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GAS LIQUID CHROMATOGRAPHIC (GLC) ANALYSIS OF METHYLMERCURY IN FISH AND ITS COMPARISON WITH TOTAL MERCURY

Riaz Ahmed , H.W. Duerbeck*, M. Stoeppler* and H.W. Nurnberg*+

Nuclear Chemistry Division, Pakistan Institute of Nuclear Science and Technology (PINSTECH) P.O. Nilore, Islamabad

(Received June 7, 1987; revised September 4, 1988)

A gas liquid chromatographic (GLC) method is presented for reliable analysis of methylmercury in fish samples. Modified extraction and clean-up methods for methylmercury from fish samples are described. Decomposition studies of methylmercury has been done. A new calculation method has been developed to get better precision and accuracy. Selected fish samples were analysed for methylmercury by GLC and total mercury by voltammetry and cold vapour atomic absorption spectrometry and results compared.

Key words: Gas liquid chromatography, Methylmercury, Fish, Total mercury.

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DIRECT ISOMERIZATION AND ESTERIFICATION OF α-PINENE TO BORNYL AND ISOBORNYL ACETATES

M. Riaz, M. Hanif, Mushtaq Ahmed and F.M. Chaudhary

PCSIR Laboratories, Lahore-16

(Received March 30, 1986)

Isomerization of α-pinene to bornyl and isobornyl acetates in the presence of acetic acid and boracetic acid anhydride, under different conditions of time, temperature, and concentration of the catalyst have been studied. The optimum conditions were obtained both with boric acid and boron trioxide. The isomerization products were analysed and identified by gas chromatography.

Key words: Esterification, α-pinene, Bornyl/Isobornyl acetates.

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COMPARISON OF FATTY ACID COMPOSITION OF HUMAN ADIPOSE TISSUE IN SUPERFICIAL AND DEEP SITE*

Leo H. Thomas, Ejaz A. Qureshi**, Peter R. Jones and John A. Winter

The Polytechnic of Wales, Pontypridd, Mid Glamorgan, U.K.

(Received June 13, 1988)

The fatty acid compositions of 18 samples of human adipose tissue taken from the anterior abdominal wall have been compared with those of deeper (pericardial) site samples from the same individuals. The saturated acids, 16:0 and 18:0 are present in significantly higher percentage amounts on pericardial tissue, this increase being accompanied by significant decreases in (a) odd-numbered and branched-chain acids, and (b) C_{10} to C_{14} even-numbered saturated acids. The percentage trans-unsaturated acids is somewhat lower at the deeper site, but the difference is not statistically significant.

Key words: Adipose tissue, Fatty acids, Trans acids.

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SPHALERITE ORES FROM KOHISTAN-HAZARA THEIR PETROGRAPHY AND CHEMISTRY
Part I

Mustansar Naeem, Mumtaz, Kamin Khan and M. Amin
PCSIR Laboratories, Peshawar

(Received December 17, 1987, revised August 21, 1988)

Geology, petrography, chemistry as well as liberation studies of the sphalerite ore of Kohistan-Hazara are presented. The ore is also evaluated for different trace elements using atomic absorption spectrophotometric methods.

Key words: Geology, Chemistry. Sphalerite,

Biological Sciences Section

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ANTIMICROBIAL ACTIVITY OF ESSENTIAL OILS OF UMBELLIFERAE FAMILY
Part VII. *Heracleum candicans, Prangos pabularia* and *Peucedanum ferulaefolium* Fruit Oil

Meena Syed, A.W. Sabir, F.M. Chaudhary and M.K. Bhatty

PCSIR Laboratories, Lahore-16

(Received June 9, 1988; revised August 31, 1988)

In continuation of our studies on antimicrobial activity of esential oils of umbelliferae family, oils from the seeds of *Heracleum candicans, Prangos pabularia* and *Peucedanum farulaefolium*, were tested against *Staphylococcus-aureus, Escherichia coli, Salmonella typhi, Shigella dysenteriae* and *Vibrio cholerae*. The oil of *Peu. ferulaefolium* shows excellent activity against all the five pathogens at quite low doses. The oil of *H. candicans* showed moderately good activity whereas the oil of *Pr. pabularia* is not very effective against these bacteria.

