IV.—NOTE ON THE STARCH-LIQUEFYING ACTION OF SANDAL LEAF EXTRACTS.

By B. N. Sastri.

It is well known that the spike-disease brings about a heavy accumulation of starch in the diseased tissues. It has also been found that the diastatic or sugar-producing capacity of the leaf extracts and tissue fluids in the diseased state is higher than that of the healthy. It was suspected that there might exist in the two extracts a varying proportion of the two well-known diastatic components, the liquefier and the saccharifier. The abnormal accumulation of starch suggests that in the diseased condition there is poor translocation of the carbohydrate, possibly due to a deficient proportion of the liquefying fraction. Experiments have been described to determine the proportion of the two enzyme components in the leaf extracts.

Potato starch paste (25 c.c. of 2 per cent.) was treated with 2 c.c. of the tissue fluids, expressed from leaves as described in a previous paper (*J. Indian Inst. Sci.*, 1928, **11A**, 24); the mixture, with about 0·5 c.c. toluene, was incubated at 30° for 20 hours, and 20 c.c. then added to 120 c.c. of 95 per cent. alcohol. The precipitate was filtered on a prepared Gooch crucible, previously dried and weighed, and was washed first with 95 per cent. alcohol, then with ether and dried in a steam oven to constant weight. The sugars in the filtrate were estimated by Bertrand's method, after removing the alcohol by evaporation and treatment with dialysed iron. The following table gives the results of estimation, the usual controls being run; difference in the weights of precipitate between control and experimental gives the weight of starch liquefied.

Hydrolysis of Potato starch by leaf extracts (Uttarahalli).

Milligrams of	8-8-28		23-8-28	
	Healthy	Spiked	Healthy	Spiked
Starch liquefied ...	93·1	225·9	52·0	162·0
Maltose produced ...	46·5	172·5	26·1	120·3

It is clear from the table that for equal weights of sugar produced, more of starch is liquefied by the healthy leaf extract than by the

spiked. Thus calculating the amount of starch liquefied for 100 mgs. of sugar produced, it is seen that 200·2 mgs. of starch have been liquefied by the healthy leaf extract (August 8, 1928) and 130·9 mgs. of starch by the spiked extract. The corresponding figures for 100 mgs. of sugar from the sample of August 23, 1928 are 199·2 mgs. and 134·6 mgs. Thus the healthy leaf extract is a more efficient liquefier than the spiked leaf extract. The results have also been confirmed by measuring the fall in viscosity of the reaction mixture containing potato starch and leaf extracts; this is more rapid in the case of mixtures containing healthy leaf extracts than in those containing spiked leaf extracts.

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