

# Disease Notes

**A New Race (Race 4) of Spinach Downy Mildew in Italy.** G. Lorenzini and C. Nali, University of Pisa, Sezione Patologia Vegetale, Dipartimento CDSL, 56100 Pisa, Italy. *Plant Dis.* 78:208, 1994. Accepted for publication 10 September 1993.

In the fall of 1992, spinach (*Spinacia oleracea* L.) cultivars grown for the frozen food industry in the province of Foggia (Apulia region of southern Italy) showed severe symptoms associated with infection by the downy mildew fungus *Peronospora farinosa* (Fr.) Fr. f. sp. *spinaciae* Byford, in spite of their reported resistance to races 1, 2, and 3 of this parasite. Only plants of cv. Bolero were not infected. Leaves of diseased plants had typical spots or large irregular yellow-green chlorotic areas, and dense bluish gray sporulation was frequently present on the abaxial leaf surface. Overhead irrigations and dew episodes were frequent in the crop production area. Applications of commercial formulations of metalaxyl and protective fungicides such as copper oxychloride and chlorothalonil were ineffective. Epiphytotics progressed very rapidly, and many fields were lost to the disease. Spores from infected leaves were collected by wet-brushing with chilled distilled water. Inoculations were performed under controlled conditions on the following cultivars: Viroflay (susceptible to races 1, 2, and 3), Nores (resistant to races 1 and 2), Califlay (resistant to races 1 and 3), and Polka and Lina (both resistant to races 1, 2, and 3); all were susceptible to our isolates. We attribute this recent epiphytotic to race 4, which was recently described in the United States (1). The origin of this new race in Europe is not known, but since the pathogen can be seedborne (2), we speculate that it may have been introduced with commercial seed imports.

*References:* (1) L. P. Brandenberger et al. *Plant Dis.* 75:630, 1991. (2) T. Inaba et al. *Plant Dis.* 67:1139, 1983.

**First Report of Downy Mildew on Sunflowers Caused by *Plasmopora halstedii* in Kansas.** D. J. Jardine, Department of Plant Pathology, Kansas State University, Manhattan 66505-5502; and T. J. Gulya, USDA Northern Crop Science Laboratory, Fargo, ND 58105. *Plant Dis.* 78:208, 1994. Accepted for publication 25 October 1993.

Climatic conditions during July 1992 were excessively cool and wet. Sunflowers (*Helianthus annuus* L.) exhibiting symptoms of downy mildew, caused by *Plasmopora halstedii* (Farl.) Berl. & deToni, at the V4 (four true leaves) stage of development were observed in several fields in Sherman County in northwestern Kansas. These plants were stunted, and sporangiophores and zoosporangia of *P. halstedii* were present on the underside of the leaves. Race identification of three isolates was determined using the whole-seedling immersion technique (1) with differential cultivars IS-003, RHA-265, RHA-274, DM-2, IS-2000, and 803-1. Two isolates were determined to be race 4, and the third was identified as race 3. This is the first report of *P. halstedii* on sunflowers in Kansas.

*Reference:* (1) T. J. Gulya et al. *Helia* 14:11, 1991.

**Occurrence of Grapevine Yellows in Virginia Vineyards.** T. K. Wolf, Virginia Agricultural Experiment Station, Winchester 22601, and J. P. Prince and R. E. Davis, USDA-ARS Molecular Plant Pathology Laboratory, Beltsville, MD 20705. *Plant Dis.* 78:208, 1994. Accepted for publication 13 October 1993.

This is the first description of a yellows disease of grapevine (*Vitis vinifera* L.) in Virginia; the disease has been observed on cvs. Chardonnay and Riesling since 1987. Symptoms include abortion and withering of flower clusters, shoot tip dieback, downward curling of leaves, leaf chlorosis, and premature leaf abscission. Leaf chlorosis is either generalized or confined to tissues adjacent to major veins and may be accompanied by necrosis. Affected shoots droop and have regions where periderm fails to mature. Diseased vines do not recover and often die within several years of symptom onset. The disease has been observed in at least 12 Chardonnay and three Riesling vineyards throughout the Virginia Piedmont. The incidence and rate of spread in a given vineyard are generally low. For example, new cases of symptomatic vines in a 2,100-vine Chardonnay vine-

