Disease Notes


During March, 1997, a leaf rust was observed on Vaccinium corosum L. cv. Bluegold in Argentina. Leaf lesions began as chlorotic flecks that expanded and developed into necrotic spots with severalured leaflets. The typical orange pustules of the disease developed mostly on the abaxial sides of leaves. Urediospores were elliptical to obovate (17 to 28 x 11 to 23 µm) and usually verrucose. They were round, covered by epidermis, slightly elevated, and brown to black. Teliospores were sessile and oblong to columnar (7 to 11 x 14 to 17 µm) with two or more vertical cell walls, and were smooth and brown. Urediospores and teliospores morphologically and dimensions were consistent with the description of Pucciniastrum vaccinii (G. Wint.) Järst. (syn. P. myrnilli Arr.) (1). A patho- genicity test was conducted with 18-month-old cv. Bluegold plants. Fully expanded leaves were sprayed, using a hand-held sprayer, with freshly collected uredospores (1 mg of spores per ml of 0.05% water solution of Tween 20), covered with plastic bags, and placed in a growth chamber at 20°C for 48 h with 12 h of light per day. The plastic bags were then removed and the plants maintained in a greenhouse. After 10 days, orange rust pustules similar to the original symptom developed on all plants. As the rust was not reported on ornamental Ericaceae in Argentina, and hemlock, the alternate host, is not present in the area, it is suggested that P. vaccinii is cycling on blueberry. This is the first report of P. vaccinii on blueberry in Argentina.


Amaranthus hybridus (common name: amaranth) is a fast-growing crop with nutritious leaves and seeds that is cultivated in semi-arid regions throughout the world. In South Africa, cultivation of this crop as a leafy vegetable is increasing. In autumn 1997, extensive tissue discoloration and decay were observed in branches, stems, and root collars of mature A. hybridus in Bloemfontein, Free State Province. Symptoms included discoloration of the stem and xylem, and pith, black cankers, and weakened stems prone to wind breakage. Examination of these tissues revealed larval galleries of the pigweed weevil (Dipturus furcatus), the main insect pest of A. hybridus in South Africa (1). Six-month-old A. hybridus stems were split and small samples of discolored tissue adjacent to the larval galleries of each stem and the associated larvae were placed aerobically on corn-meal agar containing streptomycin and incubated for 4 to 7 days. The seven fungi most frequently isolated from the discolorated stem tissues (n = 166) were Fusarium subglutinans (46%), a Phomopsis sp. (11%), Alternaria alternata (10%), F. oxysporum (9%), F. solani (5%), a Phoma sp. (5%), and F. subcordatum (4%). The most frequent fungus most frequently isolated from the larval tissues (n = 90) were F. subglutinans (46%), F. solani (8%), F. equiseti (8%), F. oxysporum (7%), A. alternata (6%), a Phomopsis sp. (4%), F. subcordatum (2%), F. subcordatum (2%), and a Phoma sp. (2%).

Stems of greenhouse-grown A. hybridus were inoculated with the seven most common species isolated from the discolorated stem tissues. One isolate of each species was used. Inoculations involved wounding stems by removing approximately 36 mm of the epidermis 5 cm above the soil, placing a colorized water agar plug on the wound, and wrapping Parafilm around the stems at the wound site. Wounded and nonwounded (untreated) controls were also included. A noncolozinated water agar plug was applied to wounded controls but not to nonwounded controls. Ten plants per isolate and 10 wounded and nonwounded control plants were used in each of two separate trials (180 total plants). Treatments were assigned randomly. Four weeks after inoculation, canker lengths were measured and stem sections were surface disinfected and transferred to water agar plates. The presence of the fungi was confirmed after 20 days. Only F. subglutinans, F. oxysporum, and F. subglutinans caused cankers with frequencies of 100, 100, and 65% (n = 20), and mean lesion lengths of 50, 26, and 26 mm, respectively. Lesions were never observed on either of the controls. Discoloration and cankers were similar to that observed in the field. F. subglutinans, F. oxysporum, and F. subglutinans were recovered from 65, 50, and 60% of the tissues, respectively, and none of the Fusarium spp. were recovered from the control treatments (n = 20 for all). In artificial inoculations, these species can act as pathogens independent of the pigweed weevil and are likely the cause of the discoloration, decay, and cankers observed in branches, stems, and root collars of wild A. hybridus. However, there are no prior reports of a Fusarium spp. causing disease on A. hybridus, and it has not been studied in all symptomatic tissues in the field. Further studies are needed to determine the potential for significant disease loss associated with this insect-fungal association and the potential role of these fungi in further weakening Amaranthus species that are colonized by H. furcatus.


American grapevines (Vitis labrusca L. 'Niagara'; V. x labruscana L. H. Bailey 'Concord' and ' Catawba'; V. labrusca × V. riparia Michx. 'Elvira') from 24 vineyards in the New York portion of the Lake Erie production region (≥13,000 ha cultivated) were tested to explore a possible relationship between virus infection and an unexplained fruit set malady in the district. One-year-old cane segments were collected 4 to 6 weeks before budbreak from 65 individual vines, which previously had been identified as malady positive or negative. Preparations from bark scrapings were tested for the presence of double-stranded (ds) RNA and for four leaf degeneration virus, tobacco streak virus, and grapevine leafroll associated closterovirus 3 (GLRaV-3) by enzyme linked immuno sorbent assay (ELISA). Mechanical transmission of other potential viruses to Chenopodium quinoa was attempted with sap extracted from young shoots forced from intact segments of sampled canes. GLRaV-3 was detected in 17 (26%) of the sampled vines from eight (33%) of the vineyards, but there was no apparent relationship between infected vines and the fruit set malady. Vines of all four cultivars were infected. dsRNA was detected in all 17 samples positive for GLRaV-3 plus four additional samples. No other viruses were detected. Near harvest, nine vines (from two vineyards) previously testing positive for GLRaV-3 were examined and retested; all nine tested positive again, although none showed any overt symptoms of viral infection. This is believed to be the first report of GLRaV-3 from American grape vineyards in New York. The source of these infections is unknown; all vines were self-rooted, the individual vineyards had been planted independently at different times, and V. vinifera and its hybrids are rare in the district. Wild grapevines (primarily V. riparia) are abundant in the region, although it has been suggested that leafroll disease does not occur naturally in wild North American grapevines (1). Nevertheless, our results indicate that cultivated American grapevines can be common reservoirs of GLRaV-3, and furthermore suggest the need to reassess the possibility that wild grapes also may serve as reservoirs of the virus. Trials are currently underway to determine possible effects of GLRaV-3 on cy. Concord, the most widely planted variety in the region.


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