

## Article Abstract

Title:	Effects of arbuscular mycorrhizae on microbial population and enzyme activity in replant soil used for watermelon production
Author(s):	M. Zhao, M. Li, R. J. Liu*
Address(es):	Institute of Mycorrhizal Biotechnology, Qingdao Agricultural University, Qingdao 266109, P.R.CHINA *Corresponding Author: e-mail: liurj@qau.edu.cn, Tel: +86-0532-88030113 , Fax. +86-0532-86080221
Journal:	<i>International Journal of Engineering, Science and Technology</i> , Vol. 2, No. 7, 2010, pp. 17-22.
Abstract:	Arbuscular mycorrhizal (AM) fungi are ubiquitous fungi distributed widely in soil ecosystems. It has been showed that AM fungi play an important role in improving soil nutrition and enhancing crop disease resistance, which have great application potentials in overcoming crop replant problems. In order to evaluate the effects of AM fungi on soil microbe population and soil enzyme activities in replant soils, three replant soils respectively with 3, 7, and 12 watermelon ( <i>Citrullus lanatus</i> ) replanting years were employed to be investigated. Results showed that the total soil microbe, bacteria, and actinomycete population, and the activities of soil proteinase, polyphenoloxidase, urease, and saccharase in replant soils gradually declined, while the fungal population, and the fungi/total microbe ratio increased, as replanting years rose. In each replant soil, the inoculation with AM fungus <i>Glomus versiforme</i> enhanced soil bacteria and actinomycete population, and decreased the fungal numbers, and the fungi/total microbe ratio in replanting soils, and improved soil proteinase, polyphenoloxidase, urease, and saccharase activities, compared with controls. That contributed to the relative equilibrium of the three kinds of soil microorganism populations. It is concluded that the AM fungal inoculation can reduce watermelon replant problems through effectively modifying the soil microbe population and community structure, and increasing the soil enzyme activities.
Keywords:	Arbuscular mycorrhizae fungi; watermelon; greenhouse; soil microbial population; soil enzyme activity