First report of powdery mildew caused by *Podosphaera xanthii* race 1 on watermelon in China

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Watermelon (*Citrullus lanatus*) is an annual plant that belongs to the gourd family and is an important horticultural crop worldwide. In July 2020, powdery mildew symptoms were observed on 80% *C. lanatus* plants grown at Northeast Agricultural University (45°44' 20.61" N, 126°43' 34.46" E), Harbin, China. Conidiophores were 78–200 × 11–15 µm and unbranched, straight. Foot cells of conidiophores were cylindrical, constricted at the basal septum slightly, and measured 35–76 × 8–10 µm. Conidia were hyaline and ellipsoid, measured as before 28–44 × 13–21 µm with length to width ratios ranging from 1.3–3.3, and contained distinct fibrosin bodies. Hyphae were up to 8 µm wide with slightly nipple-shaped appressoria. Chasmothecia were not observed (Figure see [supplementary information](#)). Morphological characteristics indicated the fungus was *Podosphaera xanthii* (Tam et al. 2015). Primers ITS1/ITS4 were used to clone the ITS sequences. The resulting 604-bp sequence (GenBank accession No. MT982219) was analysed by Blastn, which revealed 99.65% similarity with the ITS sequence of *P. xanthii* (MT242593, MG754404 and KM260742). The fungal species was thus confirmed as *P. xanthii* (Braun and Cook 2012). The pathogen was isolated by taking a single conidium and inoculating a watermelon plant. Conidia from this plant were then inoculated onto the leaves of asymptomatic watermelon plants and the 13 differential melon lines. Control plants were inoculated

with sterile deionised water. Plants were maintained in a greenhouse at 25 to 28 °C (> 80% humidity). White powdery mildew colonies appeared 10 days after inoculation. Nine differential lines were resistant, whereas four lines were susceptible, demonstrating that the isolate was race 1 of *P. xanthii* (McCreight 2006) and control plants remained asymptomatic. The fungus was reisolated consistently from infected symptomatic leaves, morphologically and molecularly identified as *P. xanthii*. Powdery mildew on watermelon was previously reported in Southwest Florida and California. To our knowledge, this is the first report of *P. xanthii* race 1 on *C. lanatus* in China.

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Declarations

Conflict of interest The authors declare no conflict of interest. Haonan Cui and Zicheng Zhu are co-first authors.

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