

Disease Notes

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First Report of *Balansia* on *Andropogon bicornis* and *Panicum campestre* in the Savannas of Colombia. H. Koga, National Grassland Research Institute, Nishinasuno, Tochigi 329-27, Japan; and S. Kelemu and M. S. Sanchez, Centro Internacional de Agricultura Tropical, A.A. 6713, Cali, Colombia. *Plant Dis.* 79:1074, 1995; published on-line as D-1995-0809-01N, 1995. Accepted for publication 31 July 1995.

The savannas of the eastern plains of Colombia cover an area of approximately 5.5 million hectares. There are at least 153 documented plant species, which belong to 93 genera and 34 families. *Andropogon bicornis* L. and *Panicum campestre* Nees are among the predominant native plant species in the Colombian savanna ecosystem. Dark brown to black ascromata on abaxial surfaces of unrolling leaves of *A. bicornis* were observed during a survey conducted in November, 1994, in Carimagua, Colombia, (latitude: 04°37'N; longitude: 71°26'E; altitude: 150 to 175 m; mean annual rainfall: 2,100 mm; mean annual temperature: 26°C). Perithecia were ovoid (130 to 330 × 90 to 140 µm) and ostioles were short necked. Filamentous asci (90 to 200 × 2 to 6 µm) contained ascospores that were approximately the same length as the ascus. Gray to black circlets of ascromata were observed on *P. campestre* stems just below the nodes. The morphology of perithecia, asci, and ascospores of the fungus on *P. campestre* were similar to those on *A. bicornis*, with perithecia size of 180 to 330 × 120 to 140 µm, and asci of 90 to 180 × 3 to 6 µm. Using Diehl's classification, the fungus on *P. campestre* was identified as *Balansia henningsiana* (A. Möller) Diehl, and that on *A. bicornis* was identified as *B. subnodosa* Atk. in Chárdon. Scanning electron microscopy of transverse sections of infected tissues of both plants showed that the hyphae of these fungi developed in the intercellular spaces of host leaf blades. These results suggest that the two *Balansia* species are endophytic. This is the first report of *Balansia* on *A. bicornis* and *P. campestre* in the savannas of Colombia. Voucher specimens have been deposited at CIAT, Colombia, and NGRI, Japan.

Two New Races of *Phytophthora sojae*, Causal Agent of Phytophthora Root and Stem Rot of Soybean, Identified from Arkansas Soybean Fields. R. N. Henry and T. L. Kirkpatrick, Southwest Research and Extension Center, 362 Highway 174 N, University of Arkansas, Hope 71801. *Plant Dis.* 79:1074, 1995; published on-line as D-1995-0814-01N, 1995. Accepted for publication 28 July 1995.

Isolates of *Phytophthora sojae* M. J. Kaufman and J. W. Gerdemann were collected in April and May of 1994 from soil of Arkansas soybean (*Glycine max* L. Merr.) fields during a survey to determine incidence and predominant races. Soil samples were collected from 54 random fields in 23 counties and were evaluated using a seedling bio-assay developed by Schmitthenner (1). Soybean cultivar Sloan was used as a bait for *P. sojae*. Single-zoospore cultures, selected from isolates of the pathogen recovered in the bio-assay, were screened for race using the hypocotyl-wound technique. Cultivars were Harlon (Rps 1), Harosoy 13xx (Rps 1-b), Williams 79 (Rps 1-c), P. I. 103.091 (Rps 1-d), Williams 82 (Rps 1-k), L83-570 (Rps 3), Harosoy 62xx (Rps 6), and Harosoy (Rps 7). The virulence evaluation technique (1) was modified by substituting dilute lima bean agar for V8 juice agar and using 400 watt metal halide lights instead of fluorescent lights. An isolate collected from Chicot County in southeastern Arkansas was pathogenic on each of the eight differential cultivars. This test was repeated five times with consistent results. Another isolate from Woodruff County was pathogenic on every differential cultivar except P. I. 103.091. The differential test for this isolate was repeated three times with the same result. Neither of these virulence patterns has been previously reported for field-collected isolates (1,2). We propose these as races 38 and 39, respectively.

References: (1) A. F. Schmitthenner et al. *Plant Dis.* 78:269, 1994. (2) H. Förster et al. *Mol. Plant-Microbe Interact.* 7:780, 1994.

