

**DETERMINATION OF NITROGEN IN ORGANIC COMPOUNDS WITHOUT
DISTILLATION**

Part II.—Determination of Nitrogen in Nitro, Nitroso and Azo Compounds

MUHAMMAD ASHRAF, *Department of Pharmacy, University of the Panjab, Lahore*

M. K. BHATTY, *West Regional Laboratories, Pakistan Council of Scientific and Industrial Research, Lahore*

AND

R. A. SHAH, *Chemical Research Division, Central Laboratories, Pakistan Council of Scientific and Industrial Research, Karachi*

(Received April 13, 1960)

A Kjeldahl method for the determination of nitrogen in nitro, nitroso, and azo compounds without resorting to the usual distillation step is described. These compounds are reduced with glucose to amino compounds which yield ammonium sulphate on digestion with sulphuric acid. The ammonium sulphate is determined titrimetrically, after hypobromite oxidation. The accuracy of the method is $\pm 0.2\%$.

STUDIES ON LAVANDULA STOECHAS LINN. (LABIATAE). PART I

S. FAZAL HUSSAIN AND GEORG HAHN

Chemical Research Division, Central Laboratories, Pakistan Council of Scientific and Industrial Research, Karachi

(Received March 17, 1960)

A hydrocarbon most probably *n*-nonacosane, *d*-Camphor and three sterols so far unknown were isolated from the petroleum ether extract of *Lavandula stoechas* Linn. The unknown sterols were named as Lavandula Sterols A, B & C, having two, one and three oxygens in their respective formulae. Specially the one with three oxygens attracts interest as starting material for cortisone synthesis because when the plant is harvested during special time of the year it contains as much as 2.8% of this sterol C.

**DEVELOPMENT OF RAPID METHODS FOR THE ESTIMATION OF THE OIL CONTENT
OF SINGLE COTTONSEEDS**

**Part IV.—Investigation of an Electrical Circuit for Measuring the Electrical Response of One
Cottonseed at 1,000 Cycles/Second**

A. K. BHUIYA, S. HILAL AHMAD AND MAZHAR M. QURASHI

*Physical Research Division, Central Laboratories, Pakistan Council of Scientific and Industrial
Research, Karachi*

(Received June 5, 1960)

In an effort to develop further the electrical method or non-destructive estimation of oil in a single cottonseed, an extension circuit has been devised for increasing the sensitivity of the Marconi universal bridge, and its behaviour as well as the characteristics of the detector arrangement are studied for various percentages of imbalance. In this way, a sensitivity of almost the required order is attained, and some observations have been made with one to five kernels of M4 and L.S.S. cottonseeds. The effect of humidity is observed and the variation of dielectric constant K of the cake with relative humidity has been measured. At theoretical calculation of the value of K for optimum discrimination between oil and cake is made, and the best value of relative humidity is deduced.

ON THE RADIO-FREQUENCY SYSTEM OF A 30 MEV MICROTRON. PART II*

M. INNAS ALI

Physics Department, University of Dacca, Dacca

(Received April 28, 1960)

The main advantage of a microtron over other types of electron accelerators are indicated, and a general description of a 30 Mev microtron is given. Consideration of the requirements of a cavity resonator from the point of view of microtron dynamics leads to the choice of a conical line resonator with flattened cones and cylindrical surface. The resonant frequency of the resonator is calculated by the method of perturbation. The resonator was designed and constructed in the laboratory and its electrical properties measured. The results are found to be satisfactory.

UNSAPONIFIABLES IN FATS: QUANTITATIVE DETERMINATION

M. QUDRAT-I-KHUDA, H.C. DAS AND N.A. KHAN

East Regional Laboratories, Pakistan Council of Scientific and Industrial Research, Dacca

(Received March 17, 1960)

Unsaponifiables in fats have been investigated and a simple apparatus for countercurrent extraction has been developed. Quantitative determination of unsaponifiables together with that of the total content of fatty acids and esters have been made.