Key words: Heracleum candicans, Prangos pabularia, Peucedanum ferulaefolium.

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STUDIES ON THE FOOD AND FEEDING HABITS OF *LABEO BATA* (HAM.) (CYPRINIDAE: TELEOSTEI)

Anil Chatterji*, Yasmeen Modassir** and A. A. Khan

Department of Zoology, Aligarh Muslim University, Aligarh, India

(Received July 4, 1988)

Labeo bata (Ham.) in the adult stage, is a bottom feeder, with algae and detritus (decaying organic matters, sand and mud) being the most important items of its diet throughout the year. Selective feeding was observed in two size groups; fingerlings (30-70 mm total length) showed strong positive selection for zooplanktonic organisms, while adults (101-450 mm total length) showed a strong negative selection for zooplankton and strong positive selection for phytoplankton. No particular preference for any particular algae was shown by adults. The feeding intensity was affected by the maturation of the gonads, due to low feeding in May, June and July when the fish were either in ripe condition or were on the spawn (July).

Key words: Food, Feeding, *Labeo bata*.

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STUDIES ON FIXED OIL OF *JATROPHA CURCAS* SEEDS

M.K.A. Nasir, G.M. Memon*, M.U. Valhari** and L.M. Khatri*

PCSIR Laboratories, Karachi-39

(Received March 2, 1988; revised September 12, 1988)

The fixed oil (41.5%) from the seeds of *Jatropha curcas* Linn. has been characterised for its fatty acid composition, and physico-chemical properties. The oil is found to consist of palmitic acid (14.16%), stearic acid (7.68%), oleic acid (46.72%) and linoleic acid (30.31%). The physicochemical constants include: Refractive index at 30°, 1.4675; Iodine value, 102; Saponification value, 196.72; Flash point, 227° and Calorific value, 8990 K.cal/kg. The oil can be used as a mixed fuel for diesel/gasoline engines.

Key words: Jatropha curcas, Physic nut, *Euphorbiaceae*.

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PHYTOSOCIOLOGICAL STUDIES AROUND THE INDUSTRIAL AREAS OF KORANGI KARACHI

M. Shafiq and M. Zafar Iqbal

Department of Botany, University of Karachi, Karachi-32

(Received September 15, 1987; revised August 28, 1988)

A quantitative phytosociological survey was conducted around industrial areas of Korangi, Karachi, alongwith soil analysis. Four communities were indentified based on dominant species. Most of the species were halophytic in nature, while some of them were disturbed types. *Prosopis juliflora* and *Suaeda monoica* were very prominant in most of the stands investigated. The soil of study area was coarse in texture ranging from loamy sand to sandy loam. The soil was basically alkaline in nature, containing appreciable amount of calcium carbonate and soluble salts with scanty organic matter.

Key words: Korangi industrial areas, Phytosociology, Soil.

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SEED MYCOFLORA OF VEGETABLES AND ITS CONTROL

A.K. Khanzada, Nasreen Sultana, S.A. Jamil Khan and M. Aslam

Crop Diseases Research Institute, Pakistan Agricultural Research Council, Karachi University Campus, Karachi

(Received June 16, 1988; revised September 4, 1988)

Twenty-eight fungal species were isolated from vegetable seeds by standard blotter method. *Rhizopus nigricans, Aspergillus niger, Alternaria alternata, Fusarium oxysporum, Drechslera spicifera, Chaetomium globosum, Curvularia lunata, Fusarium moniliforme* and *Alternaria tenuissima,* were most common. Of these, five fungal species were found pathogenic under normal conditions causing rots of seed, root and stem. Among fungicides Ridomil was the most effective for the control of seedborne mycoflora.

Key words: Vegetables, Seed mycoflora, Incubation, Fungicides, Pakistan.

