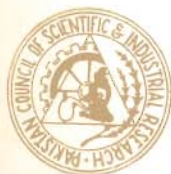


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STUDY OF THE COLOUR REACTION BETWEEN URANIUM AND SODIUM SALICYLATE USING THE WEISZ RING-OVEN TECHNIQUE

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(Received May 5, 1985; revised October 16, 1985)

A simple, precise and accurate method for the determination of U(VI) in μg amounts, through its reaction with sodium salicylate has been reported using Weisz ring-oven technique. The effect of foreign ions on this determination has also been studied.

A SIMPLE METHOD FOR THE SIMULTANEOUS EXTRACTION OF CHOLESTEROL AND PHOSPHATIDES FROM BOVINE SPINAL CORD WITH PARTICULAR REFERENCE TO PHOSPHATIDYLCHOLINE AND PHOSPHATIDYLETHANOLAMINE

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(Received June 29, 1985; revised November 11, 1985)

A large-scale process is described for the simultaneous extraction of cholesterol, phosphatidyl choline (PC) and phosphatidyl ethanolamine (PE) from bovine spinal cord. The process is essentially of batch type and consists of four stages, each requiring a different solvent.

Total lipids are first extracted from the minced and dried spinal cord with *n*-hexane. The concentrated extract is then stirred with *n*-hexane: acetone mixture (10:90 v/v) to separate cholesterol from the phosphatides which are filtered in the Sparkler's filter under inert atmosphere. Cholesterol is recovered from the acetone extract by distillation and crystallisation from methanol. Phosphatides are extracted with ethanol to selectively remove PC and PE by recycling ethanol through the Sparkler's filter. The ethanol extract is chilled overnight and the precipitated PE filtered off. PC is recovered by distilling the solvent under vacuum. The recovery of cholesterol PC and PE on dry weight basis is 12, 10 and 1% respectively.

The process is comparatively simple and economically feasible for a large-scale production of the title products.

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RAMAN AND INFRARED STUDIES FOR $\text{NbF}_5\text{O}_2^{2-}$ ION

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(Received December 17, 1984)

The Raman and infrared spectra of $\text{NbF}_5\text{O}_2^{2-}$ ion have been investigated. The observed bands are assigned on the basis of C_{2v} symmetry. The $\nu_{(O-O)}$, $\nu_{s(Nb-O)}$ and $\nu_{as(Nb-O)}$ stretching frequencies are observed at 955, 880 and 900 cm^{-1} , respectively.

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STUDIES ON THE ISOLATION AND SCREENING OF INDIGENOUS PENICILLIN PRODUCING STRAINS: PART I

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(Received February 27, 1985)

Out of twenty locally isolated strains of the genus *Penicillium*, only four strains were shown to produce penicillin. Comparative study of penicillin production by these strains under different sets of cultural conditions is also described.

PREFERRED CONFORMATION OF *m*-NITROPHENYLADMANTYL PIPERIDINE ON THE BASIS OF POTENTIAL ENERGY CALCULATIONS

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(Received January 31, 1985; revised December, 1985)

In this paper, some of the conformational features of neuro-active molecule are presented. There have been quite a few studies carried out to calculate conformational properties of pharmacologically active molecules with respect to the mapping of receptors. During the course of present study the potential energy of non-bonded interaction for PAP (*m*-nitrophenyladmantyl piperidine) has been calculated. These calculations indicate that the drug has limited allowed conformations. It is speculated that the most feasible position for the drug to interact with the receptor would be at the minimum potential energy level.

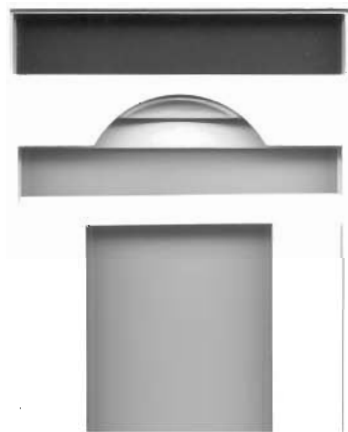
STUDY OF SOME IMPORTANT CLIMATIC AND BIOCLIMATIC PARAMETERS OF KARACHI CITY CENTRE

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(Received April 11, 1985; revised October 16, 1985)

