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Physical Sciences Section

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CHEMICAL CONSTITUENTS OF *NERIUM OLEANDER*

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Studies on the chemical constituents of *Nerium oleander* are reviewed. The isolation, unique features of the structures, biosynthetic aspects, and biological significance of these constituents are discussed.

Key words: *Nerium oleander*, Biosynthetic aspects, Chemical constituents.

Pak. j. sci. ind. res., vol. 33, no. 4, April 1990

SYNTHESIS OF SOME NEW 3,6- DIHETEROARYL-1,2,4-TRIAZIN-5-ONES AND THEIR EFFECT ON AMYLOLYTIC ACTIVITY OF SOME FUNGI

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(Received October 31, 1989; revised April 22, 1990)

Some new 3-thioxo-6-(2-arylidinephenyl)- 1,2,4-triazin-5-ones (IIa-n) have been synthesized. Aminolysis and hydrazinolysis of II followed by acylation and alkylation reactions gave 3-heteroaryl-6-(2- arylidinephenyl)-1,2,4-triazin-5-ones (IV- VII), 3-mercapto-s-triazolo [4,5-d][1,2,4] triazinothion(X) and 3-mercapto-s- triazolo[3,4-b][1,2,4] triazinone (XI). Reactions of II with mercaptoacetic acid and thiophenol derivative have been reported. The structure of the compounds prepared have been established by their elemental analysis, IR, UV and PMR spectral data. The effects of the new compounds on amylolytic activity of some fungi are also described, compounds IIa, III, XIV and XVIa showed very high activity.

Key words: 3,6-Diheteroaryl-1,2,4- triazinones, Amylolytic activity of some fungi.

Pak. j. sci. ind. res., vol. 33, no. 4, April 1990

SYNTHESIS OF SOME 9-ETHOXYPSORALENE DERIVATIVES OF POTENTIAL BIOLOGICAL ACTIVITY

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(Received March 25, 1989; revised April 21, 1990)

Several chemical reactions of 9-ethoxypsoralene are described, including nitration, reduction, bromonation and thionation reactions. The amine derivative was acetylated to mono and di-acetyl derivatives, also it was reacted with allylbromide. Some of the new derivatives were tested against some micro-organisms.

Key words: 9-Ethoxypsoralene, 9-Ethoxy furo-thiocoumarin.

Pak. j. sci. ind. res., vol. 33, no. 4, April, 1990

EFFECT OF GAMMA IRRADIATION ON COOKING TIME AND ASSOCIATED PHYSICOCHEMICAL PROPERTIES OF TWO LEGUMES

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(Received November 22, 1989; revised March , 1990)

Effect of gamma irradiation (0.25-5.00 kGy) on physical properties (seed size and density), water uptake (swelling and hydration capacities and indices), cooking time and phytic acid content was studied for five varieties each of chickpea and mungbean . Upto 5 kGy irradiation had no significant effect on physical and water uptake properties of these legumes, but cooking time and phytic acid content were drastically reduced. Irradiation caused more reduction in cooking time of chickpea than of mungbeans.

Key words: Gamma irradiation, Legumes, Physicochemical properties.

Biological Sciences Section

Pak. j. sci. ind.res., vol. 33, no. 4, April 1990

EFFECT OF AZOLLA AND UREA ON N, P,K, AND S CONTENT IN RICE

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(Received January 2, 1990; revised April 21, 1990)

A field experiment was carried out to investigate the impact of Azolla manuring and urea fertilization on N, P, K and S content in BR3 rice. There were six treatments of which four were Azolla treatments, one urea application and the other treatment without Azolla or urea (control). The Azolla treatments were: one, two and three incorporations of Azolla and dual culture. Urea was applied at a normal rate (80 kg N/ha). Both Azolla manuring and urea application produced significant effects on N concentration and uptake by rice. Urea supplement gave the best result. Among the Azolla treatments, thrice incorporation of Azolla showed the highest performance, and it appears to reduce as much as 60% use of costly urea fertilizer in rice cultivation. Concentration and uptake of other nutrients such as P, K and S were also significantly influenced by Azolla and urea applications.

Key words: Azolla, Urea, Nutrient content, Rice.

