Disease Notes

First Report of Rhabdoviruslike Particles in Croton (*Codiaeum variegatum*). M. G. Bellardi, A. Bertaccini, and A. Villani, Istituto di Patologia Vegetale, Università degli Studi, Bologna, Italy 40126, and V. Vicchi, Osservatorio Regionale per le Malattie delle Piante di Bologna, Italy 40100. Plant Dis. 75:862, 1991. Accepted for publication 12 February 1991.

Dwarf plants of croton (*Codiaeum variegatum* (L.) Blume 'Fred Sander') showing malformation and yellow or pink veins were observed in a greenhouse in the Emilia-Romagna region of northern Italy in spring 1990. Leaf-dip preparations stained with 2% potassium phosphotungstate, pH 7.0, revealed bullet-shaped viruslike particles. Thin-section electron microscopy of symptomatic leaves disclosed a large number of bacilliform particles resembling known rhabdoviruses in parenchymatic cells. The particles, measuring 70–80 × 180–240 nm, accumulated in the extended cisternae of perinuclear space at the periphery of the nucleus. The individual virions found inside the cisternae were randomly oriented or in paracrystalline arrangement, side by side. The rhabdovirus was transmitted by mechanical inoculations to *Nicotiana glutinosa* L. and *Chenopodium amaranticolor* Coste & Reyn., which showed systemic veinclearing and leaf deformations. The leaf graft method was used to transmit the virus to healthy croton, which showed dwarfing, vein yellowing, and leaf malformation. To our knowledge, this is the first report of a rhabdovirus in *C. variegatum*.

Induction of Silverleaf of Squash by *Bemisia* Whitefly from California Desert Whitefly Populations. S. Cohen, Visiting Scientist, Volcani Institute of Agricultural Research, Bet Dagan, Israel, and J. E. Duffus, H. Y. Liu, and R. Perry, USDA-ARS, U.S. Agricultural Research Station, Salinas, CA 93905. Plant Dis. 75:862, 1991. Accepted for publication 18 March 1991.

The silverleaf syndrome in squash, induced by the feeding of the sweetpotato whitefly (*Bemisia tabaci* (Gennadius)), is widespread in Florida (2). Populations of *B. tabaci* from the desert southwest have previously not been capable of inducing typical silverleaf (1). Recent isolations of *B. tabaci* from California desert regions have shown these populations to be a mixture of biotypes that differ in a number of ways, including ability to induce silverleaf of squash. The physiological differences of the newly introduced whitefly biotype, including host preference, larval development, and induction of silverleaf symptoms, clearly distinguish it from the common biotype. Double-stranded RNA bands were not detected from nymph-infested leaves or from symptomatic tissue, suggesting that whitefly-induced silverleaf in California is similar to a systemic phytotoxemia. The occurrence of the silverleaf-inducing whitefly biotype on nursery stock, including poinsettia and hibiscus, in various parts of the state and the movement of such nursery stock from Florida to California are the probable vehicles for introduction of this new disease problem in California.

References: (1) N. Bharathan et al. Plant Pathol. 39:530, 1990. (2) R. K. Yokomi et al. Phytopathology 80:895, 1990.

Occurrence of Fusarium Stalk Rot on a Supersweet Corn Cultivar in Oklahoma. V. M. Russo, USDA-ARS, South Central Agricultural Research Laboratory, POB 159, Lane, OK 74555, and C. L. Patterson, Wes Watkins Agricultural Research and Extension Center, Oklahoma State University, POB 128, Lane 74555. Plant Dis. 75:862, 1991. Accepted for publication 1 April 1991.

Stalks of supersweet corn (*Zea mays* L. var. *rugosa* Bonaf. 'Florida Staysweet') grown in Lane, Oklahoma, were periodically collected (from about 14 days before tasseling through harvest) and split longitudinally. Purple discoloration was consistently associated with nonvascular tissue in the nodes, but no symptoms were noted on external tissues and symptoms did not develop further in internal stalk tissues. *Fusarium moniliforme* J. Sheld., incitant of Fusarium stalk rot (1), was isolated from affected nodal tissues. An ice pick drawn across the surface of *F. moniliforme* colonies obtained from infected field plants was inserted into the second to fourth nodes of Florida Staysweet plants (six-node stage) grown in a greenhouse, then withdrawn. The wounded areas were secured with Parafilm. Wounded, uninoculated plants served as controls. *F. moniliforme* was verified as the pathogenic organism because symptoms identical to those observed in the field developed on inoculated plants and *F. moniliforme* was reisolated from infected tissue. This is the first confirmed diagnosis of the disease on sweet corn in Oklahoma. Infection with *F. moniliforme* reduces germination of kernels of some sweet corn genotypes (2). Factors inhibiting development of *F. moniliforme* in Florida Staysweet may be related to the cultivar's lack of susceptibility to the four-leaf dieback syndrome that affects some sweet corn *sh2* genotypes.

