

## ENGLISH TITLES

### BIOLOGY

#### **The Morphological study of *Campylobacter jejuni* by transmission Electron Microscopy**

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#### **Abstract**

Two strains of *Campylobacter jejuni* (*C.jejuni* CM11and CM12) were isolated from chicken meat, purchased from a slaughter house. They were recorded as four different morphological forms in fresh culture, and only one coccoidal form in the old Transmission Electron Microscope (TEM) culture. TEM showed that both strains with their different shapes have bipolar singular flagella which were recorded for the first time in chicken meat in Baghdad-Iraq.

**Key words:** *Campylobacter jejuni*, morphology, electron microscope

### ENVIRONMENT

#### **The Study of local environment of some wild plants in Badan area, Ibb Governorate, Yemen.**

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#### **Abstract**

In the year 2002 (from January to June ), some wild plants were studied in Badan (Al-Hafah, Alkhilal Alasfal and De-almalk), Ibb Governorate, where 56 plant species belonging to 52 genera and 34 families were collected. Also, physical and chemical properties of the soil of these plants on different depths were determined and compared with others. Physical properties include soil moisture content (water content), hygroscopic water, available water, soil texture (mechanical analysis by sieves), and water holding capacity, porosity and capillary water. From the chemical properties, pH value, electrical conductivity, calcim carbonate, total soluble salts, chlorides, carbonates and bicarbonates were examined.

**Key words:** Badan ,Ibb governorate, Vegetation composition, Environmental factors.

**A baseline study of residual petroleum hydrocarbons in the ports of  
Yemen**

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University**

**Abstract**

**This investigation involves the utilization of spectrofluorimetric determination to establish the petroleum residues in water samples, during 22-30 November 2006, from the Yemeni ports. Gas chromatographic analyses were conducted to characterize the extracted hydrocarbons. The result confirmed the level reported previously for the Gulf of Aden, Arabian Sea and the Red Sea. Concentration of petroleum residues, in solution through the Yemeni ports water column, were found to vary from 7.728 – 14.868  $\mu\text{g L}^{-1}$  with a mean concentration of Yemeni ports 12.926 $\mu\text{g L}^{-1}$  (Marib crude oil equivalents), from 0.02-0.10 (TOC%) with a mean concentration 0.055 (TOC%) in the Yemeni ports. Regional variations are attributed to different sources of oil pollution, as well as to the in-homogenous nature of oil - water mixture.**

**The importance of these data can be comprehended by the fact that they establish for the first time background and patterns of Residual Petroleum Hydrocarbons and Total Organic Carbon in Yemeni ports. These data are the first of their kind for the region.**

**Key words: Ports - petroleum hydrocarbons – seawater- organic carbons**

**MATHEMATICS**

**Derivation of generating relations for certain functions of three and  
four variables by the fractional calculus method**

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**Abstract**

**Generating functions play an important role in the investigation of various useful properties of the hypergeometric series, which they generate. In this paper, we apply the concept of Nishimoto's fractional calculus to obtain some linear and bilinear generating relations involving hypergeometric functions of three and**

four variables. To obtain linear and bilinear generating functions, our starting point will be certain elementary identities.

**Key words:** Fractional Calculus, Hypergeometric Functions of three and four variables, Linear and Bilinear Generating Functions .

## **MEDICINE**

### **An epidemiological study of prevalence and gender difference in tuberculosis among patients in Maalla District, Aden**

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#### **Abstract**

In order to identify the occurrence and gender differences in tuberculosis in Aden, the records of 766 patients who attended the chest clinic at Maalla PHC, during the year 2006 were reviewed and analyzed. The overall number of patients diagnosed as having tuberculosis was 129 with a proportion of 16.8% (129/766). Among the 120000 inhabitants of Maalla and Tawahi districts, there were 129 tuberculosis cases, gave rise to an incidence rate of 108 per 100,000 people. The affected males were 69 (53.48 %) and affected females 60 (46.52 %) with male/female ratio 1.15:1. The higher number of patients affected were those of the age 20-29 years, 34.88 % (45/129). The females at this age were more affected than males.

