

ENGLISH TITLES

ENGINEERING

Pollution minimization of the Khumair lime kilns in Wadi Hadhramaut, Yemen

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Abstract

A heavy black smoke is produced by the traditional lime kilns. Severe emitted pollutants are delivered to the atmosphere. Therefore, these kilns are a source of a very nasty pollutants, due to the incomplete combustion process and the type of fuel used, which is a mixture of used oils, tyres or/and other residuals. Other non - conventional pollutants, produced by these kilns, could be very hazardous to the environment. Some of these lime kilns are stopped or scheduled to limit the criticizing of habitants in the neighborhood. The smoke is a main annoying concern for the nearby places.

The Khumair traditional lime kiln system was studied thoroughly in order to investigate the situation of these lime kilns. The drawbacks and problems of the system were identified. The possibility to overcome these negative aspects are stated through possible solutions.

The solutions are concentrated and directed towards improving the burning process to achieve efficient combustion, which in turn will lead to reducing the fuel consumption and minimizing the pollution quantitatively and qualitatively. Several modifications are implemented to avoid the complicated techniques and to keep the new modified kiln more competitive, compared to the traditional kiln.

Results of the experimental investigations indicate that the new modified kiln system could limit the unlikely pollutants. This can be achieved through controlling the combustion process and improving the burning process. It is justified here that operation of ten kilns using the modified system, is less pollutant than operating one kiln using the traditional way of burning.

It is worth mentioning, that many lime and pottery kilns are widely used in some places in Yemen. By implementing these modifications, positive mitigation measures can be achieved.

Keywords: Lime kiln, traditional kiln, pollution, combustion chamber, mitigation.

MEDICINE

The assessment of glycemic control among Yemeni diabetic patients

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Abstract

This study was carried out at the diabetic private clinic in Aden during 2005-2006. The aim is to explore some aspects of the problem by determining the degree of glycemia, the drug therapy and their relation to gender. The total study patients were 664 (364 males and 300 females). Recorded data obtained include demographic data and drugs used. A cutoff of random blood sugar (RBS) $\geq 180\text{mg/dl}$ ($\geq 10\text{mmol/l}$) and/or glycosylated hemoglobin (HbA1c) $\geq 7\%$ were considered as uncontrolled diabetes.

The results show that (88.3%) had RBS $\geq 180\text{mg/dl}$ ($\geq 10\text{mmol/l}$). Those who performed (HbA1c) had nearly the same result 88% with equal male to female prevalence in both tests. The results show that the majority of patients were using one drug 84.3% and few patients used insulin 4.7%. Significant statistical relationship was found between drug therapy and degree of glycemia in both genders with $p < 0.05$.

Conclusion; most of the patients in the study were in a state of uncontrolled diabetes and, therefore, they are vulnerable to complications, An urgent action has to be taken by health authorities to improve health care for diabetic patients.

Key words: Diabetes mellitus, HbA1c, Glycemia.

Patients with lower limb amputation: demographic data and mortality

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Abstract

To determine the demographic data and mortality in patients with major lower limb amputations and to compare it with literature, data were collected from patients suffering from lower limb amputation due to different causes, attending the prosthetic clinic at the Royal Rehabilitation Centre King Hussein Medical Centre, in Jordan between January 1997 and January 2002 for limb fitting . 232 amputees were analyzed, 172; were males and 60 were females with a ratio of 2,9:1. The mean age was 54 years. The most common cause of amputation was Diabetes Mellitus 104 (45%) and the below knee amputations were the majority (188).The number of dead patients in the first year was 28, 104 with 3 years, and 124 with 5 years.

The most common cause of lower limb amputation was diabetes mellitus and the majority of diabetic amputees died within 5 years of amputation. The below knee amputees, who survived more, were more than the above knee amputees. This raises the importance of knee joint preservation longer survival. The data in the study help for planning the needs for materials, facilities and budgets for amputee rehabilitation, and medical care to decrease late mortality which is usually due to persistence of the same lesion in other part of body.

Key words: Mortality, lower limb amputation, level and causes of amputation.

Efficacy and safety oxytocin and misoprostol used for induction of labor in term pregnancies at Al Wahda Teaching Hospital (2002-2004)

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Abstract

To compare and assess the efficacy and safety of the commonly used method (oxytocin) and the newly used one (prostaglandin E1 analog) for labor induction, a 144 term pregnancies with clear indications for labor induction, were evaluated in Al-Wahda teaching hospital (2002- 2004); 72 randomly selected patients received 25ug vaginally administered misoprostol every 4 hours

to a maximum of six doses as needed, and 72 received continuous intravenous oxytocin infusion.

