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Physical Sciences Section

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SYNTHESIS AND SOME REACTIONS OF 2 (α -PHENYLIMIDO-*p*-CHLORO)-STYRYL-3, 1-BENZOXAZIN-4 (H) ONE

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2-(α -phenylimido-*p*-chloro)-styryl-3, 1-benzoxazin-4 (H)-one **1** has been prepared. **1** reacts with different nitrogen nucleophiles under different reaction conditions to give compounds **2- 5** while its thionation with P_2S_5 gives the corresponding benzothiazin-4-thione **6**. Arylation of **1** under Friedel-Crafts condition afforded the corresponding o-arylamino-carbinol **9**, while its reaction with Grignard reagents gave the o-amidophenyl alkyl ketone **10**.

Key words: Benzoxazin-4-ones, Nucleophilic and electrophilic reactions.

SYNTHESIS OF SUBSTITUTED PYRIDINES

Part X. Derivatives of 7-[2 (4)-Acetylaminophenyl) amino] -2, 2-Dimethyl-4, 5-Dioxopyrano [4, 3-d] [1, 3] Dioxin and Methyl 1-(2 (4) -Acetylaminophenyl) - 1, 2-Dihydro-4, 6-Dihydroxy-2-Oxopyridine-3-Carboxylate

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(Received August 25, 1991; revised December 16, 1991)

The reaction of a 1,2-or 1,4-monoacetylated aromatic diamines (IVa or IVb) with a chloropyranodioxin (I) yields a corresponding acetylaminopyranodioxin (Va or Vb) which is difficult to deacetylate to form products (IIIa or IIIb). The former (Va or Vb) reacts with methoxide and phenoxide in methanol and phenol respectively to generate usual monocyclic and bicyclic products, (VIIa or VIIb) and (IX). Reaction of the product VIIb with morpholine, bromine and ethyl isothiocyanate yields a morpholinium salt, a bromo compound and a thiocarbamate derivative respectively.

Key words: Chloropyranodioxin, Morpholinium salt, Thiocarbamate derivative.

Introduction

(VIIb) were also prepared. The reactions are depicted in

THE INFLUENCE OF ACIDIC-BASIC PROPERTIES OF Sn-Mo-O CATALYSTS ON ITS ACTIVITY IN OXIDATION OF SOME ALCOHOLS

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(Received April 29, 1991; revised December 4, 1991)

The influence of acidic-basic properties of Sn-Mo-O catalysts on its activity in oxidation of ethanol, isopropanol and secondary butanol at 200 and 260° was investigated. The results show that the activity and selectivity of Sn-Mo-O catalysts in oxidation of alcohols depend on its surface acidic-basic properties. Carbon containing compounds form on basic sites. Acidic centres are responsible for alcohol dehydration. Preparation of Sn-Mo-O catalysts from KOH solution leads to an increase of there activity in alcohol oxidation reaction. By addition of KOH in small amounts, most acidic centres are blocked, while the less acidic centres, responsible for dehydration, are not effected. Increasing the amounts of added KOH lead to complete deactivations of acidic centres.

Key words: Acid basic properties, Sn-Mo-O Catalysts.

Biological Sciences Section

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SENSORY FEATURES OF DATE-FRUIT AS INFLUENCED BY GAMMA IRRADIATION

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(Received April 2, 1991; revised December 15, 1991)

Khudrawi and Zaidi varieties grown in the climatic conditions of Faisalabad were evaluated for determining their sensory features. Dates treated with three different doses of gamma irradiation were compared with non-irradiated control. It was found that the dose of 0.5 kGy proved the most effective in reducing deleterious biochemical changes than did the doses of 1.0 and 1.5 kGy. It thus helped in enhancing the shelf life of the date-fruits. Statistical analysis showed that the Khudrawi variety surpassed the Zaidi variety in softness, juiciness/pulpiness, taste, and weight loss, while the Zaidi was preferred by the panelists for its fruit colour, attractiveness, shiningness, and shrivelness/smoothness.

