Coden: PSIRAA 18 (6) 243-286 (1975)

PAKISTAN JOURNAL OF SCIENTIFIC AND INDUSTRIAL RESEARCH

Vol. 18, No. 6, December 1975

Published bimonthly by

PAKISTAN COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH
KARACHI

Physical Sciences Section

Pakistan J. Sci. Ind. Res., Vol. 18, No. 6, December 1975

NITRATION STUDIES IN SOME β-CARBOLINE BASES

Part I. Mononitro Derivatives of Rescinnamine*

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(Received August 18, 1975)

Abstract. Nitration studies in rescinnamine have yielded three mononitro position isomers. The chemical and spectral studies have revealed that electrophilic substitution has taken place at C-9, C-12 and N-1. Preliminary pharmacological studies have shown that the hypotensive action of 1- and 12-mononitrorescinnamine is lower in comparison to rescinnamine.

Pakistan J. Sci. Ind. Res., Vol. 18, No. 6, December 1975

NITRATION STUDIES IN SOME β-CARBOLNIE BASES

Part II. Mononitro Derivatives of Ajmalicine and Serpentine*

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(Received September 13, 1975)

Abstract. The extension of nitration studies to ajmalicine and serpentine has revealed that in contrast to the other alkaloids of this series only one mononitro derivative instead of three position isomers is formed with these two bases, the substitution taking place at C-10, according to spectral data. Furthermore, the reaction has to be carried out under comparatively more drastic conditions.

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ARRHENIUS PARAMETERS AND TRANSITION STATE THEORY FUNCTIONS FOR RACEMISATION OF 8, 8′-BIS-(ETHOXYMETHYL) AND 8, 8′-BIS-(METHOXYMETHYL)-1, 1′-BINAPHTHYL

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(Received May 5, 1975 ; revised August 4, 1975)

Abstract. Optically active 8, 8′-bis(ethoxymethyl)-1, 1′-binaphthyl and 8, 8′-bis(methoxymethyl)-1, 1′-binaphthyl have been synthesised and their rates of racemisation studied. From the experimental results the Arrhenius parameters E and $\log_{10} A$ and the Transition State Theory Functions $\triangle \neq H$, $\triangle \neq F$, $\triangle \neq S$ for racemisation have been determined. A comparison is made with other optically active 8, 8′- and 2, 2′-disubstituted-1, 1′-binaphthyls investigated previously. [1, 2, 5, 6]

Short Communications

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REACTION OF PHTHALIC ANHYDRIDE WITH 2-AMINOETHANOL HYDROCHLORIDE

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(Received September 3, 1975)

Pakistan J. Sci. Ind. Res., Vol. 18, No. 6, December 1975

ELECTROLYSIS OF DIETHYLACETIC ACID

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(Received August 7, 1975)

Pakistan J. Sci. Ind. Res., Vol. 18, No. 6, December 1975

THERMAL DEGRADATION OF POLY (TETRAHDROFURFURAL METHACRYLATE)

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(Received May 30, 1975 ; revised September 17, 1975)

Biological Sciences Section

Pakistan J. Sci. Ind. Res., Vol. 18, No. 6, December 1975

COMPOSITION OF GURGURA (REPTONIA BUXIFOLIA) FRUITS AND ITS SEED OIL

ABDUL JABBAR and FAQIR MOHAMMAD

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(Received September 24, 1974)

Abstract. The fruit of gurgura *Reptonia buxifolia* was investigated for its constituents. Ascorbic acid and other acidic principles are present in smaller amounts than in other fruits. Amongst the sugars, fructose and glucose has been detected. The seeds of the fruits were analysed and the oil extracted. The characteristics of the oil are reported. A preliminary examination of the pigment showed that the major part of the colouring matter is composed of anthocyanins.

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THREE HELMINTH PARASITES OF THE WALL LIZARD GECKO SP

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(Received April 15, 1974; revised September 27, 1975)

Abstract. A cestode *Diochetos karachiensis* n. sp.; a nematode *Physalopteroides geckonis* n.sp., and a nematode of genus *Pharyngodon* Diesing, 1845, are described from common wall lizard *Gecko* sp., collected from University Campus and Landhi (Karachi). *Diochetos karachiensis* is characterised by possessing mature and gravid proglottids 1½ times longer than broad, testis 21–35 with a tendency to be arranged in two longitudinal bands, genital pores irregularly alternating in anterior fourth of the segments, ovary with two branched lobes and large shell gland. *Physalopteroides geckonis* is characterized by possessing lips provided with a row of minute teeth-like projections at the base, a prominent collar separating the head region, short pharynx, sessile papillae arranged as three pairs of preanal and four pairs of postanal in addition to numerous papillae-like structures at the ventral caudal region, spicules similar and subequal bearing projections on the anterior margins, and vulva in anterior third of the body. *Pharyngodon* sp. is peculiar in having long tubular ovary extending anterior to esophageal bulb and winding at the base of esophagus.