The gender difference of the whole patients in our study was slightly higher among male patients ( $p > 0.5$ ). People with low income were affected more, representing 62 % (80/129). While those live in medium and high income areas were 49/129 patients (38%). Pulmonary TB was nearly twice that of extra pulmonary involvement.

It can be concluded that the incidence rate of TB is 108 per 100,000 people. Males were more affected than females; most affected were those between 20-39 years old, and patients with low income were more affected.

**Key words:** Tuberculosis, incidence rate, gender-difference, Maalla, Aden

**Assessment of physicians' recordings in admitted patients' charts:  
AlGa umhoria Teaching Hospital, Aden**

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**<sup>3</sup> Dialysis Center, Al-Gaumhoria Teaching Hospital, Aden**

**Abstract**

This study was designed to assess the admitted patient's charts at Al-Gaumhoria Teaching Hospital, Aden. The total patients' charts were 172 (60 from the medical wards and 112 from the surgical wards) who were admitted to the medical and surgical wards during September to November 2005 and discharged alive. Fourteen variables from the chart were chosen. They were demographic data, date of admission, chief complain, history of present illness, past history, family history, physical examination, differential diagnosis, initial therapy, signature and stamp of physician who admitted and discharged the patient, final diagnosis, daily follow up, and date of discharge. The parameter for the findings was the percentage of registered and unregistered variable. For the total charts, we found deficiency in recording the variables of signature and stamp of physicians by discharging patient 65.1%, final diagnosis 55.8%, demographic data 43%, date of discharge 40.1%, family history 34.3% and past history 27.9%. The rest unregistered variables ranged between 12.2% and 3.5%. We concluded that negligence of physicians and deficiency in recording the full items in patient's chart is attributed to the following factors: deficiency of supervision of head of departments, deficiency in knowledge of medical ethics and importance of patient's chart, deficiency of guidelines and lack of the coordination between faculty of medicine, teaching- hospitals administrations and the Yemeni Council for medical Postgraduate studies.

**Key words: Assessment, Patient's chart, Al Gaumhoria-Hospital, Aden**

**A study of ectopic pregnancy: Incidence, risk factors, and diagnosis  
in Alwahda Teaching Hospital ,Aden**

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**Abstract**

This study was conducted with an overall aim of describing the pattern of ectopic pregnancy at Al-Wahda Teaching Hospital. For the period from January 1st, 2004 to December 31st, 2005, 52 patients with ectopic pregnancy were studied .

The incidence of ectopic pregnancy at ATH was 5.4 per 1000 live births. The common age affected is the age group 20-39 years (90.4%). Parous women (92.3%) were affected more than nulliparous (7.7%). Gynecological and obstetric history were negative in 26.9% and 51.9% respectively. Among the marked risk factors, in this study, were previous abortion (40.3%), pelvic inflammatory disease (25.0%), previous dilation and curettage (21.2%) and infertility (13.4%).

On presentation, the dominant feature was lower abdominal pain seen in all patients, followed by vaginal bleeding (73.1%), missed period (65.4%) and abdominal tenderness in (78.8%). The diagnostic methods used include urine pregnancy test, which was positive in 97.0%, serum  $\beta$ -hCG, which was  $<2000$  mIU/ml in 61.5%, and abdominal ultrasound was dominantly used (90.9%) in this study than transvaginal ultrasound (9.1%). Douglas puncture was positive in 81.8%.

Surgical treatment was the only mode of management used in this hospital.

Preoperative hemoglobin concentration of  $<11$  g% was seen in 96.1% and blood transfused to 92.3% of patients. The mean postoperative hospital stay was  $10.0 \pm 6.4$  days. No maternal complications and no maternal death were attributed to ectopic pregnancy during the period of this study.

