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DISEASE NOTES

First Report of *Sirosporium diffusum* Causing Brown Leaf Spot on *Carya illinoinensis* in Brazil

T. Poletto, **M. F. B. Muniz**, **E. Blume**, and **R. Mezzomo**, Department of Plant Pathology, Federal University of Santa Maria, Santa Maria, Brazil; **U. Braun**, Martin-Luther-Universität, Institut für Biologie Bereich, Geobotanik und Botanischer Garten, Herbarium, Neuwerk 21, 06099 Halle (Saale), Germany; **S. I. R. Videira**, CBS-KNAW Fungal Biodiversity Centre, Uppsalalaan 8, 3584 CT, Utrecht, The Netherlands; **R. Harakava**, Biological Institute of São Paulo, Brazil; and **I. Poletto**, Biochemistry and Biology Laboratory, UNIPAMPA, São Gabriel, Brazil.

ABSTRACT

Pecan [*Carya illinoinensis* (Wangenh.) K. Koch] is economically important in the State of Rio Grande do Sul (RS), Brazil. During December 2013, brown leaf spot symptoms were observed in orchards and nurseries on up to 85% of the trees, being more severe on cultivars Barton, Desirable, Wichita, and Mahan. By early 2016, the disease was distributed throughout the state. Symptoms began in late spring on mature leaves as round, reddish-brown spots with a dark halo, measuring 0.5 to 1.5 cm in diameter, and progressed to cause severe defoliation by late summer. Pure cultures were obtained through single-spore isolation from young, reddish-brown leaf spots on 'Barton' from an orchard in Anta Gorda (RS). The spores were plated on carrot agar medium (200 ml carrot juice, 20 g agar, 800 ml distilled water) and incubated under continuous light at 20°C for 56 days. Colonies formed brown creeping aerial mycelium with light brown conidiophores, usually singly but sometimes in fascicles, measuring 95 × 4 µm with prominent, thickened, and darkened conidiogenous loci. Conidia were light brown, often curved, smooth, tapered toward the distal end, with 0 to 21 septa, and measuring 20 to 157 × 2.75 to 5 µm, with a thickened and darkened hilum at the base. Morphological characteristics fit the description of *Sirosporium diffusum* (Heald & F. A. Wolf) Deighton (Ellis 1976). A partial region of *tef1*-α gene and the ITS region were amplified using the primers EF1 and EF2 (O'Donnell and Cigelnik 1997) and ITS1 and ITS4 (White et al. 1990), respectively. Although there were no previous sequences of this fungus deposited in GenBank, both ITS and *tef1*-α sequences were 100% identical to the respective unpublished sequences of a culture of *S. diffusum* currently deposited at the CBS-KNAW collection (CBS 106.14). The sequences of our isolate were deposited in GenBank (accession numbers KX344494 and KU534938, respectively). A pathogenicity test was performed to fulfill Koch's postulates. Twenty detached mature leaflets of 'Barton' were inoculated each with 100 µl of spore

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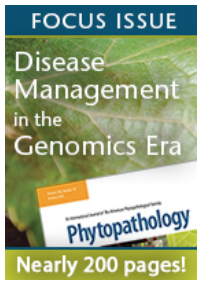
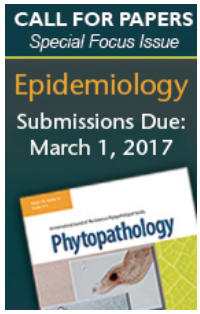
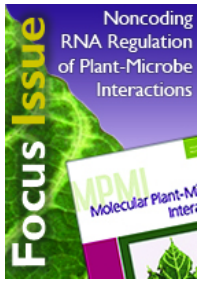




suspension (2×10^5 spores ml^{-1}), divided into six drops, and distributed separately on the adaxial leaf surface. Twenty detached mature leaflets were used as controls and were treated with distilled water. The leaflets were maintained in sterile plastic boxes with two moistened sheets of filter paper at 23 ± 1°C and a 12-h photoperiod. The test was repeated three times. The original disease symptoms were observed on the inoculated leaves after 9 days, but not on the control leaves. Subsequently, the pathogen was reisolated from the lesions and identified as *S. diffusum*. This is the first report of *S. diffusum* causing brown leaf spot on *C. illinoinensis* in Brazil. The identification of this pathogen will allow the study of strategies for managing the disease in Brazil.



References:

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Ellis, M. B. 1976. More Dematiaceous Hyphomycetes. CMI, Kew, Surrey, U.K.

O'Donnell, K., and **Cigelnik, E.** 1997. Mol. Phylogenet. Evol. 7:103. 10.1006/mpev.1996.0376 [CrossRef] [ISI]

White, T., et al. 1990. Page 315 in: PCR Protocols: A Guide to Methods and Applications. Academic Press, San Diego. [CrossRef]

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