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DISEASE NOTE

First report of Alternaria black spot of rose caused by *Alternaria alternata* in China

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During fall of 2017, leaf black spot symptoms were observed on rose (*Rosa hybrida*) plants in the campus of China Agricultural University, Beijing, China. Subcircular black spots evolved in leaf discoloration and necrosis, seriously reducing the aesthetic value of rose. Small pieces of diseased tissues were transferred to potato dextrose agar (PDA) plates and incubated at 22 °C. The colonies initially appeared white and then turned dark brown. The conidia ($n = 50$) were ellipsoidal or ovoid and measured 11.9 to 27 μm × 7.5 to 5.1 μm with 0 to 2 longitudinal and 1 to 5 transverse septa. The morphological characters matched those of *Alternaria* spp. (Simmons 2007). For molecular identification, DNA was extracted from the mycelium of a purified single colony, amplified with universal primers ITS4/5 and sequenced. The resulting 515 bp nucleotide ITS segment (MH358396) showed 100% homology with the GenBank accession MF614038.1 of *A. alternata*. Additionally, two nuclear protein coding genes EF-1α (MH475292) and beta-tubulin 1a/b (MH475293) were sequenced and the sequences all showed 99% identity with those of *A. alternata* strains (MF741188.1 and KF728753.1, respectively). To confirm pathogenicity, we harvested conidia from monoconidial culture on PDA. The conidia were then suspended to a final concentration of 10^6 per ml and inoculated artificially on the abaxial surface of healthy detached leaves of *R. hybrida* 'Samantha'. After 3 days, circular or oval and black disease spots were visible and the fungus was consistently re-isolated. Previously, Alternaria black spot of *Rosa* sp. caused by *A. alternata* has only been recorded in tropical and subtropical regions (South Asia and South Pacific countries; Farr and Rossman 2018). This is the first report of *A. alternata* causing black leaf spot on the *Rosa* genus in temperate regions (East Asia).

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

Research involving human participants and/or animals The authors declare that no human participants and animals were involved in this study.

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