

**TABLE OF CONTENTS**

**ENGLISH TITLES**

**CHEMISTRY**

**Indirect benzoylation of Ferulic Acid catalysed by TBAI**

Hasnah Osman, Shafida Abd. Hamid, Mohammed Hadi Al-Douh and  
Antonia Fang-Lim

**Synthesis and anti-bacterial activity of some new thienopyridazines,  
pyridazothienooxazinone, and pyrimidothienopyridazines**

A. S. N. Al-Kamali, M. A. AL-Masany, and Fathy Khalifa

**ENGINEERING**

**Power factor correction and resonance in power systems**

Shehab Abdulwadood Ali

**Optimal allocation of electrical line supports**

Abdulaziz Salem Bahaidara

**ENVIRONMENT**

**A baseline study of heavy metals in the ports of Yemen**

Nabil A. Al- Shwafi and Abdulfatah M. Al-Megdad

**Vegetative composition of Wadi Mararah – Hawf,  
Almaharah –Yemen**

Mohammed Abdullah Hussein, Wadie A. Saeed and Abdul Nasser A.  
Gifri

**GEOLOGY**

**Evaluation of seismotectonic in South Western Arabia**

Khalid Ahmed Al- Suba'i

**MATHEMATICS**

**On normal projective trirecurrent Finsler space**

Fahmi Yaseen Abdo Qasem

**MEDICINE**

**Hepatitis B,C and human immune deficiency virus among cancer patients attending the National Center of Public Health**

**Laboratories- Aden**

Sawsan Bakhubaira

**Gastrointestinal stromal tumor in a young Yemeni female patient**

Abdulgafoor Kassim, Abdulkafi Shamsan, Sultan Qubati  
and Inas Dammag

**Gastric cancer in Aden**

Hussun Saeed Jezan

**View of methods for treating allergic rhinosinusities in Aden**

Saeed Hassan Al-Shabi and Abdul Samad Taresh

**Comparative study for conventional and laparoscopic cholecystectomy**

Ali Karama Bin Talib, Saleh Mobarak Al Khamar, Aldo Sisto Diaz  
and Abdulla Abdo Ahmed Attab

**Left ventricular diastolic dysfunction in patients with type-II diabetes mellitus**

Omar Abobaker Baselm

**Early risk stratification of cases with acute coronary syndrome (unstable angina and non- ST elevation myocardial infarction)**

Mohammed Mohammed Ahmed Alsa'adi

**Review of malaria morbidity registrations in Aden Governorate**

Walid Nasser Abdulla and Fahmi Mohammed Kaid.

## PHARMACY

**Chemical composition and antifungal activity of essential oil of  
Soqotran *Pulicaria stephanocarpa* Balf. f.**

Nasser A. Awadh Ali, Mehdi A. Al-Haj, Martina Wurster and Ulrike  
Lindequist

## PHYSICS

**A study of dose gamma ray buildup factor for water using different  
methods**

Khalid Omar Al-Baiti

**Optical characteristics of GaAs implanted with high energy  $^{56}\text{Fe}$  ions**

Y. P. Ali , M. M. Belekar, A. M. Narsale and B. M. Arora

**Analysis of surface morphology and microstructure of a-SiGe:H thin  
films using atomic force microscopy**

Abdul Jabbar Rashad Moh'd, Abdullah Omer Ali and Khalid Muthana  
Habeeb

## Arabic Titles

## AGRICULTURAL SCIENCES

**Effect of salinity on leaf area and dry matter in two varieties of  
Syrian cotton, (*G.hirsutum* L.)**

M . A. Abd el aziz

**Agroecological factors affecting physical and cup quality  
characteristics of Yemeni green coffee**

Amin Abdo Al hakimi

## ENGLISH TITLES

### CHEMISTRY

#### Indirect benzylation of Ferulic Acid catalysed by TBAI

Hasnah Osman,\* Shafida Abd. Hamid, Mohammed Hadi Al-Douh and Antonia Fang-Lim

School of Chemical Sciences, Universiti Sains Malaysia (USM), Minden 11800, Pinang, Malaysia.

\* E-mail: [ohasnah@usm.my](mailto:ohasnah@usm.my)

#### Abstract

The protection reaction on the hydroxyl group of ferulic acid 1 has been discussed. Methylation of the carboxylic side was followed by the benzylation of the hydroxyl group using tetra-*n*-butyl ammonium iodide (TBAI) as a catalyst afforded 4-benzyloxy-3-methoxymethylcinnamate 3. The purified product has been characterized by 1D NMR spectroscopy.

