

研究报告

## 水分胁迫下丛枝菌根真菌对红橘叶片活性氧代谢的影响

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**摘要** 研究了水分胁迫下接种地表球囊霉 (*Glomus versiforme* (Karsten) Berch) 对红橘 (*Citrus tangerine* Hort. ex Tanaka) 叶片活性氧代谢的影响. 结果表明: 水分胁迫显著抑制了地表球囊霉对红橘根系的侵染, 抑制率为33%. 在正常供水和水分胁迫下, 接种地表球囊霉处理的红橘叶片磷含量显著增加, 与未接种处理相比, 分别增加了45%和27%, 丙二醛 (MDA) 和H<sub>2</sub>O<sub>2</sub>含量分别降低了25%、21%和16%、16%. 正常供水和水分胁迫下接种地表球囊霉增强了叶片超氧化物歧化酶(SOD)、过氧化物酶(POD)、过氧化氢酶(CAT)和抗坏血酸过氧化物酶(APX)活性; 提高了可溶性蛋白质、还原型抗坏血酸(ASC)和总抗坏血酸(TASC)含量. 水分胁迫下接种处理显著降低了叶片超氧阴离子自由基(O<sub>2</sub><sup>-</sup>)含量, 与正常供水相比降低了31%. 表明菌根化红橘植株的抗旱性增强.

**关键词** [丛枝菌根真菌](#) [红橘](#) [水分胁迫](#) [活性氧](#)

分类号

## Effects of arbuscular mycorrhizal fungi on reactive oxygen metabolism of *Citrus tangerine* leaves under water stress.

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### Abstract

In a pot experiment, this paper studied the effects of arbuscular mycorrhizal (AM) fungus *Glomus versiforme* (Karsten) Berch inoculation on the reactive oxygen metabolism of *Citrus tangerine* Hort. ex Tanaka leaves under water stress. The results showed that water stress decreased the colonization of *G. versiforme* on *C. tangerine* roots significantly, with a decrement of 33%. Under normal water supply and water stress, *G. versiforme* inoculation increased the leaf P content by 45% and 27%, and decreased the leaf malondialdehyde (MDA) and hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>) contents by 25% and 21%, and 16% and 16%, respectively, compared with the control. Inoculation with *G. versiforme* enhanced the activities of leaf superoxide dismutase (SOD), peroxidase (POD), catalase (CAT) and ascorbate peroxidase (APX), and increased the contents of leaf soluble protein, ascorbate (ASC) and total ascorbate (TASC) notably, regardless soil moisture condition. Under water stress, *G. versiforme* inoculation decreased the leaf superoxide anion radical (O<sub>2</sub><sup>-</sup>) content by 31%, compared with that under normal water supply. It was suggested that the drought resistance of *C. tangerine* leaves was enhanced after *G.versiforme* inoculation.

**Key words** [arbuscular mycorrhizal \(AM\) fungi](#) [Citrus tangerine](#) [water stress](#) [reactive oxygen species](#)

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