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تدوین:
دکتر سهیلا منصوری
Morphological and molecular identification of the fungus *Verticillium* *epiphytum* and evaluation of its pathogenicity on *Sipha* *maydis* and *Metopophium* *dirhodum* in laboratory conditions

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In the last decades, biological control, particularly the use of entomopathogenic fungi has regarded as an emerging strategy to control aphids. In the present study the fungus isolated from the infected specimens of onion thrips, *Thrips tabaci*, in Mashhad, was identified as *Verticillium* *epiphytum* based on morphological and molecular characteristics and its pathogenicity was evaluated against the cereal aphids, *Sipha* *maydis* and *Metopophium* *dirhodum* in laboratory conditions. After purification, the fungal isolate, was cultured on PDA and incubated at 28°C and darkness. After sporulation, microscopic slides of the fungus were prepared using blue cotton. Identification was made based on morphological features and Humber’s key. Molecular study was performed on the ITS gene region using ITS1 and ITS4 primers. The length of the aligned fragment was 575 bp which was recorded as the accession number KF548667 in the gene bank. Comparison of the obtained sequence with other sequences in the gene bank using nBlast software revealed 98% similarity to the isolate designated as *Cephalosporium curtipes* var. *arendincola* (AJ292405:1), which has been recently verified as *Verticillium* *epiphytum*. The scientific name of the fungus was confirmed by Dr. R. Zare, Department of Botany, Plant Pests and Diseases Research Institute of Iran. The results showed that the radial growth (8.20 cm after 21 days), sporulation (6.5 × 10^6 conidia ml^{-1} after 21 days) and germination percent (98 percent after 24 h) of the fungus *V. epiphytum* were rather high. The LC_{90} value of the fungus was obtained as 15.1 × 10^6 and 61.9 × 10^6 conidia ml^{-1} for *S. maydis* and *M. dirhodum*, respectively. The aphid *S. maydis* was more susceptible to the entomopathogenic fungus than *M. dirhodum*. Fecundity of *S. maydis* and *M. dirhodum* decreased significantly due to fungus treatments. In the present study, the bioassays were performed on whole plants. This is the first study to demonstrate the pathogenicity of the fungus *V. epiphytum* against aphids. The results of present study suggested that *V. epiphytum* might be a potential candidate in the biological control program of aphids. Further researches emphasizing on greenhouse and field trials are recommended.