**Keywords:** 1D NMR, Ferulic acid, Benzylation, tetra-*n*-butyl ammonium iodide TBAI.

#### Synthesis and anti-bacterial activity of some new thienopyridazines, pyridazothienooxazinone, and pyrimidothienopyridazines

A. S. N. Al-Kamali<sup>1</sup> M. A. AL-Masany<sup>1</sup> and Fathy Khalifa<sup>2</sup>

<sup>1</sup>Chemistry Department, Faculty of Science, Taiz University, Republic of Yemen.

E-mail: [ah-s-alkamali@hotmail.com](mailto:ah-s-alkamali@hotmail.com)

<sup>2</sup>Chemistry Department, Faculty of Sciences, Cairo-University, Cairo-Egypt

#### Abstract

Refluxing of 3-chloro-4-cyano-6-phenylpyridazine 3, with thiourea furnished 4-cyano-6-phenylpyridazine-3(2H)-thione 4. The novel thieno[2,3-*c*]pyridazines 5a-c and 6a-c were achieved by cyclization of compound 4 with active halomethylene in the presence of sodium ethoxide and/or with *N*-arylchloroacetamide in the presence of potassium carbonate, respectively. Saponification of compound 5a with ethanolic sodium hydroxide, and subsequent cyclization, with acetic anhydride under reflux, afforded novel pyridazino [3',4' :4,5]thieno [3,2-*d*]oxazin-4-one derivative 8. The latter compound was reacted with aniline, hydrazine hydrate, urea / thiourea /

ammonium acetate, and thiosemicarbazide to produce pyrimido [4',5':4,5]thieno[2,3-c] pyridazine derivatives 10 -14, respectively. Condensation of 7-minopyrimidothienopyridazine 11 with acetic anhydride, furfural and triethyl orthoformate, gave new 7-functionalized pyrimidothienopyridazines 15-17, respectively. The structures of the synthesized compounds were confirmed by their analytical and spectral data. The prepared compounds were also screened for their antibacterial activity.

**Keywords:** Thienopyridazines, Pyridazothienooxazinone, Pyrimidothienopyridazines, Antibacterial activity.

## **ENGINEERING**

### **Power factor correction and resonance in power systems**

**Shehab Abdulwadood Ali**

**Department. of Physics, College of Education-Saber, University of Aden**

#### **Abstract**

The installation of power factor correction capacitors in power systems is one of the most effective ways to reduce energy consumption and costs of bills. It also helps transformers to work to full capacity. Although capacitors are easy to install and cheap to service, they can be the main disturbing element in the whole power system when installed in the presence of harmonics in the system, they cause resonance. This paper presents a study of this problem, where capacitors are used to correct the power factor in the industrial power network of (Frydlant - line 53/22kV – Czech Republic).

**Keywords:** power factor correction, capacitors, harmonics, harmonic impedance, resonance.

### **Optimal allocation of electrical line supports**

**Abdulaziz Salem Bahaidara**

**Electrical Engg. Dept. Faculty of Engineering, University of Aden  
(Republic of Yemen)**

#### **Abstract**

The line supports are intended to suspend conductors and ground wires by means of insulators. They ensure the necessary clearances between conductors and ground as well as clearances between conductors themselves. Optimal allocation of line supports on the profile is of great importance for economic design of an overhead transmission lines. This paper deals with preparation of sag template for optimal allocation of line supports. The use of a

sag template is essential to allocate the position and height of the supports correctly on the profile. To fulfil this aim, computer algorithm and programme is developed. The main programme STDLS and its subsidiary subroutines are constructed for calculating and drawing the four curves (hot curve, cold curve, ground clearance curve and support foot curve) of the sag template. The elaborated programmes are written in FORTRAN- 90 and adopted for personal computer

**Keywords :** Sag, span, sage template, line support, ground clearances.

## **ENVIRONMENT**

### **A baseline study of heavy metals in the ports of Yemen**

**Nabil A. Al- Shwafi and Abdulfatah M. Al-Megdad**  
Department of Earth and Environmental Science Faculty of Science- Sana'a  
University

