser's Faculty of Agricultural science, University of Aden, during November 2009 to February 2010, to study the Effect of different agricultural media on germination percentage and growth of seedling papaya cultivar “Honey Dew”.

The growth has been done in polyethylene plants page, capacity of 1.5 kg soil. The results could be summarized as following:

The effect of different Agricultural media was affected significantly on the germination percentage and the rate of germination. At the treatment media growth as clay alone, sand + clay, peat–moss exported + sand, sand + peat–moss local, the germination percentage was high achieved 70 % with significant increase, compared to the treatment sand + clay.

The effect of different agricultural media was affected significantly on vegetative growth characteristic seedling papaya; the treatment sand + peat–moss local gave high value in length, diameter, number of leaves, total fresh weight, and fresh vegetative weight of seedling, compared to other treatments, while the treatment sand + peat–moss exported gave high fresh roots, compared to other treatments.

Key words : Growing media, vegetative growth, papaya seedlings.

Effect of cross-pollination on fruit set, fruiting, fruit quality and sex ratio of papaya trees cv. “Honey Dew”

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Abstract

This investigation was carried out in the experimental farm of Nasser's Faculty of Agricultural Sciences on female papaya trees grown at 2x2m., during 2001& 2002 seasons. This study included eight treatments used at a complete randomized block design with four replicates. These treatments were as follows:

- 1-Open-pollination (control).
- 2-Bagging the flowers before opening (parthenocarpic fruiting).
- 3- Hand cross-pollination with male flowers of male trees cv. Honey Dew.
- 4- Hand cross-pollination with male flowers of andromonoecious trees cv. Honey Dew.

- 5- Hand cross-pollination with hermaphrodite flowers of andromonoecious trees cv. Honey Dew.
- 6- Hand cross-pollination with male flowers of male trees cv. local Seiyun.
- 7- Hand cross-pollination with male flowers of andromonoecious trees cv. local coastal Hadhramout red pulp.
- 8- Hand cross-pollination with hermaphrodite flowers of andromonoecious trees cv. local coastal Hadhramout red pulp.

The results obtained are:

- Cross pollination treatments with pollen grains from male flowers of male trees and from male or hermaphrodite flowers of andromonoecious trees cv. Honey Dew induced the highest values of fruit set, mature fruits percentage, highest of fruit height and diameter, also significantly increased fruit weight, fruit pulp thickness, fruit juice weight and number of full-developed seeds, compared to the other treatments in both seasons, and fruits were more round.
- Cross pollination treatment with pollen grains from male flowers of male trees cv. Honey Dew gave the highest values of total soluble solids (T.S.S) , decreased fruit total acidity percentage and accordingly, T.S.S / acidity ratio significantly increased compared to other treatments in both seasons , Ascorbic acid (vit.C) content was also increased.
- Cross pollination treatments with pollen grains from male flowers of male trees cv. Honey Dew and hermaphrodite flowers of andromonoecious trees cv. local coastal Hadhramout red pulp significantly increased total sugar contents, compared to the other treatments.
- Female trees of cv. Honey Dew had the ability to produce parthenocarpic fruits and these parthenocarpic fruits were to be oblong.

Key words: Papaya, hand cross pollination, andromonoecious trees, male and hermaphrodite flowers.

Screening of some chemical insecticides for the control of the lesser date moth *Batrachedra amydraula* Merk on date palm trees at two different sites in the coastal areas of Hadramout, Republic of Yemen

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Abstract

Screening of some chemical insecticides for the control of the lesser date moth *Batrachedra amydraula* Merk, locally called Hummairah, on date palm trees has been carried out in two different areas namely Meaian Hamad and Arrowdah, at the coastal region in Hadramout Governorate, Republic of Yemen. Each insecticide treatment together with the control, was replicated five times in a Randomized Complete Block Design(RCBD). Two weeks after spraying, the results have shown that, in Meayan Hamad area, the mean percentage of infestation in a single frond of date palm was 3.0%, 4.6%, 15.2%, and 19.8% for the insecticides Acetamiprid (Jagoar 200 SL), Deltamethrin (Delta Super EC), Pyrethrin+ Deltamethrin (Ragon Super), D-fenothrin +Emprothrin (Zab), respectively, compared with the control (33.8%), which was sprayed with water only. In Arrowdah area, the results, two weeks after spraying, have shown that the mean percentage of infestation in a single frond of date palm was 1.6%, 2.4%, 8.0%, and 9.4% for the insecticides Acetamiprid (Jagoar 200

