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Physical Sciences Section

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SOME REACTIONS WITH ARYLIDENE MALONONITRILE, MALONIC ACID AND MALONIC ESTER

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(Received November 10, 1976; revised January 31, 1978)

Abstract. The Michael condensation of arylidene malononitrile Ia and Ib with cyclohexanone, cyclopentanone, acetylacetone, ethyl methyl ketone, ethyl phenyl acetate, ethyl cyanoacetate, nitromethane, and dimethyl phosphorus acid gave the adducts 2,3 and 5-10. Reaction of Ia with Grignard reagents gave II. The Friedel Craft's alkylation of aromatic compounds, namely *p*-xylene, *o*-xylene and benzene with Ia-d has been described.

THE COMPLEXES OF VANADIUM (IV) OXYDICHLORIDE

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(Received August 20, revised January 28, 1978)

Abstract. Vanadium (V) oxytrichloride was reduced by sulphur into vanadium (IV) oxydichloride. The complexes of VOCl_2 with pyridine picolines and 8-hydroxyquinoline were prepared having the general formulae $\text{VOCl}_2 \cdot \text{L}_2$, $\text{VOCl}_2 \cdot \text{L}_3$, and $\text{VOCl}_2 \cdot \text{L}_4$ (here L = ligand). The IR spectra of the complexes were determined in Nujol and hexachlorobutadiene (HCB) mull and assignments of vanadium-oxygen $\nu (\text{V}-\text{O})$, vanadium-nitrogen $\nu (\text{V}-\text{N})$ and vanadium-chlorine $\nu (\text{V}-\text{Cl})$ stretching vibrations were made. The electronic spectra of the complexes were determined in 1,2-dimethoxyethane (DME) and toluene. The λ_{max} in the electronic spectra of the complexes was shifted to longer wave-lengths by more polar solvents. Two interrelated factors were considered to account for the observed red shift in λ_{max} (1) a decrease in the energy required for the electronic excitation resulting from increased solvation of the excited state due to the polarizability and (2) dipole orientation of the solvent. The possible structural formations of the complexes were proposed.

SOME REACTIONS WITH 2-ACETONYL-4H-3,1-BENZOXAZIN-4-ONE AND 2-ACETONYL-3-PHENYL-4 (3H) QUINAZOLINONE

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(Received March 30, 1977, revised March 18, 1978)

Abstract. The benzoxazone 1 reacted with amines to give 2 and 4. Compounds 2 were converted to the quinazolinones 3. The benzoxazone 1 and the quinazolinone 3a were condensed with aldehydes to give 5 and 7. Compound 1 gave 11a, 13, 15, 17-19 and 21 with hydrazines, hydroxylamine, formamide, sodium azide and active methylene compounds respectively. With Friedel-Crafts reaction and Grignard reagents 1 yielded 22 and 23. P_2S_5 reacted with 1 and gave 24 which underwent the ring opening and yielded 25.

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DISPLACEMENT OF TRYPTOPHAN FROM ITS BINDING SITES SODIUM SALICYLATE

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(Received May 21, 1977; revised July 26, 1977)

Abstract. The concentration of free and bound tryptophan has been estimated in plasma, liver and brain of *Uromastix hardwickii*, before and after the intraperitoneal administration of sodium salicylate. Injection of the drug was found to enhance free tryptophan concentration, also the animal became slightly active. The pharmacological action of the drug, sodium salicylate has been correlated with the increase in free tryptophan concentration.

EXTRACTION-SPECTROPHOTOMETRIC SUB-MICRODETERMINATION OF COPPER WITH 2-FURFURYL THIOSEMICARBAZONE

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(Received April 29, 1977; revised June 11, 1977)

Abstract. A rapid and selective extraction-spectrophotometric method is proposed for the determination of sub-micro amounts of copper. 2-furfuryl thiosemicarbazone forms a coloured complex with copper which is quantitatively extractable in chloroform. The colour is stable at least for 4 hours. Beer's law is obeyed upto 18 μg of copper. The molar absorptivity at 370 nm is $2.86 \times 10^4 \text{ l mole}^{-1} \text{ cm}^{-1}$. Most of the common cations and anions do not interfere.

Biological Sciences Section

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HELMINTH PARASITES OF SOME BIRDS IN SIND (PAKISTAN)

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(Received November 25, 1974; revised August 10, 1977)

Abstract. The present investigations report on some endoparasites of birds of Sind, collected from Karachi and Hyderabad. It includes descriptions of two species of cestodes and six species of nematodes from seven different species of birds.