#### **Abstract**

Because of potential health hazards, there is a great concern about setting up a baseline levels for many elements in the Yemeni ports. The present work involves an assessment of the levels of some trace element pollution in seawaters, from Yemeni ports, in the Red Sea, Gulf of Aden and the Arabian Sea. The levels of seven trace element ion concentrations (Cd, Co, Cr, Fe, Ni, Pb and Zn) were determined by using flame Atomic Absorption Spectrophotometer (AAS) from seventeen selected sampling sites, during 22-30 November 2006. The trace elements were found in comparable concentrations with unpolluted marine environments, were generally lied within the normal range of values reported in other regions of the world. The variation within the sites were mainly attributed due to the petroleum-rich substrate in the region, geochemical mobility and human activities in the Yemeni ports. Thus, it was concluded that the investigated trace elements do not present an environmental hazards for the present time. However, periodic monitoring of at least the more toxic element pollutants should be conducted to ensure the continued viability of these species and to detect any potential health hazard that could arise

**Keywords:** Heavy metals, ports of Yemen, Sea water.

**Vegetative composition of Wadi Mararah – Hawf,  
Almaharah –Yemen**

**Mohammed Abdullah Hussein, Wadie A. Saeed and Abdul Nasser A. Gifri  
Centre of Environmental Studies and Sciences, Aden University**

**Abstract**

Wadi Mararah is situated in the Hawf forest, the eastern part of Al-Mahara Governorate, Which is characterized with saturated wind that comes from the Indian Ocean and meets the Hawf mountain for the period from mid of June to mid of September. The winds coming to Hawf are characterized with fog phenomenon . In some places in Hawf, there is a light drizzle mixed with fog and, in - between there are spells of fog. There are also light fogs on the lower parts where it gets dense in the higher parts of the hills. During the monsoon season, the mountains look as if they are wearing beautiful green clothes. All this greenery is a result of the presence of various types and sizes of trees and shrubs, of which some, such as *Anogeissus dhofarica*, occur rarely. Wadi Mararah is considered as one of the important places in Hawf because the people in Hawf district depend upon the perennial stream at Ain Mararah for drinking ,domestic use ....etc.

The vegetative composition of Wadi Mararah varies with the climatic and topographic of the area. Vegetation on the lower zone of Wadi Mararah towards the sea has less density, as well as in its genera, while the middle zone is very rich in its vegetation, with more density and more genera. On the other hand, the vegetation differs and becomes less in the upper zone of the wadi towards the top of the mountain. Most of the vegetation in Wadi Mararah is trees, like *Anogeissus* sp., *Acacia* sp., *Commiphora* sp., etc. .In between these trees, there are some shrubs like *Croton* sp. , *Maytenus* sp. ,*Jatropha* sp.,etc. . The different genera and species form the structure and composition of the flora of Wadi Mararah.

**Keywords :** Topography, Vegetative composition, Yemen forest, shrubs .

## GEOLOGY

### Evaluation of seismotectonic in South Western Arabia

Khalid Ahmed Al-Suba'i  
Department of Earth & Environmental Sciences, Faculty of science - Sana'a  
University  
P. O . Box 13226, Sana'a – Yemen  
E-mail: ksubai@yahoo.com

#### Abstract

This paper is concerned with the evaluation of seismotectonic of the south - western Arabia based, on the available earthquake records utilizing the geostatistical technique. The Cumulative Semivariogram (CSV) technique, which is the basic geostatistical tool for irregular and regular spaced data, is used to describe the spatial variability of earthquakes in the region and their structural control. It is found that the seismotectonic of the area is direction independent and the spatial distribution of earthquakes epicenters within the study region is rather heterogeneous, except for a small portion of transform faults that exist between offset spreading ridges of the axial trough of the Red Sea and the western part of the Gulf of Aden. Consequently, a point source model can be justified for the regional seismic hazard evaluation and the mapping of earthquake ground motion in the study region.

**Key words:** seismotectonic, south western Arabia, geostatistics, cumulative semivariogram, point source model, earthquake ground motion.

