Biological control of two phytopathogenic fungal species isolated from the rhizoplane of soybean (Glycine max)

MOHAMED HASHEM

Department of Botany, Faculty of Science, Assiut University, Assiut, Egypt, mhashem2000eg@yahoo.com

Hashem M. (2004): Biological control of two phytopathogenic fungal species isolated from the rhizoplane of soybean (Glycine max). – Czech Mycol. 56: 223-238.

Two hundred isolates representing 31 fungal species (20 genera) were recovered from soybean roots. Samples were collected from 12 localities at 3 different growth stages of the crop. The most *dominant species were Aspergillus flavus, Fusarium oxysporum, Fusarium solani (Nectria* haematococca), *Macrophomina phaseolina* and *Rhizoctonia solani*. Pathogenicity tests have proved the ability of *Macrophomina phaseolina* and *Rhizoctonia solani* to infect soybean roots and produce the symptoms of damping-off and root-rot diseases. The efficacy of three antagonists (*Trichoderma harzianum, Epicoccum nigrum* and *Paecilomyces lilacinus*) as well as two organic compounds (Strom and F-760) was evaluated as to their control of pathogenic fungi. Biocontrol fungi significantly suppressed *Macrophomina phaseolina* and *Rhizoctonia solani* in vitro and in vivo. *Epicoccum nigrum* and *Paecilomyces lilacinus* suppressed the growth of the pathogens by producing an inhibition zone while *Trichoderma harzianum* suppressed them by overgrowing. Strom and F-760 showed lower reduction effect of diseases in comparison with the antagonists.

Key words: biological control, soybean, *Macrophomina phaseolina*, *Rhizoctonia solani*