

## Disease Notes (continued)

**Pathogenicity Assessment of *Puccinia lygodii*, a Potential Biological Control Agent of *Lygodium japonicum* in Southeastern United States.** M. B. Rayachhetry, Fort Lauderdale Research and Education, University of Florida, Fort Lauderdale 33314; R. W. Pemberton and L. L. Smith, USDA-ARS, Invasive Plant Research Laboratory, Fort Lauderdale, FL 33314; and R. Leahy, Division of Plant Industry, Florida Department of Agriculture and Consumer Services, Gainesville 32614. Florida Agricultural Experiment Station Journal Series R-07831. Plant Dis. 85:232, 2001; published on-line as D-2000-1201-01N, 2000. Accepted for publication 17 November 2000.

*Lygodium japonicum* (Thunb.) Swartz (Family, Schizaeaceae) is naturally distributed from Asia to Australia and has naturalized in the United States from Texas to the Carolinas and Florida (4). Recently, it has been declared a Category I weed (the most invasive group) by the Florida Exotic Pest Plant Council. A foliar rust fungus was observed on a population of *L. japonicum* growing under the canopy of a pine/hardwood forest in Gainesville, FL. The lower surfaces of almost all the pinnules (foliage) were covered with cinnamon-brown eruptive pustules. Necrotic areas developed around mature, erupted, and coalesced pustules. Severely infected foliage were wilted and dried. Microscopic observations of the pustules and spore morphology revealed these eruptive structures to be uredinia. The dimensions  $(24.6 [+ 2.2] \times 29.7 [+ 3.5] \mu\text{m})$  and morphology (ellipsoid or obovoid, pale cinnamon-brown, and echinulate with indistinct pores) of urediniospore were similar to those reported for *Puccinia lygodii* (Har.) Arth. (Uredinales) (1). Therefore, the rust was identified as *P. lygodii* and confirmed by J. Hennen. *P. lygodii* is native to South America, where it has been recorded from *L. volubile* and *L. venustum* (2). This rust was previously identified as *Milesia* and *Uredinopsis* spp. on *L. japonicum* from Louisiana and Florida, respectively (3). Herein, we report the performance of Koch's postulates for *P. lygodii* on *L. japonicum*. Excised foliage bearing uredinia from plants collected near Gainesville were placed in a flask, flooded with deionized distilled water, shaken vigorously for a few minutes, and the suspension strained through four layers of cheesecloth. Urediniospores suspended in the filtrate were concentrated to  $1.0 \times 10^6$  spores/ml, using sedimentation technique, and then misted onto 3-week-old foliage of fully expanded fronds of four juvenile *L. japonicum* plants grown in pots, until the foliage were completely wet. The plants were then covered with a plastic bag and placed in dappled shade. After 3 days, the bags were removed and the water-filled containers were placed around *L. japonicum* plants to maintain high ambient humidity. During the remaining 4-week experimental period, the temperature and relative humidity under the shaded areas ranged from 23 to 38°C and 38 to 93%, respectively. The plants were monitored daily for development of symptoms characteristics of *P. lygodii*. Minute cinnamon-brown flecks appeared on the foliage 20 days after inoculation. Within 3 to 5 days, these flecked areas expanded, erupted, and formed uredinia on the lower surface of the symptomatic foliage. The morphology and size range of the uredinia and urediniospores were the same as those of the *P. lygodii* applied in this test. This is the first report confirming pathogenicity of *P. lygodii* on *L. japonicum*. *P. lygodii* may be a potential biological control agent of *L. japonicum* in the Southeast United States.

**References:** (1) J. C. Arthur. Bull. Torrey Club 51:55, 1924. (2) J. F. Hennen and J. W. McCain. Mycologia 85:970-986, 1993. (3) J. W. McCain, J. F. Hennen, and Y. Ono. Mycotaxon 39:281-300, 1990. (4) R. W. Pemberton and A. P. Ferriter. Am. Fern J. 88:165-175, 1998.

