

plant disease

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DISEASE NOTES

First Report of Laurel Wilt, Caused by *Raffaelea lauricola*, on Sassafras (*Sassafras albidum*) in Arkansas

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ABSTRACT

Laurel wilt, caused by *Raffaelea lauricola* T.C. Harrin., Aghayeva & Fraedrich, is a lethal disease that affects members of the laurel family (Lauraceae) including avocado (*Persea americana* Mill), redbay (*Persea borbonia* [L.] Spreng., Nees), and sassafras (*Sassafras albidum* [Nutt.]). The fungus is a symbiont of an exotic ambrosia beetle (*Xyleborus glabratus* Eichh.) introduced into the United States around 2002 ([Fraedrich et al. 2008](#)). The beetle, native to Asia, was first reported at Port Wentworth, Georgia. It has spread rapidly across the southeastern states transmitting *R. lauricola* and causing extensive mortality from laurel wilt disease, primarily in redbay. The mortality of about 20 sassafras trees (13 to 30 cm diameter at 137 cm height) in Bradley County near Warren, Arkansas (33.64511°N, 92.05134°W) was investigated in December 2015. Symptomatic trees had the sapwood black streaking discoloration characteristic of laurel wilt, and evidence of beetle attacks (e.g., frass tendrils) were observed on the boles of trees. Females of *X. glabratus* were subsequently discovered in galleries. Samples of the discolored sapwood were plated on cycloheximide-streptomycin malt agar (CSMA). A fungus with unique mucoid growth,

conidiophores, and budding conidia the size and shape of *R. lauricola* (Harrington et al. 2008) was consistently isolated from the tissues. The identity of *R. lauricola* was further confirmed by molecular techniques. Amplification of DNA extracted from fungal isolates was confirmed with PCR and diagnostic microsatellite primers (Dreaden et al. 2014). The PCR products were sequenced and a BLASTn search showed sequences from isolates were identical (100%) to a known *R. lauricola* sequence (GenBank accession no. KF381410). To confirm pathogenicity, two isolates (CB/AR-2 and CB/AR-4) were evaluated on redbay plants (average: 114 cm high and 14 mm in diameter at ground line). Six redbay potted plants were used: two plants for each isolate and two for the control. Plants were inoculated with agar plugs (containing mycelium/conidia) via a 3-mm diameter drill wound on the stem, and incubated at 28/26°C (day/night) temperatures in a growth chamber. After 7 weeks, all inoculated plants exhibited wilting and died, and black discoloration was observed in the sapwood. Control plants remained asymptomatic. *R. lauricola* was successfully reisolated from all symptomatic plants but not from control plants. To our knowledge, this is the first report of laurel wilt on sassafras or other lauraceous species in Arkansas. The discovery further documents the northward spread of laurel wilt in forest types with sassafras that are beyond the native range of redbay as observed in other states (Fraedrich et al. 2015). Laurel wilt was recently reported on sassafras in northern Louisiana (Fraedrich et al. 2015) about 134 km southwest of the site in Arkansas, and the current discovery represents another major “jump” in the distribution of the disease. A previous study suggested that sassafras was not highly attractive to *X. glabratus* (Hanula et al. 2008), but laurel wilt continues to spread in areas where redbay, perceived as the preferred host for the beetle, is absent.

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