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DISEASE NOTES

Inflorescence Oversprouting and Vascular and Rachis Necrosis Caused by *Fusarium decemcellulare* in *Anacardium occidentale* in Brazil

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ABSTRACT

Cashew trees (*Anacardium occidentale*) are found throughout the world, and they occupy a prominent place among tropical fruit plants. Since 2014, an inflorescence oversprouting symptom has been observed in cashew trees in Maués, in the state of Amazonas, Brazil (57°43'07" W, 03°22'14" S). This symptom is characterized by excessive proliferation of inflorescences. Symptomatic samples were sterilized with 70% ethanol and 1.5% hypochlorite and then transferred to potato dextrose agar (PDA) and incubated at 25°C for 3 days. Morphological and molecular identifications were performed with monosporic isolate. PDA colonies produced a carmine-red pigmentation. Based on morphological and phylogenetic analyses, isolates were identified as belonging to the *Fusarium decemcellulare* species complex. Morphological identifications were made on SNA (Leslie and Summerell 2006), microconidia ($n = 30$) were oval, without septa, and in chains measuring from 7.0 to 13 × 2.4 to 4.0 μm. Macroconidia ($n = 30$) were produced in yellow sporodochia, with a blunt apical cell and a foot cell, curved and long, 6 to 9 septate, 62.5 to 80 × 5.3 to 7.6 μm. Chlamydospores were absent. Species identity was confirmed with partial sequences of the translation elongation factor-1α (EF-1α), the second largest subunit of RNA polymerase (*RPB2*), and ATP citrate lyase (*acl1*). PCR amplification for each gene was done using the primer pairs 728F and 986R, 5F2F and 7cR, and 230up and 1220low, respectively. The sequences showed 98 to 99% identity with known sequences of *F. decemcellulare* deposited in GenBank (JX171567, HQ897837, and AB674295). Bayesian



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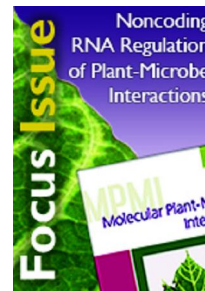
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inference analyses were performed by using published EF-1 α sequences (Lombard et al. 2008; Qi et al. 2013; Serrato-Diaz et al. 2015). The isolate was deposited in the Microorganism Culture Collection of the Brazilian National Institute of Amazon Research (INPA 2790). Sequences of this isolate were deposited in GenBank, under accession numbers KU306398 to KU306400. A pathogenicity test was performed on the two cashew trees in three replicates for each treatment: by inoculating the buds with a toothpick that was colonized by the fungus and by treating the inflorescences with conidial suspensions (10^6 conidia/ml), and the tested portions were maintained inside plastic bags under field conditions for 48 h. The controls were inoculated with a toothpick and sterile water. Seven days after the inoculation, *F. decemcellulare* isolate INPA 2790 caused vascular and rachis necroses as well as flower death. No symptoms were observed in the controls. *F. decemcellulare* was reisolated from symptomatic tissue using both methods, completing Koch's postulates. Plant resistance or age most likely interferes with the induced oversprouting symptom. *F. decemcellulare* has been associated with the oversprouting of inflorescences in guarana plant, with canker in *Cedrelinga cateniformis* (Lombard et al. 2008), with dieback in mango trees (Qi et al. 2013), and with inflorescence wilting and floral and vascular necroses in longan, rambutan, and mango trees (Serrato-Diaz et al. 2015). To our knowledge, this is the first report of *F. decemcellulare* in *A. occidentale*.



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