Characterization and pathological diversity of Colletotrichum species associated with anthracnose disease on mango in Peninsular Malaysia

ABSTRACT

Colletotrichum is one of the important postharvest pathogens to cause anthracnose, which is a threatening disease for mango in Malaysia. The information regarding preharvest anthracnose disease on mango in Malaysia is still inadequate, therefore encouraging the commencement of this study. The objectives of this study are to identify fungi species from mango anthracnose disease, and to determine the pathogenicity of Colletotrichum isolates obtained from the infected mango. During a series of sampling in July 2014 to May 2015 throughout Peninsular Malaysia, the symptom of anthracnose disease was observed in the Malaysian mango plantation. There were 33 isolates of Colletotrichum species were purified and successfully identified as Colletotrichum gloeosporioides species complex. The identity of the isolates was confirmed and classified into C. gloeosporioides (15 isolates) and C. asianum (18 isolates). For pathogenicity test using a non-wounded method, the mango was inoculated with a young mycelial disk. Disease symptoms were observed as a brown to black circular or irregular shape of the lesion with the sunken effect on the infected fruits. Colletotrichum asianum R2262 appeared as the most pathogenic isolate with DSI of 50% on day 8 after inoculation. The pathogens identified in this study were successfully re-isolated from all the symptomatic mango tissues that resulted in fulfilling the Koch's postulates. Meanwhile, control mango inoculated with noncolonized PDA plugs remained symptomless until the end of the test. The data obtained from this study is crucial to design an effective strategy to control anthracnose disease of mango.

Keyword: Colletotrichum; Mango; Internal transcribed spacer (ITS); Malaysia; Anthracnose