Diseases Caused by Fungi and Fungus-Like Organisms

First Report of *Podosphaera xanthii* Causing Powdery Mildew on *Melothria indica* in China

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Melothria indica Lour. is a wild ornamental plant widely distributed in South China. In November 2020, powdery mildew symptoms with 100% (60 plants) incidence were observed on *M. indica* climbing on a fence in Zhanjiang (21.17N, 110.18E), Guangdong, China. The symptoms were typical for powdery mildew with white colonies on leaf surfaces and stems. Conidiophores appeared in all symptomatic tissues. Chasmothecia were observed only during the late stage of disease. Hyphae were hyaline, branched, and septate. Conidiophores were erect, hyaline, smooth, and had dimensions of $61.5 \times 185.6 \times 8.5$ to $14.5 \mu\text{m}$ ($n = 20$) and a cylindrical, flexuous foot cell, followed by one to five (to six) shorter cells. Conidia were ellipsoid to ovoid and had dimensions of $24.5 \times 38.5 \times 15.5$ to $21.8 \mu\text{m}$ ($n = 50$) with well-developed fibrosin bodies. Germ tubes were in the lateral position. Chasmothecia were gregarious or scattered, subglobose, (64.8 to) 65.5 to 115.5 (to 120.5) μm ($n = 20$) in diameter. The appendages were few and hyphoid. Ascus one per ascoma, clavate, or subglobose, 56.5 to 78.3 (to 90) $\times$ 52.5 to 60.5 (to 72) μm ($n = 20$). Each ascus had eight ascospores that were broadly ellipsoid and sized 13.8 to 18.6×12.5 to $16.5 \mu\text{m}$ ($n = 30$). The morphological characteristics were consistent with the previous description of *Podosphaera xanthii* (Castagne) U. Braun & Shishkoff (Braun and Cook 2012). Three voucher specimens (Ms-1,

Ms-2, and Ms-3) were deposited in the fungus collection at Aquatic Organisms Museum of Guangdong Ocean University and were used for molecular analysis. Their internal transcribed spacer (ITS) regions were amplified using primers ITS1/ITS4. Amplicons were sequenced and submitted to GenBank (accession nos. MW512919, MW512920, and MW512921). The sequences were identical to each other and 100% similar to two of *P. xanthii* (accession nos. MT472035 and MN818563). On the basis of the morphological and molecular characteristics, the fungus was identified as *P. xanthii*. Pathogenicity was examined through inoculation by gently pressing the naturally infected leaves onto healthy ones of three potted *M. indica* plants with three leaves. Healthy leaves were leaves of three further plants, which served as the control. White powdery mildew colonies with an incidence of 100% were similarly observed after 7 days at 28°C and 80% relative humidity in a greenhouse. The fungal colonies on diseased leaves were morphologically identical to the specimen, and the control plants developed no symptoms. Koch's postulates were completed. *Golovinomyces cichoracearum* is known to cause powdery mildew on *M. indica* in China (Liu et al. 2016). *P. xanthii* (synonym: *P. fusca*) is the cause of powdery mildew on cucurbits worldwide (Braun and Cook 2012), including *M. indica* (synonym: *M. japonica*) in Korea (Kwon et al. 2015) and Japan (Takamatsu et al. 2005), but hitherto not for China. Although the teleomorph of the fungus on cucurbits is seldom found worldwide and in China only in the north (Liu et al. 2011), chasmothecia are recorded for here southern China (21.17N, 110.18E).

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