

Physical Sciences Section

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FAR ULTRAVIOLET ELECTRONIC SPECTRA OF SrF_2 AND BaF_2

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Abstract. Reflectance measurements at 20° incidence are carried out on *in situ* cleaved single crystals of SrF_2 and BaF_2 at room temperature in the energy range 8–35 eV. A method of Kramers–Kronig is applied for the determination of optical constants and other useful functions. Interband transitions are identified at Γ , X and L points with the aid of a recently calculated band structure. Two plasmons are identified for each of the two fluorides.

Resume. Des mesures de pouvoir réflecteur sous une incidence de 20° sont faites dans le domaine de 8–35 eV sur des monocristaux de SrF_2 et BaF_2 clivés sous vide, à la température ambiante. Les constantes optiques et autres fonctions usuelles sont calculées par la méthode de Kramers–Kronig. Des transitions interbandes sont identifiées aux points Γ , X et L à l'aide d'un schéma de bandes récemment calculé. Deux plasmons sont mis en évidence pour chacun des deux fluorures.

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THE EFFECT OF VARIOUS SURFACES ON THE SLOW COMBUSTION OF SOME KETONES

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Abstract. The slow combustion of acetone, methyl ethyl ketone and diethyl ketone has been studied in reaction vessels which had been pretreated in various ways. The results are consistent with the idea that on a KCl-coated surface peroxy radicals and peroxides are destroyed, whereas in an acid-washed or boric acid-coated vessel these species are relatively stable.

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REACTIONS OF ALKOXYCARBONYLNITRENES WITH TERTIARY AMINES

Part I. Reaction of Methoxycarbonylnitrene with Triethylamine*

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Abstract. Reaction of methoxycarbonylnitrene with triethylamine leads to some interesting products via a short-lived betain intermediate. Formation of these products is discussed in the light of IR, NMR and mass spectral evidence.

Special Paper

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CHEMISTRY OF BENZYNE

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Abstract. Benzyne, also referred to as dehydrobenzene and cyclohexadienin, is a short-lived intermediate; member of a class of organic reactive intermediates, which have evaded isolation. This class of intermediates has been the subject of intensive investigation, because it serves as a useful source for the syntheses of various compounds of academic and commercial importance which otherwise are obtainable only via long and cumbersome routes. Its electronic structure and reaction mechanism involved in its reaction have been the focus of attention. It is known to enter into reaction with *pi* and *sigma* bonds of suitable substrates. Its various reactions and their mechanism alongwith its electronic structure are discussed.

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DIIMIDE — A NOVEL INTERMEDIATE

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Biological Sciences Section

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EFFECT OF PREMIXING OF COPPER SULPHATE WITH FARMYARD MANURE ON THE AVAILABILITY OF COPPER TO WHEAT PLANTS

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(Received July 17, 1973; revised January 14, 1974)

Abstract. A pot trial was conducted on an alkaline calcareous loam-soil of Lyallpur to determine the effect of premixing of copper sulphate with farmyard manure before their application to soils on the yield and uptake of copper by wheat plants. Copper sulphate was applied at 18, 36 and 72 mg and farmyard manure at 2.2 g/pot.

Premixing of copper sulphate with farmyard manure, about 12 hr before their incorporation into soil, had no effect on the yield of 35 days old plants. Straw and grain yields at maturity were also not affected. Premixed treatment, however, markedly increased both the concentration and the total uptake of copper in 35 days old plants. These preliminary investigations indicate that application of copper fertilizer to soil after its premixing with farmyard manure may have important practical implications in copper nutrition of plants.

THE STUDIES ON FISH HYDROLYZATES AND FISH EXTRACTS FROM TELEOSTEAN FISHES OF THE ARABIAN SEA

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(Received August 28, 1973; revised March 1, 1974)

Abstracts. Fish hydrolyzates and extracts were prepared from some selected varieties of fishes as well as from junk or 'kachra' fish; in order to assess the industrial feasibility of the technique and quality of the product. Higher yield of product has been found between 17-23% in proteolytic hydrolysis.

By alkaline extraction the yield was between 2-9%. Similarly the range of protein in the alkaline extraction was also on the lower side (48-82%) as compared to hydrolysis by proteolytic enzyme (78-91%). The fat content of alkaline extract was on the higher side (up to 49%). Not much variations were noticed in the ash content of these products.

In the aqueous extract the yield of the product was better (4-13%) than the alkaline extract, but there was not much variation in their protein percentage. In the light of above observations it is concluded, that for the production of fish hydrolyzate in the laboratory, the enzymatic digestion by crude papain or raw papaya is more effective. Moreover, the procedure of enzymatic hydrolysis is less complicated and more economical.

Short Communications

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A NEW DISEASE OF VANN OR PEELO (*SALVADORA OLEOIDES* DECSN) CAUSED BY *NIGROSPORA* SP. IN PAKISTAN

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hyaline; usually growing in a whorl (Fig. 1). Conidia solitary, simple, smooth, 1-celled, globose to sub-globose, at first hyaline, later becoming brown to black, compressed dorsiventrally, ranging from 10-17 μ with an average of 13.8 μ dia.

Of the recorded species so far available in the literature,¹ the species under study is closely related to *N. oryzae*. However, it differed from *N. oryzae* in the conidial range and average size. Hence, the author is of the opinion that it should be treated as *Nigrospora oryzae* on this host plant. This host is new to this fungus. The specimens are preserved in the mycological herbarium of the department of Plant Pathology, Agricultural University, Lyallpur (No. MHI 1986).

Technology Section

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ESTIMATION OF SOME ORGANIC COMPOUNDS WITH HEXAMMINECOBALT(III) TRICARBONATOCOBALTATE(III) AS REDOX TITRANT

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Abstract. Hexamminecobalt(III)tricarbonatocobaltate(III) has been successfully used for the estimation of hydroquinone, *p*-aminophenol and *p*-phenylenediamine even in μg amounts in $4.0\text{N H}_2\text{SO}_4$ as medium. The method described here can be practically used for the quantitative determination of the compounds.

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COORDINATION NUMBER OF MAGNESIUM IONS IN SILICATE GLASSES

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Abstract. Molar volume and viscosity studies show that Mg^{++} ions possess a coordination number 4 in the silicate glasses $Na_2O \cdot x MeO \cdot 6 - x SiO_2$ at low temperatures and thus exhibit a network former character. At high temperatures the Mg^{++} ions behave just like their counterparts, Ba^{++} , Ca^{++} , Sr^{++} , which exhibit a network modifier tendency.

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**A NEW HOST (TRIBULUS TERRESTRIS L.)
FOR COLLETOTRICHUM DEMATIIUM IN
PAKISTAN**

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