

分根装置中接种AMF对12 mm土壤水稳性团聚体的影响

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Influence of arbuscular mycorrhizal fungi inoculation on 1-2mm soil water stable aggregates in split root system

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摘要

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摘要 采用分根装置研究了丛枝菌根真菌侵染白三叶草 (*Trifolium repens*) 后对中性紫色土12 mm土壤水稳性团聚体 (WSA1_2mm) 含量的影响, 并运用通径分析对其主要影响因子进行了量化比较。结果表明, 接种 *Glomus intraradices*、*G. mosseae* 和 *G. etunicatum* 的菌根室土壤有机质、球囊霉素相关土壤蛋白 (GRSP) 含量均有增加的趋势; 接种3种菌种都显著增加了菌根室土壤WSA1_2mm含量。通径分析结果表明, 菌丝密度对WSA1_2mm含量有较大的直接效应 (直接通径系数 0.678), 而GRSP对WSA1_2mm的影响系数较小, 既有直接效应又有间接效应, 但以直接效应为主。菌丝和GRSP对12mm 土壤水稳性团聚体作用大小的差异可能源于二者作用机制的不同。

关键词: 菌丝 球囊霉素相关土壤蛋白 通径分析

Abstract: A split root device experiment was used to investigate the influence of arbuscular mycorrhizal (AM) fungi inoculation on 1-2 mm soil water stability aggregates (WSA1_2mm) in the neutral purple soil while white clover (*Trifolium repens*) as the host plants. The results show that compared with the non-mycorrhizal treatment, the contents of organic matter and glomalin related soil protein (GRSP) of mycorrhizal soil are slightly increased under the inoculation with *Glomus intraradices*, *G. mosseae* and *G. etunicatum*, while the WSA1_2mm contents of mycorrhizal soil are significantly increased. The results of path analysis indicate that the hyphae density has a high direct effect on WSA1_2mm (direct path coefficient is 0.678), GRSP has both direct and indirect effect, but through direct effect mainly. The different mechanism of these factors may account for the difference.

Keywords: hyphae glomalin related soil protein path analysis

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