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Physical Sciences Section

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DETERMINATION OF CHAIN TRANSFER CONSTANT FOR SOME AROMATIC HYDROCARBON IN THE CATIONIC POLYMERIZATION OF β -PINENE

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(Received May 25, 1989; revised November 28, 1989)

Cationic polymerization of β -pinene in benzene and toluene has been accomplished at 10-12° using anhydrous $AlCl_3$ as initiator. The solvating power of reaction medium increased the rate and degree of polymerization. The values of chain transfer constants measured for benzene and toluene were respectively 16.5×10^{-3} and 12.5×10^{-3} whereas the value of chain transfer constant to monomer (C_m) obtained was as 60×10^{-3} .

Key words: Propagating species, Carbonium ion, Chain Transfer constant.

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POTENTIAL ANTIBACTERIAL AGENTS

Part II. Synthesis of substituted N-Antipyrinyl methylenebenzohydrazides and 2-Anti-pyrinyl-5-aryl-1,3,4-oxadiazoles

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(Received July 17, 1989; revised November 30, 1989)

Condensation of 4-formylantipyrine with substituted benzohydrazides (Ia-e) afforded substituted antipyrinylmethylenebenzohydrazides (IIa-e). On treatment with bromine-acetic acid-sodium acetate (anhyd.), compounds IIa-d readily cyclized to the corresponding 2-antipyrinyl-5-aryl-1,3,4-oxadiazoles IIIa-d, while compound IIe under similar treatment furnished the hitherto unreported dibromo compound IIIe. Antibacterial activity of compounds synthesised was also evaluated.

Key words: Antipyrine, Benzohydrazides and 2-antipyrinyl-5-aryl- 1,3,4-oxadiazoles.

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LIPID COMPONENTS OF *AMARANTHUS VIRIDIS*. L. AND *DIGERA MURICATUS*. L.(MART).

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(Received November 10, 1988; revised November 4, 1989)

TLC and GLC was employed to determine the fatty acids obtained from *Amaranthus viridis* and *Digera muricatus*.

Key words : *Amaranthus viridis*, *Digera muricatus*, Fatty acids.

4-ACETAMIDOPHENAZONE DERIVATIVES

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(Received March 8, 1989; revised October 19, 1989)

Condensation of ethoxycarbonylacetamidoantipyrine (1) with ethyl acetoacetate is described. The reactivity of methylene group in compound (2) toward different aromatic aldehydes is investigated. A series of 1,2,4-triazoles and 1,3-thiazolidin-4-ones were synthesized. Oxazolinethione derivative was also prepared. The IR and ^1H NMR of some selected compounds are reported.

Key words: Acetamidophenazone derivatives, Synthesis.

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EFFECT OF GLUCOSE ON SERUM ELECTROLYTES AND OSMOLALITY: STUDIES IN RATS

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(Received December 8, 1987; revised December 6, 1989)

The effects of glucose on serum electrolytes and osmolality were studied in rats. Rats were injected glucose (70mg/100g) intraperitoneally. One hr. after injection blood was analyzed for serum electrolytes and osmolality. Administration of glucose caused increase in serum sodium and decrease in serum potassium, calcium, magnesium, phosphorus and osmolality. These results suggested that ingestion of glucose alters both serum electrolytes and osmolality in rats.

Key words: Glucose, Electrolytes, Osmolality

Biological Sciences Section

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AFLATOXINS IN VARIOUS FOODS AND FEED INGREDIENTS

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(Received May 25, 1989; revised September 19, 1989)

Cereals, pulses, nuts and other food and feed ingredients were collected from different regions of Pakistan were screened for aflatoxin contamination. The presence of mycoflora on these commodities were also examined. Samples of wheat, rice, pulses and beans showed negative results although toxigenic strains of *Aspergillus flavus* were present on some of the samples. Maize and maize products showed the presence of aflatoxin B₁ and B₂ with a concentration range of upto 800 µg/kg. It ranged from 400-800 µg/kg in pea-nuts, pistachio nuts and wal-nuts. Poultry feed and its ingredients contained 8-1140 µg/kg of aflatoxin. Non-detectable levels of aflatoxin were noticed when the contaminated products were stored at 30° for 7 days or 40° for 3 days after treatment with 1.5% ammonia at 18% moisture. Chicks given detoxified ration showed improvement in weight gain and feed efficiency.

