Diseases Caused by Fungi and Fungus-Like Organisms

First Report of Cladosporium Blossom Blight Caused by *Cladosporium cladosporioides* on *Calliandra haematocephala* in China

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Calliandra haematocephala Hassk., commonly called red powder puff, is widely cultivated as an ornamental plant in Taiwan, Hainan, Guangdong, and Fujian in China (CAS 1988). The flowers are dark crimson with conspicuous stamens, which give them the appearance of powder-puffs. Blossom blight on *C. haematocephala* was first observed in early January 2019 on plants grown on the university campus as well as in parks in Fuzhou city, with nearly 80% of flowers on individual plants infected. At various locations in the city, disease incidence was 100%. Symptoms appeared as grayish green fungal growth on the stamens, with the entire flower eventually turning black and covered with masses of fungal spores. Fifteen single-spore isolates obtained from nine necrotic stamen samples were purified and cultured on potato dextrose agar (PDA) plates at 24°C. The resultant fungal colonies were olivaceous-green to olivaceous-brown and had a velvet-like appearance. Conidiophores were smooth-walled, solitary, nonnodulose, and measured 40 to 340 × 3 to 4 µm ($n = 50$). Ramoconidia were cylindrical-oblong or slightly curved with zero to three septa and measured 10 to 25 × 3 to 4 µm ($n =$

50). Conidia were smooth-walled and prolifically produced in long chains. Terminal conidia were aseptate, subglobose, ovoid to limoniform, measuring 3 to 6 × 2 to 2.5 µm ($n = 50$). Intercalary conidia were elliptical to limoniform or subcylindrical, aseptate, measuring 5 to 12 × 2.5 to 3 µm ($n = 50$). On the basis of its morphology, the causal organism was identified as *Cladosporium cladosporioides* (Bensch et al. 2010). For molecular identification, pure cultures of five single-spore isolates were used for DNA extraction. A fragment in the ITS regions of the fungal rDNA, the *ACT*, and the *TEF1-α* were amplified using the primers ITS1/ITS4, ACT-512F/ACT-783R, and EF1728 F/EF1-986R. The DNA sequences obtained from all five isolates were identical. The resulting ITS (MK720012), *ACT* (MN013164), and *TEF1-α* (MK752020) sequences from representative isolate MRCIM19 were 98 to 100% identical to the *C. cladosporioides* accessions (ITS: MH863979, MG228421; *ACT*: HM148509, JF499878, HM148532; *TEF1-α*: JF499872). To test pathogenicity, a spore suspension (1×10^5 conidia/ml) was prepared from a 7-day-old culture of isolate MRCIM19, and 10 ml of the suspension was sprayed onto six flowers on each of three *C. haematocephala* plants. Sterile distilled water was sprayed onto three flowers of two plants as a control. The inoculated flowers were covered with plastic bags, which were removed 2 days postinoculation. Disease symptoms were recorded on each flower at 10 days postinoculation. Based on the morpho-molecular characters, the reisolated fungus from the inoculated flowers was *C. cladosporioides*. This fungus was previously reported to cause blossom blight in strawberry in the United States and Korea (Gubler et al. 1999; Nam et al. 2015). Although it has been reported from many plants (Zhang 2003) in China, this is the first report of *C. cladosporioides* on *C. haematocephala* worldwide.

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