This study concludes that ectopic pregnancy, the suspect of doctors, could be present in any woman in the reproductive age presented with vague abdominal pain, regardless the presence of missed period or vaginal bleeding and even the absence of risk factors is the main step to diagnose the ectopic pregnancy.

**key words : Ectopic pregnancy , incidence, risk factors , presentation**

**Management of perforated peptic ulcer in Al-Gamhouria Teaching Hospital, Aden**

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**Abstract**

We aimed to explore and analyze the current status in management of patients with perforated peptic ulcers. The study was carried out at the surgical department of Al-Gamhouria Teaching Hospital, Aden-Yemen. Patients, admitted with perforated benign peptic ulcers, during the period January 1997 to December 2006, were retrospectively evaluated. The total number of enrolled patients was 156; 138 (88.46%) men and 18 (11.54%) women. Overall mean age was 39.08 years (range 14 – 75 years) and the higher frequency of PPU was in patients of age group 21-40 years (58.34%). The PDU/PGU ratio was (4.38:1). The mean time of presentation was 16.5 hours and of the operative intervention after admission was 5.25 hours. Simple perforation closure was used in (91.67%) of the patients. Postoperative complications rate was 41.03% (statistically significant in cases admitted later than 12 hours), wound sepsis making the majority – 55.24%; died 6 patients (3.85%) – correlation with presentation time was not significant. The overall mean post-operative hospitalization period was 12.76 days; 14.74% of the patients stayed more than 3 weeks. Emphasis should be placed on shortening the time to surgery. Simple closure remains the selected treatment in the majority of patients. Improving the surgical skills, wound care, administrative regulations, hospital environment and equipments is needed to reduce the high rate of complications.

**Keywords:** Peptic ulcer, perforation, simple closure

**Awareness of intra-abdominal pressure and abdominal compartment syndrome**

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**Abstract**

This study is carried out to assess current understanding and management of intra-abdominal hypertension (IAH) and abdominal compartment syndrome (ACS) among clinicians. A questionnaire study was carried out in 7 hospitals of 3 Governorates in Southern-Western part of Yemen. It included clinicians in most of the specialties with different experience categories. The 12-question survey explored awareness, knowledge, and practice regarding intra-abdominal pressure (IAP), IAH, and ACS. The response rate was 91.7% - 254 of 277 respondents, of which 3.2% (9) were excluded due to improper filling, and the remaining 245 (88.5%) were enrolled in the study. Most of the participants were from general surgery (66 – 26.9%), obstetrics (63 – 25.7%), and medicine (54 – 22%). Unaware (140 – 57.1%) were more than aware respondents, whereas less

respondents have knowledge in IAP, IAH, and ACS. IAP had been measured only by 7 respondents (2.9%), most of whom were general surgeons - 85.7%, whereas decompression was performed only by 4 surgeons (57.1%). A significant percentage of the clinicians are unaware of presence and current approaches to diagnosis and management of IAH and ACS. Education is necessary for diagnostic methods as well as standards for treatment of this unusual and lethal condition.

**Key words:** Clinician awareness, Intra-abdominal pressure, Intra- abdominal hypertension.

**A review of ovarian pathology in Al- Gamhuria Teaching Hospital,  
Aden**

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**Abstract**

**A total of 93 cases of ovarian pathology were collected between 1988-1992: non-neoplastic lesions were 33.3% and neoplastic lesions were 66.7%.The neoplastic lesions were benign 90.3% and malignant 9.7%.**

**Tumors derived from surface epithelium as benign 53.2% and malignant 3.2% with a total of 56.4% of all ovarian tumors, of the benign epithelial tumors, cystadenomas (serous+mucinous) with a total of 50%, benign Brenner tumor 1.6%, adenofibroma 1.6%. The malignant epithelial tumors was serous cystadenocarcinomas(3.2%).**

