

ABSTRACT

The cultivation and maintenance of *dendrobium* orchids continue to face a major constraint due to the occurrence of leaf spot disease. This study aimed to identify the pathogenic fungi associated with leaf spot disease in *dendrobium* orchids cultivated in the greenhouse of the Faculty of Agriculture, Malikussaleh University. Samples were collected from orchid leaves exhibiting leaf spot symptoms on 8-month-old and 1-year-old plants. The incidence and severity of the disease were assessed using a disease scoring method. Symptomatic leaf samples were then brought to the laboratory for fungal isolation and identification based on their macroscopic and microscopic morphological characteristics. Pathogenicity tests were performed using the detached-leaf method to confirm the ability of the isolated fungi to induce the same symptoms observed in greenhouse-grown orchids. The results revealed that the pathogenic fungi associated with leaf spot disease were *Pestalotiopsis* sp., *Nigrospora* sp., *Phyllosticta* sp., *Colletotrichum* sp., *Pythium* sp., *Thielaviopsis* sp., and *Fusarium* sp. The incidence of leaf spot disease reached 92% in 8-month-old plants, while disease severity ranged from 40% to 65%. The high incidence and severity of leaf spot disease were likely influenced by several environmental and cultural factors, including the irrigation system, plant spacing, and high humidity within the greenhouse.

Keywords: disease incidence, disease severity, leaf spot disease, pathogenic fungi, pathogenicity