

ABSTRACT

Mango is one of Indonesia's main horticultural commodities. Indramayu, known as "The City of Mango", is one of the major mango-producing areas. Mango cultivation is inseparable from various obstacles. One of which is biotic stress caused by pathogen infection. *Colletotrichum* spp. is an important pathogen causing anthracnose disease. The yield loss due to this disease can reach 100%. Many anthracnose studies in Indonesia focus on control of the disease, but information related to its pathogens is extremely difficult to find. The mango anthracnose pathogen in Indonesia was identified as *Gloeosporium mangiferae* in the early 20th century which until now known as *C. gloeosporioides*, while 18 species of *Colletotrichum* have been associated with the disease in the world. An accurate diagnosis is very important to underlie the development of more efficient control measures of the disease in this country.

In this study, a field investigation was used to assess the occurrence of mango anthracnose in 5 subdistricts in Indramayu, and the disease was found in all the surveyed sites. Symptoms of dark-brown sunken spots to large chlorotic lesions that merged and formed a larger necrotic area were observed on mango fruit. The incidence and intensity of the disease were recorded to be 28.4% and 11.87% respectively.

Identification was carried out on 14 *Colletotrichum* isolates based on a morphological approach and multigenic analysis. Furthermore, the isolates generally formed white, greenish-white, grayish-white, cottony, and sparse aerial hyphae. Also, dark orange conidial mass appeared on the aerial hyphae, while, reverse hyphae was white with concentric rings and dark green in the middle. Then, the mycelial growth rate was observed at 7.51–10.64 mm day⁻¹ with an average of 9.58 mm day⁻¹. The conidia of the isolated fungi were cylindrical with obtuse ends, smooth-walled, hyaline, and guttulate. The length and width of the conidia was 12.86–17.88 µm and 3.45–5.01 µm with an average of 16.81 µm and 4.57 µm respectively, while the length/width ratio was 3.55–4.19 with an average of 3.7. Appressoria were established from mycelia, which in most cases were dark brown, and ovoid to slightly irregular in shape. Seta perpendicular that tapered to the top and dark brown was seen in isolates of BP-IMY, GL-JTY, GL-SKG, AP-SKG, and DN-HGL.

Generally, all the 14 isolates were pathogenic in the pathogenicity test. The anthracnose symptoms were formed 1–3 days after inoculation with the mean diameter and area of the lesion were 24.57 mm and 470.07 mm² respectively. All of the isolates were divided into five groups based on morphological categories and pathogenicity test. Among all, CKR-JTB, LJW-JTY, BR-HGL, AP-SKG, and BP-IMY were chosen as representative isolates for multigenic analysis with ITS, Actin, and GAPDH marker pairs. All of the 5 chosen isolates belonged to *C. asianum* supported with morphological characteristics. This study is the first report of *C. asianum* associated with mango anthracnose in Indonesia.

Keywords: mango, anthracnose, *Colletotrichum* spp.