**Tumors derived from sex-cord stromal tissue as benign (12.9%) and malignant (3.2%) of all ovarian tumors , of the benign sex-cord stromal tumor , (thecoma+fibroma) (11.3%), tubular androblastoma (1.6%), the malignant tumors, granulosa cell tumor (1.6%), androblastoma of intermediate differentiation (1.6%).**

**Tumors derived from germ cell as benign (24.2%) and malignant (3.2%) of all ovarian tumors, the benign were mature cystic teratomas, and the malignant , dysgerminoma (1.6%), endodermal sinus tumor (1.6%).**

**Key words:** Ovary, non-neoplastic ovarian lesions , benign tumors, malignant tumors , histopathology.

**Cleft lip and cleft palate amongst children in Yemen**

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**Abstract**

Cleft lip is a congenital failure of union of embryogenic parts of the lip. It may be complete or incomplete, unilateral or bilateral, and may be accompanied by a cleft of the palate. There is a cleft of lip or palate in approximately one in every thousand births. The precise cause of cleft lip has not been definitely established; we simply know that it is a manifestation of incomplete embryonic development. It is interesting to note that cleft lip has occurred in one of a pair of identical twins, the other child is being entirely normal. Alcoholism, syphilis, poor heredity, malnutrition, etc., are often advanced as causative factors but their correlation with the defect has never been proved. Hereditary factor is in nineteen per cent of this series of cases. In our own series, we have been able to verify a hereditary tendency in only five per cent of the cases.

key words: Cleft lip, cleft palate , children, Yemen

**PHARMACOLOGY**

**Biological activity of Xanthoric acid B**

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**Abstract**

Immunomodulatory, anti-inflammatory and cytotoxic effects of Xanthoric acid B, isolated from *Xanthoria steineri*, were investigated in Bromdeoxyuridine assay, MTT-assay, 5-lipoxygenase (5-LO) assay, and neutral red uptake assay respectively. Xanthoric acid B showed antiproliferative effects in Bromdeoxyuridine assay and MTT-assay, with IC<sub>50</sub> of 35 µg/ml and 61.4 µg/ml respectively

Key words: *Xanthoria steineri*, Xanthoric acid B, Immunomodulatory effect



## PHYSICS

**The influence of indium impurity on the electrical and optical properties of amorphous  $\text{Se}_{80}\text{Ge}_{20-x}\text{In}_x$  thin film**

**The influence of indium impurity on the electrical and optical properties of amorphous  $\text{Se}_{80}\text{Ge}_{20-x}\text{In}_x$  thin films**

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### Abstract

Thin films of amorphous  $\text{Se}_{80}\text{Ge}_{20-x}\text{In}_x$  (where  $x = 4, 8, 12, 16$  and  $20$  at. %) were prepared by the flash evaporation technique. The thickness of the films was in the range  $0.1 - 0.2 \mu\text{m}$ . The optical and electrical properties of the thin films were investigated. By rising the indium content, the dark and photo-conductivities show a sudden decrease. The activation energies of the samples have been determined from the temperature dependence of their electrical conductivity. The activation energy as a function of  $x$ , shows a sudden increase. Also, the optical energy gap of amorphous  $\text{Se}_{80}\text{Ge}_{20-x}\text{In}_x$  thin films increase by increasing the indium content. The results were discussed on the bases of Mott and Davis Model [12].

**Keywords:** Amorphous thin films, DC conductivity, optical gap, SeGeIn

**X-ray powder diffraction study of Strontium Titanium Oxide ( $\text{SrTiO}_3$ )**

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### Abstract

The optical transform experiment that we performed with the lasers and the 35-mm slides was a simulation of single crystal X-ray diffraction. To study the structure of a molecule or an extended solid, we would substitute a single crystal of the material for the 35-mm slide and use X-rays instead of visible light (figure 4). The resulting diffraction patterns, captured as spots on photographic film or

counts on an electronic detector, would provide information about the size and symmetry of the molecular unit cell.

