



BOOK of **ABSTRACTS**

4th INTERNATIONAL CONFERENCE ON PLANT BIOLOGY (23rd SPPS Meeting)



**6-8 OCTOBER 2022
BELGRADE**

Serbian Plant Physiology Society

**Institute for Biological Research “Siniša Stanković”
National Institute of Republic of Serbia, University of Belgrade**

Faculty of Biology, University of Belgrade

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Antagonistic activity of *Trichoderma* spp. against soilborne pathogens

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Potential use of *Trichoderma* spp. against different soilborne plant pathogens (*Sclerotinia sclerotiorum*, *Rhizoctonia solani* and *Pythium aphanidermatum*) was investigated in this study. Thirteen *Trichoderma* spp. isolates were derived from the rhizosphere of different host plants originating from seven localities in Serbia. Based on the results of preliminary tests, using a dual culture confrontation method, four *Trichoderma* spp. isolates with the best antagonistic activity were chosen for identification and further investigation. Morphological and physiological characteristics and sequence analysis of the translation elongation factor 1-alpha (*tef 1*), showed that all antagonistic strains belong to *Trichoderma harzianum* species complex (ThSC). Antagonistic activity of the ThSC strains was quantified *in vitro* on PDA medium at 24°C, by a double-layer-well method. The highest antagonistic activity was achieved by T1 isolate against *P. aphanidermatum* and *R. solani*, where mycelial growth of the pathogens was completely inhibited. None of the ThSC strains was able to inhibit the growth of *S. sclerotiorum* under presented experimental conditions. To determine the mode of antagonistic activity, three types of liquid ThSC culture filtrates were used: filtrated through cheese cloth (containing fungal spores), filtrated by syringe filters (spore free) and heated cheese-cloth-filtrate (10 min at 100°C). The research showed that *T. harzianum* strains exhibited direct mycoparasitism as the mode of antagonistic activity and that produced metabolites didn't express suppressive effect on pathogenic isolates. Presented study revealed that tested isolates of ThSC, or at least T1 strain, could be effective biocontrol agent(s) against *R. solani* and *P. aphanidermatum*.

Keywords: plant pathogens, biological control, *Trichoderma harzianum*

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