The study showed that the time required to achieve active contraction was significantly shorter in the oxytocin group (109 ± 65.9 minutes versus 209 ± 174.7 minutes) in Primiparous, while it is 82.2 ± 36.7 minute versus 105 ± 60.2 minutes in Multiparous. The induction- delivery interval in Primiparous and in Multiparous women was not statistically and significantly different in the two treatment groups ($P>0.05$). Approximately three-quarters of the pregnant women had a successful vaginal delivery within 24 hours: the failure rate and cesarean delivery rate were not significantly different in the two methods. There were no significant differences in the occurrence of maternal complications, with uterine tachy-systole and postpartum hemorrhage being the most common. Similarly, there were no significant differences in neonatal complications. There was a significant difference in the Apgar score in the first minute.

We concluded that Misoprostol is an effective and safe alternative method to oxytocin infusion for labor induction in term pregnancies with a favorable cervix.

Key words: Induction, oxytocin, labor, prostaglandin.

The effect of hydroxyurea in chronic myeloid leukemia

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Abstract

Chronic myeloid leukemia (CML) is a myeloproliferative disorder, in which either hydroxyurea or busulfan as single agents can provide haematologic control in the majority of patients ($>75\%$) with chronic phase CML. These haematologic "remissions" are characterized by persistence of Philadelphia chromosome positive cells in the marrow, with inevitable progression to blast crisis. The only feasible therapeutic option for CML patients in Aden is hydroxyurea. This study was conducted to evaluate the benefit of patients with CML from the long term use of hydroxyurea at Al-Gamhouria Teaching Hospital in Aden Governorate.

Twelve patients with CML were studied; 7 males (58.3%) and 5 females (41.7%). The mean age was 36.2 ± 6.8 years. All of them were having moderate to huge splenomegaly, with a mean leukocyte count of ($103.7 \pm 22.7 \times 10^9/l$) at diagnosis. After 4-6 years of continuous hydroxyurea therapy, the spleen decreased in size, and the mean leukocyte count came to ($11.5 \pm 2.3 \times 10^9/l$). Three patients (25.0%) were diagnosed clinically and by bone marrow findings as CML in blast crisis, and 2 of them died (16.7%). This study showed that 75.0% of our patients become haematologically stable with the long term use of hydroxyurea, but are still in the risk of developing blast crisis and death. It is recommended to introduce a national policy for cytogenetic study in Aden, with the availability of adjuvant therapy as imatinib mesylate.

Key words: CML - Hydroxyurea - Imatinib

A retrospective study on 47 cases of Ewing's Sarcoma diagnosed in Southern Governorates of Yemen

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Abstract

The aim of this work is to analyze, using the method of retrospective study, some statistical appearances of Ewing sarcoma at the laboratory of Pathology of the Al Gamhoria Teaching Hospital in Aden during the years 1970-1995. We found out that there were 47 diagnosed cases of Ewing's sarcoma and the male-female ratio was 1.5: 1. Most frequently, it occurred between 5 to 10 years of age (57.5%).

Humerus (proximal 1/3 of diaphysis) was the most anatomical occurrence (21.3%), followed by Tibia (19.2%), then the femoral diaphysis and fibula, both with 17%. Apart from clinical examination, the classical radiographic and cytological /histological diagnostic methods were used. Pain in the anatomical location of the tumor (100%) of the patients, fever (95%) and local heat of the swelling (95%) were frequently ordinary symptoms revealed by the patients.

We concluded that the timely treatment may be decrease by a precise and demanding screening carried out by pediatricians, practitioners in charge of adolescents and orthopedists, and by further reduction of the time interval necessary for performing the diagnosis and treatment. This report is the first study about this condition in the Aden.

Key words: Ewing's sarcoma, Aden, South Yemen

Clinical study of malaria and its complications among adult patients admitted to Al-Gamhouria Teaching Hospital – Aden

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Abstract

This study is a retrospective study aims to explore the clinical aspect of malaria and its complications in adult patients admitted to Al-Gamhouria Teaching Hospital during the period 2005-2006. The records were analyzed and data collected were of age, gender, residence, complications and outcome.