## MATHEMATICS

### On normal projective trirecurrent Finsler space

Fahmi Yaseen Abdo Qasem  
Dept. of Math., Faculty of Education-Aden, Univ. of Aden, Khormakssar, Aden  
,Yemen

#### Abstract

The purpose of this paper is to discuss the trirecurrent normal projective curvature tensor  $N_{jkh}^i$  in Finsler space equipped with Berwald's connection. Such space in which the normal projective curvature tensor is trirecurrent is denoted by NPTR-Fn . Different results have been obtained in this space . We obtained the necessary and sufficient condition for NPTR-Fn to be TR-Fn (Trirecurrent Finsler space). Certain properties of such space have been searched out and its relation with a space in which Weyl's projective curvature



tensor  $W_{jkh}^i$  is trirecurrent. Finally, we discussed the recurrence curvature tensor field  $a_{nml}$  of third order, dealing with properties of the recurrence tensor of an NPTR-Fn.

**Key words :** Trirecurrent Finsler Space, Normal Projective Trirecurrent Space, Weyl's Projective Trirecurrent Curvature Tensor, Third Order Recurrence Tensor.

## MEDICINE

### Hepatitis B,C and human immune deficiency virus among cancer patients attending the National Center of Public Health Laboratories- Aden

Sawsan Bakhubaira

Faculty of Medicine and Health Sciences, University of Aden

#### Abstract

In human being, significantly higher prevalence of communicable diseases, such as viral infections, are thoroughly studied and some of them were attributed to the development of some malignancies.

This study was conducted to report any association of some malignancies with hepatitis B and C and HIV viruses in patients attending the National Center of Public Health Laboratories in Aden. Retrospectively, results of virology markers were collected during the period from January 2007 to August 2008. A total of 449 patients with different malignancies, were investigated before the start of chemotherapy.

The common types of malignancies reported among the studied patients were breast cancer (30.5%), gastrointestinal malignancies (21.2%), and lymphomas (17.8%). Serological studies showed that the percentage of positive HIV, HBsAg and HCV were 0.4%, 4.7% and 8.0%, respectively. Most patients with positive HBsAg were having gastrointestinal malignancies, mainly Hepatoceular carcinoma (HCC) and non-Hodgkins lymphoma (NHL). Patients with positive HCV were having gastrointestinal malignancies (mainly HCC), and lymphomas (Hodgkin's and NHL). Positive HIV serology was reported in two patients; both of them were having NHL.

This study concluded that malignancies associated with viral infections were HCC (with HBV and HCV infections) and NHL (with HIV, HBV, and HCV infections), and recommended the treatment of such viral infections to help in decreasing the incidence of these malignancies.

**Key words:** HBV, HCV, HIV, Cancer. .

**Gastrointestinal stromal tumor in a young Yemeni female patient**

**Abdulgafoor Kassim\*, Abdulkafi Shamsan\*\*, Sultan Qubati\*\*\* and Inas Dammag\***

**\* Department of Internal Medicine – Faculty of Medicine Taiz University**

**\*\* Department of surgery- Faculty of Medicine Taiz University**

**\*\*\*Department of Pathology, Faculty of Medicine, Dammar University**

**Abstract**

We are reporting a gastric gastrointestinal stromal tumor (GIST) in a young Yemeni female patient who was presented to us with recurrent upper GI bleeding and whose upper GI endoscopy showed an antral oval tumor presenting a deep ulceration on its top with black blood clot in ulcer crater. The final histological diagnosis was reached after performing immunohistochemical examination abroad .This is the first report on GISTs from our country. It may increase the awareness and interest in our medical community on this type of tumors and highlights the importance of immunohistochemical staining in the diagnosis of many neoplastic tumors, including GISTs. The availability of such test in our pathology laboratories is considered necessary.

**Key Words:** Gastrointestinal stromal tumors, Immunohistochemical staining, CD 117, tyrosine kinase and imatinib mesylate.

**Gastric cancer in Aden**

**Hussun Saeed Jazan**

**Pathology Unit, Paraclinc Department, Faculty of Medicine and Sciences**

**Abstract**

This study is designed to determine the most frequent morphological presentation of gastric cancer in relation to sex. During the period of 5 years, from June 2002 to June 2007, 50 patients had gastrectomy performed for gastric cancer, previously diagnosed by endoscopy biopsy. Partial gastrectomy was performed in 86% of the patients with gastric cancer, and total gastrectomy was 14%. The age range was from 40 to 75 years, with the mean age 62. The most frequent age group affected with gastric cancer was 50-69 in females and 70 and above in males. The tumoral mass location was predominant in the antral 56% . Cardial was the second frequent location in both sexes 32%. The least frequent location was the body (4 %) of total cases and all patients were male. The Bor 2as the most common mode of growth in both male and female representing 52% followed by Bor (4. 28%) the least frequent is Bor 1 (20 %). In the microscope diagnosis using Lauren histological classification, intestinal adenocarcinoma is the most common type occurring in 76% of all patients. The diffuse, poorly differentiated adenocarcinoma was 16.0%; all patients were males. Non Hodgkin's lymphoma is the less frequent type of gastric cancer and represented

