First report of anthracnose lesions caused by *Colletotrichum siamense* on *Annona scleroderma* fruits in Mexico

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Annona scleroderma Safford (Annonaceae family) is a Mexican perennial wild fruit tree. Anthracnose fruit lesions and mummification were observed in rainy season with 40%–80% incidence. In November 2014, in Veracruz region (19.3805833 N, 96.8416111 W) 15 symptomatic fruits were collected from five random trees. Two tissue pieces were taken from the edge of one lesion per fruit. Thirty tissue samples were surface-disinfected with 70% ethanol (3 min), 4% sodium hypochlorite (1 min) and rinsed three times with sterile distilled water. Samples were dried, plated on chloramphenicol-amended (50 ppm) Potato Dextrose Agar Petri plates, and dark-incubated 8 days at 28 °C. Cotton-like colonies changed from white to pale salmon to brownish; the undersides of colonies were pale salmon to brownish and yellowish. Conidiomata, without setae, were yellowish to salmon. Conidia were fusiform, some oblong, 8–15 (–17) × (3–) 4 (–4.5) µm and guttulate. Appressoria were with germ pores, ovoid and slightly irregular, 6–8 × 5 µm, and brown. Sexual stage was absent. Morphological characters allowed for *Colletotrichum siamense* Prihastuti, L. Cai & K.D. Hyde identification (Prihastuti et al. 2009). Sequencing of ACTIN (512F/783R), GAPDH (GDF/GDR) and β-tubulin (Bt2) genes (Weir et al. 2012) confirmed morphological identification. Sequences (GenBank accession Nos. MK393450,

MK393451, MK393452) showed 98.3%–99.5% identity with *C. siamense* (the ex-holotype culture in ICMP18578) sequences at NCBI (FJ907423, JX009924, JX010404). Pathogenicity was tested on four disinfected, detached, unwounded fruits sprayed-inoculated with a 5×10^4 conidia/ml suspension. Control fruits were sprayed with sterile water. Fruits were incubated at 80% relative humidity and 25 °C for 7 days. Anthracnose symptoms appeared, and the fungus was re-isolated. The specimen CM–CNRG#0625 was deposited in the National Center for Genetic Resources (Mexico). This might be the first report of *C. siamense* causing anthracnose lesions on *A. scleroderma* fruits in Mexico (Farr and Rossman 2019).

References

- Farr DF, Rossman AY (2019) Fungal Databases, U.S. National Fungus Collections, ARS, USDA (Retrieved May 15, 2019 from <https://nt.ars-grin.gov/fungaldatabases/>)
- Prihastuti H, Cai L, Chen H, McKenzie EHC, Hyde KD (2009) Characterization of *Colletotrichum* species associated with coffee berries in northern Thailand. Fungal Divers 39:89–109
- Weir BS, Johnston PR, Damm U (2012) The *Colletotrichum gloeosporioides* species complex. Stud Mycol 73:115–180

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