

First occurrence of a severe white leafspot on Chinese mustard in Canada

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Pseudocercospora capsellae was observed to be associated with severe white leafspot on Chinese mustard

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Pseudocercospora capsellae a été observée en rapport avec l'apparition d'une grave tache blanche dans une culture de chou de Chine. (*Brassica campestris* L. Chinensis Group).

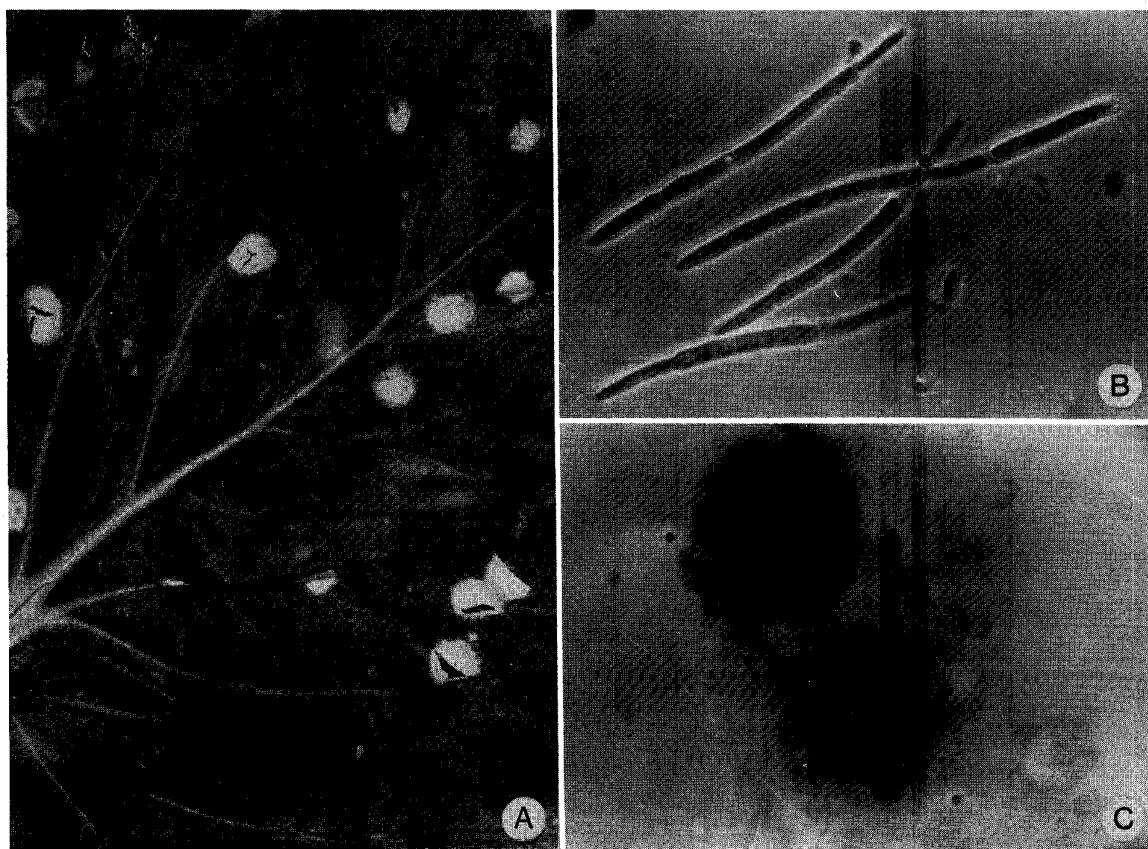


Figure 1. White leafspot associated with *Pseudocercospora capsellae*. (A) Papery white spots on Chinese mustard leaf (X 0.61). (B) Conidia (X 1,300) and (C) stromata (X 1,2001 of *P. capsellae*).

A severe leafspot disease was observed on a crop of 8 wk old Chinese mustard (sometimes known as celery mustard, bok (pak) choy, and chongee) (*Brassica campestris* L. Chinensis Group) in a 5 ha farm near

Toronto, Ontario on June 5, 1978. The spots were circular and averaged 10 mm in diameter (Fig. 1). The centers of the spots were bleached (papery) white and the slightly zonate margins were light brown. Numerous spots were "slit" at the centers. Some spots were overlapped to form large necrotic areas but all were confined to the bottom leaves. Trimming of the infected bottom leaves significantly reduced the marketable product.

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Microscopic examination of slides prepared from field specimens revealed that *Pseudocercosporella capsellae* (Ell. & Ev.) Deighton = *Cercosporella brassicae* (Fautr. & Roum.) Hohn., = *C. albomaculans* (Ell. & Ev.) Sacc., = *C. nesiae* Dearness & Bisby was associated with the spots (Fig. 1). Structures of the fungus observed included mycelia, filiform conidia and conidiophores all of which were septate and hyaline. Subglobular stromata were dark brown. Conidia were tapered at the ends. The average measurements of 31 conidia and 30 stromata were $3 \times 74\mu$ and $47 \times 57\mu$, respectively.

P. capsellae did not grow on 2% water agar, potato dextrose agar or V-8 juice agar. Conidia were still ungerminated on these media after 2 weeks incubation at room temperature but it was not determined whether the ungerminated conidia were viable.

To establish the association of *P. capsellae* with white spot, an inoculum of the fungus (2.3×10^3 conidia/ml) was prepared by vigorously shaking 28 g of naturally infected Chinese mustard leaves for 60 seconds in 250 ml of water in a 500-ml flask. This inoculum was applied to the leaves of plants with a Mastercraft vaporizer; seedlings were 6 weeks old when treated. Two plants each of 10 different crucifers were treated and the plants were maintained for 2 weeks in a growth-room (22°C , 75% relative humidity) supplied with 14 hr of artificial light (32,000 lux). White spots (2 to 6 mm diameter) developed on eight of the crops: mustard (*B. campestris* L.); turnip (*B. napobrassicae* (L.) Mill.) 'Laurentian'; rape (*B. napus* L.); brussels sprouts (*B. oleracea* L. var. *gemminifera* Zenker) 'Jade Cross'; broccoli (*B. oleracea* L. var. *italica* Plenck) 'Cleopatra'; cauliflower (*B. oleracea* L. var. *botrytis* L.) 'Snowball Y'; cabbage (*B. oleracea* L. var. *capitata* L.) 'Eastern Ballhead'; and Chinese cabbage (*B. campestris* L.

Pekinensis Group) 'Springtime'. No leafspot developed on either radish (*Raphanus sativus* L.) 'Scarlet Globe' or horseradish (*Armoracia lapathifolia* Gilib.). Inoculated Chinese mustard leaves which served as controls developed severe white spots. Conidia of *P. capsellae* were observed microscopically only from infected leaves, thus, confirming association of the fungus with the disease.

There is no previous record that white leafspot has occurred on Chinese mustard in Canada. It was reported on turnip in the maritime provinces and in Ontario, and on Chinese cabbage in Quebec (2). The disease has been found, however, on several cruciferous crops in the United States and Ceylon (1,3,4,5).

Naturally infected leaves of Chinese cabbage collected on September 6, 1978 were deposited at the Biosystematics Research Institute, Agriculture Canada, Ottawa K1A 0C6 (Lot No. 78M-128, DAOM 169225).

Acknowledgment

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