

In vivo* INTERACTION OF *Verticillium dahliae*, THE CAUSAL AGENT OF PISTACHIO VERTICILLIUM WILT, WITH *Acremonium kiliense*

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Abstract

This study was conducted on the interaction between *Verticillium dahliae*, the causal agent of vascular wilt of pistachio trees, and *Acremonium kiliense*, an endophyte fungus with biological control effects. Nine-month-old seedlings of three pistachio cultivars including Sarakhs, Badami-Rize-Zarand and Ghazvini were used by root dip method in conidial suspension (10^6 ml⁻¹) and transferred to pots containing autoclaved soil. After one month, the inoculated seedlings were transferred to soil containing 40 microsclerotia/g soil of *V. dahliae*. The trial was performed as a two-factor factorial experiment with 3 replications for each combination, the factors being cultivars and fungal treatments at 3 and 4 levels, respectively, in a completely randomized design. The results showed an increase in the dry weight of roots and shoots in trees inoculated with *A. kiliense* plus *V. dahliae* compared to trees inoculated only with *V. dahliae*. Interaction of *A. kiliense* and *V. dahliae* decreased the percentage of shoots and roots infection compare to treatments of *V. dahliae* alone. The percentage of *V. dahliae* isolation from different treatments showed that cultivars inoculated with *A. kiliense* plus *V. dahliae* had a lower colonization by *V. dahliae* than those inoculated only with *V. dahliae*. The results of statistical grouping revealed that shoot dry weight in all inoculated cultivars with *A. kiliense*, *A. kiliense* plus *V. dahliae*, and control belonged to one group, whereas cultivars inoculated only with *V. dahliae* constituted a separate group. The results of the *Verticillium* isolation from tissue showed that the isolation rate of *V. dahliae* in interaction between *A. kiliense*-*V.dahliae*, compared to *V. dahliae* alone, decreased more than 50 percent in all cultivars.

Keywords: Vascular wilt, *Verticillium dahliae*, *Acremonium kiliense*.

See Persian text for figures and tables (Pages ۳۶۵-۳۷۴).

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