Corynespora Leaf Spot of *Aeschynanthus pulcher* and Related Plants

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ABSTRACT

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A serious leaf spot of *Aeschynanthus pulcher* (lipstick vine) was caused by *Corynespora cassiicola*. Cross-inoculation pathogenicity trials with isolates from *Aphelandra squarrosa* (zebra plant) were positive for both hosts. Inoculation of *Nematanthus* sp., *Columnea* sp., and *Aeschynanthus marmoratus* showed varying degrees of susceptibility to *C. cassiicola* from lipstick vine. Four other members tested of the family Gesneriaceae were resistant to the pathogen.

Aeschynanthus spp. are produced throughout central Florida as popular flowering plants because of their attractive leaves and colorful flowers. A serious leaf spot disease occasionally resulting in severe defoliation of infected plants was studied in 1981. Lesions (0.5–1.0 cm in diameter) were typically sunken and brown with a purplish red margin (Fig. 1). This research was conducted to determine the causal agent of the leaf spot and to investigate the pathogenicity of the organism to relatives of the lipstick vine.

MATERIALS AND METHODS

Diseased plants of *A. pulcher* (Blume) G. Don were collected from several nurseries. Leaf tissue was surface disinfested in 0.52% sodium hypochlorite for 3 min; rinsed in sterile deionized water (SDW); and plated on potato-dextrose agar (PDA; infusion from 250 g of boiled potatoes, 20 g of dextrose, and 20 g of agar per liter), PDA amended with streptomycin sulfate at 100 μg/ml (PDAS), V-8 juice agar (V-8A; 18% V-8 juice cleared with 4.5 g of calcium carbonate and 15 g of agar per liter), and V-8A amended with streptomycin sulfate at 100 μg/ml (V-8S). Plates were incubated at 24–26 C under 12 hr/day of approximately 2.2 klux fluorescent light for 10–14 days. Fungal isolates from aphelandras were obtained using the same methods.

Pathogenicity trials were performed with rooted cuttings of lipstick vine planted in 10-cm plastic pots containing a steam-sterilized potting medium consisting of Canadian peat, cypress shavings, and pine bark (2:1:1 by volume) amended with 6 kg of Osmocote (14:14:14, slow-release fertilizer produced by Sierra Chemical Co., Milpitas, CA), 4 kg of dolomite, and 1 kg of Perk (micronutrient source manufactured by Estech Corporation, Chicago, IL) per cubic meter of medium. Plants were maintained on raised benches in a glasshouse receiving approximately 10.8 klux at 25–35 C.

Inoculum was prepared from a single conidium colony on a PDA slant by mass transfer to V-8A plates and incubated under the same conditions as the isolation plates. Ten-day-old cultures were used to prepare a conidial suspension of the pathogen in SDW and adjusted to 1×10^4 conidia per milliliter using a hemacytometer. Ten plants, each wounded with a sterile dissecting needle at the rate of one wound per each of ten leaves per plant, were inoculated by spraying with SDW or the conidial suspension to the point of runoff and placed in polyethylene bags for 48 hr. Lesion size and number were recorded weekly for 4 wk. Reisolation was made using V-8S or PDAS according to the method described above. This test was performed three times. In a separate test, unwounded plants were also inoculated and observed.

Cross-inoculation trials were made with two isolates each of *C. cassiicola* from lipstick vine and *Aphelandra squarrosa* Nees (zebra plant). Plants were started as above and wound inoculated with one of the four isolates or SDW. Five plants were used for each treatment

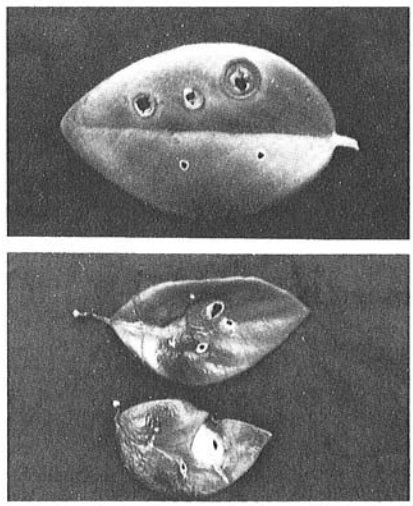

Fig. 1. *Aeschynanthus pulcher* leaf **(top)** and *Nematanthus* sp. 'Tropicana' **(bottom)** inoculated with *Corynespora cassiicola*. Infected leaves commonly abscised when lesions reached this size.

