数据资源：林业专题资讯

打印 下载 A+ A- 分享

Arbuscular mycorrhizal fungi induce flavonoid synthesis for mitigating oxidative damage of trifoliate orange under water stress

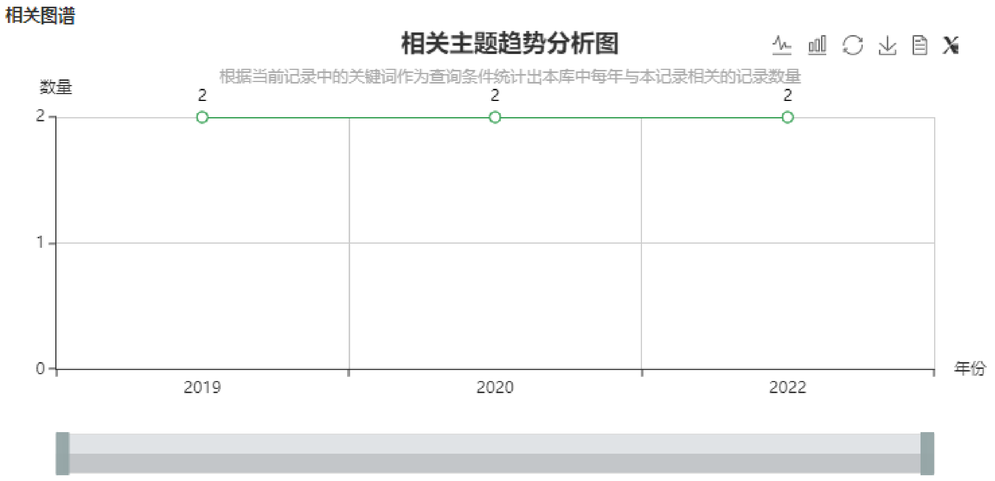
编号	040037005
推送时间	20221121
研究领域	森林培育
年份	2022
类型	期刊
语种	英语
标题	Arbuscular mycorrhizal fungi induce flavonoid synthesis for mitigating oxidative damage of trifoliate orange under water stress
来源期刊	Environmental and Experimental Botany
期	第370期
发表时间	20221004
关键词	antioxidants; flavonoids; mycorrhiza; reactive oxygen species; water stres;
摘要	Arbuscular mycorrhizal (AM) fungi can increase the tolerance of host plants to drought, whereas the intrinsic mechanisms are not still fully elucidated. Flavonoids are a kind of antioxidants to scavenge reactive oxygen species (ROS), whereas whether and how flavonoids are involved in increased drought tolerance of host plants by AM fungi is not known. Here, Funneliformis mosseae, was inoculated into potted trifoliate orange seedlings, which were subjected to adequate water and water stress conditions. The AM effect on plant growth, concentrations of flavonoid substances and total flavonoids, and activities and expression levels of enzymes related to flavonoids synthesis (cInnamate 4-dydroxylate (C4H), phenylalanine ammonialyase (PAL), chalcone isomerase (CHI), and 4-coumaroyl-CoA ligase (4CL)) in roots was analyzed, along with changes in scavenging activity of ROS by root flavonoid extracts. Compared with non-AM control, F. mosseae inoculation distinctly improved plant growth performance and increased phenylalanine, glycitin, luteolin-7-O-glucoside, and total flavonoid concentrations, coupled with the decrease in p-coumaric acid, regardless of soil water regimes. Activities of C4H, CHI, 4CL, and PAL and expression levels of PtPAL1 and Pt4CL were induced by F. mosseae inoculation under water stress. AM plants exhibited higher scavenging activity of hydroxyl radical and superoxide (O2??) by root flavonoid extracts under water stress, along with lower levels of O2?? and hydrogen peroxide and the degree of membrance lipid peroxidation, compared with non-AM plants. It is concluded that AM fungi accelerated flavonoids synthesis of trifoliate orange for mitigating oxidative damage under water stress.
服务人员	孙小满
服务院士	尹伟伦
PDF文件	浏览全文

相关记录

更多 >

- ACC deaminase-producing endophytic fungal consortia promotes drought stress ... 2023-01-30
- Brassinosteroid-Activated BRI1-EMS-SUPPRESSOR 1 Inhibits Flavonoid Biosynthes... 2020-09-28
- Mutation of chloroplast CHLM contributes to down-regulation of multiple stress r... 2020-05-11
- Hydrogen Sulfide: A New Warrior against Abiotic Stress 2019-12-02
- Vitamin E in Plants: Biosynthesis, Transport, and Function 2019-12-16

相关图谱



相关主题

泡囊丛枝菌根 抗氧化剂贮藏 内外生菌根 外生菌根 丛枝菌根 类黄酮 新类黄酮化合物 藻菌菌根 囊枝菌根 囊丛枝菌根

相关论文

- Effects of Metal Ions and EDTA on ...
- 黄酮类化合物在植物生理中的效应
- AM真菌氮代谢与运转研究新进展
- 黄酮类化合物在植物界的分布、其药...
- 桦褐孔菌酚类化合物及其免疫促进作...