References: (1) D. C. Foley. Phytopathology 52:870, 1962. (2) J. M. Headrick and J. K. Pataky. Plant Dis. 73:887, 1989.

Occurrence of Oak Bacterial Leaf Scorch Caused by *Xylella fastidiosa* in Kentucky. J. R. Hartman, C. A. Kaiser, U. E. Jarlfors, and B. C. Eshenaur, Department of Plant Pathology, University of Kentucky, Lexington 40546; and P. R. Bachi and W. C. Dunwell, Research and Education Center, P.O. Box 469, Princeton, KY 42445. Plant Dis. 75:862, 1991. Accepted for publication 4 March 1991.

Bacterial leaf scorch of landscape trees, caused by *Xylella fastidiosa* Wells et al, has been reported in the Atlantic and Gulf coast states from New York to Texas. In Kentucky, the disease was first identified in three pin oaks (*Quercus palustris* Münchh.) in Lexington in October 1987. The trees showed premature leaf browning and defoliation, and the leaves had a marginal necrosis. The disease was confirmed by detecting the pathogen with an ELISA test specific for *Xylella* (Agdia, Inc., Elkhart, IN) and by direct electron microscopic observation of the causal agent in leaf petiole tissues. The bacterial cell wall was scalloped or rippled, which is typical for this xylem-limited bacterium. In symptom- and ELISA-based surveys of trees in October 1989 and 1990, pin oak bacterial leaf scorch was found in 11 Kentucky cities and towns ranging from Lexington in the east to Paducah in the west. The disease was also found in two northern red oaks (*Q. rubra* L.) in Lexington and Owensboro.

First Report of *Phoma* spp. on White Lupine in North America. T. C. Paulitz and E. Cote, Department of Plant Science, Macdonald College of McGill University, Ste. Anne de Bellevue, Quebec, Canada H9X 1C0. Plant Dis. 75:862, 1991. Accepted for publication 4 April 1991.

White lupine (*Lupinus albus* L.) is grown in Quebec as a possible forage legume adapted to cool spring soil temperatures. Lupines collected at Ile D'Orleans and Emil Lods Seed Farm of Macdonald College in southern Quebec showed reddish brown lesions on the lower stems. Lesions originated from petiole scars and contained concentric rings of brown-black pycnidia. Similar lesions were observed on mature pods. The fungus was identified as *Phoma* sp. on the basis of conidial and pycnidial morphology on potato-dextrose and V8 juice agars. Leaves and stems of white lupine plants were inoculated (by airbrush or wounding) in the greenhouse with a spore suspension of *Phoma* spp. Plants were incubated at 20 C for 48 hr at 100% relative humidity. After 1 wk, inoculated plants were defoliated and characteristic lesions formed on stems. *Phoma* sp. was reisolated from stem lesions and was also isolated from surface-disinfested, discolored brown seed. Similar inoculations of alfalfa (*Medicago sativa* L. 'Vernal'), pea (*Pisum sativum* L. 'Laxton Progress'), soybean (*Glycine max* (L.) Merr. 'Maple Arrow'), and red clover (*Trifolium pratense* L.) produced no symptoms. On the basis of these studies, the fungus is probably *Phoma lupini* Ellis & Everh., reported on *L. mutabilis* Sweet in Peru and on native lupines in the western United States. To our knowledge, however, no species of *Phoma* has been reported on cultivated lupines in North America.

Tomato Spotted Wilt Virus Resistance in *Capsicum chinense* PI 152225 and 159236. L. L. Black, H. A. Hobbs, and J. M. Gatti, Jr., Department of Plant Pathology and Crop Physiology, Louisiana Agricultural Experiment Station, Louisiana State University Agricultural Center, Baton Rouge 70803. Plant Dis. 75:863, 1991. Accepted for publication 18 April 1991.

