

TURNIP MOSAIC¹

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In one corner of a small field of turnips near South Bend, Ind., October 12, 1920, a considerable percentage of the plants were found affected with an unmistakable mosaic disease. The symptoms were typical of mosaic diseases in general. The leaves were stunted, misshapen, and a lighter green with dark green blisters or puffy areas. Many of the leaves were extremely distorted by crinkling and folding (Pl. 20, A). The disease seemed to be confined to one area in the field, to some extent coincident with a heavy infestation of tarnished plant bugs.

Several diseased plants were transplanted to pots in the greenhouse, where they continued to form new leaves during the winter. The mosaic symptoms exhibited by the new foliage formed under greenhouse conditions were not quite so extreme as had been noted in the field. One of these plants, with mottled and spindling leaves, is shown in Plate 20, B, as it appeared in December.

Inoculation of a number of potted turnip and radish seedlings was made by breaking off a leaf and rubbing the wound with crushed leaf tissue from one of the mosaic plants. Out of 21 turnip seedlings inoculated early in January, 13 developed characteristic mosaic symptoms. The first symptoms were noted 26 days after inoculation. The turnips inoculated showed some varietal difference from the plants collected in the field in that the leaves were much less distinctly pinnatifid. Out of 46 radish seedlings, including both white and red varieties, similarly inoculated, none developed mosaic symptoms.

A later series of inoculations was made January 26 by wounding the plants with a needle and rubbing the wounded areas with a piece of cotton soaked in the juice from mosaic leaves ground up in a mortar. Ten out of 14 turnip plants thus inoculated developed the mosaic disease. The first symptoms were noted 16 days after inoculation. No mosaic developed among 13 control plants similarly treated except that sterile water was substituted for the mosaic virus. Twenty-two radish plants were also inoculated, and none of these developed the disease. Subsequent reinoculation of turnip plants from one of these radish plants produced no mosaic. The mosaic disease of turnips is therefore readily transmissible to turnips but not to radishes.

¹ Contribution from the Botanical Department of Purdue University Agricultural Experiment Station, LaFayette, Ind.

After this article was prepared it was learned that Eugene S. Schultz, of the Bureau of Plant Industry, United States Department of Agriculture, was also working on this disease.

PLATE 20

A.—Leaves from mosaic turnip plants collected October 12, 1920.

B.—Mosaic turnip plant transplanted to a pot in the greenhouse. Photographed December 20, 1920.

(124)