The genus *Tubanguiella* Yamaguti, 1933 is rediagnosed based on a new species *T. ardeola* from *Ardeola bacchus* and *Raillietina (Raillietina) flaccida* (Meggitt, 1926) is described from the sparrow *Passer domesticus*.

T. ardeola is the second species of the genus and first from Pakistan.

The six nematode species are *Pseudaspidodera sindia* n.sp., *Physaloptera tadorna* n.sp., *Diplo-
triaena streptopelia* n. sp., *Leipoanema* sp., *Amplicaecum* sp., *Dispharynx* sp. from the birds *Amaur-
mis phoenicurus chinensis*, (Chinese bird), *Tadorna tadorna* (Duck), *Streptopelia senegalensis* (Fakhta),
Coturnix coturnix (common quail), and *Phalacrocorax carbo sinensis* (Jal kawa).

Other three species of nematodes reported here are identified only up to the genus belong to the genus *Leipoanema*, *Amplicaecum* and *Dispharynx*.

STUDY OF PHYTOPLANKTON COMPOSITION IN THE GUT CONTENTS OF SOME FISHES FROM KINJHAR LAKE

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(Received September 18, 1976; revised August 6, 1977)

Abstract. A study was undertaken to improve fish production in Kinjhar Lake, created artificially to supply water to Karachi. A survey of phytoplankton species, an important feeding material for fishes, was made and the gut contents of nine species of fishes, occurring in the lake, were recorded. This study indicated that commonly occurring phytoplankton species especially *Microcystis aeruginosa*, are preferred as food material by the fishes compared to aquatic macrophytes such as *Hydrilla*, *Potamogeton*, *Ceratophyllum*, *Myriophyllum* and *Lemna* during the phytoplankton blooming season.

It is suggested that fish production in the lake can perhaps be increased by carrying out annual cleaning and closing of the inlet and outlet of the lake in January instead of April to avoid disturbance during the period of the phytoplankton bloom and when the destruction of fish eggs and fingerlings in April would also occur.

TOXICOLOGICAL, BEHAVIOURAL, SYMPTOMATIC AND HISTOPATHOLOGICAL EFFECTS OF ISOPROPOXY PHOSPHINE OXIDE ON THE MIGRATORY LOCUST, *LOCUSTA MIGRATORIA* AND DESERT LOCUST, *SCHISTOCERCA GREGARIA*

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(Received March 17, 1977; revised July 7, 1977)

Abstract. Injection of 10 μ l of (1 % aqueous solution) isopropoxy phosphine oxide per 5th instar male nymph of *Locusta migratoria* proved an effective dose for the histopathological studies. Toxicity induced by the sterilant, during two weeks, varied according to the size and age of the nymph of *Locusta* and *Schistocerca*. The LD 50, after two weeks, was estimated to be about 15 μ l for the *Locusta* nymphs while for the *Schistocerca* nymphs the results are insufficient for a firm conclusion.

QUANTITATIVE LIFE-HISTORY OF BEAN PLATASPID; COPTOSOMA
CRIBRARIUM (FABR.) (HETEROPTERA: PENTATOMOIDEA)

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(Received September 8, 1977, revised October 17, 1977)

Abstract. Laboratory experiments to determine the duration of eggs and larval stages of *Coptosoma cribrarium* Fabr.) in different seasons of the year were carried out for such informations should be useful from control point of view. Throughout the year, at room temperature, pre-oviposition period, incubation period, duration of various stages and mortality have been recorded.

LOSS OF NITRATE NITROGEN IN SOIL COLUMNS*

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(Received September 29, 1976; revised September 18, 1977)

Abstract. Extremely high losses of $\text{NO}_3\text{-N}$ were observed in the lab columns of sandy loam and clay soils amended with or without sucrose and incubated at room temperature for one week at two moisture levels; field capacity and saturation in the lower half of columns. The sucrose addition had no significant influence on N losses, because the soils did not seem to be lacking in the energy source. Also, there was no marked difference in the pattern of losses between the two moisture levels showing that conditions are such that N loss will also occur at field capacity.

Short Communication

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A LEAF SPOT DISEASE OF WILLOW (*SALIX ALBA* L.) CAUSED BY *CERCOSPORA SALICIS* CHUPP AND GREENE

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Technology Section

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STUDIES ON THE FIXED OIL OF JUNIPERUS MACROPODA BOISS SEEDS

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(Received March 17, 1977)

Abstract. The fixed oil (4.5%) of *Juniperus macropoda* has been examined by chemical and physical means. The saturated acids of the oil have been shown to consist of palmitic (9.1%) stearic (11.0%) and behenic (4.3%) acids, while the unsaturated ones are *palmetoleic* (1.6%) oleic (36.45%) and linoleic (23.45%) acids. The unsaponifiable matter consists of β -sito-sterol (14.5%).

