Diseases Caused by Fungi and Fungus-Like Organisms

First Report of Southern Blight of *Manglietia decidua* Caused by *Sclerotium rolfsii* in China

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Manglietia decidua, named “Hua manglietia”, belonging to the Magnoliaceae family, is one of the most important ornamental plants in China. In 2019 and 2020, an unknown disease caused 3- to 12-month plants of *M. decidua* to wither and die in the field in Zhanjiang, Guangdong province (21°9'3"N; 110°17'47"E). Initially, the infected plants showed leaf dehydration, chlorosis, and wilting with water-soaked lesions on stems at ground level. About 7 days later, the plants completely wilted, collapsed, and died. Delayed and stunted growth with wilting of foliage continued through the whole year. A dense white mycelial mat and small white-to-brown spherical sclerotia were observed on the surface of the stalk lesion when weather conditions were warm and humid. Approximately 10% of plants were infected. Especially from July to October 2020, up to 30% of about 500 plants were infected and died. To identify the causal agents of the disease, infected tissue and sclerotia were collected, surface disinfected in 75% alcohol for 30 s and 30% hydrogen peroxide solution for 5 min, and washed with sterile water for 1 min. The surface-disinfected tissue and sclerotia were put on potato dextrose agar containing ampicillin (50 mg/liter) and kept in an incubator at 25°C in the dark. Fast-growing

fungal colonies with white mycelium and numerous sclerotia developed in the plates after 6 to 8 days of incubation. The hyphae were septate, hyaline, and typically formed a clamp connection after 10 days of growth. Sclerotia were initially white and became tan to dark brown over time and 1.0 to 3.0 mm (2.13 mm on average, $n = 124$) in diameter at maturity. For molecular identification, the ITS region was amplified using primer pair ITS1/ITS4 (White et al. 1990). A 666-bp PCR product was sequenced (GenBank accession no. MW093622) and shared above 99% sequence identity with some *Athelia rolfsii* isolates (GenBank accession nos. HQ895869, KX499470, and AB075290). Based on morphological and molecular characteristics, the fungus was identified as *Sclerotium rolfsii* (teleomorph *A. rolfsii*) (Paul et al. 2017; Xu et al. 2010). Pathogenicity tests were conducted by inoculating 10 healthy 1-year-old *M. decidua* plants grown in pots. Five sclerotia and mycelial mat obtained from 15-day-old cultures were buried adjacent to the stem of each unwounded healthy plant. Noninoculated plants served as controls. After inoculation, the plants were maintained in a 25 to 28°C greenhouse and watered regularly to keep the soil moisture content at about 15%. Symptoms of southern blight were observed on all inoculated plants, which began to wilt 7 to 10 days after inoculation and died within 15 to 20 days. The control plants remained healthy. *S. rolfsii* was again isolated from the artificially inoculated plants but not from noninoculated plants. The pathogenicity test was repeated twice, and the results were the same. *S. rolfsii* has an extensive host range worldwide, and common host ornamental plants are *Iris*, *Chrysanthemum*, *Cymbidium*, *Trifolium*, *Jasminum*, *Begonia*, *Stevia*, and so on in China. To our knowledge, this is the first report of southern blight caused by *S. rolfsii* on *M. decidua* in China. *M. decidua* is a horticultural plant that belongs to the protected and endangered tree species. This finding is important to alert growers to realize the proper management of this disease during species protection and cultivar extension.

References:

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