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ANTIEPILEPTIC ACTIVITY OF 1, 2, 3, 4-TETRAHYDRO-1-NAPHTHONYL UREA

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(Received July 7, 1986; revised January 5, 1991)

The synthesis of 1, 2, 3, 4- tetrahydro-1-naphthonyl urea (3) by the condensation of its acid chloride with urea is described. This compound was also obtained as a cleavage product in the synthesis of spiro-1-(1, 2, 3, 4-tetrahydro-naphthyl) -5-barbituric acid (2). Compound (3) gives good protection against leptazol convulsions. Parallel tests on phenobarbitone are also described.

Key words : Antiepileptic drugs, Phenobarbitone, 1, 2, 3, 4-Tetrahydro-1-naphthonyl urea.

ENVIRONMENTAL PROBLEMS OF KARACHI

Part III. Estimation of Dustfall

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(Received April 11, 1990; revised October 11, 1990)

Micro-climatics and dustfall data and their correlation at two locations of Karachi city are presented. It is found that the dustfall has contributions from construction activity, particulate emission from automobile exhausts comprising soot and hydrocarbons, besides the chimneys from two cement factories in the city. On an average the dustfall in Karachi ranges from 4.5 to 5.5 gm/(m²month).

Key words: Environmental problem, Dust fall, Pollutants.

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MINERALOGICAL AND ANALYTICAL STUDIES OF THE SOUTHWESTERN TANOL BARITE DISTRICT, HAZARA, PAKISTAN

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(Received December 17, 1989; revised February 19, 1991)

The Southwestern Tanol mineralized area north of Haripur is one of the most promising areas of barite deposits in North West Frontier Province (NWFP). Several vein type barite deposits occur in Lower Cambrian quartzite and dolomite of Abbottabad Formation. Barite veins have a direction that is parallel to the general trend of the host and associated rocks. Barite, quartz, calcite, feldspar, pyrite, illite and chlorite were identified by XRD and microscopy. Barite and quartz are predominant. Some textural features like absence of primary bedding, coarse grain size of barite and cherty quartz with cross cutting relationships suggest an epigenetic origin. To date, Kag deposit has been mined by open pit method to 300 feet below the surface and the ore veins are expected to continue further deep. The mineralization occurs in lens shaped bodies having strike length of several hundred metres. The barite content of vein deposits range from 53-97% BaSO_4 and impurities include quartz, calcite, dolomite, pyrite and limonite. The physical and chemical characteristics of barite from this district suggest that these barites are suitable for drilling and chemical industries. They can also be used as a filler in paint, plastic, paper and rubber industries.

Key words: Geochemistry, Barite, Hazara.

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CHLORINATED HYDROCARBONS IN THE SEDIMENTS FROM THE COASTAL WATERS OF KARACHI

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(Received March 12, 1990; revised October 4, 1990)

The concentration of chlorinated hydrocarbon (DDT, HCH, Heptachlor, DDE and Dieldrin) was determined in the samples of sediments collected from the three locations of Karachi i.e. Manora channel, Korangi Creek and Hawksbay back waters along the Karachi coast. The concentration of pesticides (Heptachlor, DDE, Dieldrin, Alpha HCH and P.P. DDT) were present in the range of 0.84-3.7, 0-0.16, 0.54-12.47, Traces-3.5, 0.15-9.53 ng/gm respectively. Two methods were used for confirmation of each pesticide i.e. internal spike method and other one was the calibration curve method.

Key words: Pesticides, Sediments, Sea pollution.

Biological Sciences Section

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THE STRUCTURE AND REPRODUCTION OF A NEW TAXON *DERMONEMA ABBOTTIAE* (NEMALIALES-RHODOPHYTA) FROM THE COAST OF PAKISTAN

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(Received February 18, 1990; revised January 10, 1991)

Dermonema abbotiae Afaq Hussain, Nizamuddin *et* Shameel sp. nov. is described from the coast of Pakistan. Its habit, vegetative features, anatomical structures, carpogonial branch ontogeny and diffuse cystocarps are discussed in detail. This species is characterized by angular sub-dichotomously branched axes, curved tips, parietal laminate rhodoplasts and 2-4-celled carpogonial branches.

Key words: Taxonomy, Anatomy, Reproduction, Carposporophyte ontogeny, *Dermonema*.

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BIOLOGICAL STUDIES ON INDOLE DERIVATIVES-III

Effects of 2-Oxo-3-Indolyl Derivatives on Cardio-hepatic Enzymes and Blood Cells

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(Received May 15, 1990; revised April 2, 1991)

Isatin (I) and isatin-3-thiosemicarbazone (II) decreased the levels of SGOT, serum alkaline phosphatase, erythrocyte and leukocyte count, whereas isatin (I) also lowered the SGPT activity. These changes probably indicates a change in the function and physiology of liver and blockage of histogenesis.

Key words: Isatin (I)-isatin-3-thiosemicarbazone (II), Enzymological haematological effects, Rabbits.

