Poster Abstracts

SOIL SOLARIZATION : A CULTURAL PRACTICE TO REDUCE VIABILITY OF SCLEROTIA OF *SCLEROTINIA SCLEROTIORUM* IN NEW ZEALAND SOILS

J. SWAMINATHAN, K.L. McLEAN, J.M. PAY and A. STEWART

Soil, Plant and Ecological Sciences Division, PO Box 84, Lincoln University, Canterbury

Sclerotinia sclerotiorum is a soil-borne pathogen which attacks a wide range of fruit and vegetable crops. The fungus survives between successive crops as sclerotia which can remain viable in the soil for 4-5 years. Soil solarization has been used successfully overseas to reduce sclerotial numbers in the soil. To examine the potential of soil solarization, three field trials were established (1997, 1998 Lincoln University; 1998 Marlborough Research Centre, Blenheim), to reduce *Sclerotinia* inoculum under New Zealand conditions. Four plots (2 m x 3 m) were solarized (polythene sheet, 50 µm thick) for 4 and 8 weeks in 1997 and 1998, respectively, and four plots were non-solarized. Fifty sclerotia, contained within muslin bags, were buried in each plot (3 bags/plot) at a depth of 10 cm. Solarization treatment resulted in significant reductions in sclerotial viability of 48 % (1997, Lincoln), 92 % (1998, Lincoln) and 100 % (1998 Blenheim) compared to non-solarized treatments. The maximum temperature in solarized plots was 35-40°C which was 8-10°C higher than non-solarized plots. These results indicate that soil solarization can significantly reduce sclerotial levels in the soil and this technique may have potential for *Sclerotinia* control in some regions of New Zealand.

PHYTOTOXICITY OF CULTURE FILTRATES OF *PHOMA WASABIAE* TO WASABI

P.G. BROADHURST

New Zealand Institute for Crop & Food Research Ltd, Private Bag 92169, Auckland

Cultures of *Phoma wasabiae*, isolated from wasabi (Japanese horse radish; *Wasabia japonica*), were grown for 4 weeks in stationary liquid cultures of Czapek-Dox broth supplemented with 0.2% yeast extract. Filtrates from the fungal cultures were adjusted to pH 6.9 and passed through sterile 0.45 µm filter units. Potted wasabi plants were sprayed with the cell-free filtrates and enclosed in plastic bags to maintain high relative humidity. The sprayed plants were examined 3 days later. Dark leaf spots and blackened petioles had developed on plants sprayed with cell-free culture filtrates of *P. wasabiae*. No symptoms were seen on plants sprayed with modified Czapek-Dox broth alone or with a cell-free culture filtrate of *P. cucurbitacearum* (isolated from squash). In 1993-95, diseased wasabi plants were collected from a water-grown trial crop in the Waikato. *P. wasabiae* was regularly isolated from leaf spots and to a lesser extent from blackened petioles. Although *P. wasabiae* was occasionally isolated from blackened vascular tissues in stems, these tissues were often found to be free of microorganisms. Results from the present study indicate that blackened vascular tissues in wasabi stems (which severely reduces their value) are likely to be induced by toxic metabolites produced by *P. wasabiae*.