Key words: Aflatoxin, Mold, Food

INVITRO ANTIFUNGAL STUDIES OF TERBINAFINE

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(Received November 27, 1988; revised December 14, 1989)

Terbinafine a new orally active allylamine derivative was studied for its antifungal activity against dermatophytes and other filamentous fungi. Its activity was tested invitro against *Trichophyton rubrum*, *T. mentagrophytes*, *T. tonsurans*, *T. gallinae*, *T. longifuses*, *T. violaceum*, *T. semii*, *Microsporum canis*, *Epidermophyton floccosum*, *Aspergillus flavus*, *A. niger*, *Alternaria alternata*, *Drechslera rostrata*, *Fusarium oxysporum*, *Fusarium moniliforme*, *Curvularia lunata* and *Penicillium* species at a comparable concentrations of clotrimazole and griseofulvin.

The minimum inhibitory concentration (MIC), with the exception of *T. gallinae*, ranged between 0.05–0.25 µg/ml against dermatophytes. This drug was found quite effective against *Aspergillus*, *penicillium* and dermatophytic fungi tested and superior to clotrimazole and griseofulvin. However, clotrimazole was found superior to terbinafine against *A. alternata*, *C. lunata*, *D. rostrata*, *F. moniliforme* and *F. oxysporum*.

Key words: Terbinafine, Antifungal, Minimum inhibitory concentration

AZIDE MUTAGENESIS IN BASMATI RICE (*ORYZA SATIVA* L.) CULTIVARS

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(Received March 13, 1989; revised June 10, 1989)

Pre-soaked seeds of three cultivars of indica rice (*Oryza sativa* L.) viz. Basmati 370, Basmati 198 and Basmati Pak were treated with various concentrations (1.5-3.5 mM) of sodium azide in 0.1M phosphate buffer at pH3. Significant intraspecific and intervarietal differences were found in their physiological sensitivity towards mutagenic treatments. On the basis of seed germination and reduction in seedling height, Basmati 370 appeared to be more sensitive towards the applied concentrations of mutagen compared to Basmati Pak and Basmati 198. Relatively high frequency of chlorophyll deficient mutations was observed in Basmati 198. Sodium azide concentration of 1.5 for Basmati 370 only and 1.5, 2.0 and 3.5 mM for Basmati 198 seemed to be more effective. In Basmati Pak, however, higher concentrations can also be applied. Early flowering and dwarf plants were frequently observed in the spectrum of viable mutants. These studies indicated high mutagenic potency of sodium azide in Basmati rice.

Key words: *Oryza sativa*, Sodium azide, Mutagenesis, Chlorophyll mutations, Differential response.

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EFFECT OF INCREASING SODIUM CHLORIDE CONCENTRATIONS ON THE GROWTH AND ION UPTAKE OF *HONCKENYA PEPLOIDES* (L) EHRH

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(Received January 25, 1989; revised December 21, 1989)

Effect of increasing NaCl concentrations was observed on *Honckenya peploides* (L) Ehrh. Increasing concentrations of NaCl increased fresh and dry matter, decreased the root and shoot lengths and internal water content of *H. peploides*. The reduced root and shoot lengths (growth) is possibly due to the adverse effect of NaCl mainly on root growth consequently shoot growth is also affected. The Na and Fe content increased with NaCl treatments while K, Ca, and Mg decreased. The Zn content were variable. The mechanism of salt tolerance in *H. peploides* is possibly through accumulation of Na and/or organic solutes and that Na substitute K.

Key words : Salt tolerance, Growth, Ion uptake, Dry matter, Osmotic pressure and Turgor pressure.

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INFLUENCE OF WILD PLANT AND CROP RESIDUES ON GROWTH AND NUTRIENT CONTENT OF WHEAT

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(Received May 18, 1989; revised December 6, 1989)

Growth parameters and grain yield of wheat (cv. sarsabz) were significantly increased with the incorporation of plant residues studied. Compared to control the N,P,K,Ca and Na also increased in the wheat plant in the majority of the cases when residue was added to soil. Prosopis residue produced the highest grain yield whereas farm yard manure gave the lowest increase in grain yield.

Key words: Wild plant, Crop residue, Wheat.

