

**INVESTIGATIONS ON THE STATISTICAL FREQUENCY DISTRIBUTION OF SOME
PHYSICAL CHARACTERISTICS OF COTTONSEED KERNELS**

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Earlier measurements of the statistical distribution of the density of kernels of L.S.S. variety of cottonseed are extended to other varieties and also to cover other characteristics, namely, weight, oil content, and percentage oil content. The resulting distributions show an interesting bimodal character with 25% correlation on the average between weight and density. The percentage oil content distribution shows a $\pm 2\%$ variation about the mean and a possible correlation with the weight distribution.

BIOCHEMICAL AND NUTRITIONAL STUDIES ON EAST PAKISTAN FISH**Part IV.—Evaluation of the Mechanism of Fish Spoilage by Measurement of Tyrosine Values**

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Eighteen species of muddy, shallow, and fresh river water fish grown in this region have been studied with respect to their spoilage characteristics by investigation of the change in the tyrosine values of their tissue during storage. **The free tyrosine or similar compounds present in the fresh fish ranged from 28 to 106 mg. per 100 g. tissue.** Storage for 24 hrs. at room temperature led to an increase of the value by 1 to 25 mg. % in case of muddy water fish and 48 to 120 mg. % in case of fresh river water fish. Among the fresh river water fish, the adults of smaller species showed a smaller increase of tyrosine values than the younger size of bigger species. The significance of this difference has been explained on the basis of the difference in the protein metabolism between the young and adult stages of an organism. Among the muddy water fish, those of non-air-breathing species behave similarly to the air-breathing species and this is due to similar ecological behaviour acquired by the non-air-breathing species while struggling for survival in the muddy shallow water.

FRUITS AND FRUIT PRODUCTS

Part VI.—Evaluation of Certain Seasonal Fruits of East Pakistan for Industrial Uses

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Twenty-four varieties of fruits of East Pakistan have been studied. Percentages of proteins, fats, fibre, reducing sugars, pentose, pectin, vitamin C, and inorganic elements such as calcium, sodium and potassium have been determined. Experiments have also been performed to assess their suitability for juices, syrups, jams, jellies, morabbas, haluas and other valuable food products.

IN VITRO I¹³¹ UPTAKE BY TISSUES OF RAINBOW TROUT

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PRELIMINARY STUDY OF ANOMALOUS LAUE SPOTS OF ANTHRAQUINONE

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Various workers have investigated the diffuse radial streaks which appear along with the Laue photographs and various theories have been put forward to account for the results obtained. These, however, are not consistent and are sometimes contradictory.

The present authors have made a preliminary study of the anomalous Laue spots of anthraquinone and have observed that the position of the anomalous spots varies with the orientation of the crystals but the direction of the movement of these spots are not related in any way with the direction of the movement of the Laue spots. The data obtained also do not agree with the Faxen or Zachariasen's formula.

STUDIES IN THE PROPERTIES OF HEAT INSULATING BUILDING MATERIALS**Part III.—Analysis of the Anomalous Thermal Conductivity of Blocks of Cement and Rice Husk Ash**

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The new $K\frac{1}{2}$ formula derived in an earlier paper for the thermal conductivity of simple binary mixtures of two components has now been applied to the case of concretes of cement and rice husk ash. A proper allowance for the anomalous contraction is necessary, and a theoretical evaluation of this rather large correction is carried out. When this correction is made, the calculated values are in approximate agreement with the observed data. The outstanding error of $17 \pm 17\%$ is correlated with the formulation of new products by chemical reaction of the activated silica (of the ash) with the cement, but could be partly due to a suspected anomaly in the properties of the local cement itself.

GLUTAMIC ACID

Part II.—Glutamic Acid from Oil Cakes

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There is an abundance of various oil cakes in Pakistan. The authors have carried out investigation on different oil cakes with respect to their glutamic acid content. It has been found that glutamic acid, glutamic acid hydrochloride and monosodium glutamate can be produced with maximum yield from rapeseed, cottonseed and linseed oil cakes. The technique of the production is quite easy and makes use of chemicals mostly available in Pakistan.

SHARK MEAT FLOUR

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Shark meat minced, washed and treated with soya-bean powder, as a source of urease, gives urea free meat. It is then dried in a hot air blower and subjected to extraction with solvents to remove the incorporated fat. Finally it is dried in a hot air blower. Such a processed meat flour was free from fishy odour and had a protein utilization value of 61.

**INSECTICIDAL EFFECTS OF SHARIGOL AND PYRETHRUM COMBINATION ON
HOUSEFLY**

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**STUDIES ON THE SPORULATION OF MACROPHOMINA PHASEOLI (MAUBL.)
ASHBY. CAUSING STEM-ROT DISEASE OF JUTE WITH REFERENCE TO THE
POSSIBLE CAUSES OF OUTBREAK OF THE DISEASE IN NATURE**

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The present paper deals with the investigation of factors which might favour the spread of the stem rot, by far the most important disease of jute plant. Studies on temperature and humidity favouring the development of pycnidia on the affected plant and germination of pycnospores have been taken.

It is found that pycnidial pustules of *Macrophomina phaseoli* develop within a wide range of temperature (29-40°C.) and relatively narrow range of humidity (81-100%). Pycnospores on the other hand could germinate in even wider range of temperature (20-41° C.) the range of relative humidity is however, narrower (96-100%).

SHORT COMMUNICATION

PHYSICO-CHEMICAL STUDIES ON THE ESSENTIAL OILS OF CITRUS FRUITS

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**STANDARDIZATION OF ACTIVE PRINCIPLES OF INDIGENOUS
PHARMACOPOEIAL DRUGS FOUND IN WEST PAKISTAN**

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