Recall from Experiment 1 that the conditions for diffraction are governed by the conditions for constructive interference. An expanded view of the diffraction of X-rays from the repeating planes of atoms in a crystalline structure. Power diffraction patterns are typically plotted as the intensity of the diffracted X-ray vs. the angle  $2\theta$ . Peaks will appear in the diffraction pattern at  $2\theta$  values when constructive interference is at a maximum, that is, when Bragg's Law equation (1) is satisfied, see figure (1).

$$n\lambda = 2d\sin\theta \dots \dots \dots (1)$$

In this experiment, we will be observing first order ( $n=1$ ) diffraction of X-rays with a wavelength of  $1.54056 \text{ \AA}$ . By measuring the  $2\theta$  values for each diffraction peak, we can calculate the d-spacing (the distance between the diffracting planes) for each diffraction peak. Fortunately, the data analysis software has a program for automatically calculating the d-spacings of all the peaks in the diffraction pattern.

**Key words:** The Scintag XDS 2000, X-ray, powder of a copper, detector and a computer.

## **Effect of thickness on the structural and electrical properties of ZnO thin films**

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### **Abstract**

Zinc oxide (ZnO) films, having thicknesses 120 nm, 165 nm and 210 nm have been fabricated by thermal evaporation system on glass substrate. The structural and electrical properties of the ZnO films were investigated as a variation of film thickness. The structural properties studied show a polycrystalline structure for all thicknesses of ZnO films. Electrical studies with ohmic contact indicate that the films exhibit linear I-V characteristics, and the electronic conduction increases with the increase of the thermal activation, in which the activation energies are found to be dependent on the film thickness. The surface resistivity has been shown an increase by decreasing film thicknesses of which its maximum value was obtained for thinner films. The results of Hall measurements show that all charge carriers for all thickness were (n-type) and their mobilities fluctuate in the range  $(0.34-19.96) \times 10^{-3} \text{ cm}^2/\text{V}\cdot\text{sec}$ , while the surface conductivity increases in the range  $(1.13-7.97) \times 10^{-3} \Omega^{-1}$  as the film thickness increase.

**Key words:** Zinc oxide (ZnO), thin film, electrical properties, structural properties

**MEDICINE**

**Short Communication:**

**Pattern of gastrointestinal cancers in South Eastern Region of Yemen**

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**Abstract**

Primary gastrointestinal malignancies are more common than other malignancies among Yemeni patients. This study was conducted retrospectively with the aim of studying the pattern of primary gastrointestinal malignancies among Yemeni patients attending the Oncology Department of Al-Gamhouria Teaching Hospital, Aden, for the period from Jan. 2001 to Dec. 2004.

During the four – year study period, a total of 289 patients with primary gastrointestinal cancers were reported, 173 (59.9%) were males and 116 (40.1%) were females (p=0.0002). The ratio of male to female was 1.49:1. The age ranged from 4 to 90 years, with a mean of  $55.6 \pm 13.4$  years. Statistically, there is a significant difference between the means of ages of different sites of primary gastrointestinal cancers (p=0.0000).

The common types of primary gastrointestinal cancers in this study include colorectal (30.4%) and gastric cancers (29.1%), followed by hepatic (14.9%), pancreatic (12.8%), and esophageal cancers (10.0%). Lower percentages were noted in small intestinal cancer (2.1%) and gall bladder cancer (0.7%). Higher percentage of primary gastrointestinal cancer was seen in the age  $\geq 40$  years (259 patients, 89.6%). Females were affected more than males (60.0% and 40.0% respectively) in the younger age of  $< 40$  years, whereas in the age of 40 years and more, males were affected more than females (62.2% and 37.8% respectively).

**Key words:** Gastrointestinal cancers, Colorectal

**Arabic Titles:**

**AGRICULTURAL SCIENCES**

**Physicoal ,chemical and biological studies of valleys' waters in Assir  
Region – Kingdom of Saudi Arabia  
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**Abstract**

The problem of water limitation and scarcity is considered as the most sensitive subject for nations' life, which appears as a setback for the socio- economical improvements and political stability of the nations.