The result found that a total of 224 patients admitted; 160 males and 64 females, most patients were below 40 years of age. The most frequent complications were anemia and cerebral malaria with 61.8% and 26.7%, respectively. The affected

patients were mainly from Aden (60.71%), Abyan (15.62%) and Lahaj (12.51%). 35 patients were died (15.62%) due to cerebral malaria. In conclusion, malaria remains a threat to younger patients, and cerebral malaria was the leading cause of mortality among patients.

Key words: Malaria, complications, outcome.

Severity and management of anemia in cancer patients and its relation to chemotherapy

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Abstract

Anemia is common in patients with cancer and is a frequent complication of myelosuppressive chemotherapy. In this study, we investigated the incidence and severity of anemia in cancer patients and chemotherapy-induced anemia by the most common chemotherapy regimens.

Medical charts of 88 cancer patients (breast, head and neck, colorectal, and malignant lymphoma) who registered and received chemotherapy at the Oncology Center of Al-Gamhoria Teaching Hospital during the period from January 2004 to December 2004 were reviewed.

About 66% of the patients were females with median age 48.3 years, and 34% were males with median age of 50.7 years. Prechemotherapy anemia (grade 0-II) was in 46.7% and grade III-IV was in 9% of patients. During chemotherapy, anemia grade 0-II was in 56.8% of patients and grade III-IV in 14.5 of patients. Before chemotherapy 10% of the patients received blood transfusion and 17.0% during chemotherapy. Erythropoietin treatment was administered subcutaneously for 37.7% of patients before chemotherapy and 60.4% during chemotherapy.

There is an increase incidence of anemia in cancer patients from prechemotherapy and during the period of chemotherapy.

The study proposed these recommendations: (1) regular or evaluation of anemia during chemotherapy and radiotherapy, (2) regular supply of erythropoietin for cancer patients, and (3) improvement the role of blood banks

Key words: Cancer, Anemia, Chemotherapy, Erythropoietin

PHYSICS

Effect of non-linear loads on overloading of neutral conductors

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Abstract

The subject of power quality has achieved increased attention over the past few years. Because all of the electrical equipments are made to work normally at a 50 Hz, so that the supply voltage to consumers must be clearly a sinusoidal waveform of a 50 Hz. In real operation of the power system, the realization of this condition is a very hard task because a lot of factors, which cause the distortion of the voltage waveform, lead to some serious problems, such as overheating of neutral conductors, resonance, humming, etc. Here in this paper, as a non-linear load, a Compact Fluorescent Lamp (CFL) was tested and checked up for harmonic currents generated to the neutral conductor.

Keywords: Overloading, neutral conductor, Compact Fluorescent Lamp (CFL), harmonics, non-linear loads, spectral analysis.

The phase shift effect in acousto-optic interaction

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Abstract

Result of the theoretical investigation of an additional phase shift effect which arises during propagation of light beam through an acoustic field is presented. The magnitude of the effect depends on acoustic wave parameters and this peculiarity opens up possibilities for the design of light control devices of a new type .

Key words: Additional phase shift(APS), acousto-optic interaction);(AO), Bragg diffraction.

UV/Visible spectroscopic measurements of anthracene and naphthalene doped in polystyrene film

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Abstract

Different composites prepared from polystyrene films and individually doped with both anthracene and naphthalene at concentrations ratios of (28% ,33% ,37% and 41% (wt/wt)) were investigated for their optical properties (i.e., absorption, transmission and reflection) using UV/visible spectroscopic measurements at the wavelength region of 200 to 1100 nm. Polystyrene films doped with 41% of anthracene show the highest absorption of incident radiation at 325 nm, and film stability along with chemical effect were observed at such concentration ratio. The absorption edge of the films was observed to lie in the n UV region of 270-360 nm for both dopants. Polystyrene films doped with 28% of naphthalene show constant absorption. The same behavior was observed for an anthracene composite prepared from polystyrene doped with 28% of anthracene. The reflectivity ranging from 43%-60% of incident radiation were observed in the visible region of 500-800 nm for naphthalene composite which is better than that of anthracene composite, while highest transmittance was observed at 275 nm for anthracene composite.

Keywords: naphthalene, anthracene, polystyrene, transmittance, absorbance, photosensitivity, reflectivity.

