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前植物生产层

丛枝菌根真菌研究中土壤灭菌方法综述

谢 越，杨高文，周翰舒，张英俊

摘要：

丛枝菌根真菌与植物根系的共生关系是当今微生物领域的研究热点之一。建立无丛枝菌根真菌的对照则是此研究的难点。本研究综述了高温灭菌法、γ射线灭菌法、化学熏蒸法、苯菌灵抑制法和物理割断法5种常用方法。每种方法各有利弊，高温灭菌法、γ射线灭菌法和化学熏蒸法适用于室内试验，但前两者对土壤理化性质有一定的影响，化学熏蒸法会破坏环境；苯菌灵抑制法和物理割断法适用于室外试验，其中前一种方法会破坏环境，需严格控制药剂用量，后一种方法虽环保，但可能影响土壤中水分和营养成分的交换。因此，研究者应根据研究环境和目的选择适宜的方法。

关键词： 丛枝菌根真菌（AMF） 高压蒸汽法 &gamma 射线灭菌 化学熏蒸 苯菌灵 物理割断法

A review on methods of sterilization and inhibition of arbuscular mycorrhizal fungi in Soil

XIE Yue, YANG Gao wen, ZHOU Han shu, ZHANG Ying jun

Abstract:

A symbiotic relationship between arbuscular mycorrhizal fungi (AMF) and plant roots is one of the hottest studies in the microbial research field currently. Establishing a non AMF control group (non AMF soil) is a key point to reveal effects of arbuscular mycorrhizal fungi on plants. This paper summarizes 5 methods, including autoclaving, chemical fumigation, γ irridation, benomyl and severance of hyphae, to establish non arbuscular mycorrhizal fungi control groups. Autoclaving, chemical fumigation and γ irridiation can be adopted in indoor experiments, while the former two may affect the phsical and chemical charasteristics of soil and the latter is not enviromental friendly. Benomyl and severance of hyphae are suitable for outdoor experiments. The quantity of benomyl should be rigidly controlled due to its negative effects on the environment. Though severance of hyphae would not damage the environment, it may affect the exchange of water and nutrition between plants and soil. Thus, researchers should choose suitable methods for their studies auording to enviroment and purpose of the study.

Keywords: arbuscular mycorrhizal fungi (AMF) autoclaving γ irradiation chemical fumigation benomyl severance of hyphae

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作者简介:

作者Email:

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