Diseases Caused by Fungi and Fungus-Like Organisms

First Report of Anthracnose Caused by *Colletotrichum tabaci* on Green Pepper (*Capsicum annuum*) in China

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Vitamins, capsaicin, and capsochrome are abundant in pepper (*Capsicum annuum*), a fruit that is also used as a spice. During hot and rainy seasons, anthracnose disease caused by *Colletotrichum* spp. affects pepper crops and causes significant yield losses in the pre- and postharvest stages (Liu et al. 2016). Unidentified disease spots were discovered on pepper leaves in a field in Wei Yuan (35°8'10" N, 104°12'54" E), Gansu Province, China, in September 2019. The disease was found to have a 100% incidence in a 0.07-ha area, which drew our attention. The lesions were mostly found in the middle and upper parts of the leaves, and the symptoms mostly showed up as roughly circular, dark brown patches on the leaves with yellowish centers. Eighteen 1-cm diameter tissues were obtained from the line between healthy and diseased portions. They were sterilized for 45 s in 1% mercuric chloride, then rinsed five times in sterile distilled water and dried with sterile filter paper. After 4 days of culture on a potato dextrose agar (PDA) plate, five strains were recovered from the treated tissue. Healthy pepper plants grown in the lab were inoculated with conidial suspension (50 ml, 10⁷ conidia/ml) for pathogenicity while sterile distilled water was used as control. Each treatment had three duplicates. A pathogen recovered from pepper 'L' from Baiyan, Gansu Province, China, was designated as BYL. Leaves infected

with the BYL strain 16 days later showed obvious symptoms, which were comparable to those found in the field. The control leaves showed no sign of disease. The pathogen was reisolated from the infected pepper leaves and had the same features as strain BYL. Koch's postulate was proven correct. The BYL colony started out white, then turned gray-brown with black sclerotia in the center. Conidia were hyaline, smooth, cylindrical, typically straight, with rounded ends, and ranged in size from 11.754 to 16.477 (14.587 ± 0.139) × 2.833 to 4.220 (3.348 ± 0.037) μm. Appressoria solitary or in loose clusters, 6.910 to 9.078 × 5.386 to 7.119 μm in size, medium brown, smooth-walled, ellipsoidal or irregular in form, with noticeable piercing pore with dark halo. The isolate was identified as *Colletotrichum* species based on the morphological characteristics (Damm et al. 2014). It was then reidentified using multimolecular analysis. To amplify and sequence the isolates, the genes ITS, TUB2, CHS1, ACT, GAPDH, and HIS3 were employed (Crous et al. 2004; Weir et al. 2012). They were deposited in GenBank (MW581857 for ITS, MW595706 for ACT, MW595707 for CHS1, MW595708 for GAPDH, MW595709 for HIS3, and MW595710 for TUB2). The sequence of ITS, ACT, CHS1, and HIS3 in GenBank were found to be 100% identical to those of *Colletotrichum tabaci* (JQ005763 for ITS, KM105414 for ACT, JQ005784 for CHS1, and KM105346 for HIS3). The primers GAPDH and TUB2 amplified a gene sequence that was 99% identical to *C. tabaci* in GenBank (KM105559 for GAPDH and JQ005847 for TUB2). Based on appearance and sequencing analysis, the isolate was identified as *C. tabaci*. The optimal light condition for BYL growth was 12 h light/12 h dark, temperature 30°C, pH 8, sucrose as carbon source, and yeast extract as nitrogen source according to the biological features. *C. tabaci* caused anthracnose in peppers in the field. This is the first report of *C. tabaci* causing anthracnose in peppers in China that we are aware of.

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