Diseases Caused by Fungi and Fungus-Like Organisms

First Record of *Erysiphe* cf. *elevata* on *Cerbera manghas* (Apocynaceae) in China

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Cerbera manghas L. (sea mango) is an evergreen shrub or small flowering tree up to 12 m tall. It naturally occupies coastal habitats and is distributed from Seychelles in the Indian Ocean eastward to French Polynesia. In China, it is a popular ornamental urban species growing in roadside green belts, public parks, and residential areas in various coastal cities. In March 2019, powdery mildew symptoms were observed on six trees of *C. manghas* growing in a residential area near Minjiang University campus, in the Minhou district of Fuzhou city. Approximately 60% of leaves per plant were infected. Initial symptoms appeared as small circular to irregular white patches of superficial mycelia, conidiophores and conidia covering both surfaces of leaves, which later coalesced and formed a dense covering, resulting in discoloration and defoliation. Hyphae were septate, hyaline, and smooth, with simple to multi-lobed lobed appressoria formed singly or in opposite pairs and 5 to 8 µm in diameter. Conidiophores were erect and 35 to 80 × 5 to 9 µm, composed of foot-cells, 20 to 35 × 5 to 9 µm, straight to usually curved or flexuous-sinuuous at the base, followed by two to three shorter cells. Conidia were solitary, ellipsoid to oblong-elliptical, smooth, and 24 to 37 × 13 to 16 µm without fibrosin bodies. The teleomorph was not found on infected trees. These morphological characteristics were typical for anamorph of the genus *Erysiphe* (Braun and Cook 2012). To confirm fungal identification, the internal transcribed spacer (ITS) regions and the partial large subunit (LSU)

rDNA were amplified using primers ITS1/ITS4 and LSU1/LSU2 (Scholin et al. 1994; White et al. 1990), respectively. The sequences were deposited in GenBank (ITS: MZ379159; LSU: MZ379160). BLAST analysis of sequences showed 99 to 100% similarity with *Erysiphe elevata* on *Eucalyptus camaldulensis* (LC177375), *Catalpa bignonioides* (MH638203), *Tabernaemontana divaricata* (MT802112), and *Plumeria rubra* (MH507182). Based on morphological and molecular analyses, the fungus was identified as *E. elevata*. To confirm pathogenicity, infected leaves were gently pressed onto the leaves of three healthy plants in separate pots, while three noninoculated plants were used as controls. All plants were maintained in a greenhouse at 25°C with a relative humidity of 65 to 70%. Disease symptoms were observed only on the inoculated plants after 10 days and the fungus was morphologically identical to that of the original infected leaves. Previously, *E. elevata* has been reported on *Catalpa* spp. (Cook et al. 2006) from Europe, while *E. camaldulensis* (Meeboon and Takamatsu 2017), *P. rubra* (Wu et al. 2019; Yeh et al. 2019), and *T. divaricata* (Xu et al. 2021) have been reported as hosts from Thailand, Taiwan, and China, respectively. To our knowledge, this is the first report of powdery mildew caused by *E. elevata* on *C. manghas* in China and in the world. The disease would be a serious threat to ornamental plantings of *C. manghas* in China.

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