Diseases Caused by Fungi and Fungus-Like Organisms

First Report of Leaf Blight Caused by *Cladosporium perangustum* on *Livistona chinensis* in China

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Livistona chinensis (Jacq.) R.Br. ex Mart., belonging to monocotyledonous Palmaceae, is widely distributed in Eastern Asia and a common ornamental plant in Southern China (Li et al. 2019; Wu et al. 2019). In November 2019, epidemics of leaf blight were discovered on aged leaves of *L. chinensis* in the campus of Sichuan Agricultural University, where disease incidence was up to 90% among the cultivated plants, but without resulting in the death of the host. Initial symptoms appeared as chlorotic spots on the upper part of leaves, and then spots expanded and turned brown. Subsequently, the enlarged spots developed necrotic tissues in the center with a brown to dark brown margin. At later stages, conidia and conidiophores were observed on the surface of lesions with the aid of a microscope. As the disease progressed, multiple lesions usually coalesced to cause extensive tissue necrosis to one-third or more of the leaf. Three isolates were obtained from diseased leaves with a single-spore isolation (Chomnunti et al. 2014) and cultured on PDA under a 12-h photoperiod and $25 \pm 1^\circ\text{C}$. The colonies were gray to gray-olivaceous with an olivaceous-black reverse side and measured ~ 7 cm in diameter after 6 days. The conidiophores were macronematous, semimacronematous, or micronematous, erect, straight or slightly flexuous, filiform to narrowly cylindrical-oblong, occasionally branched, pale olivaceous-brown, wider at the base, one to eight septate, 14 to 104×3 to $6.8 \mu\text{m}$ ($\bar{x} = 57.7 \times 4.9 \mu\text{m}$, $n = 30$). Conidiogenous cells were integrated, terminal, intercalary or pleurogenous, cylindrical-oblong, 9 to 21×4 to $5.9 \mu\text{m}$ ($\bar{x} = 15 \times 4.9 \mu\text{m}$, $n = 20$), thick walled, usually aseptate, occasionally one to two septate, with one to five apically crowded loci. Ramoconidia were almost oblong,

aseptate, 4 to 8.4×3 to $5.7 \mu\text{m}$ ($\bar{x} = 6.9 \times 4.6 \mu\text{m}$, $n = 20$). Conidia were numerous, catenate, in branched chains, small terminal conidia, subglobose or ovoid, and intercalary conidia were ovoid, limoniform, fusiform, aseptate, 2.9 to 5.5×2 to $5 \mu\text{m}$ ($\bar{x} = 4 \times 3.5 \mu\text{m}$, $n = 20$). Representative isolate SICAUCC 20-0007 was used for genomic DNA extraction, and the ITS, translation elongation factor 1 alpha (TEF 1- α), and partial actin (ACT) regions were amplified using the primer pairs ITS5/ITS4 (White et al. 1990), EF1-728F/EF-2 (Carbone and Kohn 1999; O'Donnell et al. 1998), and ACT-512F/ACT-783R (Carbone and Kohn 1999), respectively. Nucleotide BLAST in GenBank revealed identity with *Cladosporium perangustum*: the ITS (MT427730) had 100% identity with MF473185 and MF473177, TEF 1- α (MT441922) had 100% identity with HM148379 and MF473595, and ACT (MT441917) had 100% identity with HK521577 and MH047335. The phylogenetic tree combined with ACT, ITS, and TEF 1- α genes and morphological characteristics confirmed the identification as *C. perangustum* (Bensch et al. 2010). To determine pathogenicity, five potted plants were inoculated with conidial suspensions (10^5 conidia/ml) prepared from 1-week-old cultures of SICAUCC 20-0007 onto the wounded sites via pin-prick inoculation (five to eight leaves per plant, ~ 1 to 2 years old), and the same number of healthy plants were sprayed with distilled water as controls. Plants were sprayed regularly with distilled water every day and placed under a 12-h photoperiod and $25 \pm 1^\circ\text{C}$. About 15 days later, faint yellow to yellowish-brown spots were found on inoculated leaves and were similar to those previously observed, and no symptoms developed on control plants. After 1 month, leaf blight was observed, and the pathogenic fungus was reisolated from the inoculated tissues. Previous reports have shown that *C. perangustum* causes leaf spot on *Myrica rubra* (Lour.) Siebold & Zucc. in China (Lu et al. 2015). To our knowledge, this is the first report of *C. perangustum* causing leaf blight of *L. chinensis* in the world. This disease potentially reduces the ornamental value under favorable conditions, and proper control strategies should be implemented.

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The author(s) declare no conflict of interest.

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