8 % of all cases. Early gastric cancer was 8.0% cases and all patients were males. Advance state of gastric cancer with mucularis invasion was more common in female patients, while most of male patients have cancer infiltration up to the serosa at the time of diagnosis .The most frequent gastric cancer is intestinal adenocarcinoma; males are predominantly affected. The diffuse poorly differentiated adenocarcinoma affected only male patients. The most frequent location of the gastric cancer is distal area in the form of ulcerative mass. The majority of cases are detected in advance state of cancer.

**Key words:** Gastric cancer, sex, location.

### **View of methods for treating allergic rhinosinuosities in Aden**

Saeed Hassan Al-Shabi <sup>1</sup> and Abdul Samad Taresh <sup>2</sup>

<sup>1</sup>. ENT unit, surgical department, faculty of medicine. University of Aden

<sup>2</sup>. Department of community medicine and PH, faculty of medicine, University of Aden

#### **Abstract**

The aim of this study was to study the comparative characteristics of the treatment of patients, with allergic rhinosinuosities, by different methods of nonspecific desensitization. A prospective study was conducted on 945 patients, with allergic rhinosinuosities, who were referred to the ENT Outpatient Department in Al-Gamhoria Teaching Hospital in Aden. The total study patients were 945, 341 males and 604 females(64%) who were followed up during a period of 18 months. We have divided all patients into 10 groups. Simple schemes of treatment were set according to the table in the text with the symbols A to L.

In this study, the best results of recovery and improvement were obtained first by applying G scheme (0.5 cc Hydrocortisone), the second by applying H scheme (introduction: 1 cc hydrocortisone up to 10 times), the third by applying A scheme (Antistine-privine, Sodium chromogluccate (nasal drops), Piritone, Calcistin, Incidal, Calcium gluconate and vitamin c).

We concluded that optimal treatment protocol is still lacking in our country. Regular studies must be performed to monitor the methods of treatment and to set newer modalities of treatment, especially in this area of hot climate and high humidity.

**Keywords:** Allergic rhinosinusitis, treatment, scheme, Aden.

**Comparative study for conventional and laparoscopic  
cholecystectomy**

**Ali Karama Bin Talib, Saleh Mobarak Al Khamar, Aldo Sisto D'az and Abdulla  
Abdo Ahmed Attab  
General Surgery Department, Faculty of Medicine and Health Sciences,  
University of Aden.**

**Abstract**

**Cholecystectomy, the surgical removal of gallbladder, is one of the most frequently performed operations as a common therapy for gall bladder disorders.**

**This study was conducted to compare the conventional and laparoscopic method of cholecystectomy at the Surgical Department of Al-Gamhouria Teaching Hospital during the period from January 1st to December 31st, 2007.**

**This is a comparative hospital-based study conducted for a period of one year, from January 1st, 2007 to December 31st, 2007. The study population included all adult patients operated for cholecystectomy at the study area and during the study period. The variables used were sex, age, clinical risk factors, operation time, complications and hospital stay.**

**Quantitative data were tested by the student t-test for two means, while qualitative data were tested by the Chi-square test, the Fisher exact test and the Z-test. Statistical tests were applied with 95% confidence limits and p-value of <0.05 were considered statistically significant.**

**Cholecystectomy was performed for 146 patients (72 by CC and 74 by LC), the females to males ratio was (6.3:1) and the common age operated was the fifth decade (40-49 years) 56.8%. The mean operation time was 149 min for CC vs. 48 min for LC. Morbidity, during and after CC, was higher than that of LC (38.9% vs. 9.5%, p=0.00003). Mortality was reported for one patient operated by CC, but none for LC. The mean postoperative hospital stay was 9.7 days for CC vs. 2.4 days for LC.**

**LC is a safe surgical technique, with shorter postoperative hospital stay and better perioperative morbidity and mortality.**

