Leptosphaeria maculans on Cabbage in Wisconsin

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ABSTRACT

BONMAN, J. M., P. A. DELWICHE, R. L. GABRIELSON, and P. H. WILLIAMS. 1980. *Leptosphaeria maculans* on cabbage in Wisconsin. Plant Disease 64:326.

Leptosphaeria maculans, the perfect stage of the cabbage blackleg pathogen, *Phoma lingam*, was found for the first time in the commercial cabbage-growing region of the midwestern United States. Single-ascospore isolates were highly pathogenic to cabbage seedlings.

The ascigerous stage of the brassica blackleg pathogen, *Phoma lingam* (Tode ex Fr.) Desm., is *Leptosphaeria maculans* (Desm.) Ces et de Not. (6). Investigators attribute major epidemiologic importance to *L. maculans* in field diseases of swedes (*Brassica napobrassica* L.) in New Zealand (1), of oilseed rape (*B. napus* L.) in France (3), and of oilseed rape (*B. campestris* L. and *B. napus* L.) in Australia (4) and Canada (5). *L. maculans* has been reported on seed crop residues of cabbage (*B. oleracea* L. var. *capitata*) and rutabaga (*B. napobrassica* [L.] Mill.) in the Pacific Northwest (2) but has not been reported in the commercial cabbage-producing region of the midwestern United States.

Scientific Paper No. 5495. College of Agriculture Research Center, Washington State University, Project 0189, and College of Agricultural and Life Sciences, University of Wisconsin, Madison, Project 118.

Supported in part by USDA/SEA-CR grant 516-15-120, a grant from the American Seed Research Foundation, and the National Sauerkraut Packers Association.

Accepted for publication 28 September 1979.

00191-2917/80/03032601/$03.00/0

In mid-April 1979, infested cabbage stems with typical *P. lingam* cankers and pycnidia were collected near Shiocton, Wisconsin, from an overwintered cabbage field that had been severely diseased with blackleg in 1978. The stems were placed outdoors on soil at Madison, Wisconsin, and observed periodically for the presence of *L. maculans*. After 3 mo, *L. maculans* ascocarps were found among *P. lingam* pycnidia.

Tissue with pseudothecia was suspended over petri plates of water agar, and discharged ascospores were allowed to fall onto the agar surface and germinate. Single ascospores were cut from the agar and placed on potato-dextrose agar slants. Ascospore isolates produced typical *P. lingam* colonies with pycnidia. Thirteen single-ascospore isolates were tested for pathogenicity. A 10-λ drop of pycnidiospore suspension containing 10^7 spores per milliliter was placed on the cotyledons of 7-day-old cabbage seedlings wounded with a sterile needle. The plants were kept at room temperature (about 21 C) with a 12-hr photoperiod on a laboratory plant growth bench. Within 10 days, all isolates produced the tissue collapse and dense sporulation characteristic of highly pathogenic *P. lingam*.

The occurrence of *L. maculans* is important in the epidemiology of cabbage blackleg in the midwestern United States. Because *L. maculans* ascospores are airborne, they have the potential for long-distance dispersal and may cause disease that cannot be traced to infected seed or to poor crop rotation practices.

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