Diseases Caused by Fungi and Fungus-Like Organisms

First Report of *Diaporthe hongkongensis* Causing Fruit Rot on Peach (*Prunus persica*) in China

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Peach (*Prunus persica* [L.] Batsch) is an important deciduous fruit tree in the family Rosaceae and is a widely grown fruit in China (Verde et al. 2013). In July and August 2018, a fruit rot disease was observed in a few peach orchards in Zhuzhou city, Hunan Province of China. Approximately 30% of the fruit in more than 400 trees was affected. Symptoms displayed were brown necrotic spots that expanded, coalesced, and led to fruit being rotten. Symptomatic tissues excised from the margins of lesions were surface sterilized in 70% ethanol for 10 s, 0.1% HgCl₂ for 2 min, rinsed with sterile distilled water three times, and incubated on potato dextrose agar (PDA) at 26°C in the dark. Fungal colonies with similar morphology developed, and eight fungal colonies were isolated for further identification. Colonies grown on PDA were grayish-white with white aerial mycelium. After an incubation period of approximately 3 weeks, pycnidia developed and

produced α-conidia and β-conidia. The α-conidia were one-celled, hyaline, fusiform, and ranged in size from 6.0 to 8.4 × 2.1 to 3.1 μm, whereas the β-conidia were filiform, hamate, and 15.0 to 27.0 × 0.8 to 1.6 μm. For molecular identification, total genomic DNA was extracted from the mycelium of representative isolate HT-1, and the internal transcribed spacer region (ITS), β-tubulin gene (TUB), translation elongation factor 1-α gene (TEF1), calmodulin (CAL), and histone H3 gene (HIS) were amplified and sequenced (Meng et al. 2018). The ITS, TUB, TEF1, CAL, and HIS sequences (GenBank accession nos. MT740484, MT749776, MT749778, MT749777, and MT749779, respectively) were obtained, and BLAST analysis against sequences in NCBI GenBank showed 99.37 to 100% identity with *Diaporthe hongkongensis* or *D. lithocarpus* (the synonym of *D. hongkongensis*) (Gao et al. 2016) (GenBank accession nos. MG832540.1 for ITS, LT601561.1 for TUB, KJ490551.1 for HIS, KY433566.1 for TEF1, and MK442962.1 for CAL). Pathogenicity tests were performed on peach fruits by inoculation of mycelial plugs and conidial suspensions. In one set, 0.5-mm-diameter mycelial discs, which were obtained from an actively growing representative isolate of the fungus on PDA, were placed individually on the surface of each fruit. Sterile agar plugs were used as controls. In another set, each of the fruits was inoculated by application of 1 ml of conidial suspension (10⁵ conidia/ml) by a spray bottle. Control assays were carried out with sterile distilled water. All treatments were maintained in humid chambers at 26°C with a 12-h photoperiod. The inoculation tests were conducted twice, with each one having three fruits as replications. Six days post-inoculation, symptoms of fruit rot were observed on inoculated fruits, whereas no symptoms developed on fruits treated with agar plugs and sterile water. The fungus was reisolated and identified to be *D. hongkongensis* by morphological and molecular methods, thus fulfilling Koch's postulates. This fungus has been reported to cause fruit rot on kiwifruit (Li et al. 2016) and is also known to cause peach tree dieback in China (Dissanayake et al. 2017). However, to our knowledge, this is the first report of *D. hongkongensis* causing peach fruit rot disease in China. The identification of the pathogen will provide important information for growers to manage this disease.

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