**Complete Laparoscopic operation units should be available for training, and therapeutic pruposis should be available in this teaching hospital.**

**Key words: Cholecystectomy, conventional, laparoscopic.**

**Left ventricular diastolic dysfunction in patients with type-II diabetes mellitus**

**Omar Abobaker Baselm**

**Department of Medicine, Faculty of Medicine & Health Sciences; Aden University**

**Abstract**

Diabetes mellitus is a chronic progressive metabolic disease. It involves the heart at a relatively early stage even before clinical manifestations become obvious. The present study was done to assess cardiac functions by echocardiography and Doppler in patients with type-II Diabetes Mellitus before and after control of hyperglycaemia. This study included 30 patients of uncomplicated diabetes mellitus (duration >1 year) and 30, age and sex matched, healthy subjects. Pretreatment blood sugar, fasting (  $182.46 \pm 33.92$  mg/dL) and post-prandial (  $245.76 \pm 37.87$  mg/dL ) was significantly higher than the post-treatment values (  $101.93 \pm 10.17$  mg/dL and  $152.75 \pm 15.42$  mg/dL respectively). Systolic functions of LV were within normal range in all patients. Diastolic dysfunction of LV was very common and was detected in 63% of patients (  $E/A < 1.0$  ). None of the control subjects had systolic or diastolic dysfunction. Diastolic dysfunction persisted even after control of hyperglycaemia. It is suggested that all patients of DM type-II should be routinely and repeatedly subjected to Echocardiography with Doppler assessment of cardiac functions in long term management of this metabolic disease. Better glycaemic control may prevent development of diastolic dysfunction, which can lead to heart failure.

**Key words: Echocardiography, Diastolic dysfunction, Diabetes Mellitus Type-II.**

**Early risk stratification of cases with acute coronary syndrome (unstable angina and non- ST elevation myocardial infarction)**

**Mohammed Mohammed Ahmed Alsa'adi**

**Department of Internal Medicine, Faculty of Medicine and Health Sciences, University of Aden**

**Abstract**

This is a prospective clinical study, in which we applied the modern risk stratification strategies, such as the TIMI risk score of acute coronary syndrome, (Thrombolysis in myocardial infarction), associated with unstable angina and non-ST segment elevation. For this purpose, 188 Yemeni patients were followed up in Al-Gamhuria Teaching Hospital in Aden for 4 years from January 2004 to January 2008. According to the TIMI risk score of ACS, the investigated patients were divided into 3 subgroups: high, intermediate and low risk patients. Coronary angiography, performed in all patients, proved that the correlation

between the coronary findings and the clinical risk status was reflecting the benefit of using clinical predictors for early diagnosis. We concluded that the application of the more detailed TIMI risk score was proved to be an effective tool not only for early prognosis, but also for designing therapeutic strategies in patients presented with symptoms of UA/NSTEMI.

**Key wards:** Risk stratification- TIMI score- acute coronary syndrome.

## **Review of malaria morbidity registrations in Aden Governorate**

**Walid Nasser Abdulla<sup>1</sup>and Fahmi Mohmmmed Kaid<sup>2</sup>.**

**1 Faculty of Medicine and Health Sciences, Aden University.**

**2 Director of Malaria Control Center (Aden Governorate ).**

### **Abstract**

The aim of this archival study is to highlight the epidemiological trend of malaria disease in Aden Governorate, during the period from 2001 to 2006. The analytical review comprised 22394 malaria cases, registered in the governmental health sector in the study period, and malaria reports of 103401 suspected malaria cases from governmental private and health sectors in 2006. The study reveals that the annual parasite incidence rate was 7.3 per 1000, the slide positive rate was 6%, and Plasmodium falciparum represents 99.8% of malaria cases. It is recommended to strengthen malaria surveillance system at the public and private health sector in the governorate, and to perform refreshing training courses among medical laboratory technicians in the area related to the paraclinical diagnosis of suspected malaria cases.