Water drought is as important as water pollution. However, whatever the area content of groundwater through thousands of years, it is considered very limited if we consider the needful for the next generation. Five samples were collected from different valleys situated in Assir area-Kingdom of Saudi Arab. It is found that the studied water samples are suitable for the different human use.

**Key words:** Water, Valley, Assir, Kingdom of Saudi Arabia.

**Efficacy of some plant powders in protecting *Sesame* seeds against  
*Macrophomina phaseolina* in greenhouse**

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**Abstract**

The study has showed the effect of some powder plant materials i.e, *Azadirachta indica* seed, *Datura stramonium* seed, *Nerium oleander* leaves, *Eucalyptus camaldulensis* leaves, control\*,control\*\* against the fungus *Macrophomina phaseolina* that causes charcoal rot.

The powder plant material powder was used as 60, 40, 20g/ kg of soil. *Sesum indicum* seeds have showed the highest germination rate in the soils treated with *A. indica* seeds powder. Germination rate for *S.indium* seeds in the soils treated with *A.indica* seeds powder reached about 69 %, whereas germination rate for control\* was about 4 %.

The study has also indicated that the highest percentage of infected *S. indicum* seeds under the soils treated with Eucalyptus leaves powder was (84.78 %) , while percentage infected seeds under *A. indica* treated soils was about 25 %. All treatments with different concentrations of plants powder have shown inhibition effects on *Macrophomina phaseolina* growth. The highest percentage of inhibition was seen under the treatment with *A. indica* seed powder (73.86 %), whereas Eucalyptus leaves treatment powder was about 11.36 %.

**Key words:** Plant powders, charcoal root rot, Sesame seeds.

## **BIOLOGY**

### **An effective method to reduce spreading of house crows in Aden Governorate.**

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#### **Abstract**

House crow (*Corvus splendens*) is the common, familiar, intelligent and boldest bird living on trees, towns, villages ,gardens, mountains and other places in Aden and other governorates in the Republic of Yemen.

It is a sinantropic bird, which occurs near human settlements. Recently, it's occurrence and rapid reproduction becomes more noticeable and forms a huge environmental problem. Nowadays, it's increase in number leads to a negative impact on biodiversity and biological balance, which resulted in reduction and absence of some bird species for instance, *Culumbidae* and *Pycnonotidae* and many other small singing birds.

Few attempts have been undertaken by some governmental institutions to minimize the problem; some of them were succeeded to combat House crow but were not continued, while others were not effective and harmed the local environment. Our aim in this research was to use combating methods which were not too expensive and harmless without any side effect towards nature. Two chemical solutions; chloroform (trichloromethane) and ether (dimethyl ether), were used through respiratory, elementary canals and muscles of young and adult house crow. These chemicals were thoroughly mixed with fresh eggs, minced meat and small fishes and were put where the house crows are gathered. All crows fed by this mixture were temporary paralyzed then died.

**Key words :** House crows, combating method, Ether, Chloroform, Distribution, Aden Governorate .

## CHEMISTRY

### **A comparison study of some heavy and toxic trace minerals content in the hair of two primary school pupils in Aden city**