yard were 2 in 1988, 9 in 1991, and 16 in 1992. During the 1992 and 1993 growing seasons, DNA was extracted from tissue samples collected from at least 40 individual vines exhibiting symptoms in four different vineyards. The DNA samples were analyzed for the presence of mycoplasma-like organism (MLO) DNA by use of the polymerase chain reaction in which reaction mixtures contained synthetic oligonucleotides designed to prime specific amplification of MLO DNA. Template DNAs from approximately one-half of the symptomatic vines yielded MLO-specific DNA amplification products. Use of varied primers and restriction analyses of amplified DNAs indicated that the MLOs detected in diseased vines belonged to no less than two distinctly different MLO genomic groups (2). The DNA analyses and field observations indicate a possible similarity of the Virginia grapevine yellows disease to the grapevine *flavescence dorée* reported in Europe (1).

*References:* (1) A. Caudwell. *Phytoma* 325:16, 1981. (2) J. P. Prince et al. *Phytopathology* 83:1130, 1993.

**Crown and Root Rot of Chives in California Caused by *Sclerotium rolfsii*.** S. T. Koike, T. G. Gonzalez, and E. D. Oakes, University of California Cooperative Extension, Salinas 93901. *Plant Dis.* 78:208, 1994. Accepted for publication 28 October 1993.

Commercial fields of chives (*Allium schoenoprasum* L.) grown on the coast of California showed patches of declining plants in February 1993. Older leaves first became chlorotic, then later faded to pale tan, and eventually collapsed. Newer leaves exhibited the same range of symptoms. The crowns of plants became rotted and collapsed. Characteristic white mycelial growth, development of tan, spherical sclerotia on the soil adjacent to the affected plants, and isolations from chives crown tissues confirmed the pathogen to be *Sclerotium rolfsii* Sacc. Inoculum of the fungus was produced in flasks of sterilized oat seeds, distilled water, and 1% Difco Bacto agar (1). After 3 mo, sclerotia were harvested and dried at room temperature for 48 hr and added to steam-sterilized sand at the rate of 20 sclerotia/100 cm<sup>3</sup> of soil. Sixty-day-old chives seedlings, germinated and grown in plug trays, were transplanted into pots containing the inoculated soil. Chives were also planted into steam-sterilized soil without sclerotia. All plants were incubated at 22–24 C. After 3 wk, older leaves of inoculated plants began to turn chlorotic; by 5 wk, inoculated plants had collapsed, and *S. rolfsii* was reisolated from the infected tissue. Control plants showed no disease symptoms. This is the first report of *S. rolfsii* causing crown and root rot of chives.

*Reference:* (1) Z. K. Punja and R. G. Grogan. *Phytopathology* 71:1092, 1981.

**First Report of Stem Rot of *Monarda didyma* Caused by *Sclerotium rolfsii*.** G. E. Holcomb, Department of Plant Pathology and Crop Physiology, Louisiana Agricultural Experiment Station, Louisiana State University Agricultural Center, Baton Rouge 70803. *Plant Dis.* 78:208, 1994. Accepted for publication 29 October 1993.

*Monarda didyma* L. (bee balm, Oswego tea) is widely grown as an ornamental and medicinal plant in the United States and Europe and is available commercially as a dried tea. A severe stem rot that killed infected plants was observed on *M. didyma* in the demonstration herb garden at Burden Research Plantation, Baton Rouge, during July 1992. White mycelial mats and light brown sclerotia (1–1.5 mm in diameter) were seen at the base of infected stems. The fungus was isolated on 2% water agar and identified as *Sclerotium rolfsii* Sacc. Pathogenicity tests were performed by pouring 10 ml of blended mycelia and sclerotia on the bases of healthy plants and cuttings (one 10-day-old fungal culture, grown on potato-dextrose agar, blended in 100 ml of distilled water). Inoculated plants and uninoculated controls were held in a dew chamber at 28–30 C for 3 days, at which time stem rot had developed. The pathogen was reisolated from inoculated plants. *S. rolfsii* has been reported on several other species of *Monarda* (1), but this local disease outbreak is its first recognized occurrence on *M. didyma*.

*Reference:* (1) J. J. Taubenhaus and W. N. Ezekiel. *Texas Acad. Sci. Trans.* 16:5, 1933.