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The isolation and molecular identification of the main fungus caused leaf spots on date palms (*Phoenix dactylifera* L.)

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Abstract

Leaf spot diseases caused by *Alternaria* species have been reported worldwide in plants belonging to the Arecaceae family. However, limited information is available on the molecular identification of *Alternaria* species responsible for causing leaf spot diseases in date palm trees. In this study, *Alternaria* spp. isolated from date palm leaves collected from three districts in the Basrah governorate were characterized based on their morphology, physiology and molecular markers. By employing techniques in morphology and molecular biology, along with analysis using the neighbor-joining approach and alignment of the internal transcribed spacer (ITS) sequences, we successfully isolated and identified the fungal pathogen as *Alternaria alternata*. *A. alternata* colony showcase dark black mycelia encircled by a white-gray mycelium. Microscopic observation revealed that the isolated conidia were obclavate, cylindrical and dark brown. The conidiophores exhibited a septate, branching structure and had an olivaceous brown color. Through sequencing, it was discovered that the isolate showed a high degree of similarity (100%) to *Alternaria alternata*, specifically in their ITS regions. The DNA sequences have been submitted to the National Center for Biotechnology Information (NCBI), and the sequence accession number obtained from GenBank for the *Alternaria alternata* sequence used in the phylogenetic study is PP194367.1.

Keywords: *Alternaria alternate* date palm leaf spots

Author contributions

NSJ performed material preparation, conducted the computational analysis of the results, and finally wrote the first draft of the manuscript. ANA assisted in the computational analysis of the results and prepared the figures. Both authors provided feedback on previous manuscript versions and read and approved the final version.

Disclosure statement

No potential conflict of interest was reported by the authors.

Previous article View issue table of contents Next article