

# Physical Sciences Section

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## DISSYMMETRIC SYNTHESIS OF A BINUCLEAR MANGANESE(II) COMPLEX \*

NASIR AHMAD

*Department of Chemistry, University of Islamabad, Islamabad*

S. KIRSCHNER

*Department of Chemistry, Wayne State University, Detroit, U.S.A.*

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**Abstract.** Extremely high optical rotations are observed when an excess of base is added to a system containing tris(*o*-phenanthroline)manganese(II) or tris(2,2'-dipyridyl)manganese(II) chlorides and optically active organic acids (such as D- or L-malic acids or tartaric acids). The precipitated perchlorate of the resultant complex has the empirical formula  $\text{Mn(phen)}_2(\text{OH})(\text{ClO}_4) \cdot \frac{1}{2}\text{H}_2\text{O}$  and 3.9 B.M. as its magnetic moment. Freshly precipitated complex is partially soluble in acetone and formamide and is found to be optically active. After drying, the perchlorate becomes insoluble in a large number of polar and nonpolar solvents. Dissymmetric synthesis of a binuclear manganese(II) complex with bridging hydroxo groups under the influence of the optically active organic ion is assumed to be responsible for the very high optical rotations observed.

## CIS AND TRANS COMPLEXES OF COPPER(I)

A.G. VOHRA and TASNEEM JANNAT

*Department of Chemistry, University of Karachi, Karachi 32*

(Received February 7, 1973; revised August 11, 1973)

**Abstract.** Three different forms of bridged complex  $[\text{CuI}(\text{Py})(\text{PPh}_3)]_2$  have been prepared for the first time through three different routes, and were identified as *cis*-symmetric, *trans*-symmetric, and unsymmetric bridged species on the basis of their reaction with thiourea. Also the preparation of the complexes  $\text{CuIBrCu}(\text{Py})_2(\text{PPh}_3)_2$  and  $\text{AgICuI}(\text{PPh}_3)_4$  suggest the presence of a double halogen-bridge in the complexes of copper(I) with ligand-metal ratio of 2:1.

**CHARACTERISTIC FEATURES IN INFRARED SPECTRA OF 1,3,4-OXADIZOLIN-5-ONES\***

S. M. ABDUL HAI

*PCSIR Laboratories, Karachi 39*

(Received June 25, 1973; revised August 29, 1973)

**Abstract.** It is noted that the high frequency is the main characteristic of 1,3,4-oxadiazolin-5-one. Underlying reason for this and other peculiarities in the IR spectra of 1,3,4-oxadiazolin-5-one are discussed.

**SPECTROPHOTOMETRIC DETERMINATION OF MICRO AMOUNTS OF IRON(III)**

MANZOOR AHMAD CHAUDHRY

*PCSIR Laboratories, Lahore 16*

MISBAHUL-HAQ JAVED\* and RIAZ-UR-REHMAN

*Institute of Chemistry, Punjab University, Lahore*

(Received May 28, 1973; revised August 15, 1973)

**Abstract.** A spectrophotometric method for the determination of iron in microgram quantities is described which is based on colour reaction between iron(III) and tannic acid having maximum absorption at 550 nm. Acetic acid sodium acetate (7:3) has been found a suitable buffer for the colour reaction. Maximum tolerable amounts of other metal ions have also been studied.

## THE DETERMINATION OF SULPHIDE AND SULPHITE WITH COBALT(III) ACETATE AS TITRIMETRIC REAGENT

MUHAMMAD HANIF, ISHRAT IJAZ, SHAHIDA HAQUE\* and ZAFARULLAH SHEIKH,†

*PCSIR Laboratories, Lahore 16*

(Received May 15, 1973)

**Abstract.** A new method for the accurate and precise determination of sulphide and sulphite even in  $\mu\text{g}$  amounts, based on their direct oxidation by cobalt(III) has been developed. Since cobalt(III) acetate in glacial acetic acid, is stable for at least a month hence there is no need of its repeated standardization. Sulphide within the limits of 8.50 mg–150.80  $\mu\text{g}$  and sulphite from 7.28 mg to 123.98  $\mu\text{g}$  can be safely determined showing an average standard deviation of 0.34 and 0.19% respectively.

## Short Communication

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### **CHEMICAL INVESTIGATION OF JACARANDA ACUTIFOLIA HUMB. AND BONPL**

KARIMULLAH A. ZIRVI\* and FAHMIDA AMIR

*PCSIR Laboratories, Peshawar*

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# Biological Sciences Section

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## GLUTATHIONE ASCORBIC ACID OXIDATIVE MECHANISM IN HUMAN CATARACTOUS LENSES

T.H. KIRMANI, S.S. AHMAD and SABIHA PERVEEN

*Department of Ophthalmology,  
Jinnah Postgraduate Medical Centre, Karachi*

(Received April 23, 1973)

**Abstract.** An attempt was made to modify and elaborate the microestimation methods for the determination of reduced glutathione and ascorbic acid in the blood, aqueous humour and lenses of human cataractous patients. The concentration of glutathione and ascorbic acid in different types of cataractous lenses were compared. It was concluded that glutathione when present in high concentration inhibits the oxidative mechanism.

