



# **BOOK** of **ABSTRACTS**

## **4<sup>th</sup> INTERNATIONAL CONFERENCE ON PLANT BIOLOGY (23<sup>rd</sup> 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**

**BOOK OF ABSTRACTS**  
**4<sup>th</sup> International Conference**  
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Belgrade, 2022

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CIP - Каталогizacija u publikaciji - Narodna biblioteka Srbije, Beograd

581 (048)

INTERNATIONAL Conference on Plant Biology (4 ; 2022 ; Belgrade)

Book of Abstracts / 4th International Conference on Plant Biology [and] 23rd SPPS Meeting, 6-8 October 2022, Belgrade ; [organized by] Serbian Plant Physiology Society [and] Institute for Biological Research "Siniša Stanković", University of Belgrade [and ] Faculty of Biology, University of Belgrade ; [editor Milica Milutinović]. - Belgrade : Serbian Plant Physiology Society : University, Institute for Biological Research "Siniša Stanković" : University, Faculty of Biology, 2022 (Zemun : Alta Nova). - 169 str. : ilustr. ; 24 cm

Tiraž 30. - Registar.

ISBN 978-86-912591-6-7 (SPPS)

1. Društvo za fiziologiju biljaka Srbije. Sastanak (23 ; 2022 ; Beograd)

a) Ботаника - Апстракти

COBISS.SR-ID 74996233

**4<sup>th</sup> International Conference on Plant Biology**  
**(23<sup>rd</sup> SPPS Meeting)**  
**6-8 October, Belgrade**

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**Publishers**

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

**Editor**

Milica Milutinović

**Graphic design**

Dejan Matekalo

**Prepress**

Marija G. Gray

**Printed by**

Alta Nova, Zemun

**Print run**

30 pcs

Belgrade, 2022

## Enzymatic component of antioxidative system in succulent plant *Tacitus bellus* as a response to hemibiotroph *Fusarium verticillioides* infection *in vitro*

PP2-5

Tijana Cvetić Antić<sup>1</sup>, Dušica Janošević<sup>1</sup>, Jasmina Glamočlija<sup>2</sup>, Aleksandra Lj. Mitrović<sup>3</sup>

(tcvetic@bio.bg.ac.rs)

<sup>1</sup> University of Belgrade, Faculty of Biology, Studentski trg 16, Belgrade, Serbia

<sup>2</sup> Institute for Biological Research "Siniša Stanković", University of Belgrade, Bulevar despota Stefana 142, 11060 Belgrade, Serbia

<sup>3</sup> Institute for Multidisciplinary Research, Center for Green Technologies, University of Belgrade, Kneza Višeslava 1, 11000 Belgrade, Serbia

Fungi and plants interact in different ways, creating a scale of associations. Hemibiotrophic fungi represent the most interesting group, as they use sequential biotrophic and necrotrophic infection strategies. The co-evolution of plant and fungal life-styles has not been well characterized. We present changes of enzymatic component of antioxidative system in succulent plant *Tacitus bellus* that specifically correspond to subsequent phases (spore germination, biotrophic phase, and necrotrophic phase) of hemibiotroph *Fusarium verticillioides* infection. *T. bellus* response to *F. verticillioides* spore germination was characterized by transient increase in catalase (CAT), but decrease in superoxide dismutase (SOD) and peroxidase (POD) activity. During biotrophic phase of *F. verticillioides* infection, when hyphae spread intercellularly in epidermal and mesophyll tissue, host antioxidative system was suppressed. The transition from biotrophic to necrotrophic phase (inter and intracellular colonization and sporulation) triggered the host plant cells to create a highly defensive environment: CAT, SOD and POD activities were significantly stimulated, slowing, or even currently arresting, colonization of *T. bellus* mesophyll cells. CAT, showing the most pronounced activity increase, could be suggested as the main enzyme responsible for slowing the progression of necrotrophic phase of *F. verticillioides* growth. However, contrary to host CAT and SOD which isoenzyme profile didn't change, new highly acidic POD isoforms replaced the two mildly acidic isoforms, suggesting their specific role in slowing the progression of infection. Presented results add to knowledge of events and mechanisms related to hemibiotrophic fungi pathogenicity in succulent plants grown under high relative humidity, similar to conditions in greenhouse.

**Keywords:** *Tacitus bellus*, *Fusarium verticillioides*, fungal leaf infection, antioxidative enzymes

*Acknowledgment:* This work was supported by the Ministry of Education, Science and Technological Development of the Republic of Serbia (contract no. 451-03-68/2022-14/ 200053; 451-03-68/2022-14/ 200178; 451-03-68/2022-14/ 200007).

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