Pak. j. sci. ind. res., vol. 33, no. 4, April 1990

COMPARATIVE PERFORMANCE OF SOYBEAN CULTIVARS UNDER RAINFED CONDITIONS

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(Received March 11, 1989; revised April 4, 1990)

Sixteen cultivars of soybean (Glycine max (L.) Merr) viz; Loppa, B-4, Bossier, Erton-2, SBL, S-73, Sue Hosine, Davis, Lee, Ford, Bragg, Celest, Braxton, Improved Pelicon, Wayne and Monkey hair were planted on Silty clay loam soil under rainfed conditions at Barani Agricultural Research Institute, Chakwal, during the summer season of 1984 and 1985 to identify high yielding, early maturing cultivars and their agronomic performance. Loppa out yielded other cultivars, while improved Pelican produced the lowest yield. On an average, Loppa, B-4 and SBL had maximum number of pods per plant. Ford was the tallest among all cultivars. The highest harvest index (53%) was observed in Loppa and the minimum (15%) in Improved Pelican. Cultivars varied in days to mature from 84 to 105. Loppa was best suited as a summer soybean crop under rainfed conditions of Chakwal.

Key words: Soybean cultivars, Grain yield, Rainfed condition.

Pak. j. sci. ind. res, vol. 33, no. 4 April, 1990

REDESCRIPTION OF THE GENUS *AELIOMORPHA* STÅL (PENTATOMIDAE: PENTATOMINAE: AELIINI) FROM INDO-PAKISTAN SUBCONTINENT WITH SPECIAL REFERENCE TO MALE AND FEMALE GENITALIA

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(Received November 7, 1989; revised April 24, 1990)

Aeliomorpha Stal is redescribed along with its three species *A. fletcheri* Distant, *A. lineatcollis*(Westwood) and *A. pusana* Distant from Indo-Pakistan Subcontinent with special reference to their metathoracic scent gland complex, and male and female genitalia. The above species are keyed and the relationships of the included taxa are briefly discussed.

Key words: Redescription, *Aeliomorpha*, Genitalia, Indo-Pakistani taxa.

Introduction

gland complex, and male and female genitalia. For the inflation

Pak. j. sci. ind. res., vol. 33, no. 4, April 1990

A REVISION OF THE GENUS *NIPHE* STÅL (PENTATOMIDAE : PENTATOMINAE : CARPOCORINI) FROM INDO-PAKISTAN SUB-CONTINENT

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(Received November 7, 1989; revised March 24, 1990)

The genus *Niphe* Stål alongwith *N. elongata* (Dallas), *N. subferruginea* (Westwood) and *N. vittativentris* Stål is redescribed from the Indo-Pakistan sub-continent with special reference to their metathoracic scent gland complex, and male and female genitalia. A key is given to separate the above species and their relationships are are briefly discussed.

Key words: Revision, Niphe, Indo-Pakistan.

Technology Section

Pak. j. sci. ind. res., vol. 33, no. 4, April 1990

PRODUCTION OF PEPSIN FROM CATTLE GASTRIC TISSUE

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(Received January 19, 1989; revised April 7, 1990)

The optimal conditions for the extraction of pepsin from cattle gastric tissue have been determined. The yield of pepsin is maximum when minced tissue adjusted at pH 2 is incubated at 40° for 24 hr. Pilot plant experiments and material balance have been described for the production of pepsin. The protein concentrate obtained as a by-product may be used as a source of protein in poultry feed.

Key words. Pepsin, Gastric tissue, Cattles.

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ACTIVATED CARBON FROM INDIGENOUS INFERIOR WOODS
Part II. Activation Temperature, Time and Particle Size Influence

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(Received December 4, 1989; revised March 24, 1990)

The influence of temperature, time and particle size at the same impregnation ratio of activating agent viz. $ZnCl_2$ on different physical and chemical properties of activated carbon samples from an inferior wood i.e. Babul (*Acacia arabica*) has been studied. Their effect on adsorptive properties of the different products shows no change in mesoporosity, a little in micro and a considerable change in macroporosity of the final products.

Key words: Activated carbon, Babul *(Acacia arabica)*, Influence of variables.