**keywords:** Malaria, morbidity and Aden.

## PHARMACY

### Chemical composition and antifungal activity of essential oil of Soqotran *Pulicaria stephanocarpa* Balf. f.

Nasser A. Awadh Ali<sup>1</sup>, Mehdi A. Al-Haj<sup>2</sup>, Martina Wurster<sup>3</sup>, Ulrike Lindequist<sup>3</sup>

<sup>1</sup>Department of Pharmacognosy, Faculty of Pharmacy, Sana'a University,  
P.O. Box 13150, Yemen, \*corresponding author:

[alinasser57@yahoo.com](mailto:alinasser57@yahoo.com)

<sup>2</sup>Department of Pharmaceutical Chemistry and Pharmacognosy, Branch of  
Pharmacy, Faculty of Medicine and Health sciences, Aden University.

<sup>3</sup>Department of Pharmaceutical Biology, Institute of Pharmacy, Ernst-Moritz-  
Arndt-University, Greifswald, Friedrich-Ludwig-Jahn-Str. 17, D-17487  
Greifswald, Germany

#### Abstract

Chemical composition of the essential oil obtained from the leaves of the endemic Soqotraen *Pulicaria stephanocarpa* Balf. Fil. was analyzed by GC-MS. Sesquiterpenes are the predominant portion of both essential oils. Major compounds of *Pulicaria stephanocarpa* oil were  $\alpha$ -cadinol (42.5%), spathulenol (22.2%), caryophyllene (10.8%),  $\delta$ -cadinene (5.4%), cis-(-)-2,4a,5,6,9,9a-hexahydro-3,5,5,9-tetramethyl-1H-Benzocycloheptene (4.6%), and  $\alpha$ -muurolene (4.1%). The essential oils were screened for their antifungal activity against the phytopathogenic fungus (*Cladosporium cucumerinum*) by using a microbioassay on TLC plates at concentrations of 400, 200 and 100  $\mu$ g. At the concentration of 400  $\mu$ g, the oil showed marked antifungal activity with an inhibition zone of 18.6mm.

Key words: Essential oil, *Pulicaria*, *Cladosporium cucumerinum*, GC-MS.

## PHYSICS

### A study of dose gamma ray buildup factor for water using different methods

Khalid Omar Al-Baiti

Department of Physics, Faculty of Sciences, Hadhramout University of Science & Technology, Republic of Yemen.

#### Abstract

The dose gamma ray buildup factor for water has been studied using computer programs, which constructed to calculate this factor for water using different methods (Taylor's, Berger's and Capo's formulae) for point isotropic source. The results of this study have been compared with the standard previous

publishing results. The study shows that the buildup factor depends on thickness of the shield and energy of the radioactivity source.

**Key words:** Dose gamma ray for point isotropic source-Dose gamma ray buildup factor-Taylor's formula- Berger's formula-Capo's formula.

### **Optical characteristics of GaAs implanted with high energy $^{56}\text{Fe}$ ions**

**<sup>1</sup>Y. P. Ali , M. M. Belekar<sup>2</sup>, A. M. Narsale<sup>3</sup> and B. M. Arora<sup>4</sup>**

**<sup>1</sup> Department of Physics, Hadhramout University of Science & Technology, Hadhramout, Yemen**

**<sup>2</sup>Department of Physics, Gogate-Jogalekar College, Ratnagiri 415612, India**

**<sup>3</sup>Westren Regional Instrumentation Centre, Mumbai University, Vidyanagri, Mumbai 400 098, India**

**<sup>4</sup>Tata Institute of Fundamental Research, Homi Bhabha Road, Mumbai 400005.**

#### **Abstract**

Single crystal semi insulating GaAs substrates, implanted with 70 MeV  $^{56}\text{Fe}$  ions with doses varying from  $1 \times 10^{12}$  ions/cm<sup>2</sup> to  $1 \times 10^{14}$  ions/cm<sup>2</sup>, have been investigated using near and mid infrared (IR) spectroscopy of optical transmission over photon energy range of 0.1-1.4 eV. The optical density increases gradually by increasing the implanted  $^{56}\text{Fe}$  ions dose over the entire photon energy range probed. There is a considerable increase in radiation induced crystal defects in the samples implanted by ion doses above  $1 \times 10^{13}$  ions/cm<sup>2</sup>. Annealing experiments show that mid gap defects are more rapidly annealed out than the near band edge defects at 350°C. Further careful annealing experiment at higher temperatures and in arsenic atmosphere is required to anneal the defects at the mid gap and at the near band edge.

