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**The Interactions of Arbuscular Mycorrhiza Fungi (AMF) with  
other Bio-control Agents in the Control of *Fusarium oxysporum*  
f. sp. *lycopersici***

LILIAN WANJIRU MBUTHIA, HENNING VON ALTEN, GISELA GRUNEWALDT-STÖCKER

*Leibniz Universität Hannover, Institute of Plant Diseases and Plant Protection, Germany*

**Abstract**

Biological control has been exploited as an alternative for the chemical control of plant diseases and is currently accepted as a key practice in sustainable agriculture as it is based on the management of natural resources. However, inconsistencies in success of bio-control have directed research to finding ways of reducing its variability by combining applications of bio-control agents.

The research presented here aimed at exploiting the use of arbuscular mycorrhiza fungi (AMF), an important and widely spread component of the rhizosphere known to reduce damage caused by soil-borne pathogens, together with other known bio-control agents. It focused at getting insight on probable synergistic interactions as well as understanding how varying conditions would influence such interactions.

The interactions were studied regarding the control of *Fusarium oxysporum* f. sp. *lycopersici* (FOL), a soil-borne pathogen that causes wilting in tomatoes, using AMF and *Trichoderma harzianum* (T-22) as the biological antagonists. Additional factors studied in the interaction included investigating the influence of nutrition by varying levels of Phosphorous to include a high and low level of P-fertilisation, and two types of substrates, i.e. sand and a sand peat mixture.

The results indicate the possibility of synergistic control effects achieved by the combination of AMF and T-22. However, there were clear differences regarding the influences of the substrate, P-level as well as environmental growing conditions. The most clear was the distinctive difference in symptom development of FOL under varying P-levels with plants having high P showing typical FOL symptoms of yellowing followed by gradual wilting, while those having low P directly wilted without yellowing.

**Keywords:** Arbuscular Mycorrhiza Fungi, AMF, biological control, *Fusarium oxysporum*, *Trichoderma harzianum*