γ -radiation dosimetry using Low Density Polyethylene (LDPE) doped with Aluminium Oxide (Al_2O_3) thick film

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Abstract

In this research project, a 50 μm thick film of low density polyethylene (LDPE) with 5% Al_2O_3 additive was investigated for γ -radiation dosimetry objectives. Samples were made by a hot press and immediately cooled by air using film machine at 160-180 $^\circ\text{C}$. The films were exposed to a ^{60}Co and ^{137}Ce γ -radiation sources at a dose rate of 0.385 Gray/hr at room temperature. Absorption spectra for LDPE doped with 5% Al_2O_3 thick films were recorded for both unexposed and γ -irradiated samples. The optical parameters were obtained from the analysis of the absorption spectra over a wavelength range of 200-500 nm. The effect of γ -radiation on the optical properties of LDPE doped with 5% Al_2O_3 thick films were investigated for dosimetry applications. Samples of LDPE with 5% Al_2O_3 additive thick films show a linear increase in the absorption spectra after being irradiated. However both the optical band gap values and the width of band tails of localized states were found to show linear response to γ -rays irradiation.

Keywords: γ -radiation, Dose, Absorption, Optical band gap, Band tails.

SHORT COMMUNICATION

BIOLOGY

The internal structure of *Amoeba proteus*

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Abstract

culture. The morphological characters and internal structure of amoeba were studied. We identified the nucleus, contractile vacuole and food vacuoles by different objective contrast (40X, and 100X). Differences between the ectoplasm and endoplasm layers were detected. We also observed, in some specimens, the feeding and moving process of amoeba, using their pseudopodia.

Key words: *Amoeba proteus*, Amoeba culture, Internal structure.

ARABIC TITLES

AGRICULTURAL SCIENCES

Response of maize to organic, mineral and biological fertilization 1- Effect of fertilization on vegetative growth

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Abstract

This investigation was carried out at the Experimental Farm of Nasser's Faculty of Agriculture Sciences, University of Aden during 2003 and 2004 growing seasons to study the effect of organic mineral and biological fertilization on the vegetative growth characteristics of maize cultivar Kenja-36.

The split – split plot design with three replications was used , containing (18) treatments which were the combination of three levels of FYM (0 , 12 and 24 ton /ha) , three levels of nitrogen fertilizer in urea form 46%N (0 , 55 and 110 kg N/ha) and two levels of biofertilizer (Cerialin) which contains (*Azospirillum lipoferm*) Bacteria strain (0 and 57g/kg. seeds) .

The results of the combined analysis of the two seasons showed the following:

- 1) Applying (12 ton FYM/ha) led to significant increase in stem diameter, leaf area of topmost ear and straw yield (wet and dry), but the increase is not significant when doubling the fertilizer rate to (24 ton FYM/ha).
- 2) The application of N fertilizer in averages 55 and 110 kg N/ha caused significant increase in plant height, ear height, stem diameter, leaf area and straw yield, the values of these characteristics have risen with the rising of N levels, but without any significant differences.
- 3) All the studied characters were not significantly affected by biofertilizer addition.
- 4) Interaction treatment between high averages of FYM and N fertilizer (24 ton FYM/ha + 110kg N/ha) gave highest value of plant height (237.7cm) and ear height (105.4 cm), but it did not differ significantly compared with interaction treatment containing the two low average of them, with biofertilizer inoculation (12ton FYM/ha + 55kg N/ha + Cerialin), where plant height was (232.3 cm) and ear height (100.1 cm). Also this last treatment gave highest values of stem diameter (1.56 cm), leaf area (642.4 cm²) and dry straw weight (6.5ton/ha), in addition to an earlier date of maturity (102.2 days).
- 5) Interaction treatment (24 ton FYM/ha + 110kg N/ha + Cerialin) gave highest value of wet straw weight (12.82 ton/ha), but they did not differ significantly with treatment (12 ton FYM/ha + 55kg N/ha + Cerialin) which gave (12.58 ton/ha) wet weight.

Key words: Fertilization, organic, mineral, biological, maize

Effect of bio-fertilizer and nitrogen fertilizer on yield, components and nutrient uptake by pearl millet *Pennisetum typhoides* L seeds
yield components and nutrient uptake by pearl millet (*Pennisetum typhoides* L) seeds

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Abstract

This experiment was conducted at the Experimental Farm of the Faculty of Agricultural Sciences, during the seasons 2002/2003 and 2003/2004, to study the effect of bio-fertilizer and nitrogen fertilizer on yield, yield components and nutrients uptake by pearl millet grains cultivar (Tehama1) under wadi Tuban Delta conditions.

