

TABLE I

Reaction Mixture No.	1	2	3	4	5	6	7	8	9	10	11
Starch added in gms.	0.25	0.50	0.75	1.0	1.5	2.0	2.5	3.5	4.0	4.5	5.0
Activity per 50 mgms. of preparation in Lintner units.	173	291	3.8	492	574	711	704	747	760	824	924
Total number of units elaborated by the mixture (in thousands of Lintner units).	4.17	7.10	9.55	12.30	13.96	18.81	20.28	21.96	22.95	26.37	30.49

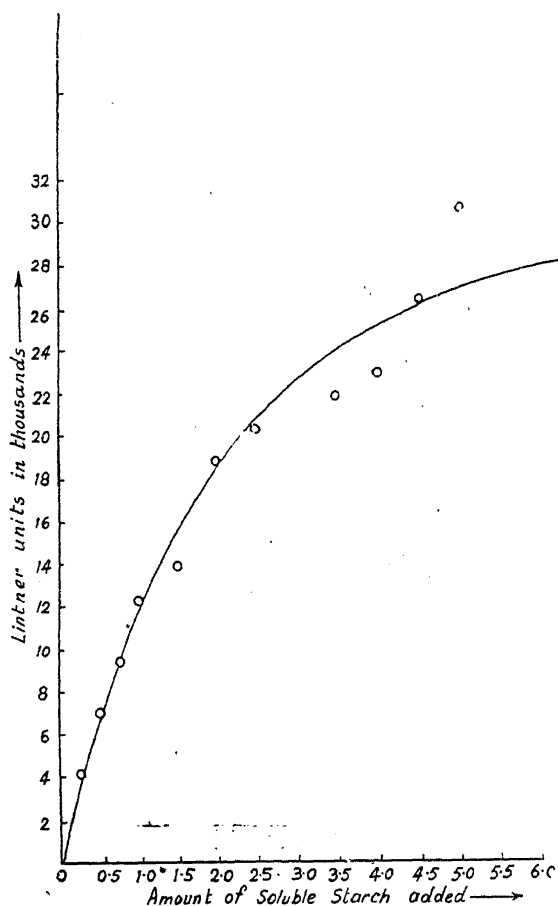


FIG. 2

mass extracted with 25 c.c. of water and the diastatic activity of the extract determined. The results are given in Table I and graphically represented in Figs. 1 and 2. Fig. 1 gives the activity of the preparations from fungi raised on different concentrations of starch; Fig. 2 gives the total quantity of diastase (in Lintner units) elaborated by the different experimental mixtures.

A close study of Table I and the Figures 1 and 2, reveals that with an increase in the proportion of starch, there is a steady increase not only in the purity of the diastase but also in the total quantity of the enzyme formed.

The total quantity of the diastase which is formed in proportion to added starch tends to fall off rapidly after the two per cent. concentration of starch (see Fig. 2). The economic optimum for the ratio of the soluble starch to nitrogen appears to lie somewhere about 7:1.

It has been found that starch is completely utilised in all the mixtures so far investigated and the reducing sugar content of the preparations has been found to be insignificant.

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ERGOT AND SPHACELIAL STAGES ON SOME WILD GRASSES IN MYSORE

FURTHER studies on the collections of ergot and Sphacelial stages occurring on wild grasses were continued some of which have been found to be of interest. A preliminary account of some of them is presented here. On *Digitaria longiflora* Pers., a common grass in the dry waste lands, ergot and Sphacelial stages have been observed. Individual spikelets in the inflorescence are affected. Drops of nectar are secreted in the infected spikelets embedding numerous spores. The spores are hyaline, ovate-ellipsoid, asymmetric to slightly arcuate, tapering at both ends and measuring $11.5-16.5 \mu \times 3.4-4 \mu$. The sclerotia that are formed later on are black, ovate to spherical, with a brownish white core and measure up to 2-1.3 mm. in size. They resemble very closely *Claviceps digitariae* Hansf., recorded on *Digitaria scalaris* by Hansford¹ in Uganda. In spite of the lack of germination stages it is probable that the two belong to one and the same species. Sphacelia stage has not been described by Hansford for *Claviceps digitariae*.

Two other Sphacelial stages of some *Claviceps* have been noticed round about Bangalore on *Cymbopogon caesium* Stapf. and *Heteropogon contortus* Beauv. The presence of the Sphacelia is indicated in the field by the presence of *Cerebella* which forms greenish-black folded crusts. The spores of the Sphacelia on *Cymbopogon caesium* are hyaline, ovate-cylindrical, rounded at both ends, with two conspicuous vacuoles and measuring $9-12.7 \mu \times 3.5-4.5 \mu$. The spores of the Sphacelia on *Heteropogon contortus* are also cylindrical, hyaline, rounded at both ends and measure $11.5-19 \mu \times 3.5-5 \mu$. Development of sclerotia has not been observed.

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1. Hansford, C. G., *Proc. Linn. Soc.*, 1940-41, 153 Ses., pp. 1-52.