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A NEW FUSARIUM WILT OF OKRA IN PAKISTAN

Nasreen Sultana, S.A. Jamil Khan and A.K. Khanzada

Crop Diseases Research Institute, Pakistan Agricultural Research Council, Karachi University Campus

(Received July 3, 1988; revised September 7, 1988)

Fusarium wilt of okra (*Hibiscus esculentus*) has been reported for the first time in Pakistan. Pathogenicity tests and re-isolation from inoculated plants confirmed that *Fusarium oxysporum* was the incitant. High wilt percentages among plants grown in infested soil indicate that the fungus is soilborne.

Key words: Fusarium oxysporum, Okra wilt.

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ALTITUDINAL REPARTITION OF LILIACEAE IN THE POTOHAR AND ITS ADJOINING AREAS

Mohammad Rashid Awan, Saddiqa Malik, Muqarrab Shah and Saleem Ahmed

Pakistan Museum of Natural History, Islamabad

(Received September 29, 1987; revised July 1, 1988)

Analysing the orographic factor of the altitudinal repartition of *Liliaceae* in Potohar and its adjoining areas, two groups of species were noted: Steno-orophytes and euri-orophytes. Of all the species studied euri-orophytes (75.68 %) predominated the stenoorophytes (24.32 %). The maximum abundance of euri-orophyttes were found between 600 and 2400 meters elevation. Among the steno-orophytes 5 species were recorded at elevation between 1500 and 3000 meters.

Key words: Altitudinal, Repartition, Liliaceae, Potohar.

Short Communication

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ILLUSTRATING THREE MEDICINAL PLANTS FROM BANGLADESH

S. Mahdihassan

SD 34, Block A, N. Nazimabad, Karachi

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Short Communication

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DEVELOPMENT OF SPINELESS *SILYBUM MARIANUM*

Shafiq Ahmad Khan, Sadaqat Hamid and Abdul Waheed Sabir

PCSIR Laboratories, Lahore

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Repeated cultivations of the wild, spiny ... spines. It is thus natural to develop a spineless cultivar for

Short Communication
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SALT TOLERANCE LIMITS OF RICE GENOTYPES (*ORYZ SATIVA* L.)

M. Siddique Sajjad

Nuclear Institute for Agriculture and Biology, Faisalabad

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Technology Section

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PREPARATION OF ZINC SULPHATE FROM ZINC DROSS

Arjamand Khan, M. Alauddin, Bibi Hajra and M.A. Khattak

PCSIR Laboratories, Peshawar

(Received January 20, 1988; revised September 9, 1988)

Production of zinc sulphate from zinc dross was studied by a procedure previously worked out for preparation of metallic sulphates from sulphides. The reaction between zinc dross and ammonium sulphate in reducing atmosphere gives zinc sulphate and vaporous products i.e. sulphur dioxide, ammonia and water. The effects of temperature, ammonium sulphate and time were studied. The above reaction may be utilised for large scale production of zinc sulphate from zinc dross.

Keywords: Zinc sulphate, Zinc dross, Ammonium sulphate

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BENEFICIATION OF LANDI RAUD (MALAKAND, NWFP) CHROMITE ORE

A. Hafeez, Saqib Ahmad and K. Hussain

PCSIR Laboratories, Lahore-54600

(Received May 29, 1988; revised September 7, 1988)

Low grade chromite ore from Landhi Raud in the assay range of 27-28 % Cr_2O_3 has been upgraded by gravity based processing methods to a concentrate containing 43-44 % Cr_2O_3 with a recovery of 65 %.

Recovery of chromite from the fines generated during the crushing and grinding of the ore has been attempted by the flotation technique. An overall recovery of 81 % with a concentrate grade of 43.4 % Cr_2O_3 has been achieved.

Key words: Beneficiation, Desliming, Flotation.

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EFFECT OF HOLE SIZES ON LIQUID MIXING AND TRAY EFFICIENCY

M. Anwar Ulhaq

Fertilizer Research and Development Institute, P.O. Box 1012, Jaranwala Road, Faisalabad.

(Received March 9, 1988; revised August 12, 1988)

Effect of hole sizes on tray performance has been investigated. Positive dependence of liquid mixing, mean rean residence time (MRT) and Murphree Tray Efficiency (E_{ML}) on the hole sizes has been demonstrated.

Key words: Sievetray, Tray efficiency, Distillation tray.

INTRODUCTION

RESULTS AND DISCUSSION