Key words: *Phoenix dactylifera*, Khalal stage, Gamma irradiation, Sensory features, biological changes.

ORGANOCHLORINE PESTICIDE RESIDUES IN THE SEDIMENTS OF SOME RIVER NILE DISTRIBUTARIES AND DRAINS, EGYPT

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(Received March 25, 1989; revised December 19, 1991)

A total of 18 sediment samples were collected monthly from the River Nile distributaries and drains at agricultural areas of Sharkia Governorate from February through April, 1986. Organochlorine pesticide residues were determined by gas liquid chromatography equipped with electron capture detector (ECD). The analytical data revealed that El-Ghar Canal sediments contained the highest level of endrin, chlordane, dieldrin and aldrin pesticides. However, high quantities of p,p'-DDT, lindane and α -BHC were detected in the sediments of El-Asloug and El-Ebrahimia Drains. Bahr El-Dakar and Ekwa Drain sediments contained the lowest amounts of all the tested organochlorine pesticide residues. Sediments from Ekwa Drain contained comparatively smaller amounts of endrin, chlordane and lindane than those from Bahr El-Dakar. Moreover, low quantities of p,p'-DDT but no aldrin were obtained from El-Ebrahimia Drain sediments. Sediments may continue to be a source of water pollution.

Key words: Pesticides, Residues, River Nile, Sediments.

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LEVELS OF TOTAL LIPIDS IN STRESS-INDUCED CHICK SKELETAL MUSCLE

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(Received July 17, 1990; revised December 16, 1991)

Lipids are the major fuel for slow but sustained functioning of the narrow red fibers. Therefore, total lipid content of chick *Gastrocnemii* (pars *lateralis*, *medialis* and *intermedia*) muscle has been studied under normal, denervated and exercised conditions from 1-56 days of post hatching growth period. For each investigation, atleast 4 muscle sets were employed. The total lipid content in all the *Gastrocnemii* ranges from 0.962-29.923 mg/gm under normal, denervated and exercise stress. The pars *lateralis* shows an immediate response to the ablation of neural control when a very steep rise in its lipid content is recorded between 3-14 days post denervation. Thereafter, a decline in lipid levels is noticed. Under exercise stress, *G. intermedia* behaves much like the *G. lateralis* when it depicts relatively high lipid contents between 1-7 days stage. Exercise stimulates lipogenetic processes as well as rate of lipid mobilization in the muscles but prolonged exercise retards lipid mobilization.

Key words: *Gastrocnemii*, Sciactectomy, Chick skeletal muscle.

REGIONALLY SPECIFIC EFFECTS OF REPEATED CORTICOSTERONE TREATMENT ON RAT BRAIN SEROTONIN METABOLISM

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(Received May 2, 1991; revised December 26, 1991)

Five day corticosterone treatment increased 5-hydroxy indole acetic acid (5-HIAA) concentration in the hypothalamus of rats; 5-hydroxytryptamine (5-HT) increased in the midbrain region. 5-HIAA or 5-HT concentrations in the cortex hippocampus and striatum remained unaffected. Tryptophan levels increased in the hypothalamus and midbrain region. The treatment decreased plasma total tryptophan concentration. The concentration of free tryptophan was however not affected. Food intakes and growth rates of corticosterone injected rats were smaller than in the saline injected animals. The results may help to elucidate neurochemical alterations in depressive or other psychic states induced by prolonged hypercortisolemia.

Key words: Serotonin, Tryptophan, 5-HT., Corticosterone.

