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POSTIRRADIATION PROTECTION AND RECOVERY

Part VI.—Effects of Esters of Unsaturated Fatty Acids on Gonads of X-irradiated Male Mice

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Administration of esters of certain unsaturated fatty acids, *i.e.* methyl oleate, and methyl stearate, within an hour following whole -body x-irradiation of male mice at 625 r [LD₅₀(30)], accelerated the rate of cellular regeneration in the testes of these animals when compared with the untreated x-irradiated ones, on the 30th day postirradiation. On the other hand esters of certain other unsaturated fatty acids adversely affected the rate of cellular regeneration in the testes of x-irradiated mice. These differences may, in part, be due to differences in the composition of the esters of unsaturated fatty acids used in these experiments. There are indications that lipid therapy, by restoring the cell functions, accelerates the rate of cellular regeneration in the x-irradiated animals.

THE PHARMACOLOGY OF CHAKSINE CHLORIDE

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Chaksine chloride, the alkaloid from *Cassia albus*, was prepared in a pure form by known methods. Its pharmacology was tested on experimental animals and isolated organs. Its neuromuscular blocking activity was specially investigated, and it was found to have marked curare-like activity. Its anti-cholinergic action on smooth muscles and its effects on blood pressure and respiration are also discussed. Toxicity of chaksine subcutaneously in mice was determined.

THE GOLGI SUBSTANCE OF THE FEMALE GERM CELLS OF MACACUS RHEBUS AND CANIS FAMILIARIS

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The Golgi substance of the female germ cells of *Macacus rhesus* and *Canis familiaris* was studied by silver, osmic and Sudan Black techniques. The Golgi elements in the young ovum of *Macacus rhesus* are situated at the juxta-nuclear position and are of polymorphic nature. This juxta-nuclear stage gives rise to yolk-nucleus and peri-nuclear stages. When the oocytes further grow, the Golgi elements disperse and leave a clear area in the region of their original concentration. In the final stages the Golgi elements are seen scattered throughout the cytoplasm. In the case of *Canis familiaris* the Golgi elements in very young oocytes are situated at the juxta-nuclear position. Next stages are the yolk-nucleus, semi-perinuclear and the perinuclear stages. In fully mature oocytes of *Canis familiaris* the Golgi elements are seen scattered throughout the cytoplasm. The Golgi elements are of polymorphic nature in the female germ cells of *Macacus rhesus* and *Canis familiaris* and the classical methods reveal correct picture of the Golgi elements, which is identical to that as revealed by Sudan Black. The investigation clearly demonstrates that there is no hard and fast rule regarding the shape of the Golgi elements in germ cells. The author holds the view that there is no justification whatsoever for changing the name of the Golgi bodies to "Lipochondria" as suggested by Baker.

BIOCHEMICAL AND NUTRITIONAL STUDIES ON EAST PAKISTAN FISH

Part V.—Influence of Age of Fish on the Distribution of Protein in their Body

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The total nitrogen and non-protein nitrogen (N. P. N.) contents in the meat of young carps like Rohu (*Labeo rohita*), Mrigale (*Cirrhina mrigale*) and Kalbos (*Labeo calbaeus*) at two stages of their growth have been determined. The N. P. N. fraction constitutes about 6.3 to 9.43% of the total nitrogen. This decreased whereas the N. P. N. increased with the increase of the body weight. The per cent increase of the N.P.N. was much more than the per cent decrease of the total nitrogen. This caused diminution of the true protein values due to increase of the body weight.

In case of the group of fish ranging from 55.5 to 78.5 g. body weight, the crude protein and true protein levels varied from 93.87 to 96.93% and 86.75 to 90.81% respectively. For higher body weight from 109.5 to 168 g., the crude protein and the true protein contents decreased to the levels of 88.8 to 92.5 % and 81.07 to 84.97% respectively. The significance of these data have been discussed in the light of protein nutrition in young fish and their importance in the technological aspects of the fish processing industries in East Pakistan.