Technology Section

Pakistan J. Sci. Ind. Res., Vol. 18, No. 6, December 1975

EFFECT OF TIME AND METHOD OF N APPLICATION AND MOISTURE REGIMES ON UPTAKE OF N FROM N^{15} LABELLED AMMONIUM NITRATE, UREA AND AMMONIUM SULPHATE BY WHEAT

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(Received August 17, 1974; revised April 14, 1975)

Abstract. The effect of time and method of N application and of moisture regimes (two irrigations vs four irrigations) on N uptake from N^{15} labelled ammonium nitrate, urea and ammonium sulphate by wheat was studied in the field. Ammonium nitrate was most productive for grain yield, and utilization of N in grain from ammonium nitrate applied at seeding was significantly higher than from urea and ammonium sulphate. In case of ammonium nitrate band placement and broadcast and worked-in methods of application were equally good for the utilization of fertilizer N by wheat. Urea and ammonium sulphate were better utilized when applied in a side band. Moisture levels (two irrigations vs four irrigations) did not have significant effect on grain yield and utilization of fertilizer N.

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PERSISTANCE OF TOXICITY OF PHOSPHAMIDON, DICROTOPHOS, OXYDEMETON METHYL AND DIMETHOATE TO MUSTARD APHID (LIPAPHIS ERYSIMI) FOLLOWING SOIL APPLICATION

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(Received June 10, 1974; revised April 30, 1975)

Abstract. A method for estimating the efficacy and residual toxicity of systemic insecticides to mustard aphid by soil application is described, using mustard plants grown in polythene begs.

The method was used to compare four insecticides phosphamidon, oxydemeton methyl, dicrotophos and dimethoate at 3 rates of application.

Phosphamidon was the most, and dimethoate least effective insecticide tested.

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STUDIES ON THE PRODUCTION AND STORAGE OF TOMATO JUICE

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(Received December 24, 1974, revised April 17, 1975)

Abstract. Four tomato cultivars, viz., Lyallpur selected, Marion, Roma and Peshawar local were taken up for the production and storage studies on tomato juice. Effect of storage on various physicochemical characteristics, e.g. ascorbic acid, total acidity, pH, total soluble solids, viscosity, settling, organoleptic evaluation, etc. were investigated. Cultivar Lyallpur selected proved to be most suitable for juice production and storage under the conditions specified in the text. Calculations on the cost of production of tomato juice indicated the economic feasibility of this project.

Pakistan J. Sci. Ind. Res., Vol. 18, No. 6, December 1975

EFFECT OF CREASE-RECOVERY REAGENTS ON PHYSICAL PROPERTIES OF YARN MADE FROM AC-134 COTTON

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(Received February 18, 1975; revised August 20, 1975)

Abstract. The effect of three crease-recovery reagents, dimethylolethyleneurea, dimethylolethyleneurea formaldehyde and carbamate reactant with two catalysts magnesium chloride and zinc nitrate, on yarn and cloth made from AC-134 cotton were studied.

Crease-recovery reagents without catalysts have very little effect on strength of cellulosic material. They, however, cause reduction in strength when used alongwith catalysts, but catalysts alone do not reduce strength. The reduction in strength is, thus, due to the interaction of crease-recovery reagents with cellulose and not by the acid degradation. There is almost a linear relationship between increase in crease-recovery angle and loss in strength of fabrics. Premercerization plays an important role in preservation of strength. Maximum increase in strength and elongation was observed when the yarn was treated at original length with caustic soda of 50–60° Tw. Softeners (22–39.3%) have no appreciable effect in preservation of tensile strength.

Short Communications

Pakistan J. Sci. Ind. Res., Vol. 18, No. 6, Deecmber 1975

SOME OBSERVATIONS ON THE EFFECTS OF GAMMA RADIATION ON EGGS OF PULSE WEEVILS (COLEOPTERA: BRUCHIDAE)*

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(Received June 10, 1974 ; revised April 30, 1975)

Pakistan J. Sci. Ind. Res., Vol. 18, No. 6, December 1975

PRODUCTION OF COBALAMIN BY STREPTOMYCES OLIVACEOUS

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(Received February 19, 1975; revised March 31, 1975)