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for each species. Lesion size and number were recorded weekly for 4 wk. This test was performed three times.

The pathogenicity of lipstick vine isolates of the suspect pathogen to relatives of that plant was determined using *Aeschynanthus marmoratus* T. Moore (= *A. zebrina* Hort.) 'Black Pagoda,' *A. pulcher, Columnea* × *Banksii* Lynch., *Episcia cupreata* (Hook.) Hanst. (flame violet), *Nematanthus* sp. 'Tropicana,' *Saintpaulia ionantha* H. Wendl. (African violet), and *Sinningia speciosa* (Lodd.) Hiern. (gloxinia). Plants were grown as described above or obtained from growers and wound inoculated in the same manner. The test was performed three times using five plants of each species per treatment per test.

RESULTS

Corynespora cassiicola (Berk. & Curt.) Wei (1) was consistently isolated from leaf spots of lipstick vines. No other organism was isolated regularly from these lesions and only *C. cassiicola* was tested for pathogenicity to lipstick vine. The results of the first three tests using lipstick vine were consistent. Only plants inoculated with conidia of *C. cassiicola* developed leaf spot. Lesions were sunken, brown, and often resulted in leaf abscission (Fig. 1). In addition to occurring at wound sites, lesions developed on other inoculated leaves. *C. cassiicola* was reisolated from these lesions but not from asymptomatic plants inoculated with SDW.

Isolates of *C. cassiicola* from either aphelandra or lipstick vine were cross-pathogenic on both hosts. In general, isolates from lipstick vine incited larger lesions on both hosts than did those from aphelandra (0.5–1.0 vs 0.2–0.5 cm diameter), but the differences were not statistically significant. All isolates were capable also of causing lesions on unwounded tissue of lipstick vines but not on aphelandras.

The pathogenicity of *C. cassiicola* from lipstick vine to related plants of the family Gesneriaceae differed according to the plant species. Only wound inoculations of *Columnea* sp. and *Nematanthus* sp. resulted in lesions comparable in size (1.0 cm diameter) and frequency (70%) to those on the lipstick vine, and leaf abscission was common. Few lesions (10%, 0.2–0.5 cm diameter) developed on wounded tissue of *A. marmoratus* although this plant was taxonomically the most closely related to the lipstick vine. All other plants inoculated with the pathogen did not show any symptoms of leaf spot and were apparently resistant.

DISCUSSION

A leaf spot of *A. pulcher* (lipstick vine) was caused by *C. cassiicola*. Isolates of the pathogen from lipstick vine also caused a serious disease on aphelandra, *Columnea* sp., and *Nematanthus* sp. *C. cassiicola* causes leaf spot diseases of other ornamentals including azalea and hydrangea (3), and isolates from both azalea and hydrangea were pathogenic to both hosts in cross-pathogenicity trials. Although Corynespora leaf spot of aphelandra appears to be wound dependent (2), the same isolate causes lesions on unwounded lipstick vine. The necessity for wounding appears to be the more common infection process for *C. cassiicola* isolates (2,3) on other plants. Leaf spot did not occur in most members of the family Gesneriaceae, except in *Columnea* sp., *Nematanthus* sp., and slightly in *A. marmoratus*; however, other foliage plants are also probably susceptible. Records of the Florida Department of Agriculture and Consumer Services show isolations from *Begonia, Fittonia, Peperomia, Pilea, Pleomele, Polyscias*, and *Sedum* in addition to aphelandra and lipstick vine.

Corynespora leaf spot of lipstick vine is most severe during the spring and summer months, causing severe defoliation in conditions of high inoculum pressure, moisture, and heat. Control of the leaf spot is difficult under propagation because these conditions favor leaf spot development as well as root development. Although no fungicides are registered for use on this crop in Florida, preventive and therapeutic foliar sprays of chlorothalonil successfully reduced leaf spot severity under production conditions but have not been successful under propagation (Chase, *unpublished*). As always, avoidance of overhead watering in greenhouses and use of pathogen-free plant material are the keys to controlling leaf spot diseases.

ACKNOWLEDGMENTS

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