Diseases Caused by Fungi and Fungus-Like Organisms

First Report of *Arthrinium arundinis* Causing Leaf Edge Spot of Peach in China

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Peach (*Prunus persica* [L.] Batsch) is one of the most cultivated fruit trees in China. During a survey in April 2018, a leaf edge spot disease was observed on peach leaves collected from Haiyang peach-growing area, Lingchuan County, Guilin City, Guangxi Zhuang Autonomous Region of China. The disease incidence of the most severely infected peach orchard reached 20 to 40%, with an area of about 2 ha. The symptoms first appeared as pale yellow spots along the leaf edges on both sides, with a width of 5 to 8 mm, subsequently turned into brown strip-shaped spots, withered, and detached from the healthy parts. But the two ends of strip-shaped diseased tissues were still connected to the leaves, and finally the diseased leaves fell off. The infected leaf samples were collected from the trees to perform the isolation of phytopathogenic fungi. Leaf samples were washed with tap water followed by distilled water. Tissues from the meeting point of healthy and infected regions were cut into small fragments (4 to 5 mm²), immersed in 0.5% NaOCl for 1 min, and rinsed in sterile distilled water three times. Then, these tissues were dried on sterilized filter paper and placed onto PDA plates that were incubated at 25°C and a 12-h photoperiod. Seven isolates were obtained and identified as the same fungus on the basis of morphological features. The colonies were initially grayish white or dirty white with less regular filiform edges and then turned into iron-gray with patches of dirty white, with moderate cotton-like aerial mycelia. Hyphae were smooth, hyaline, septate, and branched with constriction. Conidiophores mostly scattered, hyaline or pale brown, with black and thick septa, often unbranched. Conidiogenous cells pale brown, smooth, ampulliform, and 5.3 to 11.2 × 2.9 to 4.0 µm ($n = 50$). Conidia borne laterally on

conidiophores, single-celled, spherical to ellipsoidal shape, brown, ranging from 4.4 to 11.9 × 3.3 to 9.2 µm ($n = 50$), generally spherical in surface view and lenticular in side view, with a pale equatorial slit. The morphological features of the one representative isolate, Gh-1, matched those of *Arthrinium arundinis* (Corda) Dyko & Sutton (Crous and Groenewald 2013; Martínez-Cano et al. 1992). To further identify the isolate by molecular analysis, genomic DNA was extracted (Fungal DNA Extraction Kit, Sangon Biotech, China) from mycelial mats on PDA plates. The 5.8S rDNA and its flanking internal transcribed spacer ITS1 and ITS2 regions (ITS), along with the 5' end of the β -tubulin gene (TUB2), were amplified and sequenced with primer pairs ITS4-ITS5 (White et al. 1990) and T1-Bt2b (Glass and Donaldson 1995; O'Donnell and Cigelnik 1997), respectively. BLASTn analysis of ITS (589 bp, GenBank no. MK256947) and TUB2 (810 bp, MN242986) sequences revealed 99.83 and 100% identity with *A. arundinis* (ITS, KX533933; TUB2, KY705209), respectively. Based on these morphological and genetic characteristics, the fungus was identified as *A. arundinis*. To fulfill Koch's postulates, pathogenicity tests were conducted on healthy peach trees by inoculating conidial suspension (1.0×10^6 /ml) of this isolate to needle wounds on the upper surface of leaves, whereas the controls were wounded and inoculated with sterile water. They were placed in a chamber at $25 \pm 2^\circ\text{C}$ and 12-h photoperiod, maintaining relative humidity above 90%. The lesions appeared 7 days after inoculation on leaves, and the symptoms were the same as those described above. However, no symptoms were observed in controls. The experiment was repeated three times with identical results, and the fungus was reisolated from the inoculated and diseased leaves, cultured, and identified as *A. arundinis* based on morphological features and molecular analysis. To our knowledge, this is the first report of leaf edge spot on peach caused by *A. arundinis* in China and will provide useful information for developing effective control strategies.

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