**Keywords:** Ion implantation, GaAs, crystal Defects, Optical Density, Infrared Spectroscopy.



**Analysis of surface morphology and microstructure of a-SiGe:H thin films using atomic force microscopy**

**Abdul Jabbar Rashad Moh'd\*, Abdullah Omer Ali\*\* and Khalid Muthana Habeeb\***

**\*Department of Physics, Faculty of Education-Saber/Lahej, University of Aden.**

**\*\*Department of Physics, Faculty of Education-Zingbar/Abyan, University of Aden.**

**Abstract**

The surface morphology and microstructure properties of hydrogenated amorphous silicon germanium (a-SiGe:H) thin films, grown by Plasma-Chemical Vapor Deposition (P-CVD) reactor at different growth temperatures ( $T$ ), were studied using Atomic Force Microscopy (AFM) technique. Thin film surface properties like the grain size of the formed microcrystallites and the root mean square (r.m.s.) roughness ( $\sigma$ ), measured by AFM, were investigated as a function of growth temperature. The observations shows a decrease in grain size and an increase in r.m.s. roughness, with growth temperature, due to the effect of thermally activated reactions of the gas precursor species. AFM images of the a-SiGe:H thin films were correlated with the above measured properties. They revealed the expected surface morphology and microstructure of these films and provided a detailed information about their surface quality.

**Keywords:** a-SiGe:H thin films, AFM, growth temperature (T), grain size , r.m.s. roughness ( $\sigma$ ).

**Arabic Titles**

**AGRICULTURAL SCIENCES**

**Effect of salinity on leaf area and dry matter in two varieties of Syrian cotton, (*G.hirsutum L.*)**

**M . A. Abd el aziz**

**Crop Dep. Agric Fac. Tishreen Univ. Lattakia, Syria**

**Abstract**

This research was carried out during the 2004 – 2005 growing season in the farm of the Faculty of Agriculture, Tishreen Univ. Lattakia, Syria, to study the effect of 4 salt concentrations 0.0, 0.1%, 0.2%, 0.3%, 0.4%. on the leaf area and dry mater of two Syrian cotton varieties, namely Aleppo 133 and Raka 5,

using split plot design with 12 replicates. The salt was a mixture of NaCl, MgCl<sub>2</sub>, and MgSO<sub>4</sub>. The results showed the following:

The use of Saline concentration from 0.2% to 0.4% significantly decreased leaf area /plant, shoot and root dry weight g/plant for both varieties, during growth stages, begging budding, flowering, and open boll stages ( 45 ,70 and 120 days after planting) respectively, compared with the control. The comparison among mean concentrations was significant.

The root dry weight of both varieties was less reduced under saline than shoot dry weight during the all growth stages.

The variety Raka 5 exhibited greater tolerance, and gave better values of leaf area and weight dry matter, at all concentrations.

**Key works:** Cotton, salinity, leaf area, dry matter.

### **Agroecological factors affecting physical and cup quality characteristics of Yemeni green coffee**

**Amin Abdo Al hakimi**

**Faculty of Agriculture, Sana'a University, P.O. Box 13 768, SANAA YEMEN,**

**E-mail: aminalhakimi@yahoo.com**

#### **Abstract**

For studying the quality of Yemeni green coffee and the impact of environmental, and cultural conditions, seventeen samples of coffee fruits have been sampled from main regions of coffee productions. Physical characterizations was done as percentage of green coffee to husk (Quchir), bean sizes, black beans, sour beans, white beans, borer-damaged beans ...etc.

Samples of Yemeni coffee were also evaluated for sensory testes (Aroma, Body, Acidity Bitterness, Astringency, Grassy taste, and Preference). These organoleptic tests were conducted at the Chemical Technology Laboratory of CIRAD (Centre de Cooperation International en Recherche Agronomique pour le développement), Montpellier–France. Tests of organoleptic (testes of drink), were permitted to determine the effect of cultural conditions, processing, and post harvesting on coffee quality.

High variations of coffee characteristics have been observed between samples collected from different regions of coffee production, which reflect the high effects of cultural, soil, post harvesting treatments and climate conditions of coffee growing area on coffee quality.

The principal results of these analyses are presented and discussed in relation to the origins of samples and the effect cultural, environmental and possessing conditions on coffee quality.

Recommendations and actions to be taken in different level of coffee production for preserving and improving coffee quality in Yemen were discussed.

**Keywords:** Yemeni coffee, environmental and cultural effects, and coffee quality.