CEREALS AND CEREAL PRODUCTS: PROPERTIES OF CERTAIN STARCH VARIETIES AND THEIR SOURCES IN EAST PAKISTAN 159

M. QUDRAT-I-KHUDA, B.D. MUKHERJEE, M. A. HOSSAIN AND N. A. KHAN

East Regional Laboratories, Pakistan Council of Scientific and Industrial Research, Dacca

(Received May 15, 1960)

The properties and other data of fourteen sources of starch have been described. The starch content and the particle size for each type of the isolated starch have been found to be quite satisfactory for commercial exploitation.

A STUDY OF WATERMELON RUST

S. R. H. RIZVI

Central Laboratories, Pakistan Council of Scientific and Industrial Research, Karachi

AND

S. Z. HASANAIN

Department of Botany, Karachi University, Karachi

(Received March 31, 1960)

A new disease, the rust of watermelon, first observed in 1949, seems to be endemic to the region and as yet confined therein. Although the fungus *P. citrulli* is specifically identical with the one occurring elsewhere on colocynthis (*C. colocynthis*), it is considered to be a different variety and named *P. citrulli* variety *valgari*. The pathogen has been seen to enter both through the stomata and through the cuticle. The teleospore have been found to need a long resting period and to germinate only if subjected to freezing and thawing for a period of 45-60 days. So far the method of perennation remains unsolved. The possibility of an alternate host being responsible is being investigated.

A STUDY OF THE ATMOSPHERIC FUNGAL FLORA OF KARACHI CANTT.

S. IFTIKHAR AHMAD, M. SAYEED QURAIISHI AND S. M. MURTUZA

Central Laboratories, Pakistan Council of Scientific and Industrial Research, Karachi

(Received May 20, 1960)

A survey of the fungal population of the atmosphere at Karachi has been made. During one year 44 species of fungi have been recorded. These include 6 species new to Pakistan and two quite new species of *Curvularia*. Five strains having ochraceous shades but belonging to *Aspergillus sulphureous* were also discovered.

SOME INTERESTING STRAINS OF ASPERGILLUS OCHRACEOUS GROUP

S. IFTIKHAR AHMAD AND M. SAYEED QURAISHI

Central Laboratories, Pakistan Council of Scientific and Industrial Research, Karachi

(Received May 20, 1960)

During a survey of the fungal population in the atmosphere at Karachi some interesting strains of *Aspergillus ochraceus* group have been discovered. It was found that the classification of ochraceous group, primarily on the basis of colour of the conidial heads is not always satisfactory. *Aspergilli*, having ochraceous shades when examined minutely, are found to be of sulphureous series rather than those of the ochraceous.

SHORT COMMUNICATION

175

STUDIES IN THE RELATIONSHIP BETWEEN VISCOSITY AND MOLECULAR STRUCTURE

Part VI. – Evidence for Fine Structure in the Steps Observed in the Energy of Activation of Viscous Flow in Ethylene Glycol

A. K. M. AHSANULLAH, S. RAHMAT ALI AND MAZHAR M. QURASHI

*Physical Research Division, Central Laboratories, Pakistan Council of Scientific and
Industrial Research, Karachi*

(Received June 15, 1960)

TWO NEW SPECIES OF GENUS CURVULARIA

Curvularia Siddqui Sp. novo and Curvularia Ellisi Sp. novo

S. IFTIKHAR AHMAD AND M. SAYEED QURAISHI

Central Laboratories, Pakistan Council of Scientific and Industrial Research, Karachi

(Received May 20, 1960)

**RESTING HABITS OF ANOPHELES SPECIES IN MYMENSINGH DISTRICT,
EAST PAKISTAN**

M. SAYEED QURAISHI

Central Laboratories, Pakistan Council of Scientific and Industrial Research, Karachi

(Received February 2, 1960)