

plant disease

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Disease Notes

First Report of Laurel Wilt Disease Caused by *Raffaelea lauricola* on Pondspice in Florida

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Laurel wilt is a fungal vascular disease of redbay (*Persea borbonia* (L.) Spreng) and other plants in the family Lauraceae in the southeastern United States (1). The disease is caused by *Raffaelea lauricola* T. C. Harr., Fraedrich & Aghayeva, which is vectored by the exotic redbay ambrosia beetle (*Xyleborus glabratus* Eichhoff) (2). Pondspice (*Litsea aestivalis* (L.) Fern.) is an obligate wetland shrub listed as endangered in Florida and Maryland and threatened in Georgia (4). On 29 August 2008, 369 of 430 (85%) pondspice trees observed at St. Marks Pond in St. John's County, Florida were dead and/or dying (4). Stem samples were collected from plants with wilted and reddened foliage, entrance holes with boring dust characteristic of ambrosia beetle attack, and dark discoloration in the outer sapwood. Discolored stem sections were surface disinfested for 30 s in a 5% sodium hypochlorite solution and then plated onto cycloheximide streptomycin malt extract agar (1). Smooth, cream-buff, submerge hyphae with uneven margins resembling *R. lauricola* (2) was observed growing from all sapwood pieces. DNA was extracted from a single isolate (PL 392) and the 18s small subunit rDNA was PCR amplified and sequenced with primers NS1 and NS4 (3), resulting in a 1,026-bp amplicon. A BLASTn search showed identical homology to *R. lauricola* strain PL 159 (GenBank Accession No. EU257806). The 18s small subunit rDNA sequence was deposited into GenBank (FJ514097). In May 2011, a spore suspension was made by flooding a single-spore culture plate of isolate PL 392 with 2 ml of sterile water, collecting the spores by pipette, and quantification by hemacytometer to 1.5×10^6 spores/ml. Pathogenicity tests were conducted on 1 to 1.5 m tall pondspice plants. Six saplings were wounded by a 3/32-inch drill bit, with four receiving 50 μ l of the spore suspension and two serving as water-inoculated controls. All plants were kept in a greenhouse under ambient temperature. Within 21 days, all fungal-inoculated saplings displayed complete canopy wilt, typical of laurel wilt. *R. lauricola* was later recovered from all four infected plants, completing Koch's postulates. To determine if the vector can reproduce in pondspice, infected stem sections were placed in a plastic rearing box indoors at room temperature, and both callow and mature adult female *X. glabratus* emerged in October and November 2008. Although laurel wilt has been previously observed on pondspice in South Carolina and Georgia (1), this is the first confirmation of the disease on pondspice in Florida and the first confirmation of the vector from stem material of this host.

References: (1) S. W. Fraedrich et al. *Plant Dis.* 92:215, 2008. (2) T. C. Harrington et al. *Mycotaxon* 104:399, 2008. (3) M. A. Innis et al. *PCR Protocols, A Guide to Methods and Applications*. Academic Press. San Diego, CA, 1990. (4) J. A. Surdick and A. M. Jenkins. Pondspice (*Litsea aestivalis*) Population Status and Response to Laurel Wilt Disease in Northeast Florida. Florida Natural Areas Inventory, Tallahassee, FL, 2009.