**First U.S. Report of *Pseudocercospora paederiae* Leaf Spot on the Invasive Exotic *Paederia foetida*.** S. E. Walker and N. E. El-Gholl, Florida Department of Agriculture & Consumer Services, Division of Plant Industry, P. O. Box 147100, Gainesville 32614-7100; P. D. Pratt, USDA/ARS, Invasive Plant Research Laboratory, 3205 College Ave., Ft. Lauderdale, FL; and T. S. Schubert, Florida Department of Agriculture & Consumer Services, Division of Plant Industry, P. O. Box 147100, Gainesville 32614-7100. Plant Dis. 85:232, 2001; published on-line as D-2000-1207-01N, 2000. Accepted for publication 17 November 2000.

*Paederia foetida* L., commonly referred to as skunk vine, is a native of eastern and southern Asia and was introduced into the United States prior to 1897. By 1916 it was already a troublesome weed in central Florida. It is a fast growing perennial twining vine (up to 7 m) with a woody rootstock adapted to a wide range of light, soil, water, and salt conditions (4). Naturalized in Florida, Georgia, Hawaii, Louisiana, North Carolina, South Carolina, and Texas, it occurs most often in disturbed areas. In Florida, where it is listed by the Florida Department of Agriculture and Consumer Services as a noxious weed, it invades various native plant communities including sandhills, flood plains, and upland mixed forests, where it creates dense canopies leading to injury or death of native vegetation and structural alteration of the native plant community (2,4). Current work underway to find biological control agents for invasive weeds led to the discovery in central Florida of a skunk vine plant with irregular to angular, sunken leaf spots ranging in color from shiny black to dark brown, some with tan centers and dark brown borders. Leaf spots had coalesced in some areas, blighting portions of leaves. *Pseudocercospora paederiae* (Sawada ex) Goh & Hsieh (1,3) was recovered from these leaf spots. Fruiting was amphigenous (chiefly epiphyllous) with globular or subglobular stromata, formed singly or coalesced, 37.2  $\mu\text{m}$  wide (range = 19.9 to 62.3  $\mu\text{m}$ ). Conidia were hyaline to faintly olivaceous, with up to 6 septa, straight to mildly curved, measuring 49.6  $\mu\text{m}$  (range = 18.8 to 72.3  $\mu\text{m}$ )  $\times$  4  $\mu\text{m}$  (range = 3 to 5  $\mu\text{m}$ ). To confirm Koch's postulates, a healthy, vigorous *P. foetida* plant in a 12 liter pot was spray-inoculated with 47 ml of a conidial suspension (13,000/ml) of *P. paederiae*. The plant was covered with a clear plastic bag to create a moist atmosphere and kept at room temperature (25°C) for 3 days after which it was uncovered and moved into a greenhouse. The greenhouse temperature fluctuated between 15°C (nighttime) and 29°C (daytime). Symptoms started appearing after 2 weeks, becoming more prominent by the third and fourth week. The inoculated plant showed irregular to angular dark brown to black leaf spots with dark brown borders. Necrosis along veins was observed and severely infected leaves abscised. The fungus was consistently recovered from inoculated symptomatic leaf tissue. Continued incubation of the plant under greenhouse and outdoor raised bench conditions eventually resulted in the secondary infection and leaf spotting of new foliage. *P. paederiae* was recovered from these secondary lesions. *P. paederiae* has been previously reported from Taiwan, China, and Japan. This represents the first report of the pathogen in the Western Hemisphere. Pathogenicity tests suggest possible application as a mycoherbicide.

**References:** (1) C. Chupp. 1953. A Monograph of the Fungus Genus *Cercospora*. Cornell University Press. Ithaca, New York. (2) G. Gann and D. Gordon. Natural Areas J. 18:169, 1998. (3) W. H. Hsieh and T. K. Goh. 1990. *Cercospora* and Similar Fungi from Taiwan. Maw Chang Book, Taiwan, Republic of China. (4) K. A. Langland and K. C. Burks, eds. 1998. Identification & Biology of Non-Native Plants in Florida's Natural Areas. University of Florida Press, Gainesville, FL.