Climatic and bioclimatic studies of urban and suburban areas were made. Lasbella and Gurumandir were taken as urban areas and meteorological stations at the Karachi Airport and Mauripur were taken as the suburban areas. Air temperatures recorded at Gurumandir and Lasbella were higher as compared with those at the Airport and Mauripur. The range of temperature difference between Lasbella and the airport was 0.51 to 2.21° in the morning and the range of temperature difference between Gurumandir and the Airport was 0.32 to 1.03° in evening. Atmospheric relative humidities and wind velocities recorded at Lasbella and Gurumandir were lower than at the Airport and Mauripur. The range of relative humidity difference between Lasbella and Airport was 3 to 16.5% and the range of relative humidity difference between Gurumandir and Airport was 2 to 7.5% . The range of wind velocity difference between Gurumandir and the Airport was 3 to 10 knots and between Gurumandir and Mauripur 7 to 15 knots. Soil temperatures and light intensities of Lasbella and Gurumandir were also noted but no comparison could be made because of the unavailability of data for suburban areas. Light intensities recorded at Lasbella in the morning (9 a.m) were greater than those recorded at Gurumandir (4 and 5 p.m). On the other hand, soil temperatures of Gurumandir (4 and 5 p.m) were higher as compared to Lasbella (9 a.m.).



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THE FATTY ACID COMPOSITION OF THE FIXED OIL OF *CUSCUTA REFLEXA* SEEDS

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(Received May 26, 1985; revised August 18, 1985)

The fixed oil (1.8%) from the seeds of *Cuscuta reflexa* (N.O. Convolvulaceae) has been characterised and studied for its fatty acid composition by GLC. The oil is found to contain capric (0.28%), lauric (0.18%), myristic (0.36%), palmitic (4.55%), stearic (0.90%), oleic (8.19%), linoleic (58.24%), and linolenic (27.29%) acids.

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BIOCHEMICAL COMPOSITION OF THE MANGROVE, *AVICENNIA MARINA*, FOLIAGE

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(Received June 17, 1985; revised September 12, 1985)

Biochemical analysis of *Avicennia marina* foliage showed that carbohydrate was the major organic metabolite (57.5 g% dry weight). AWC:N ratio of 18.9:1 showed that leaves are deficient in protein. Inorganic constituents represented 13.46 g% dry weight. The leaves possessed high calorific content (5.68 kcal/g). Seventeen aminoacids were detected. Cystine and aspartic acid were the two dominant aminoacids.

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IDENTIFICATION OF THE MEMBERS OF THE GENUS *CUSCUTA* AS REPRESENTED IN PAKISTAN AND KASHMIR

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(Received October 14, 1985; revised November 1985)

Seventeen species of the genus *Cuscuta* L. were studied with the help of all herbaria in Pakistan, Edinburgh and Munchen. The variations in all the existing species are reported. A complete key for the species of the genus *Cuscuta* has also been added. All plants found in Pakistan and Azad Kashmir are covered in this study. All host plants of every species of the genus *Cuscuta* on which they are parasitic have been reported here.

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EFFECT OF MINOR MINERALS CONTAINING CHROMIUM ON HUMAN HEALTH Part. I. Diabetes Control with Herbs

Hasan Jamal, Hasan Raza, K.M. Janjua and M.K. Bhatti

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(Received October 1, 1984; revised October 27, 1985)

It was established scientifically in 1950 that chromium plays a vital role in the metabolism of carbohydrates and that its deficiency leads to diabetes in the human body. In the Islamic system of medicine, several herbs have been used for the control of diabetes for centuries. In the present paper, some of these herbs have been evaluated for their chromium contents by the atomic absorption technique. The results show the presence of chromium in all these herbs perhaps thereby pointing to its therapeutic value. The chromium contents varies from 1.25 to 15.00 μg per gram in dried herb.

EVALUATION OF EARLY FLOWERING MUTANTS OF BASMATI VARIETIES FOR GRAIN QUALITY CHARACTERISTICS

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(Received May 23, 1985; revised September 12, 1985)

Physical (size, shape, quality index), chemical (amylose content) and cooking (water absorption, volume expansion and elongation ratios) characteristics of early flowering mutants of rice are reported. Early flowering mutants of Basmati 370 (EF-27-73-1 and EF-27-73-2) were comparable with their parent except that they elongated less during cooking. The amylose contents of raw kernels and elongation ratio of cooked rice of EF-I and EF-II were lesser than in the parent Basmati-Pak. EF-76-1, an early flowering mutant of Basmati-198, did not differ significantly with its parent in these features.