The study included two levels (zero and 60 g / kg seeds) of Halex₂ (bio-fertilizer contains a mixture of *Azospirillum*, *Azotobacter* and *Klebsiella*) and four levels of nitrogen fertilizer (zero, 30, 45 and 60 kg N/h). The important results showed that:

1. Application of bio-fertilizer gave non-significant increment on all studied characteristics with the exception of the spike diameter which was significantly increased in the both seasons .
2. Application of nitrogen fertilizer gave a significant increment on all studied characteristics (length, diameter and weight of spike, weight of grains /spike , biological yield by plant and hectare grain yield /plant , grain yield / h. as well as the N,P,Fe,Zn,Mn and Cu nutrients uptake by grain. Fertilization with 60 kg N/h. gave the highest values, followed by 45 kg N/h. Both treatments did not significantly differ from each other.
3. Application of bio- fertilizer and 45 kg N /h. gave the highest mean values for the most studied characteristics.
4. Applying bio-fertilizer as Halex₂ to pearl millet plants, was reduced by about 25-50 % from the used N- fertilizers .

Key words: Bio- fertilizer,N-fertilizer ,Pearl millet , Yield , Nutrients uptake

Food production, consumption and estimation of the living standards in the Republic of Yemen.

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Abstract

In case of inflation, relative decrease of living levels, dealing with economical problems, needs several elements to complete sustainable, social and economical development. However the main reason behind that is the inability of local food production to meet the needs of the population.

This study was held in 2000-2004 in order to focus on the ability of local production to satisfy the needs of local consumers and, then, estimating the living levels by assessing the growth rate of total agricultural outcome, the average of an individual income through the general cost of goods, and the amount for each individual (person) from the total agricultural production and the expenses during one year period.

The study was based on the previous studies and statistical analysis by using the variability rate, average, percentages and analysis equations that were required for this study. It shows the following results:

Decreasing the individual allotment from the agricultural production of grain crops (58.5 KG), thus the population increment during the years from 2000 to 2004 approached 2794,000.

The local production of wheat doesn't fulfill the consumer's needs except in 6% whereas the actual need is 99% of the available consumption to enhance the consumers needs.

The Yemeni individual average allotment for 2000-2004 forms the net of total agricultural consumption approached annually 0.04 ton, 43eggs, 0,005 ton, 0.01 ton, 0.002 ton, 0.0004 ton for vegetables, eggs, legumes grain, sorghum, mutton, coffee, respectively.

The total individual average from the agricultural outcome in the years 2000 to 2004 were 4932, 12509, 12763, 13881, 14769 R.Y., respectively

The individual expenses for goods in 2004 were about 27392 R.Y., whereas the average allotment of an individual from the total agricultural outcome for the same year was about 14769R.Y.

Key words: Production, consumption, the living levels

BIOLOGY

A morphological and anatomical study of *Odyssea mucronata* Stapf.

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Abstract

This study was carried out during the period between June 2006 to July 2007. It studies the *Odyssea mucronata* Stapf. growing in two different areas: 1) along the coastal strip from Caltex Roundabout to Little Aden, and 2) from the town of Dar Sa'd to the village of Saber in Lahj Governorate.

The results have shown that the adaxial and abaxial leaf furrows contain microhairs. The adaxial leaf surface furrows contain bottle-like secretory cells and bulliform cells which are discrete and organized in groups. The leaf contains also the vascular bundle sheath cells. These big cells fully surround the vascular bundles, and all the vascular bundles are surrounded by sclerenchyma. This proves that *Odyssea mucronata* Sapf. is a C₄ plant.

The findings of our study have also revealed that most of the compound starch is stored in the stem and that water is stored in the roots. It also reveals that this plant (*Odyssea mucronata* sapf.) is propagated by seeds (not by rhizomes) which need a free-salt medium to germinate.

Key words: *Odyssea mucronata*, C₄, Anatomy

ENVIRONMENT

Preliminary study of physical and chemical characteristics of well – water samples from Am-Ain area and its surroundings at Abyan Governorate, Yemen.

