

# Effects of arbuscular mycorrhizal fungi and phosphorus on coriander (*Coriandrum sativum* L.) essential oil in drought stress condition

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## Abstract

Mycorrhizal fungi live in a 'symbiotic' relationship with plants. They grow in close association with the roots and play an important role in the concentration and transfer of soil nutrients to the plant. In exchange, the plant supplies the fungus with sugars. This experiment was carried out using a split factorial based randomized complete block design with 4 replications. The factors studied included two levels of drought stress, application and non-application of mycorrhiza (*Glomus hoi*) and 0, 35 and 70 kg ha<sup>-1</sup> phosphorus applications. Drought stress had significant effect on essential oil yield, biological yield, shoot P content, root yield, seed yield and harvest index and the highest upon plant characteristics were achieved under without drought stress conditions. Also, mycorrhiza and phosphorus applications had significant effects on essential oil yield, biological yield, shoot P content, root yield and seed yield. Highest this characteristics were achieved under application of mycorrhiza and 70 kg ha<sup>-1</sup> phosphorus. Our findings indicate that AMF inoculation of coriander contributes to improved water and phosphorous uptake for the production of below-ground organs and helps maintain accumulation of dry matter.

Key words: arbuscular mycorrhizal fungi, phosphorus, drought stress, essential oil, *Coriandrum sativum* L.

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