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SOME REACTIONS OF dl-CAMPHORIC ACID DERIVATIVES

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Amide-ester from the racemic *allo*- and *ortho*-Camphoric acid esters have now been prepared and shown to be identical with the esters prepared from α and β -camphoramic acids respectively. NMR data have been given for some reaction products of camphoric acid esters and some new products have been described.

ATTEMPTS AT DETECTION OF 9, 10-DEHYDROANTHRACENE*

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Experiments directed towards the syntheses of suitable precursors for 9-10-dehydro-anthracene are described. Pyrolysis of a mercury derivative of anthracene and the reaction of lithium with 9-10-dibromoanthracene are discussed.

CHARACTERIZATION OF TAR FROM GASIFICATION OF MAKERWAL COAL

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Tar from the gasification of Makerwal coal was characterized by solvent extraction and elution adsorption chromatography. The whole tar is separated into broad chemically indential fractions. The results of some preliminary evaluation experiments are also discussed, in the light of which it may be possible to find some suitable use for this tar.

BENEFICIATION OF LOW GRADE LEAD ORE

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In the beneficiation of the low grade indigenous lead ore by froth floatation, optimum, conditions with respect to the particle size of the feed, pH of the pulp, speed of the propeller, nature of the collector and frother, and effect of aeration during the froth floatation process have been investigated. Potassium ethyl xanthate and cresol, used as collector and frother respectively, give 79.1% pure PbS with 93% recovery.

MINERALOGY OF SOME ASBESTOS FROM NORTH-WEST PAKISTAN

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Chemical, X-ray, differential thermal analysis and thermogravimetric data are presented for asbestos from Charsadda Tehsil, Khyber and Mohmand Agencies. Asbestos from Charsadda area was identified to be chrysotile, Khyber and Mohmand minerals were tentatively grouped with tremolite-anthophyllite asbestos. Poor strength of fibres limits their commercial utilisation.

THE EFFECT OF VARIETY AND LENGTH OF STORAGE ON THE CARBOHYDRATE CONTENTS AND TABLE QUALITY OF SWEETPOTATOES

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Experiments were conducted to determine if a relationship existed between the dry matter, reducing sugar, non-reducing sugar, total sugar, maltose, dextrin or starch content of sweetpotatoes and table quality. Raw and baked roots were sampled at harvest, after curing, and after 4, 13 and 21 weeks of storage at 60°F. Table quality was determined by a taste panel, and the softness by a penetrometer.

A significant negative correlation was found between the amount of starch and the degree of softness; it was positive in case of non-reducing or total sugar. The changes in the dry matter and carbohydrate contents of raw and baked roots during storage have been shown in the Tables.

EFFECT OF VARIOUS CARBON AND NITROGEN SOURCES AND CONCENTRATIONS ON THE GROWTH OF *FUSARIUM DIMERUM* PENZIG

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The effect of various amino acids and carbohydrates as sources of nitrogen and carbon respectively on *Fusarium dimerum* Penzig has been studied. Different concentrations of nitrogen and carbon were used. Neutral, acidic and basic amino acids and mono-, di-, tri- and polysaccharides were used. It was found that glycine gave the most profuse growth of the fungus at all concentrations and maximum growth was obtained at 0.1%. The growth thus was directly proportional to the concentration of nitrogen. Best growth in glycine may be either due to its simple structure, making the nitrogen easily available for growth or due to possible specificity of the fungus for glycine as compared to other nitrogen sources.

In case of carbohydrates, trisaccharide raffinose and polysaccharide, inulin gave better results than other carbohydrates. This behaviour may be due to two factors. As the results were taken after a period of 10 days, it is quite possible that in the initial stages of growth i.e. after 2 or 3 days, the growth may be more in monosaccharides than in tri- and polysaccharide. However, as the tri- and polysaccharide were hydrolysed by the fungus in due course and the sugar became more easily available for growth, the amount of growth increased rapidly. Secondly the possible specificity of *F. dimerum* for trisaccharide raffinose and polysaccharide inulin may also be responsible for this behavior.

ANATOMICAL STUDIES OF COMMIPHORA MUKUL ENGL. AND THE LOCALIZATION OF GUMS, RESINS AND TANNINS

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The macro and microscopic characters of the leaf and stem of *Commiphora mukul* Engl. have been studied. The leaf and young stem are characterized by the presence of trichomes. The young stem has multicellular, glandular capitate hairs whereas the leaf in addition to such hairs possessed simple uniseriate hairs. The stem shows very prominent secretory canals in the cortex region and tannins in the pith cells. Leaf is dorsiventral and contains sphaero-crystals in the parenchymatous cells.

**PHARMACOGNOSTIC STUDIES OF MENTHA SPICATA L. IN RELATIONSHIP
TO TWO OF ITS HYBRIDS M. PIPERITA L. AND M. GENTILIS L.**

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The essential oil extracted by microdistillation from *M. spicata* L. and two of its hybrids *M. piperita* L. and *M. gentilis* L. was compared with Oleum menthae piperitae obtained from the market. The yield acquire per plant was found to be very low i.e. not exceeding 0.01–0.03 ml. The analysis of all the samples was made by gas-chromatograph. Chromosome counts showed *M. spicata* having a somatic number of 54 while *M. piperita* and *M. gentilis* had 48 and 72 chromosomes, respectively. An attempt has been made to establish whether there is any relationship between polyploidal class and their essential oil content.

TRITERPENOIDS

Part II. Another Sapogenin from *Fagonia cretica* Linn. (Zygophyllaceae)

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PROTEIN VALUE OF CRUST AND INTERIOR PORTION OF THE LEAVENED BREAD

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ACID CATALYSED REACTIONS OF 5α – MERCAPTOSTEROIDS

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