EFFECT OF SOAKING, GERMINATION AND AUTOCLAVING ON SELECTED NUTRIENTS OF RAPESEED

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(Received October 30, 1990; revised December 7, 1991)

Effect of soaking, germination and autoclaving on selected vitamins and other nutrients of rapeseed, was studied. Soaking at ambient conditions slightly increased protein, fat and niacin contents; decreased free fatty acid and riboflavin contents while ascorbic acid was not affected. Germination of seeds slightly increased the total protein, but significantly increased the vitamins while the total fat was reduced. Initial values of ascorbic acid, riboflavin and niacin were 6.95 (fresh weight), 0.62 and 21.1 mg/100gm respectively. The highest value of ascorbic acid, 82.9 mg/100gm (fresh weight) was observed after 2 days of germination while the highest values of riboflavin, 3.18 mg/100gm and niacin 28.57 mg/100gm (dry weight) were found after 4 and 6 days of germination respectively. Autoclaving at 121° and 15 PSI decreased riboflavin and niacin contents to 0.48 and 12.64 mg/100gm respectively. Free fatty acid increased from 0.59 to 2.02% whereas protein and fat value were little affected by autoclaving.

Key words: Rapeseed, Processing, Nutrition.

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EFFECT OF NITROGEN AND ZINC ON RICE GREEN LEAFHOPPERS, *NEPHOTETTIX* SPP. AND PREY-PREDATOR RELATIONSHIP BETWEEN LEAFHOPPERS AND THEIR PREDATORS

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(Received January 8, 1991; revised December 30, 1991)

A significant reduction in rice green leafhopper (*Nephotettix* spp.) population was observed with higher doses of zinc; however increase of pest populations was not significant with higher doses of nitrogen. Abundance of green leafhoppers showed negative correlations with their predator population, namely, spiders, damsel flies and ladybird beetles. Path coefficient analysis revealed that abundance of spiders had the maximum negative effect on green leafhopper abundance, followed by damsel flies. Step-wise regression equations showed the highest relative importance of spiders for their predatory efficiency on rice green leafhoppers, followed by damsel flies.

Key words: Nitrogen and Zinc, *Nephotettix* spp., Correlation matrix, Path analysis.

THE ANTIBACTERIAL ACTIVITY OF THE ESSENTIAL OILS OF THE PAKISTANI *ACORUS CALAMUS*, *CALLISTEMON LANCEOLATUS* AND *LAURUS NOBILIS*

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(Received April 30, 1991; revised December 16, 1991)

The essential oils of *Acorus calamus*, *Callistemon lanceolatus*, and *Laurus nobilis* have been tested against *Staphylococcus aureus*, *Escherichia coli*, *Shigella flexneri*, and *Salmonella typhi*, para-A, spectrophotometrically in emulsified broth. All the essential oils were found to be active against the pathogens of intestinal tract whereas the oil of *Callistemon lanceolatus* enhanced the growth of *S. aureus* in the medium. The essential oils from different parts of the same plant, did not differ in their activity.

Key words: Antibacterial activity, Essentials oils, Pathogens of intestinal tract.

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COMPARATIVE MORPHOLOGY OF MALE AND FEMALE REPRODUCTIVE ORGANS OF SOME PYRRHOCORIDS (HEMIPTERA: TRICHOPHORA) OF PAKISTAN AND ITS BEARING ON CLASSIFICATION

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(Received December 4, 1990; revised December 29, 1991)

Aspects of the comparative morphology of male and female reproductive organs of *Pyrrhocoris apterus* (L.) and *Scantius distantii* Ahmad and Zaidi are compared with other pyrrhocorids. The phylogenetic value of these characters in the family Pyrrhocoridae is evaluated.

Key words: Comparative morphology, Reproductive organs, Pyrrhocorids, Classification.

Technology Section

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AFLATOXIN B₁ IN THE SETTLED DUST OF POULTRY FEED MILLS IN KARACHI

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(Received February 20, 1990; revised December 16, 1991)

Three poultry feed mills were surveyed for the presence of aflatoxin B₁ in the settled dust. Two hundred and twenty seven samples were analyzed, out of which 67.8% were found positive for aflatoxin B₁. Average content was 82 µg/kg and the range being 2 – 815 µg/kg. The levels of aflatoxin B₁ found in the airborne dust in the working area may effect the human health in one way or other.

Key words: Aflatoxin B₁, Feed mills, Dust.