Diseases Caused by Fungi and Fungus-Like Organisms

First Report of *Colletotrichum chrysophilum* Causing Anthracnose on Blueberry in Brazil

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Highbush (*Vaccinium corymbosum* L.) and rabbiteye (*V. ashei* R.) blueberry are the most important small fruit export crops in southern Brazil. Anthracnose has been considered one of the most destructive diseases and has been exclusively associated with *C. karstii* in Brazil (Rios et al. 2015). In November 2019, severe anthracnose symptoms including leaf spots but particularly twig blights and fruit rots were observed on all blueberry plants (*V. ashei*) in one organic orchard in Santa Catarina State, Brazil (27°43'48.96" S, 49°0'57.79" W). Four isolates were obtained from necrotic lesions and monosporic cultures were grown on potato dextrose agar at 25°C and with a 12-h photoperiod under near ultraviolet light. After 15 days, colonies showed upper surface color varying from grayish-white to pale orange and the reverse side pale orange. Conidia were hyaline, cylindrical with rounded ends, and their length and width ranged from 9.5 to 15.5 µm ($\bar{x}$ = 11.8) and 3.5 to 6.5 µm ($\bar{x}$ = 4.9), respectively. The isolates were identified by multilocus phylogenetic analyses using nucleotide sequences of actin (*ACT*), β -tubulin (*TUB2*), calmodulin (*CAL*), glyceraldehyde-3-phosphate-dehydrogenase (*GAPDH*), glutamine synthetase (*GS*), internal transcribed spacer (*ITS*), and the intergenic spacer between DNA lyase and the mating-type locus MAT1-2-1 (*ApMAT*). Nucleotide sequences exhibited from 95 to 100%

sequence identity to *Colletotrichum chrysophilum* ex-type (CMM4268) and were deposited in GenBank (MW868219 to MW868222, MW868211 to MW868214, MW868215 to MW868218, MW868223 to MW868226, MW868202 to MW868205, MW793353 to MW793356, and MW868207 to MW868210). *C. chrysophilum* belongs to the *C. gloeosporioides* species complex and was previously described as *C. ignotum* in banana and other tropical fruits in Brazil (Veloso et al. 2018; Vieira et al. 2017). In addition, this species was recently reported on apple fruit in New York, U.S.A. (Khodadadi et al. 2020). To confirm pathogenicity, 1-year-old blueberry plants were inoculated by spraying a suspension of 1×10^6 conidia/ml, incubated in a moist chamber in the dark for 48 h and then kept in the greenhouse. Plants sprayed with sterile distilled water served as control. Additionally, fruits were immersed for 2 min in a conidial suspension (1×10^6 conidia/ml) and incubated at 25°C and a 12-h photoperiod for 20 days. Inoculated plants exhibited first symptoms in twigs at 10 days after inoculation (dai). Infected twigs showed initially dark brown spots that coalesced and became necrotic. On leaves, reddish-brown lesions with less than 2 mm appeared at low intensity at 15 dai. On fruits, sunken areas associated with an abundant orange mucilaginous mass of acervuli and conidia were seen at 7 dai. Symptoms on plants were identical to those observed under field conditions, and the pathogen was reisolated from lesions fulfilling Koch's postulates. To our knowledge, this is the first report of *C. chrysophilum* causing anthracnose on blueberries in Brazil. The identification of this species causing blueberry anthracnose is crucial to improve the disease control strategies and resistance breeding.

References:

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