Diseases Caused by Fungi and Fungus-Like Organisms

First Report of *Cercospora* cf. *citulina* Causing Leaf Spot of *Ipomoea pes-caprae* in China

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Ipomoea pes-caprae plays an important role in protecting the tropical and subtropical coastal beaches of the world. In 2018, a leaf spot was observed on *I. pes-caprae* in Xisha islands of China, and 13.2 to 25.8% of leaves were infected. The initial symptoms were small (1- to 3-mm diameter), single, circular, dark gray spots with a light-yellow center on the leaves. The lesions enlarged and were scattered or confluent, distinct and circular, subcircular or irregular, occasionally vein-limited, pale to dark gray-brown, with a narrow dark brown border surrounded by a diffuse yellow margin. Microscopic observations of the spots revealed that caespituli were dark brown and amphigenous but were abundant on the underside of the leaves. Mycelia were internal. Conidiophores were fasciculate, occasionally solitary, pale olivaceous-brown throughout, zero- to three-septate, 27.9 to 115.8 (63.4 ± 22.5) × 3.2 to 5.3 (4.3 ± 0.87) μm (*n* = 100). Conidial scars were conspicuously thickened. Conidia were solitary, hyaline, filiform, acicular to obclavate, straight to slightly curved, subacute to obtuse at the apex, truncate at the base, multiseptate, 21.0 to 125.5 (60.2 ± 20.1) × 2.0 to 5.0 (3.8 ± 0.83) μm (*n* = 100). Single-conidium isolates were obtained from representative colonies grown on potato dextrose agar (PDA) incubated at 25°C in the dark. The colonies grew slowly and were dense, white to gray, and flat with aerial mycelium. Mycelia were initially white and then became gray. Conidia were borne on the

conidiophores directly. The pure isolate HTW-1 was selected for molecular identification and a pathogenicity test, and it was deposited in Microbiological Culture Collection Center of Environment and Plant Protection Institute, Chinese Academy of Tropical Agricultural Sciences. The internal transcribed spacer (ITS) region of rDNA, translation elongation factor 1- α (*tef1*), and histone H3 (*his3*) genes were amplified with ITS1/ITS4, EF-1/EF-2, and CYLH3F/CYLH3R primers, respectively (Groenewald et al. 2013). The obtained sequences of HTW-1 were all deposited in GenBank with accession numbers MT410467 for ITS, MT418903 for *tef1*, and MT418904 for *his3*. The ITS, *tef1*, and *his3* genes all showed 100% similarity for ITS (JX143582), *tef1* (JX143340), and *his3* (JX142602) with *Cercospora* cf. *citulina* (MUCC 588; MAFF 239409) from *I. pes-caprae* in Japan. Based on the morphological characteristics and molecular identification, the pathogen was identified as *C. cf. citulina* (Groenewald et al. 2013). The pathogenicity test was conducted by spraying conidial suspension (1×10^4 conidia/ml) on wounded and unwounded leaves of seedlings of *I. pes-caprae* in a greenhouse and in sterile vitro condition. The conidial suspension was prepared using conidia from 30-day-old culture grown on PDA at 25°C in the dark. Leaf surfaces of seedlings in the greenhouse were wounded by lightly rubbing with a steel sponge, and detached leaf surfaces were wounded by sterile needles. The treatments were sprayed with conidial suspensions on wounded and unwounded leaf surfaces. The control was sprayed with sterile water. After 8 days, the typical symptoms of spots, which were small, single, circular, and dark gray appeared on the inoculated wounded leaves, whereas the inoculated unwounded leaves and the control leaves were symptomless. The pathogen was only reisolated from the inoculated wounded leaves. The pathogen may infect via wounds. A total of 20 *Cercospora* and related species were found on *Ipomoea* spp. (García et al. 1996). *C. cf. citulina* has been reported on *I. pes-caprae* in Japan, although it was unclear if it was a pathogen or saprophyte (Groenewald et al. 2013). To our knowledge, this is the first report of *C. cf. citulina* causing leaf spot of *I. pes-caprae* in China. This disease could threaten the cultivation of *I. pes-caprae* in China.

References:

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