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### Abstract

The present study was conducted to evaluate the risk to the environment and the general health of two elementary school children, in Aden city experience as a result of pollution with heavy and toxic trace elements. The two schools are: Al-Areesh school located in Al-Areesh zone, Khormaksar, beside Abyan beach, and Al-Shaikh Othman school located in Al-Shaikh Othman region. The two schools exist under different environmental conditions. It was hypothesized that Al-Shaikh Othman school suffers from high environmental pollution. To achieve this purpose, a 220 school children were selected (100 subjects from Al-Areesh school and 120 subjects from Al-Shaikh Othman school) whose mean age ranges between 9 and 14 years from the 3rd to 7th levels. Hair samples from school children were used as an indicator to find out the extent of pollution in these two schools. Two analytical methods were employed for determining eight essential/toxic trace elements: zinc(Zn), copper(Cu), nickel(Ni), cobalt(Co), cadmium(Cd), aluminum(Al), lead(Pb), and arsenic(As). Flame atomic absorption spectrometry(FAAS) was employed to determine the levels of the first seven elements, whereas graphite furnace atomic absorption spectrometry(GFAAS) was employed to determine the levels of the last element. Measurement precision and accuracy was checked by carrying out the analysis at three different places each of which using the same analytical procedure. Finally the average of all the results was taken. The mean values obtained were (in  $\mu\text{g g}^{-1}$ ): Zn, 108.0 (Al-Areesh) and 101.7(Al-Shaikh Othman); Cu, 9.7 (Al-Areesh) and 10.0(Al-Shaikh Othman); Nickel, 2.7 (Al-Areesh) and 5.5(Al-Shaikh Othman); Co, 1.6 (Al-Areesh) and 2.7(Al-Shaikh Othman); Cd, 0.6 (Al-Areesh) and 1.0(Al-Shaikh Othman); Al, 21.3 (Al-Areesh) and 63.3(Al-Shaikh Othman); Pb, 18.7 (Al-Areesh) and 28.0(Al-Shaikh Othman); As, 0.7 (Al-Areesh) and 0.9(Al-Shaikh Othman). These experimental figures show high levels for all studied elements (except for zinc and copper) when compared with the normal levels of these elements in human hair, with particular increase in the levels of aluminum, cadmium and nickel for Al-Shaikh Othman children. The results also showed that the exceptionally high levels of cadmium (especially for Al Shaikh Othman children) may indicate that this element is hindering the important and necessary biological function of zinc.

**Key words:** Hair analysis, School children, Heavy/Toxic minerals, FAAS/GFAAS.

## **ENGINEERING**

### **Siesmostratigrapic study of the southern part of the Rub – Al-khali basin in Yemen**

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Hadhramout University for Science & Technology**

#### **Abstract**

Rub Al khali is one of the important sedimentary basins formed within the Paleozoic period. Its sediments are composed of clastic sands interbedded within shale layers of different thickness. The overall thickness of these deposits reaches about five kilometers. Geological reports from exploration wells with seismic sections showed that the Paleozoic rocks stratigraphy in the southern part of Rub- Al khali consists of basement rock Gabir group-Dubsiah – Wajed – Akbra chuf respectively.

The study of the mineralogical composition of these formations, both with seismic sections and in comparison with the formations found in Saudi Arabia Rub Al khali such as Gusaiba and Khuf, indicate that these formations have a good reservoir properties. In addition to that, the existence of fractures into the basement rock make these formations capable to contain liquids. In this study, the unconformity and erosion surfaces were defined and also the age of the deposition cease was determined. These geological features play an important role in the migration and accumulation of liquids in the region.

This study leads to some conclusions and recommendations that are valuable in liquid exploration.

**Key words:** Rub' Al-kali Basin, Siesmostratigrapic, formation, unconformity surfaces.

## **ENVIRONMENT**

### **A study on the biological phenomenon of greenness, light emission and odours in Aden beaches**

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#### **Abstract**

The study aims to disclose the causes of greenness, emission of light and harmful odours in Aden beaches. Water samples were collected during the period of January- March 2006, and were examined by light microscope connected to CCD camera.

Isolation and identification of microalgae were carried directly by light microscope, while isolation and identification of bacteria were carried by using several bacterial culture.

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The result has revealed the presence of green gelatinous colonies, the diameter of one colony is about 1 cm. The colonies contain microalgae called *Phyaeocystis* sp. and two bacteria species that belong to *Vibrio* genus: *V. fischeri* and *V. harveyi*. The source of Bioluminescence and the harmful odours are resulting from bacterial metabolic activity, while the greenness are from the algae.

**Key words:** Bioluminescence, *Phyaeocystis*, *Vibrio* .