First Report of Twig Canker on Willow Caused by *Colletotrichum acutatum* in California

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Following prolonged spring rains and cool summer weather in 2010, mature weeping willow trees (*Salix babylonica* L.) growing next to a manmade lake in Marin County, CA, showed symptoms of a previously undescribed disease. During summer, small branches developed dark brown to black, sunken cankers. Canker lengths ranged from 3 to 20 cm. Within the cankered areas, affected twigs, shoots, and leaves turned brown, collapsed, and died. The distal portions of infected branches also died, giving the trees a blighted appearance. Acervuli and pink sporulation were observed in the canker tissue. When placed on acidified potato dextrose agar (A-PDA), canker tissues consistently yielded one type of fungal organism. On A-PDA, isolates produced gray aerial mycelium, acervuli, and single-celled fusiform conidia. Two isolates were identified as *Colletotrichum acutatum* based on sequence analysis of the ITS region of the ribosomal DNA and the 1-kb intron of the glutamine synthase gene (1) and fungal morphology (2,3) (GenBank Accession Nos. JQ951597 and JQ951598). The willow isolates examined were identified as *C. acutatum* based on a 99% identity of the ITS sequence with accession FR716517 and a 98% identity of the 1-kb intron sequence with accession GQ387248 in GenBank. Interestingly, the isolates were confirmed to be homothallic producing perithecia from monoconidial cultures. To demonstrate Koch's postulates, inocula were prepared from 2-week-old colonies of each of four isolates grown on A-PDA. Using containerized weeping willow trees as test material, shallow slits were cut into the epidermis of small (1.5-cm diameter or less) branches; one colonized agar plug was placed within each cut area and the epidermis was resealed by wrapping the branch with Parafilm. Ten inoculations were made for each isolate and inoculated plants were maintained in a greenhouse. After 4 weeks, inoculated branches exhibited dark cankers and twig dieback. *C. acutatum* was reisolated from all symptomatic cankers and matched the characteristics of the original isolates. Control twigs, inoculated with sterile agar plugs, did not develop any blight symptoms. This experiment was repeated and the results were the same. To our knowledge, this is the first documentation of *C. acutatum* as a pathogen of weeping willow in California. The disease resulted in repeated defoliation of trees in the Santa Venetia area of Marin County. Badly infected trees declined as a result of repeated defoliation and twig loss. Discussions with parks personnel suggested that the disease may have been present at low levels
in the area for some years, and that disease severity increased dramatically with weather that was atypically wet and cool (max. mean temps. 5.5°C cooler and 6 cm more total rainfall than the records of the previous two years) for the area during May and June 2010, when the disease was discovered.