SL), Deltamethrin (Delta Super EC), Pyrethrin+ Deltamethrin (Ragon Super), and D-fenothrin +Emprothrin (Zab), respectively, compared with the control (22.0%), which was sprayed with water only. As far as the percentage of infestation in fallen fruits, the mean percentage of fallen fruits at Meayan Hamad was 3.0%, 3.6%, 12.2% and 9.8%, in Acetamiprid (Jagoar 200 SL), Deltamethrin (Delta Super EC), D-fenothrin +Emprothrin (Zab) and Pyrethrin+ Deltamethrin (Ragon Super), , respectively, compared with the control (20.8%). At Arrowdah area, it was 2.3%,5%,10.5% and 13.3% in Acetamiprid (Jagoar 200 SL), Deltamethrin (Delta Super EC), Pyrethrin+ Deltamethrin (Ragon Super), and D-fenothrin + Emprothrin (Zab), respectively, compared with the control (23.6%). This affects the yield. In Meayan Hamad area, the mean yield of uninfected fruits in a single frond ranges from 8.12Kg for Acetamiprid (Jagoar 200 SL) to 4.62 for Deltamethrin (Ragon Super) compared with 1.82Kg for the control. In Arrowdah area, the mean yield of uninfected fruits in a single frond ranges from 7.98Kg for Acetamiprid (Jagoar 200 SL), to 4.93 for Deltamethrin (Ragon Super) compared with 1.65Kg for the control, with a significant statistical difference of 5%.

Key words: *B. amydraula*, chemical insecticides, date palm, Hadramout coastal area, Republic of Yemen.

Screening of some insecticides and plant extracts to stop termite workers from building tunnels on walls of buildings and trees

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Abstract

This study was conducted on February 2010 and repeated in February 2011 to test some chemical insecticides, as well as some plant extracts, to stop termite workers from building tunnels on walls of buildings and trees in southern areas in Abyan Governorate. The chemical insecticides used were Premise® sc200 (Imidacloprid) at the rate of 4ml/lit water; Agenda™ Es 2.5 (Fipronil) at the rate 5ml/lit water. and Presor TC , at the rate of 6ml/lit water. The plant extracts used were leaves and seeds of : Neem (*Azadirachta indica*), Ricinus (*Ricinus communis*), and Rita (*Sapindus mukorossi*), as well as their oil extracts. The termite workers under test included the following species: *Amitermes lonnbergianus*, *Microcerotermes diversus* and *Heterotermes athiopicus*. The results have shown that all chemical insecticides, as well as oil extracts of the aforementioned plants, succeeded in stopping termite workers from building their tunnels and join the cut part of the tunnel (30cm) to the other parts. The treated parts of the tunnels were cleaned of termite tunnels for more than one year. It is recommended that some of these products could be used in painting walls to protect them from termite tunneling .

Keywords: Termite tunnels, insecticides, plant extracts, Abyan, Yemen.

BOTANY

The toxic effect of Cadmium on the root tips of developing cells of onion (*Allium cepa*)

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Abstract

An experiment was conducted to study the toxic effects of cadmium on the developing cells of the roots of onions. Treated bulbs were planted in tubes containing various concentrations (0, 1 mg / l, 2.5 mg/l, 5 mg/l, 10 mg / l, 20 mg / l) of cadmium, while control bulbs were planted in tubes containing tap water for 48 hours. After that, we studied the different stages of cell division and estimated the length of developing roots and percentage of mitotic index (MI). The results showed a slight effect of cadmium at a concentration of 1mg / l on cell division stages and root length, while the cadmium at a concentration of 10 mg / l and 20 mg / l showed a significant effect on cell division and growth of roots. The cell division was stopped and the root growth decreased by 75% approximately at a concentration of 10 mg / l, compared to the control, while the cell division and root growth were stopped completely at a concentration of 20 mg / l.

Key words: Onion, cadmium, root length, mitotic index.

ENVIRONMENT

Hydromorphometric study for some drainage basins on Saber Mountain, Taiz, Yemen

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Abstract

The present study aims to analyze the hydromorphometric properties for some drainage basins in the area of study. To achieve the mentioned goals, it has been relied on some research approaches, they are the descriptive approach, spatial analysis approach, and the quantitative experimental approach, which were applied in the present research, depending on GIS programs in the various stages of the research, as well as machinery methods that had been used in order to take advantage of this technique to process and analyze the data entered into the computer to produce digital maps. ArcMap9.3, WMS8.1 and other programs were used to construct drainage patterns and basins in the area of study, and the production of formal qualities (morphometric) of the basins. We also studied the density of drainage influence on the velocity of runoff during rainfall storms. Selected drainage basins gave an integrated database on geomorphological characteristics and,

therefore, can be utilized to develop a comprehensive view of the possibility of suggesting appropriate technologies for water harvesting.

Key words: Hydromorphometric, Drainage Basins, Surface Runoff, Water Harvesting, Saber Mountain, Taiz.