NEUTRAL LIPIDS FROM THE LEAVES OF EUPHORBIA HELIOSCOPIA LINN.

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(Received September 28, 1977)

Abstract: The neutral lipids from the leaves of *Euphorbia helioscopia* Linn. have been separated into hydrocarbons, wax esters, triterpenoidal esters, hydroxyesters, free fatty alcohols and free sterols. The wax esters were composed of lauric, 1.35; myristic, 5.24; palmitic, 39.30; stearic, 13.27; oleic, 15.66; linoleic, 2.30; arachidic, 19.14; behenic acids 3.80 and higher fatty alcohols. Octacosyl alcohol and β -sitosterol were confirmed both in the free and esterified form. Heptacosane and triterpenoidal acetate $C_{32}H_{52}O_2$ were isolated from the hydrocarbon fraction and the terpenoidal ester fraction respectively.

STUDIES ON THE COMPOSITION AND PROCESSING OF BAUHINIA SPECIES (KACHNAR)

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(Received June 4, 1977; revised July 30, 1977)

Abstract. Freshly harvested samples of Bauhinia were analysed for moisture, protein, ascorbic acid and ash before and after dehydration and during 270 days storage of dehydrated product. White variety showed higher drying rates, lower final moisture content and higher rehydration ratios as compared to the purple 'Kachnar'. Subjective evaluations for colour, flavour and appearance confirmed the superiority of white over purple variety. Though ascorbic acid, sulphur dioxide content and rehydration ratios gradually decreased during 270 days storage of the dehydrated samples, the product remained acceptable uptill the termination of the experiment.

INFLUENCE OF SALINITY AND ZINC ON THE AVAILABILITY OF ZINC, COPPER, IRON AND MANGANESE IN TWO ALKALINE CALCAREOUS SOILS

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(Received March 31, 1977; revised August 9, 1977)

Abstract. A soil incubation study with two alkaline calcareous soils of varying texture was conducted to find out the influence of salinity and Zn applications on the extractability of Zn, Cu, Fe and Mn by DTPA (diethylenetriaminepentaacetic acid) soil test method. The effect of salinity varied with the two soils. In general, there was not very much effect of salinity on the extractable metals except that Mn in light textured Thikriwala soil showed a marked increase at the highest salinity level while Fe in heavy textured Kamalia soil showed a steady decrease with increasing salinity. The strong inhibition of saline salts on micronutrient absorption by plant roots, however, indicate that under both soil situations, the net effect of salinity will lead towards their deficiency in plants.

Under the conditions of the present study, Zn additions had little effect on the chemically extracted metals studied except that Fe showed a minor decrease in Thikriwala soil.

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ISOLATION OF SAPOGENIN STRUCTURES FROM THE ROOTS OF LYSIMACHIA MAURITIANA LAM

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(Received May 9, 1977, revised July 5, 1977)

Abstract. Work on the sapogenin constituents of *Lysimachia mauritiana* Lam. has been carried out, and respective identification of two components with Camelliagenin A and Camelliagenin C are recorded.

APPLICATION OF INDIGENOUS VEGETABLE DYES TO WOOL

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(Received May 9, 1977; revised May 23, 1977)

Abstract. Important indigenous dyes of vegetable origin have been evaluated for their application in the case of wool dyeing. Depth of shade, fastness characteristics and effects of mordanting with different mordants have been studied. The dyes have subsequently been arranged in order of merit.

**PREPARATION AND CHARACTERIZATION OF DEXTRAN FROM
MOLASSES BY THE ACTION OF A LOCALLY ISOLATED STRAIN OF
LEUCONOSTOC MESENTEROIDES**

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(Received July 5, 1977; revised April 3, 1978)

Abstract. The preparation and characterization of a water soluble dextran from molasses by the action of a locally isolated strain of *Leuconostoc mesenteroides* has been studied. Pretreatment of molasses for clarification is not required for the production of dextran, in the culture medium, which reached a maximum of 30% of available sucrose, from molasses in 18 hr. After purification through a simple procedure dextran's ash content of 15.6% reduced to 1.5% and its colour was also improved.

Short Communications

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EFFECT OF CALCIUM CARBONATE ON DTPA-EXTRACTABLE ZINC IN TWO UPLAND SOILS

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October 23, 1977)

MUNICATIONS

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CHEMICAL INVESTIGATION OF CAPPARIS SPINOSA (ROOTS)

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ZINC—IRON INTERACTION IN CALCAREOUS SOILS

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