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ABSTRACTS

IN VITRO PRODUCTION OF SIRODESMIN PL CORRELATED WITH PATHOGENICITY OF LEPTOSPHAERIA MACULANS TO RAPESEED. R. Assabgui and R. Hall, Department of Environmental Biology, University of Guelph, Guelph, Ontario N1G 2W1.

The role of the toxin sirodesmin PL produced by Leptosphaeria maculans in the development of blackleg in rapeseed (Brassica napus and B. campestris) is unclear. The toxin was detected chromatographically in rapeseed cotyledons after inoculation with conidia of the fungus but in concentrations too low to be measured. Concentrations of the toxin (mg/g dry mycelium) produced by 6 isolates of the fungus in liquid Fries medium shaken in the dark at 21°C for 21 days ranged from 0.35 to 2.53. Lesion diameters (mm) 7 weeks after inoculation of these isolates into stems of 5 cultivars of the host ranged from 6.4 to 75.8. Coefficients of correlation relating toxin production in vitro to lesion diameter ranged from +0.88 for cv. Regent to -0.99 for cv. Karat. The pathogenicity of L. maculans to rapeseed may be related to its ability to produce sirodesmin PL in vivo.

Apple scab lesions, caused by Venturia inaequalis, on shoots in New York; histology and enumeration of inoculum. C. M. Becker, T. J. Burr. Cornell University, NYSAES, Geneva, NY 14456.

Apple scab lesions, 1-3 mm in diameter, were observed on 5% of the current season shoots of 'McIntosh' and 'Cortland' in two unsprayed and one commercial orchard in 1988. The same orchards had lesions on 60% of the shoots in 1989. Unsprayed orchards had an average of 40, 4, and 0.1 viable conidia per lesion during July, and October, 1988, and April, 1989 respectively, whereas 109, 1, and 0 viable conidia per lesion were observed in sprayed orchards. Histological observations in July, and October showed that host periderm had formed below the fungal hyphae prior to normal periderm formation. Fungal hyphae was observed within lesions; however, tissues above the periderm had sloughed off by the following spring, and evidence of hyphae was lacking. Under New York conditions it appears that shoot lesions are not a source of primary inoculum for apple scab.

Association of Venturia inaequalis conidia with apple buds. C. M. Becker, T. J. Burr, Cornell University, NYSAES, Geneva, NY 14456.

Viable V. inaequalis conidia were detected in dormant 'McIntosh' apple buds just prior to budbreak in 1989. In 1988 and 1989, they were observed in close association with expanded apple buds prior to conidial production from ascosporic infections in the cultivars 'Cortland', 'Rome', 'RI Greening' and 'Delicious'. In 1988, 2 to 15 viable conidia per bud were detected from unsprayed orchards, while 0.3 to 124 viable conidia per bud were observed in 1989 from orchards that were both sprayed and unsprayed for scab during the previous season. Dissected dormant buds revealed that conidia were more likely to be located on the inside portions of the buds. Conidia that were collected from buds at the silver tip stage of growth were inoculated onto apple seedlings, and incited disease in the greenhouse. These data indicate that conidia of V. inaequalis can overwinter within apple buds in New York and can serve as initial apple scab inoculum.

MICROSCOPIC STUDY OF THE INTERACTION BETWEEN SPHAEROTHECA PANNOSA f.sp. ROSAE AND THREE POTENTIAL ANTAGONISTS. R. R. Bélanger and M. R. Hajlaoui. Dép. de phytologie-FSAA, Université Laval, Québec, G1K 7P4.

Three reported antagonists of cucumber powdery mildew, Tilletiopsis washingtonensis, Sporothrix flocculosa and Sporothrix rugulosa, were tested and compared for their potential for controlling powdery mildew, caused by Sphaerotheca pannosa f.sp. rosae, on rose. Under controlled conditions, all three fungi colonized and killed S. pannosa f.sp. rosae on miniature roses leaflets within 96 hr following their application. Sp. flocculosa was a faster colonizer, sporulating profusely on the fungus in less than 24 hr. Scanning electron microscopy observations revealed that the antagonists killed the host conidia and conidiophores before the mycelium. All three antagonists acted by causing a rapid and complete collapse of invaded parts but never appeared to penetrate the host conidia or mycelium. It is hypothesized that a toxin is involved in their mode of action. Both Sporothrix spp. were able of epiphytic growth which could make them suitable for use in a preventive program.

* ECOLOGICAL SURVEY OF ARMILLARIA IN NEW YORK STATE. James T. Blodgett. 403 Illick Hall, State University of New York, College of Environmental Science and Forestry, Syracuse, New York 13210.

Armillaria is a complex of species which has caused much confusion in the past. The differences of their host species, levels of pathogenicity, and site preferences may be explained by the complex of species previously referred to as Armillaria mellea. A statewide investigation was conducted to: 1) identify species, 2) determine distributions, 3) determine host relationships, 4) determine pathogenicity, and 5) determine soil and stand site preferences of Armillaria in New York. Six species have been identified. Preliminary results indicate that some of the species can be distinguished by soil and forest type preferences.

CHARACTERIZATION OF GRAPE LEAFROLL ASSOCIATED CLOSTEROVIRUS (GLRaV) SEROTYPE II AND COMPARISON WITH GLRaV SEROTYPE III. D. Boscia*, J.S. Hu**, D. Golino***, and D. Gonsalves**,*Centro di studio sui virus e le virosi delle colture mediterranee, C.N.R., 70100 Bari, Italy, ** Dept. of Plant Pathology, Cornell University, NYSAES, Geneva, NY, 14456,USA, *** Dept. of Plant Pathology, University of California, Davis, CA 95616, USA.

A specific polyclonal antiserum was produced against an isolate (CA-5) of GLRaV serotype II. The antiserum was used to detect the virus with ELISA, ISEM and Western Blotting. CA-5 was compared with an isolate (NY-1) of GLRaV serotype III. The two isolates were serologically distinct as shown by ELISA and ISEM. The coat protein molecular weight of CA-5 was 36 K daltons as determined by Western Blot. The same result was obtained with samples purified from four different isolates of serotype II. In a sample infected with a mixture of GLRaV serotype II and III, using a combination of antisera, different molecular weights of the coat proteins of the two serotypes were observed. However, dsRNA analysis showed identical molecular weight of the major bands of GLRaV serotype II and III.

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