

on one's back if an occasion demands it. Even when stored at room temperature, it is expected, it will keep its full potency for ten years or so.

The new polyvalent anti-snake-venom serum thus meets the long-felt need for a serum, effective against all the common poisonous snakes of India, and which can be made available at rural dispensaries and other out-of-the-way places where it is needed and has not so far reached.

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### THERMAL REACTIONS OF IRON PYRITES

These studies were carried out with several samples of iron pyrites some of which were collected in the field while others were obtained in the laboratory by separation and concentration from its mineral associates. The pyrites of the samples employed, viz., the FeS<sub>2</sub> contents ranged from 90 to 99.9 per cent. Complete analysis of the samples were also done and the nature and extent of the impurities ascertained.

Some important features of the thermal reactions of iron pyrites under various conditions are the following:

(1) Absorption of oxygen with consequent increase in weight (about 10 per cent.) of the sample and conversion of the combined sulphur into water-soluble sulphate. (2) Liberation of elementary sulphur to the extent of about 25 per cent. of the sulphur content of the pyrites. (3) Formation of the normal as well as of a basic ferric sulphate. (4) Evolution of sulphuric anhydride in appreciable amounts.

The studies were all carried out in all-glass apparatus adopting standard methods of analysis.

Full details concerning the mechanism of the various reactions and also of their industrial utilisation will soon be presented.

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### INFLUENCE OF CARBOHYDRATE TO NITROGEN RATIO ON THE FORMATION OF DIASTASE BY *ASPERGILLUS ORYZAE*

Our previous work has shown that the formation of diastase by *Aspergillus oryzae* is influenced by the character and complexity of the nitrogen employed in the culture medium. Further

studies have revealed that the carbohydrate-nitrogen ratio appears to constitute an essential factor in the elaboration of the enzyme. It is generally recognised that starch stimulates the production of the enzyme, but no quantitative data is available in literature. The present study has been undertaken to determine the effect of the addition of varying amounts of starch to a given quantity of nitrogen, on the formation of diastase by *Aspergillus oryzae*.

The method of culturing the fungus, of making the enzyme extract and of determining the

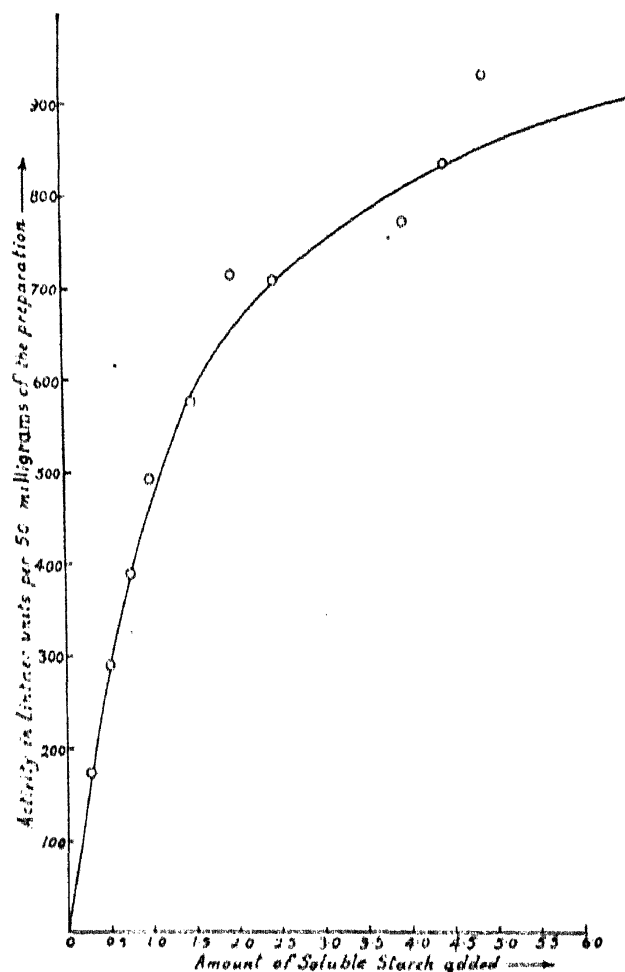


FIG. 1

diastatic activity, are similar to those described in our earlier communications. Finely shredded and acid-digested and purified asbestos was used to provide an inert mat for the growth of the fungus. The basal nutrient solution was composed of:—Peptone (Difco) 60 gms.; potassium dihydrogen phosphate 1 gm.; potassium citrate 1 gm.; magnesium sulphate, 7H<sub>2</sub>O 1 gm.; ferrous sulphate 0.01 gm.; zinc sulphate 0.01 gm.; calcium chloride 0.5 gm.; water 1 litre.

The medium was constituted as follows:—A given weight (5 gm.) of the asbestos was placed in 250 c.c. conical flasks, moistened with 12.5 c.c. of the nutrient solution (corresponding to 290 mgms. of nitrogen) and treated with graded amounts of soluble starch. The mass was intimately mixed, autoclaved at 20 lbs. for 30 minutes on two successive days. The flasks were then inoculated with a suspension of the spores of the fungus, incubated at 30° C. for three days, the resulting moldy