

研究报告

丛枝菌根真菌对柑橘嫁接苗枳/红肉脐橙抗旱性的影响

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摘要

采用盆栽试验,研究了自然水分胁迫和胁迫解除复水条件下接种AM真菌摩西球囊霉对柑橘嫁接苗枳/红肉脐橙生长和保护系统能力的影响.结果表明,接种AM真菌的柑橘嫁接苗的株高、穗粗、叶面积和新梢生长量显著或极显著地高于未接种植株.在胁迫解除复水第4天,接种AM真菌的根系可溶性蛋白质含量、超氧化物歧化酶(SOD)和过氧化氢酶(CAT)活性显著或极显著高于未接种植株.在自然水分胁迫和胁迫解除复水过程中,接种AM真菌较未接种处理降低叶片丙二醛(MDA)含量,提高可溶性糖和可溶性蛋白质含量,增强SOD、过氧化物酶(POD)、CAT活性,从而增强柑橘嫁接苗的渗透调节和保护防御能力,提高柑橘嫁接苗的抗旱能力.水分和菌根显著交互影响叶片SOD活性.AM真菌提高寄主植物的抗旱性机制可能与寄主植物的保护系统能力的改变有关.

关键词 [AM真菌](#); [抗旱性](#); [保护系统](#); [柑橘](#); [嫁接苗](#)

分类号

Effects of AM fungi on drought tolerance of citrus grafting seedling trifoliolate orange/cara cara

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Abstract

With pot experiment in a greenhouse, this paper studied the effects of arbuscular mycorrhizal (AM) fungi *Glomus mosseae* on the drought tolerance of citrus grafting seedling trifoliolate orange/cara cara under natural water stress and rewatering. The results showed that inoculation with AM fungi significantly increased the plant height, stem diameter, leaf area, and shoot length of test seedling. At the 4th day of rewatering, mycorrhizal plant had significantly higher root soluble protein content and superoxide dismutase (SOD) and catalase (CAT) activities than non-mycorrhizal plant. An interaction between water and AM fungi could significantly promote leaf SOD activity. During natural water stress and rewatering, AM fungi inoculation could decrease the leaf content of malondialdehyde (MDA), increase those of soluble sugar and soluble protein, and enhance the activities of SOD, peroxidase (POD) and CAT. As a result, the capability of osmotic adjustment and protective recovery, and thus, the drought tolerance of mycorrhizal citrus grafting seedling were improved. The mechanism that AM fungi could enhance the drought tolerance of host plant might be related to the protective system of host plant.

Key words [AM fungi](#) [Drought tolerance](#) [Protective system](#) [Citrus](#) [Grafting seedling](#)

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