

Diseases Caused by Fungi and Fungus-Like Organisms

First Report of Wilt of *Syzygium malaccensis* Caused by a Member of the *Fusarium oxysporum* Species Complex in Brazil

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Malay apple trees (*Syzygium malaccensis* [L.] Merril & Perry) are a plant species widely distributed throughout the north and northeast of Brazil, where they contribute to smallholder farmers’ income. In November 2017, a disease caused the death of several Malay apple plants in Areia, Paraíba state, Brazil. The disease symptoms included darkening of the vascular bundles, root rot, wilt, and defoliation followed by death of the plants. The disease incidence was estimated at around 100% (of a total of 16 trees). Forty samples of roots with typical rot symptoms were sent to the Phytopathology Laboratory of the CCA for diagnosis. Root fragments with typical rot symptoms were surface disinfected, and bundle tissues were plated on potato dextrose agar (PDA) and incubated at 25 ± 2°C for 7 days. We obtained a set of 15 isolates, which

colonies on PDA exhibited white to vinaceous, floccose, and abundant aerial mycelium. Macroconidia were falcate with three to five septa and were 30.2 to 45.4 × 2.5 to 4.9 µm in size. Microconidia were oval to cylindrical and 12.3 to 14.0 × 3.1 to 3.7 µm in size. Chlamydospores were not observed. These morphological characteristics matched those of *Fusarium oxysporum* (Leslie and Summerell 2006). The representative isolate (FI15) had the translation elongation factor 1-alpha (tef1) and β-tubulin 2 (tub2) gene submitted to amplification and sequencing (Karlsson et al. 2016; O’Donnell and Cigelnik 1997). The nucleotide sequences were deposited in GenBank (accession nos. MW053641 and MN737490, respectively). *Fusarium*-ID database and BLAST search showed 99.25% similarity to NRRL 13307 (tub2) and 100% to MT185672 (tef1), both members of the *F. oxysporum* species complex. Bayesian inference, including previously published sequences (Lombard et al. 2019), grouped the isolate FI15 in the *Fusarium fabacearum* clade with a high support (Bayesian posterior probability = 1.0). Based on morpho-cultural features and phylogenetic analysis, the isolate associated with Malay apple wilt was identified as *F. fabacearum*. A pathogenicity test was performed using 20 healthy Malay apple seedlings (5-week-old plants, measuring about 25 cm in height) cultivated in 5-liter plastic pots. The base of the plant stem was wounded with a sterile toothpick prior inoculation with a mycelial plug 3.0 mm in diameter. After inoculation, the plants were covered with plastic bags for 2 days, and the pots were kept in a greenhouse with mean temperature of 25 ± 3°C and 80% relative humidity. The control group consisted of five seedlings inoculated with PDA plugs. About 40 days after inoculation, the seedling stems were cut, and the roots were harvested for symptom examination. All seedlings, but not the controls, developed root rot and vascular darkening symptoms. Following Koch’s postulates, *F. fabacearum* was reisolated from the roots and bundle tissues, thus confirming its identity. The pathogenicity test was repeated twice. To our best knowledge, this is the first report of *F. fabacearum* infecting Malay apple plants in Brazil. This study will provide important information for management and future research of this disease.

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