**SCREENING TESTS OF SUBSTITUTED PHOSPHINE OXIDES, PHOSPHONIC AMIDES, METHYL-  
MELAMINES AND DIAMINOTRIAZINES FOR STERILIZATION OF LABORATORY-  
REARED STRAIN OF HOUSEFLIES, MUSCA DOMESTICA (L.)**

(Miss) SHAMS MOHIUDDIN and SALEEM A. QURESHI

*PCSIR Laboratories, Karachi 39*

(Received April 28, 1973; revised August 10, 1973)

**Abstract.** Toxicological studies of phosphine oxides, phosphonic amides, methylmelamines and diaminotriazines could not be correlated with their sterilizing effect. Phosphine oxides inhibited oviposition at 0.5% concentration. At 0.25% dose the fecundity was appreciably decreased and the sterility induced ranged between 53–100%. Phosphonic amides proved much active as compared to phosphine oxides. Methylmelamines and diaminotriazines were less toxic as well as less effective than phosphine oxides and phosphonic amides.

Substituted phosphine oxides and phosphonic amides indicated no sex specificity while methylmelamines seemed to effect male flies slightly more than the females. Diaminotriazines on the other hand proved more effective in females.

## THE LYGAEINAE OF WEST PAKISTAN

Part I. *Spilostethus* Stål (Heteroptera:Lygaeidae) in West Pakistan

ABDUL HAMID\* and KHUJISTA MEHER

*Department of Zoology, University of Karachi, Karachi 32*

(Received July 6, 1973)

**Abstract.** Four species of the genus *Spilostethus* Stål have been reported from West Pakistan. All the four species have been redescribed and a key is provided for their identification. The male and female genitalia and dorsal views of the adults have been illustrated. Information about known general distribution and distribution of each species in Pakistan is included.

## STABILITY OF DRUM-DRIED CARROT POWDER UNDER SEVERAL CONDITIONS OF PREPARATION AND STORAGE

NAZAR MOHAMMAD, MAHMOOD A. SHAH, MAHMOOD-UL-HASSAN and A.F. MD. EHTESHAMUDDIN

*PCSIR Laboratories, Lahore 16*

(Received June, 7, 1973; revised August 15, 1973)

**Abstract.** Conditions for the preparation of carrot powder by drum-drying are described. Effect of addition of sodium metabisulphite alone and in conjunction with rice flour on the quality of carrot powder was studied. Storage studies on the dried samples were conducted in three different packaging materials viz. polyethylene, polyethylene plus paper carton plus Cellophane; and hermetically sealed tin cans. Moisture and  $\beta$ -carotene content, browning and organoleptic qualities were determined at intervals up to 6 months. Addition of rice flour and sodium metabisulphite at 2.5 and 0.05% of fresh carrots respectively, proved beneficial in the drying operation as well as in reducing  $\beta$ -carotene losses during drying and subsequent storage. Addition of metabisulphite alone did not reduce  $\beta$ -carotene losses. Losses of  $\beta$ -carotene, though minimum in the sample treated with metabisulphite and rice flour and packed in tin cans, were still considerable (72%) after 6 months' storage period. Polyethylene and polyethylene+carton+Cellophane were found unsuitable packing materials during humid conditions in the rainy season. After six months of storage all samples developed a typical off-flavour although the sample containing metabisulphite and rice flour packed in cans was still acceptable organoleptically.

## Short Communication

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### **PREPARATION OF CONESSINE ANALOGUES FOR AMOEBIC DYSENTERY**

MOQADDAS ALI KHAN

*PCSIR Laboratories, Karachi 39*

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# Technology Section

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## APPLICATIONS OF THE NICHROME WIRE RING CHAMBER IN PAPER CHROMATOGRAPHY

M.A. SHAHID, N.A. CHUGHTAI and A.U. AFZAL

*PCSIR Laboratories, Lahore 16*

(Received February 13, 1973; revised August 17, 1973)

**Abstract.** An application of the nichrome wire ring chamber in combination with paper chromatography is described and it is established that with the use of ring chamber the limit of identification on paper chromatogram is improved, making it possible to run the chromatograms with much smaller samples, which result in better resolution. The utility of the ring chamber for semiquantitative determination of compounds separated on paper chromatograms is also illustrated.

**PULPING SUITABILITY OF VARIOUS FIBROUS RAW MATERIALS OF WEST PAKISTAN**

F. D. TOOR and MUBIN-UD-DIN

*Packages Limited, Ferozepur Road, Lahore*

(Received May 17, 1973)

**Abstract.** Investigations have been carried out into the pulping suitability of various fibrous raw materials of West Pakistan with a view to establishing alternate raw material sources for pulp and paper making. These studies include their chemical analysis, pulping procedures and the physical testing of the pulps formed, together with their availability and possible use. It is concluded that a number of fibrous raw materials possess suitable qualities for pulp making and can not only serve as stand-by materials for the presently used raw materials but can also help the future growth of the industry in the country.

**STABILITY OF BLEACHING POWDER**

M.A. SHEIKH

*Pakistan Belting Mfg. Co. Ltd., Muridke, Paktstan*

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**Abstract.** Stable bleaching powder of international standard was manufactured by chlorination of properly slaked lime. Chlorine in 3-5% excess of calculated amount and slaked lime with 1-2% free moisture gave the standard product. The processing difficulties experienced were clogging of the hydration unit and ball formation in the chlorinator. Their causes were investigated. The effect of impurities in lime, temperature and moisture had been discussed. The shelf-life of stable bleaching powder had been studied.

## Short Communications

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### **DISCOLORATION RESISTANCE OF NEOPRENE LATEX PRODUCTS ON VULCANIZATION**

**M.A. SHEIKH**

*Pakistan Belting Manufacturing Company Limited,  
Muridke, Pakistan*

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SHORT COMMUN

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**QUANTITATIVE ANALYSIS OF  
ROSEMARINUS OIL FROM THE LOCALLY  
GROWN PLANT**

GHOSIA HUSSAIN

*PCSIR Laboratories, Peshawar*

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