**BACTERIOLOGICAL CHANGES IN KARACHI COASTAL WATER SHRIMP
(*PENAEUS MERGUIENSIS* AND *METAPENAEUS MONOCEROS*)
DURING ICE STORAGE**

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(Received January 16, 1985; revised September 20, 1985)

Changes occurring in total bacterial populations and in generic composition of bacterial flora of two shrimp species (*Penaeus merguensis* and *Metapenaeus monoceros*) during ice storage period of 20 days were studied. No significant quantitative or qualitative bacterial differences were observed between the two species of the shrimps during storage. The total bacterial population increased from 10^6 to 10^9 CFU (colony forming unit)/g after 20 days. Irrespective of the initial flora, the flora that emerged at the end of the storage was remarkably similar. In both species of the shrimp *Vibrio*, *Micrococcus*, *Pseudomonas* or *Moraxella* genera were initially dominated. During storage *Vibrio* spp. disappeared and *Alteromonas* increased steadily to become the dominant genus.

At the end of the storage period *Alteromonas putrefaciens*, *Pseudomonas* Groups II and III, *Moraxella* and *Micrococcus* constituted the bulk of the flora of the stored shrimp species.

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THE USE OF PENICILLIN WASTE MYCELIUM IN FERMENTATION MEDIUM (III) PRODUCTION OF PROTEASES BY *BACILLUS SUBTILUS*

Muhammad Afzal Baig and F.H. Shah

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(Received November 14, 1984)

The protease synthesis in the starch salt medium by *Bacillus subtilis* in shake flasks was stimulated by the addition of mould mycelium, spent broth or their ash as compared with control culture. However, stimulation was found in the presence of mould mycelium and its ash.

Short Communication

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CYTOPLASMIC EFFECT FOR NON SALINE AND SALINE ENVIRONMENTS IN RICE

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Technology Section

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THERMAL ETCHING OF SILICON CARBIDE CRYSTALS IN A PLASMA TORCH

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(Received May 28, 1985)

Thermal treatment of silicon carbide crystals in an inert atmosphere of a plasma torch, in the high temperature range 2000-3000° was carried out. Evidence is provided that such a treatment can reveal dislocations. The treatment does not leave any reaction products and the surface of the crystal is left clean and shiny.

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UTILIZATION OF DEGARI COAL FOR THE PRODUCTION OF BARIUM CARBONATE FROM BARYTE

Shamshad Ahmed Khan and M. Najmul Hasan

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(Received September 15, 1985; revised November 3, 1985)

The optimum conditions for the conversion of baryte to barium sulphide by reduction with Degari Coal have been studied and 92.8% conversion was achieved at 800° . Barium sulphide was then converted to barium carbonate by the addition of a sodium carbonate solution. During investigations it was found that Degari Coal is as good as imported coal.

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BENEFICIATION OF MALAKAND GRAPHITE ORE

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(Received September 1, 1983 - revised October 16, 1985)

Malakand graphite, containing 18–20% of graphitic carbon, has been upgraded to a foundry grade concentrate having over 85% carbon content. The flotation process, used in the study, has been discussed in detail with special emphasis on the grind size and of the feed, solid-liquid ratio of the pulp and the reagent combinations. The final product, obtained at optimum recovery, was tested at various local foundries and was found to be satisfactory.

**ANALYSIS OF TRIMETHYLSILYL DERIVATIVES OF SUGARS DERIVED
FROM THE HYDROLYSATES OF WOOD PULP, SHOULDER MATERIAL AND
UNFRACTIONATED CELLULOSE TRIACETATE BY GAS LIQUID
CHROMATOGRAPHY – PART II**

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(Received December 12, 1984)

Wood pulp-based cellulose triacetate samples have shown a shoulder on the high molecular weight side of the gel permeation chromatographic (GPC) distribution curve. Material isolated from this region by fractional precipitation was found to be highly enriched in mannose and xylose, attributed to the presence of a hemicellulose derivative. Cellulose triacetate from cotton linters did not show this behaviour.

The hemicellulose derivative was hydrolysed using mineral acid and the hydrolysate was subjected to trimethylsilylation reaction in order to obtain volatile trimethylsilyl (TMS) derivatives. These TMS derivatives were analysed by gas liquid chromatography against known calibration standards.