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Abstract

The aim of this paper is to study the quality of drinking water in Am-Ain of Abyan Governorate. Nine samples were collected for the physical and chemical analysis during the period from 1-15 April 2005. The physical analysis includes the following results:

PH 7.00-7.60, Electrical conductivity (ms/ cm) 1472-9280, Turbidity (N.T.U) 0.60-1.50, total dissolved solids (mg/l) 2150.-9860. The results of the chemical analysis (ppm) were:

Sodium 104.70-1095, potassium 1.55-33.07 magnesium hardness, (expressed as calcium carbonate) 218-1652, calcium hardness (expressed as calcium carbonate) 448-1542, total hardness (expressed as calcium carbonate) 650-2964, shows Alkalinity (expressed as calcium carbonate) 270-488, Sulfate, 400- 2137.47, chlorides 283.57-3723, Nitrates 119-977, Bicarbonate 136.61-457.58,

In comparing the obtained results with those of the national and international standards, it is true to say that the water of these wells is not appropriate for drinking , nevertheless, it can be used in other processes.

Key words: Well-water samples, characteristics, Am-Ain, Abyan.

The effect of irrigation by wastewater on the concentration of some heavy metals in *Sorghum bicolor* L. fodder plant

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Abstract

In rural areas of the Republic of Yemen, biologically- treated wastewater is used to irrigate some plants so as to make use of this water and to eliminate the overuse of the ground water, as well .

This paper aims at studying the effect of wastewater at Lahj Governorate on the concentration of some heavy metals in the fodder plant *Sorghum bicolor* irrigated by wastewater in farmers Farm, Lahj Governorate .

For contrast, samples of *Sorghum bicolor* fodder plant were collected from Al-Schojirat farm in the same area, and irrigated by wells water. All samples were collected and digested according to the international methods .

The concentration of heavy metals has been estimated, using atomic absorption spectrophotometer (AAS).

The results have shown apparent rise in the concentration of heavy metals in the fodder of *Sorghum bicolor* plant irrigated by biologically- treated wastewater, compared with that irrigated by wells water.

The concentration of lead, nickel, cobalt, copper, cadmium, and zinc in the fodder plant *Sorghum bicolor* irrigated by wastewater has reached (3.38) , (3.33) , (2.22) , (17.5) , (0.40) , (30.50) part per million, respectively , whereas in that irrigated by wells water it has been:0.25 in lead,0.29 in nickel, 0.25 in cobalt ,4.43 in copper,0.14 in cadmium ,12.50 in zinc (part per million) .

Key words: Irrigation, wastewater, heavy metals, sorghum fodder

MARINE SCIENCE

Sardine (Indian oil sardine) catches in the coastal water of Al-Mahra Governorate- Yemen, during the period Oct. 2003 – Sep. 2004

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Republic of Yemen**

Abstract

This paper describes the Sardine (*Sardinella longiceps*) catches in Al-Mahra Governorate the quantity of catch during the period Oct.2003-Sep 2004, fishing methods and boat production per day. The paper also shows the quantity of Sardine catch was 6700717 Kg, representing 66.06 % of the total catch of fish in the Governorate. The highest catch was during December, November 2003 and January 2004. Purse seine and cast net fishing methods were used. The important fishing ground is Al-Faidami, where the quantity of catch was 31365334 Kg., representing 46.26 % of the total catch of fish in the Governorate, followed by Thamnoon where the quantity of catch was 15744000Kg, representing 23.22 % of the total catch of fish in the Governorate. The highest production of boat / day was during January 2004 and December 2003, and the lowest was during June, September, July, and August 2004.

Key wards: catch, Sardine, Al Mahra Gov.

Cuttlefish (*Sepia pharaonis*) catches in the coastal water of Al-Mahra Governorate- Yemen, during the period Oct.2003-Sep .2004

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Abstract

This paper describes the importance of cuttlefish (*Sepia pharaonis*) catches in Al-Mahra Governorate, during the period Oct. 2003-Sep.2004, and the quantity of catch, fishing season, fishing methods and boat production per day. The paper shows that the catch of the cuttlefish was 14731264 Kg., representing, 14.35 % of the total catch of fish and ranking after sardine. The highest catch was in September, August and July 2004. Hand line and trap fishing methods were used. The important fishing grounds are: Haswain where the catch was 4010200 Kg, representing 27.22 %, Nishton, where the catch was 3923539Kg.

representing 26.63 %, and Qishin where the catch was 1851907Kg., representing 12.57 % of the total catch of cuttlefish in the Governorate. The highest boat production per day was in August, July, September 2004, and the lowest was in January, March and February 2004.

Key words: catch, cuttlefish, Al-Mahra Gov.