IMPACT OF VEHICULAR EMISSION ON SEED GERMINATION OF SOME ROADSIDE TREES

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(Received April 2, 1989; revised November 30, 1989)

The seeds of *A. Lebbeck* and *D. Sissoo* collected from the polluted areas of city showed significant reduction in seed germination. The seeds of *P. roxburghii* also showed reduction in germination but they were not significant. The rate of germination of *A. lebbeck* collected from city areas showed maximum effects of pollution. The seeds collected from Liaquatabad area showed comparatively less germination as compared to other sites in the city.

Key words: Seed germination, Roadside trees, Vehicular emission.

CORRECT BOTANICAL NAME OF BANTAMAKU

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Consequent upon observation that a single Unani drug is referred to in the literature by two or more plants by their scientific names, thus creating confusions. For example, unani drug "Ban-tamaku" is confused with *Atropa acuminata* Royle ex Lindley and *Verbascum thapsus* Linn. The comparative pharmacognostic studies conducted on Unani drug and on the above said plants have resulted in the identification of Unani drug "Bantamaku" as *Verbascum thapsus* L.

Key words: Medicinal plants, Pharmacognosy, Bantamaku, Unani drug.

VARIATIONS IN THE LANDED QUALITY OF TRAWLER-CAUGHT SHRIMP DURING A PERIOD OF 13 MONTHS

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(Received May 21, 1989, revised December 2, 1989)

Seasonal variations in edible and inedible portion, condition index, moisture, protein, lipid, fatty acids and ash during a period of 13 months were determined. Shrimp harvested in April, May, June and October were found to contain more edible portion (flesh) if compared with shrimp harvested in other months. Condition index revealed the same information. Shrimp of acceptable sensory quality were obtained throughout the study period. Shrimp harvested in January, April and June were found to contain relatively high water content giving an indirect evidence of breeding season of this species. No apparent seasonal variation in pH, ash, lipid and bacterial counts of shrimp was noticeable.

Key words: Landed quality, Seasonal variation, Trawler-caught shrimp.

**DESCRIPTION OF A NEW GENUS AND SPECIES OF PENTATOMIDAE
(HEMIPTERA: HETEROPTERA) FROM PAKISTAN**

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(Received June 8, 1989; revised November 19, 1989)

A new species of a new genus of the family Pentatomidae Leach is described from Pakistan. Its affinities with closely related genera are discussed in detail.

Key words: Heteroptera, Pentatomidae, Riaziana.

Short Communication

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**YIELD AND QUALITY OF MAIZE FODDER AS
INFLUENCED BY DIFFERENT STAGES OF HAR-
VESTING AND NITROGEN RATES**

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Short Communication

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THE NEST OF POLYRACHIS ANT

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Technology Section

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PREPARATION AND BIOLOGICAL EVALUATION OF SOY CURD FROM SOYBEAN

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(Received May 25, 1989; revised November 20, 1989)

A method for the preparation of soy curd free from beany flavour and trypsin inhibitor has been developed. Results of biological evaluation revealed that nutritional values of the product were comparable to that of casein. Soy curd is the most suitable proteinous product to be used in Pakistani diets.

Key words: Soybean product, Biological evaluation, Preparation of soy curd.

STUDIES ON BREAD PRESERVATION FOR SUMMER SEASON

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(Received January 17, 1989; revised November 30, 1989)

Various permissible food preservatives were tried to extend the shelf-life of bread. Sorbic acid in combination with calcium acetate showed remarkable increase in shelf-life of the bread. The mixture of these two salts when added to flour at the rate of 0.2 and 0.3 %, increased the life of bread to five and seven days respectively. The preservatives had nominal effect on bread volume. The quality characteristics of preserved bread were similar to fresh bread.

Key words: Bread, Preservation, Summer.

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PETROLOGY AND INDUSTRIAL APPLICATION OF NIZAMPUR LIMESTONES, NWFP, PAKISTAN

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(Received 14 January, 1989, revised 21 October 1989)

Nizampur limestone samples have been studied for their petrology and geochemistry. The results of these studies indicate that Nizampur limestones are suitable for cement, chemical, paper and other industries.

Key words : Limestone uses, Nizampur, Pakistan.

Introduction

application, are still lacking.

The published data on the