the first bond which had been split in the phytin molecule.

Most of the experimental work for this investigation was done by Miss M. W. Muÿen. I am indebted to Dr. J. Grashuis for his interest.

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USING purified enzyme preparations and certain samples of dried yeast, we have met with the same difficulties as has Dr. de Man in reproducing our first results. We found, however, that the inhibition increased the longer the duration of the experiment, and that the inhibition was considerable when rye bran and dried yeast were incubated together overnight before the adding of the substrate. Experiments show that phosphatases from the bran under these conditions split considerable amounts of inorganic phosphate from phosphoric acid compounds present in yeast. It seems to be this inorganic phosphate which is responsible for our finding of an inhibition of phytase by yeast.

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Stimulation of Adventitious Root Formation by Fungal Metabolic Products

IN an attempt to elucidate the contradicting views concerning the nature and properties of *Fusaria* metabolic products responsible for cotton and tomato wilts, certain substances (stimulating for adventitious root formation) have been detected in the fungal filtrates. These experiments have been originally carried out with the aim of testing the two following points.

(1) The response of healthy cotton cut shoots to the metabolic products of either a specific pathogen (*Fusarium vasinfectum*) or a non-specific pathogen (*Fusarium lycopersici*). Two Egyptian varieties of cotton were used for this purpose: one is a wilt-resistant variety, 'Ashmouni', and the other is a susceptible one, 'Giza 26'.

(2) The response of healthy tomato cut shoots to the metabolic products of either a specific pathogen (*Fusarium lycopersici*) or a non-specific pathogen (*Fusarium vasinfectum*). Two varieties of tomato were used, namely, 'Pritchards' and 'North Dakota'.

The filtrate was obtained by growing the fungus in Richard's solution for twenty-eight days at 30° C. The solution was then freed from the fungus, and was passed through a Berkefeld filter. The fungal filtrate was then divided into three portions: (*a*) a portion was kept unheated; (*b*) a portion was boiled for fifteen minutes; (*c*) a third portion was treated with 96 per cent alcohol. A creamy white precipitate is obtained, which is filtered off and dried; an aqueous solution of the precipitate has been prepared. The remaining precipitate-free filtrate has been distilled under vacuum to remove the excess of alcohol, and was afterwards kept for forty-eight hours at 60° C. to remove the last traces of alcohol.

Freshly cut healthy shoots were dipped in either the unheated or the boiled fungal filtrate, in the solution of precipitate, in the precipitate-free filtrate, or in the precipitate plus the precipitate-free filtrate. Control experiments were also made by using fresh Richard's solution and sterilized tap water. The treated cut shoots were left at ordinary laboratory temperature (18–20° C.) and examined at regular intervals.

An interesting phenomenon has been observed when the cotton shoots (of the resistant 'Ashmouni' variety) were placed in the unheated *Fusarium vasinfectum* filtrate; adventitious roots started to appear on the fourth day (Fig. 1). No similar phenomenon has been seen, however, with the susceptible 'Giza 26' variety on any experimental treatment of the fungal filtrates.

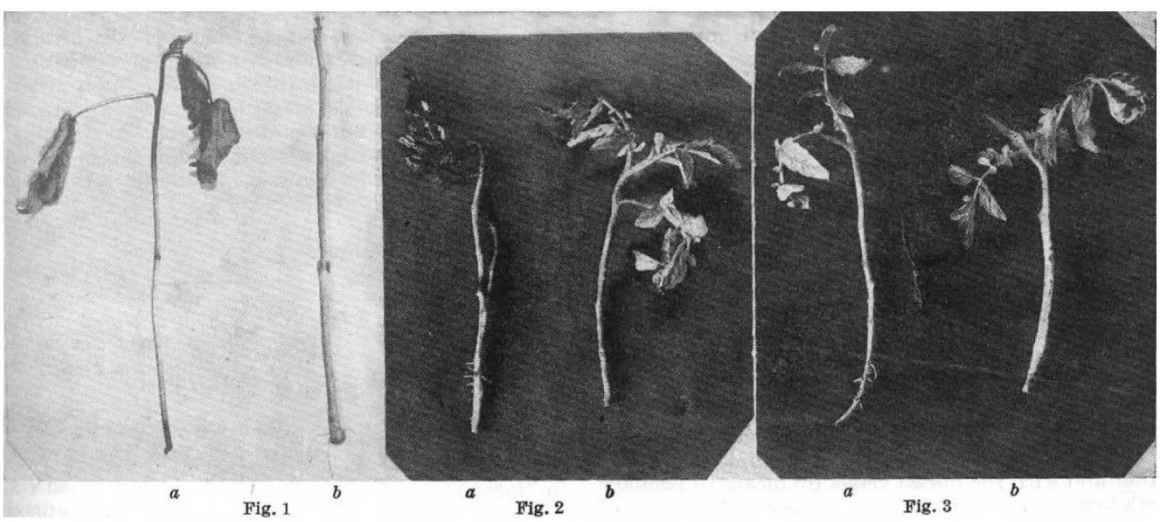

Fig. 1 Fig. 2 Fig. 3

Fig. 1. Cut shoots of 'Ashmouni' cotton growing on: (*a*) boiled *Fusarium vasinfectum* filtrate, and (*b*) unheated filtrate of the same fungus
Fig. 2. Cut shoots of 'Pritchards' tomato grown in: (*a*) aqueous solution of precipitate from *Fusarium lycopersici* filtrate, and (*b*) pure Richard's solution
Fig. 3. Cut shoots of 'North Dakota' tomato grown in: (*a*) aqueous solution of precipitate from *Fusarium lycopersici* filtrate, and (*b*) pure Richard's solution