



INTERNATIONAL INSTITUTE  
OF SUGAR BEET RESEARCH

# **ABSTRACTS OF PAPERS**

**77<sup>TH</sup> IIRB CONGRESS**

**Maximising sugar beet performance  
in a changing climate**

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### **CHARACTERISATION OF *TRICHODERMA* SPP. FOR ANTAGONISTIC ACTIVITY AGAINST CHARCOAL ROOT ROT *MACROPHOMINA PHASEOLINA* FROM SUGAR BEET**

Charcoal rot of sugar beet, caused by *Macrophomina phaseolina* in recent years has become a main concern for farmers in Serbia. Since control measures are mostly preventive with only partial effect, introduction of alternative measures, such as biological control based on augmentation of mycoparasites, represents the most promising approach. ITS region and *tef* gene sequence analysis of ten *Trichoderma* spp. isolates from sugar beet and soybean rhizosphere was done to confirm species identity. All isolates were confirmed to be *Trichoderma harzianum*. Their effect was tested in vitro using dual culture test, using mycelial growth of *M. phaseolina* isolate SR55(3)/9 pathogenic to sugar beet as tested parameter. All *T. harzianum* isolates significantly reduced mycelial growth and microsclerotia formation. Five days after inoculation, mycelial growth inhibition ranged from 54.1 to 64.4% in dual culture test. Isolate T2 showed maximum antifungal activity in dual culture test inhibiting growth of *M. phaseolina* up to 64.4%. In eight isolates, the antibiosis phenomenon was observed through the formation of an intermediate band without growth between colonies. Isolates T11 and T12 grew rapidly and when they came into contact with the *M. phaseolina* colony, they continued to grow and sporulate until the entire Petri dish was covered. As the result of confrontation between the T13 isolate and *M. phaseolina*, there was a zone of growth inhibition between mycelia, where the culture medium changed color, probably due to secondary metabolite excretion.