

Leaf Spots Caused by *Colletotrichum gloeosporioides* and *Phoma musae* on *Erythrina variegata* var. *orientalis*

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ABSTRACT

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Colletotrichum gloeosporioides and *Phoma musae* isolated from necrotic spots in leaves of Indian coral tree (*Erythrina variegata* var. *orientalis*) caused characteristic light brown to tan lesions when inoculated to healthy leaves. *C. gloeosporioides* caused spots with diffuse margins, whereas *P. musae* caused spots with distinct dark brown to purple-brown borders. This report represents an extension of the range of *C. gloeosporioides* on *Erythrina* and a new host record for *P. musae*.

On Guam and in subtropical environments of the world, Indian coral tree (*Erythrina variegata* var. *orientalis* (L.) Merrill, interp. Rumph) is employed in ornamental plantings because of its spreading habit and showy flowers (1,2). However, this tree is susceptible to leaf-spotting fungi, which affect leaves of all sizes during the wet season. Sometimes more than 50% of the area of individual leaves may be spotted, and severely affected leaves turn chlorotic and fall.

Close observation of affected leaves indicated two distinct types of spots. Both were light brown to tan; however, one showed a distinct brown to purple-brown border and the other showed a diffuse margin. Both diffuse and bordered spots were variable in size but were generally circular before coalescing. Bordered spots were generally 4–6 mm in diameter and spots with diffuse margins were 3–5 mm in diameter. Spots of both types coalesced to form larger necrotic areas. It was not obvious whether the bordered leaf spot was a later developmental stage of the spots with diffuse margins or was caused by a different microorganism. The aim of this project was to identify and establish pathogenicity of the causal organism(s).

MATERIALS AND METHODS

Affected leaves were removed from several trees, washed in warm soapy

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water, and rinsed in deionized, distilled water. Ten or more pieces of leaf tissue with bordered spots and a similar number with spots with diffuse margins were excised aseptically, placed on sterile potato-dextrose agar (PDA) (Difco) in plastic petri dishes, and incubated in darkness at 23 ± 1 C. Two fungi that were consistently recovered were isolated in pure culture.

Pathogenicity was tested as follows. In the first method, detached trifoliolate leaves were surface-disinfested and rinsed as described. The entire leaflet was sprayed with sterile, distilled, deionized water. The leaflet was then turned perpendicular to the ground and its lower half was sprayed with a dilute suspension of spores and mycelium. Care was taken to ensure that the mist was directed only to the lower half. Excess water containing spores and mycelium was allowed to run off. Nine leaflets for each fungus isolated were thus inoculated. Petioles of the leaves were placed into flasks containing tap water, and leaves and flasks were enclosed in clear plastic bags and maintained under continuous light at

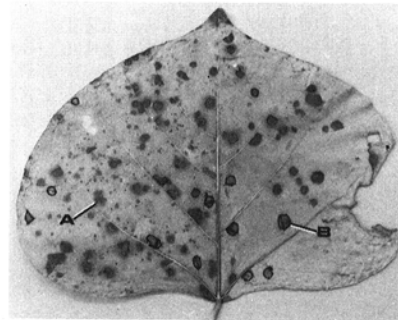


Fig. 1. Naturally infected *Erythrina* leaflet showing (A) diffuse and (B) bordered leaf spots caused by *Colletotrichum gloeosporioides* and *Phoma musae*, respectively. Causal agent(s) of small lesions on leaflet are not known.

about 24 C. In the second procedure, 18 leaflets on six trees were disinfested and inoculated with each fungus by the procedures used for detached leaves and covered with clear plastic bags secured with twist-ties.

When spots appeared on inoculated leaves, affected tissue was excised, surface-disinfested as before, and placed onto sterile PDA. Fungi recovered were compared with those with which inoculations were made.

RESULTS AND DISCUSSION

The two fungi isolated from naturally infected leaves were tentatively identified as a species of *Colletotrichum* and a species of *Peyronellaea*. Samples were sent to E. E. Davis at the American Type Culture Collection and to A. Rossman, Mycology Laboratory, USDA, Beltsville, MD, for critical identification. The fungus associated with the bordered leaf spot (Fig. 1) was identified as *Phoma musae* (Joly) Boerema, Dorenb. & Kest (syn. *Peyronellaea musae* Joly) and assigned deposit number ATCC 48111. The fungus associated with the leaf spot with diffuse margins (Fig. 1) was identified as *Colletotrichum gloeosporioides* (Penzig) Sacc. and assigned deposit number ATCC 48110. Another species of *Colletotrichum*, *C. erythrinae* Ell. & Ev., which von Arx (4) synonymized with *C. gloeosporioides*, has been reported as causing leaf spot on Indian coral tree (3).

Spots were produced on previously symptomless tissue by 3 days after inoculation of detached leaves. On attached leaves, spots occurred by 5 days after inoculation. Spots were of the two distinct types. No spots were formed on uninoculated tissue. Reisolation from these spots yielded the fungi with which the leaves were inoculated (bordered, *P. musae*; diffuse, *C. gloeosporioides*). For *P. musae*, this is the first report of this fungus causing a disease on *Erythrina*.

LITERATURE CITED

1. Kunkel, G. 1978. Flowering Trees in Sub-Tropical Gardens. W. Junk Publishers, The Hague. 346 pp.
2. Sturrock, D., and Menniger, E. A. 1946. Shade and ornamental trees for south Florida and Cuba. Stuart Daily News, Stuart, FL. 137 pp.
3. U.S. Department of Agriculture. 1960. Index of Plant Diseases in the United States. U.S. Dep. Agric. Agric. Handb. 165. 531 pp.
4. von Arx, J. A. 1957. Die Arten der Gattung *Colletotrichum*. Phytopathol. Z. 29:413-468.