Introduction

the influence of 2-oxo-3-indolyl derivatives to assess the

CYTOGENETICAL STUDIES ON A TISSUE CULTURE SELECTED SALT TOLERANT IR-6 RICE (*ORYZA SATIVA L.*) MUTANT

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(Received June 20, 1990; revised April 2, 1991)

This study was undertaken on the anthers of callus born IR-6 variant, *in vitro* selected for salt tolerance. Cytological study of meiosis is reported. In total 300 cells were observed. Out of these, 57% of the cells were aneuploids 23% PMCs with 10 (II) and 33% with 11 (II). The remaining 43% of the PMCs (pollen mother cells) observed contained the normal number of chromosomes. No other association (trivalent, quadrivalent) was found in this material. Micronuclei and laggards were not observed. It is hypothesised that 2, 4-D (2, 4-dichlorophenoxy acetic acid) and Kinetin (6-furfuryl amino purine) interaction enhances the DNA replication, and the DNA polymerases cannot complete the job of proof reading satisfactorily. SOS repair system which is an inducible repair system to cope with the very fast changes in DNA, operates and the mutation is enhanced more in the presence of NaCl. This gives rise to the cells with different ploidy-hyperploidy, hypoploidy, polyploidy and mixoploidy.

Key words: Tissue culture, Chromosome, *Oryza saliva*.

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EFFECT OF CARBON SOURCES ON THE PRODUCTION OF ALKALINE PROTEASE BY *ASPERGILLUS ORYZAE*

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(Received September 9, 1986; revised April 2, 1991)

The effect of 31 different non-nitrogenous as well as nitrogenous carbon sources on the biosynthesis of alkaline protease by *Aspergillus oryzae* IMI-17299 was examined using ammonium sulphate as a nitrogen source. Among them mono, di and polysaccharides tried, fructose, maltose and maize starch gave the highest level of the enzyme formation i.e., 13.4, 12.6 and 14.5 units/ml respectively. Arabinose, mannose, sorbose, xylose, mannitol, dextrin, inulin, glycerol, ethyl alcohol, methyl alcohol, paraffine, sodium acetate and lactic acid were poor producer of the enzyme. Molasses, both cane and beet, were the best among the non-nitrogenous carbon sources giving the enzyme yield of 16.4 and 15.2 units/ml respectively. Out of the nitrogenous carbon sources ground nut flour, soybean flour and wheat bran gave better yield of the enzyme, i.e., 12.2, 15.2 and 13.2 units/ml respectively. The addition of various oils to the medium stimulated the enzyme production to different extent. Ground nut, corn and rice bran oils showed greater stimulatory effect, soybean, sunflower, castor and coconut oils exhibited very little or no stimulatory effect. The addition of chlorides of sodium, potassium and calcium to the medium increased the yield of the enzyme; the other salts did not enhance the enzyme formation to any appreciable extent.

Key words: Carbon sources, Alkaline protease, *Aspergillus oryzae*.

Short Communication

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**The Two Lac Insects of South Indian, A Wild
and A Cultivated Species. *Part I***

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The lac insects growing in a colony produce an encrusta-

Short Communication

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Studies on Musk Melon Seed Oil

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(Received July 17, 1990; revised December 9, 1990)

Technology Section

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EFFECT OF IRRIGATION AND FERTILIZER PLACEMENT ON THE GROWTH AND YIELD OF POTATO

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(Received May 16, 1989; revised November 14, 1990)

A study was conducted with four frequencies of irrigation 0,1,2,3 and 4 methods of fertilizer placement - broadcast, single band, double band and plough sole with a view to finding out the optimum number of irrigation and proper method of fertilizer placement for Baraka variety of potato. Results revealed that potato might be grown under residual soil moisture conditions. Single and double band placement methods were found superior to broadcast and plough sole methods in producing tuber yield/ha.

Key words : Irrigation, Fertilizer, Potato.

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NUTRITIONAL AND SENSORY QUALITY OF LABORATORY CANNED SARDINES

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(Received November 18, 1990; revised April 24, 1991)

In Pakistan significant resources of small fish are available which can potentially be processed in the form of canned sardines. Technology for oil based canned sardines has been successfully developed and evaluated for its nutritive quality and consumer acceptability. Laboratory canned sardines compared well with similar commercial products both in nutritive and biological value and will provide 24g protein, 17g fat, 4.1g minerals and 249 k cal/100g. The colour of the canned product was silvery white, it had no off flavour and had a firm texture. When subjected to consumer evaluation, the product was liked and accepted by a large number of consumers.

Key words: Canned sardines, Quality assessment, Consumer acceptability.

STATISTICAL ANALYSIS OF THE RESULTS OF CHILLING OF SEA BITTERN

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(Received September 26, 1990; revised April 24, 1991)

Statistical analysis of the data, collected during earlier studies [1] carried out on various scales of operations with respect to chilling of sea bittern has been undertaken making use of statistical parameters [2,3,4] pertaining to measures of central tendency, measures of dispersion, limits of reliability, tests of significance and regression analysis. It has been demonstrated by the analysis that i) data in different instances are almost normally distributed, (ii) the systematic error for all practical purposes is absent and (iii) the error allowance is tenable. Previously drawn conclusions [1] concerning the performance of the chiller(s) are confirmed and also substantiated by the tests of significance. The relationships derived earlier from the graphs regarding 25 litre chiller are in complete conformity with those obtained by regression analysis. The calculated values are close to the observed data and the difference is within the permissible limits of standard errors.

Key words: Chilling study, Sea bittern, Statistical analysis.