Citrus Chlorotic Dwarf: A New Whitefly-Transmitted Viruslike Disease of Citrus in Turkey. S. Korkmaz, A. Cinar, and U. Kersting, Subtropical Fruits Research and Experimental Centre, University of Cukurova, 01330 Adana, Turkey; and S. M. Garnsey, USDA, ARS, Horticultural Research Laboratory, 2120 Camden Road, Orlando, Fla. 32803. *Plant Dis.* 79:1074, 1995; published on-line as D-1995-0815-01N, 1995. Accepted for publication 11 August 1995.

A viruslike disorder of citrus has rapidly spread in citrus plantations along the south coast, where about 85% of the country's total citrus production is concentrated. Citrus infectious variegation virus (CIVV) was first suspected but extracts from diseased tissue failed to react with CIVV-specific antisera in enzyme-linked immunosorbent assay, and mechanical transmission by leaf inoculation, readily accomplished with CIVV, was unsuccessful. The causal agent was transmissible by grafting and stem-slash inoculation with buffered leaf extracts (1), with infection rates ranging from 5% for 5 cuts to 72% for 100 cuts. In laboratory tests, the disease agent was repeatedly transmitted from citrus to citrus by the Japanese bayberry whitefly, *Parabemisia myricae* (Kuwana). When 15 to 20 whiteflies per receptor plant were used, transmission rates were 18 and 46% with inoculation access periods of 24 and 48 h, respectively. On all susceptible varieties, the first distinct symptom of this new whitefly-transmitted disease, "Citrus Chlorotic Dwarf" (CCD), is a V-shaped notch on one or both sides near the tip of young leaves. In mature leaves, symptoms are crinkling, warping, inverted cupping, and variegation. Symptoms occur at 20 to 25°C and are more pronounced at 30 to 35°C. The first symptoms are observed on the first or second new flush of growth, 5 to 8 weeks after inoculation. Systemically infected plants are also stunted. In a disease survey of Icel, Adana, and Hatay provinces, 55 orchards (total area, 350 ha) were checked, and 20.3% of 4,407 randomly selected trees were affected: 30.7% of lemon, 18.2% of grapefruit, 17.4% of mandarin, and 6.2% of sweet orange trees had CCD symptoms. Incidence of this graft-transmissible, whitefly-vectored pathogen is increasing in the East Mediterranean region of Turkey.

Reference: (1) S. M. Garnsey and R. Whidden. *Plant Dis. Rep.* 57:886, 1973.

A Disease of Wheat Caused by Indian Peanut Clump Virus (IPCVC). P. Delfosse, A. S. Reddy, P. S. Devi, A. K. Murthy, S. V. Wesley, R. A. Naidu and D. V. R. Reddy, Crop Protection Division, International Crops Research Institute for the Semi-Arid Tropics, Asia Center, Patancheru 502 324, A.P., India. *Plant Dis.* 79:1074, 1995; published on-line as D-1995-0816-01N, 1995. Accepted for publication 7 August 1995.

During the 1994-95 post-rainy season, wheat (*Triticum aestivum* cv. Sonalika) was grown under irrigation in two fields infested with the Hyderabad isolate of Indian peanut clump virus (H-IPCVC). The crop was sown in the last week of November. Wheat plants were scored at regular intervals. Very few seedlings, when 1 week old, showed the presence of H-IPCVC as tested by enzyme-linked immunosorbent assay, and none showed any overt symptoms. Three weeks after emergence, a large number of plants were infected. All infected plants had symptoms of severe stunting, dark green leaves, and mosaic symptoms on the youngest leaves, and tested positive for H-IPCVC antigens. From infected wheat leaf samples, typical IPCVC particles could be trapped and fully decorated when a polyclonal antiserum to H-IPCVC was used in immunosorbent electron microscopy. Typical field symptoms of IPCVC could be reproduced in wheat when H-IPCVC isolated from peanut was sap-inoculated onto roots of the cereal in glasshouse experiments. Results clearly showed that H-IPCVC can infect wheat under natural conditions. Since wheat is widely grown in many IPCVC-infested soils in the states of Rajasthan and Punjab, surveys will be conducted to assess the economic importance of IPCVC on wheat. This is the first report to show that IPCVC can cause a disease in a cereal crop.

First Report of Broad Bean Wilt Fabavirus in Florida. L. L. Breman and L. G. Brown, Florida Department of Agriculture and Consumer Services, P.O. Box 147100, Gainesville 32614; S. W. Scott, Clemson University, Clemson, S.C. 29631; and R. G. Christie, University of Florida, Gainesville 32611. *Plant Dis.* 79:1075, 1995; published on-line as D-1995-0816-02N, 1995. Accepted for publication 25 July 1995.