ACID PHOSPHATASE ACTIVITY OF THE ALIMENTARY TRACT OF THE LARGE MILKWEED BUG, ONCOPELTUS FASCIATUS DALLAS (HEMIPTERA: LYGAEIDAE)

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A non-specific acid phosphatase from the alimentary tract of the milkweed bug, *Oncopeltus fasciatus* Dall., has an optimum pH range of 4.5 to 4.7, kinetics of zero order for 30 minutes incubation, and the maximum substrate concentration giving a zero order reaction is 0.00017 M (final). It has a K_m value of 1.74×10^{-3} and an optimum temperature of 40°C. (30 minute incubation). It is activated by Mg^{++} and Mn^{++} ions.

TAMARIX INDICA (KOEN EX ROXB) AS A NEW SOURCE OF TANNIN

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Identification of the nature of tannin and the determination of percentage of tannin and non-tannin in *Tamarix indica* are described. The tannin is found to be of mixed type and the percentage about 15.

STUDIES ON INDIGENOUS STARCHES OF PAKISTAN

Part II.—Starches from the Rhizomes of *Curcuma Zedoaria*, Tubers of *Manihot Utilissima* (Tapioca) and of *Ipoemea Batata* (Sweet Potato) and their In-vitro Digestion by Saliva and Taka-Diastase

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The rhizomes of *Curcuma zedoaria* (Shati), tubers of *Manihot utilissima* (Tapioca) and *Ipoemea batata* (sweet potato) yielded total starch amounting to 64.1%, 68.4% and 69.4%, respectively, on dry basis. Actual starch contents of the crude starches were found to be 93.8, 96.4 and 94.0%, respectively, for the above three types on dry basis. Tubers of *Manihot utilissima* (Tapioca), thus appears to be economically a better source of starch compared to the other two. Investigation on in-vitro digestion of the above starches in raw and cooked condition by saliva and taka-diastase shows that with cooked starch 30 to 37% conversion to maltose occurs in four hours depending on the nature of the starch and enzyme source. Although apparently tapioca by saliva and shati by taka-diastase showed maximum digestion yet the true digestion by enzymes showed maximum effect on tapioca by both saliva and taka-diastase. The increase of digestion due to cooking has also been deduced from the above results and the significance of the values has been discussed.

PREPARATION OF LOW TEMPERATURE GLAZES

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White, opaque, low-lead glazes maturing at cone 01 and fitting felspar-quartz-clay bodies of comparatively low coefficient of expansion were developed. Special considerations were given to produce glazes with minimum frit and maximum silica ; the former to reduce cost and the latter to lower down the expansion of the glaze. Optimum compositions were found after varying the content of CaO, PbO, ZnO, KNaO, SiO₂, Al₂O₃ and B₂O₃. Batch formulas for a number of successful body-glaze combinations are given.

ANTIBIOTIC PRODUCING MICRO-ORGANISMS FROM WEST PAKISTAN SOILS**Part I.—Aspergillus Quadrilineatus**

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A mould isolated from local soil has been identified as *A. quadrilineatus*. The organism has been shown to elaborate three different active materials at different stages of its growth, viz., penicillin, nidulin and nor-nidulin, and quadrilineatin. The elaboration of these active materials has been established by various tests.

SHORT COMMUNICATION

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SOME ADDITIONAL HOSTS OF LEVEILLULA TAURICA (LEV) ARNAUD FROM PAKISTAN

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PATHOGENIC BACTERIA OF THE DESERT LOCUST, SCHISTOCERCA GREGARIA

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IRON COMPLEXES WITH LACTOSE MALTOSE AND MALT

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VANADIUM CARBOHYDRATE COMPLEXES

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COPPER CARBOHYDRATE COMPLEXES

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RADIO-ACTIVITY OF GREEN SAND FROM CHICHALI PASS AREA OF KALABAGH DISTRICT (MIANWALI)

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