Greenhouse evaluations of pepper (*Capsicum* spp.) lines for reactions to tomato spotted wilt virus (TSWV) led to identification of two TSWV-resistant *C. chinense* Jacquin accessions, PI 152225 and PI 159236. Plants of both accessions developed concentric necrotic local lesions on mechanically inoculated leaves and cotyledons. Inoculated cotyledons generally abscised within 1 wk; inoculated leaves that developed numerous local lesions also abscised. Necrosis remained confined to inoculated leaves and cotyledons in most plants, although an occasional plant developed systemic necrosis. Symptomless foliage above the inoculated leaves tested negative for TSWV by ELISA. The accessions responded similarly to seven Louisiana TSWV isolates recovered from pepper, tomato, and weed species. Progeny derived from selfed plants of the two accessions that showed local lesions reacted the same as the parent plants when inoculated with TSWV. Some progeny derived from crosses between the accessions and TSWV-susceptible *C. annuum* L. lines developed local lesions, suggesting that the resistance is heritable.

Velvetleaf, a New Host for *Sclerotinia sclerotiorum*. H. R. Dillard and A. C. Cobb, Department of Plant Pathology, Cornell University, New York State Agricultural Experiment Station, Geneva 14456; and B. T. Bozard, 11686 Ridge Rd., Medina, NY 14103. Plant Dis. 75:863, 1991. Accepted for publication 3 April 1991.

In 1990, velvetleaf (*Abutilon theophrasti* Medik.) was abundant in some fields of cabbage (*Brassica oleracea* L. var. *capitata* L.) in New York. Removal of this weed had been delayed because of frequent rains in August and September. Several velvetleaf plants were observed with white cottony fungal growth on the flowers and bleached areas on the main stem and petioles. Sclerotia were present on the surface of the affected stems and in the stem pith. *Sclerotinia sclerotiorum* (Lib.) de Bary was isolated from symptomatic velvetleaf tissue. Cabbage plants in direct contact with diseased velvetleaf also showed symptoms of Sclerotinia rot. Sclerotinia rot of cabbage was previously reported in association with infestations of ragweed in cabbage fields (1). Velvetleaf plants were grown in the greenhouse for 11 wk until blossoms were produced. A spore suspension (25,000 ascospores per milliliter) of *S. sclerotiorum* was atomized onto the blossoms, and the plants were incubated in a moist chamber for 10 days. The symptoms that developed were similar to those observed on naturally infected plants, and the pathogen was reisolated from the blossoms. This appears to be the first report of *S. sclerotiorum* on velvetleaf.

Reference: (1) H. R. Dillard and J. E. Hunter. Plant Dis. 70:26, 1986.

Association of Tomato Spotted Wilt Virus with Foliar Chlorosis of Peanut in Georgia. A. K. Culbreath, A. S. Csinos, and T. B. Brenneman, University of Georgia, Coastal Plain Experiment Station, Tifton 31793; J. W. Demski, Georgia Experiment Station, Griffin 30223; and J. W. Todd, Coastal Plain Experiment Station, Tifton, GA 31793. Plant Dis. 75:863, 1991. Accepted for publication 2 April 1991.

Peanut (*Arachis hypogaea* L.) plants with general foliar chlorosis and root necrosis were observed in Georgia in peanut fields having high incidence of tomato spotted wilt virus (TSWV) in September and October 1989 and 1990. Twenty to 30 plants with these symptoms, but without other symptoms indicative of TSWV or other diseases, were collected from each of four fields in Tift County in October 1989 and from one field in October 1990. Adjacent asymptomatic plants also were collected in 1990. Samples of leaf and root tissue were assayed for the presence of the common or "L" strain of TSWV using a commercial ELISA (Agdia, Inc., Elkhart, IN). Root tissue also was plated on potato-dextrose agar for isolation of fungi. TSWV was detected in 92, 70, 92, and 88% of root samples and 0, 0, 32, and 8% of leaf samples from the four locations in 1989, and *Fusarium* sp. was isolated from 60, 56, 64, and 96% of the root samples. In 1990, TSWV was detected in 90 and 23% of root and foliar samples, respectively, from chlorotic plants vs. 23 and 0%, respectively, from asymptomatic plants. *Fusarium* sp. was isolated from 53% of chlorotic plants and 56% of healthy plants. The roles of TSWV and *Fusarium* sp. in development of the chlorosis and root necrosis have not been elucidated. However, TSWV was detected more often in roots of chlorotic plants than in roots of asymptomatic plants, whereas *Fusarium* sp. was equally abundant in both.