In December 1993, broad bean wilt fabavirus (BBWV-FL) was detected in greenhouse-grown *Verbena × hybrida* Voss. plants in Alachua County, Florida. Infected plants were stunted and had mottled and rugose foliage. Manually inoculated *Chenopodium quinoa* Willd., *Datura stramonium* L., and *Nicotiana clevelandii* Gray developed local and/or systemic symptoms as previously described for BBWV (2). Symptomatic *C. quinoa* leaves were tested by immunodiffusion with serotype 1 BBWV antiserum (2). Homologous precipitin lines of BBWV-1 fused, without spur formation, with those of BBWV-FL. Red-violet cytoplasmic crystalloid and amorphous inclusions like those described previously for BBWV (1) were observed in epidermal cells of *V. × hybrida*, *C. quinoa*, and other plants manually inoculated with BBWV-FL. Inclusions were most abundant in cells overlying vascular tissues.

References: (1) J. R. Edwardson and R. G. Christie. *Fla. Agric. Res. Stn. Monog.* 14: 95, 1986. (2) S. W. Scott and O. W. Barnett. *Plant Dis.* 68:983, 1984.

First Report of *Oidium mangiferae* on *Mangifera indica* in Greece. V. A. Bourbos and M. T. Skoudridakis. National Agricultural Research Foundation, Subtropical Plants and Olive Trees Institute of Chania, Laboratory of Plant Pathology, 73100 Chania, Crete, Greece. *Plant Dis.* 79:1075, 1995; published on-line as D-1995-0821-01N, 1995. Accepted for publication 28 July 1995.

Immature leaves of 3-year-old mango trees (*Mangifera indica* L. cv. Haden) imported from Israel and growing in a greenhouse in Crete, Greece, were found to be infected by the fungus *Oidium mangiferae* Berthet, in June 1994. The perfect stage of the fungus was not found. The conidia were aseptate, hyaline, elliptical to barrel-shaped, 35 to 42 × 20 to 28 µm, and did not contain fibrosine bodies. Conidia were produced in chains from single conidiophores. The infected leaves showed leaf curl symptoms. In warm, dry weather, the upper leaf surfaces were covered

irregularly by a fine farinaceous mildew that could be removed by rubbing, resulting in a bluish to dark-colored surface. Occasionally, small lesions were surrounded by brown halos. When infection was severe, the lesions coalesced and a significant part of the leaf surface was dried. Old leaves were not infected. This is the first report of powdery mildew on mango in Greece.

First Report of Grapevine Bois Noir Phytoplasma in Spain. A. Laviña and A. Batlle, Departament de Patologia Vegetal, IRTA, 08348 Cabrils (Barcelona), Spain; and J. Larrue, X. Daire, D. Clair, and E. Boudon-Padieu, Station de Recherches sur les Mycoplasmes des Plantes, INRA, BV 1540-21034 Dijon Cedex, France. *Plant Dis.* 79:1075, 1995; published on-line as D-1995-0823-01N, 1995. Accepted for publication 10 August 1995.

During the last 5 years, a grapevine yellows disease has been observed on *Vitis vinifera* cv. Chardonnay in several viticultural areas of Catalonia (northeastern Spain). The symptoms observed include leaf roll, vein chlorosis and necrosis, withering of flowers, and absence of lignification in autumn. Flavescence dorée (FD), a phytoplasma disease, was suspected because of the presence of the leafhopper *Scaphoideus titanus* Ball, the vector of FD, in affected vineyards. In late summer and autumn 1994, when typical yellows symptoms appeared in Catalonia, leaves from symptomatic plants were collected. The DNA was extracted from phytoplasma-enriched fractions from main leaf veins (2). The primers used were designed for specific amplification of a part of the 16S rRNA gene from all known phytoplasmas (1). *AluI* restriction profiles of the amplified fragments showed that the grapevine phytoplasma belonged to the aster yellows (AY) phytoplasma group and was present in all symptomatic plants tested. Further analysis with specific primers (X. Daire, unpublished) indicated that the phytoplasma was most closely related to the stolbur phytoplasma, a subgroup of the AY phytoplasma group, and therefore similar to the phytoplasma associated with bois noir (BN) disease in France (2). Although the BN and FD phytoplasmas cause similar symptoms, the vector of FD, *S. titanus*, cannot transmit the BN phytoplasma. This is the first report of grapevine BN phytoplasma in Spain.

References: (1) E. Seemüller et al. *Int. J. Syst. Bacteriol.* 44:440, 1994. (2) X. Daire et al. *Vitis* 32:159, 1993.