Diseases Caused by Fungi and Fungus-Like Organisms

First Report of *Pseudopestalotiopsis theae* Causing Leaf Spot of Date Palm (*Phoenix dactylifera*) in China

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Date palm (*Phoenix dactylifera* L.) is a popular landscape tree in Fujian province, in south China. In November 2018 and June 2019, a leaf spot disease was observed on date palm in Fuzhou city. A survey of date palm plants grown in four different locations revealed that the disease incidence was almost 20%. The spots were brown with a yellow margin, 1 to 20 mm in diameter, and oval to irregular. In later stages, the spots gradually expanded and coalesced, became dry, and died. For isolation, small pieces (0.5 cm²) were cut from leaf spots obtained from seven trees and disinfested with 70% alcohol. Leaf pieces were then placed onto 2% potato dextrose agar and incubated at 25 ± 2°C for 3 to 4 days. One fungus was consistently isolated from 15 leaves. Fungal colonies were white with undulating margins and light cream on the reverse side. Black globose to oblate conidiomata were irregularly distributed throughout 10-day-old colonies. The conidiogenous cells were septate, colorless, smooth-walled, straight to slightly curved, ampulliform or subcylindrical, and 6.0 to 13.5 × 1.3 to 3.0 µm ($n = 50$); $\bar{x} \pm SD = 9.5 \pm 2 \times 2 \pm 0.5$ µm). Conidia were fusiform and five-celled with constrictions at the septa, measuring 18.5 to 31.5 × 5.0 to 7.5 µm ($n = 50$); $\bar{x} \pm SD = 25.5 \pm 2 \times 6.5 \pm 0.2$ µm). The three median

cells were light to dark brown, and the two end cells were colorless. Apical cells had two to four appendages ranging from 10.2 to 22.5 µm long. Basal cells had one appendage ranging from 3.5 to 5.5 µm long. The internal transcribed spacer (ITS) region of the ribosomal DNA and translation elongation factor 1-alpha (*TEF1-α*) gene of the fungus were amplified using primers ITS1/ITS4 and EF1728F/EF1986R, respectively. Amplified products (ITS, MN294700; and *TEF1-α*, MN970514) showed 99% sequence identity to *Pestalotiopsis* sp. and *Pseudopestalotiopsis theae* sequences in GenBank. A comparison of MRC12 sequences with the type culture sequences (ITS, JQ683727; and *TEF1-α*, JQ683743) also showed high similarity, in which ITS sequences exhibited only a three-nucleotide difference at the start of the sequences. No differences, however, were found between the *TEF1-α* sequences. On the basis of morphology and molecular characteristics, the fungus was identified as *Ps. theae* (Sawada) Maharachch., K.D. Hyde & Crous Steyaert (Maharachchikumbura et al. 2014). To confirm pathogenicity, five disinfested leaves on three healthy 5-year-old date palm plants in a nursery (average temperature 26°C), were punctured three to five times with a sterilized needle, and then 10 to 15 ml of conidial suspension (10⁵ conidia/ml in sterilized distilled water) was sprayed over punctured areas of the leaves. For the control treatment, punctured leaves were sprayed with sterilized distilled water. All inoculated leaves plus the control were covered with plastic bags. After 10 days, brown leaf spots similar in appearance to those observed in the field appeared on all wounded leaves, and *Ps. theae* was successfully reisolated; the control leaves remained asymptomatic. Previously, *Ps. theae* was reported on oil palm (*Elaeis guineensis* Jacq.) from Sierra Leone and Thailand (Suwannarach et al. 2013; Turner 1971). To our knowledge, this is the first report of *Ps. theae* on date palm in China. This report expands the host range *Ps. theae* to date palm and underscores the potential threat of an emerging leaf spot pathogen on *Phoenix* species.

References:

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