First Report of *Ulocladium cucurbitae* on Cucumber in California. K. F. Sims, San Diego County Department of Agriculture, 5555 Overland Ave., San Diego, CA 92123, and T. E. Tidwell and D. G. Fogle, California Department of Food and Agriculture, 1220 N Street, Sacramento 95814. Plant Dis. 75:863, 1991. Accepted for publication 18 April 1991.

A leaf spot disease was observed on Dasher II cucumber (*Cucumis sativus* L.) in commercial plantings in San Diego County, California. Symptoms consisted of irregular brown necrotic spots that darkened with age. Spots were delimited by major veins, but not by smaller veins, and measured 0.5–2 cm in diameter. Isolations from leaf spots yielded what appeared to be a mixture of *Ulocladium* and *Alternaria* cultures. Single-spore cultures revealed that both spore types belonged to the same fungus, *U. cucurbitae* (Letendre & Roumeguere) E. Simmons (1). Single-spore cultures from ulocladioid spores were used to confirm pathogenicity of the fungus on Dasher II cucumber in the greenhouse. After 8 days, the inoculated cucumbers had symptoms identical to those of the original plants, and cultures of the reisolated fungus yielded both the alternarioid and ulocladioid spore types. On the basis of symptoms and fungal identification, this is the same disease reported by Zitter and Hsu in New York (2). This is the first report of the disease in California.

References: (1) E. G. Simmons. Mycotaxon 14:44, 1982. (2) T. A. Zitter and L. W. Hsu. Plant Dis. 74:824, 1990.

Race 23N of *Exserohilum turcicum* in Florida. J. K. Pataky, Department of Plant Pathology, University of Illinois, Urbana 61801; M. L. Carson, USDA-ARS, North Carolina State University, Raleigh 27695; and P. R. Mosely, Illinois Foundation Seeds, Inc., Champaign 61820. Plant Dis. 75:863, 1991. Accepted for publication 15 May 1991.

Race 0 (*Ht1,Ht2,Ht3,HtN/0*) and race 1 (*Ht2,Ht3,HtN/Ht1*) of *Exserohilum turcicum* (Pass.) K.J. Leonard & E.G. Suggs are prevalent and race 23 (*Ht1,HtN/Ht2,Ht3*) is rare in North America (D. R. Smith. Proc. 20th Annu. Corn Breeders School, 1984). Race 23N (*Ht1/Ht2,Ht3,HtN*) was reported from Texas and Hawaii and race 2N (*Ht1,Ht3/Ht2,HtN*) was found in Hawaii in 1988 (1). In May 1990, we surveyed sweet corn (*Zea mays* L.) breeding nurseries and hybrid trials in central Florida where many supersweet (*sh2*) hybrids carry the gene *Ht1*. Lesions were collected from four fields near Belle Glade and one field near Zellwood. Of 94 isolates of *E. turcicum* assayed, 76 were identified as race 1, 15 as race 0, 1 as race 23, and 2 (from different fields near Belle Glade) as race 23N. Virulence of races 23 and 23N was confirmed in independent greenhouse trials in Urbana, Illinois, and Raleigh, North Carolina. This is the first report, of which we are aware, of virulence in Florida matching the genes *Ht2, Ht3,* and *HtN* and of the occurrence of race 23N in North America other than in Texas.

Reference: (1) J. M. Windes and W. L. Pedersen. Plant Dis. 75:430, 1991.

Salute to APS Sustaining Associates

This section is designed to help APS members understand more about APS Sustaining Associates. Information was supplied by company representatives. Each month different companies are featured. A complete listing appears in each issue of *Phytopathology*.

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Busch Agricultural Resources, Inc. Contact: Michael Bjarko, Barley Breeder, 3515 E. Co. Rd. 52, Ft. Collins, CO 80524; 303/221-5622, Fax: 303/482-5965. Busch Agricultural Resources is the agricultural subsidiary of Anheuser-Busch, Inc., and the supplier of the malted barley, hops, and rice used in the brewing of Anheuser-Busch beers. Its efforts are concentrated into six major areas of operation: malting barley; hops contracting and production; rice contracting, milling, and marketing; land application and turf marketing; agricultural research in barley, rice, and hops; and a grain/seed operation network for the contracting, processing, and storage of malting barley and seed. The company supports research in an effort to control diseases of barley, rice, and hops.

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