



# **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**  
**on Plant Biology**  
**(23<sup>rd</sup> SPPS Meeting)**



Belgrade, 2022

.....  
CIP - Каталогизacija 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**

---

**Organizing Committee**

Jelena Savić (President), Neda Aničić, Jelena Božunović, Milica Milutinović, Luka Petrović, Nina Devrnja, Tatjana Čosić, Dragana Rajković, Živko Čurčić, Marina Putnik-Delić, Dragica Milosavljević, Milorad Vujičić, Marija Čosić, Miloš Ilić

---

**Scientific Committee**

Aleksej Tarasjev (Belgrade, SERBIA)	Julien Pirello, (Castanet-Tolosan Cedex, FRANCE)
Ana Čirić, (Belgrade, SERBIA)	Ljiljana Prokić, (Belgrade, SERBIA)
Ana Simonović †, (Belgrade, SERBIA)	Marijana Skorić, (Belgrade, SERBIA)
Anamarija Koren, (Novi Sad, SERBIA)	Marko Sabovljević, (Belgrade, SERBIA)
Aneta Sabovljević, (Belgrade, SERBIA)	Michel Chalot, (Montbéliard, FRANCE)
Angelina Subotić, (Belgrade, SERBIA)	Milan Borišev, (Novi Sad, SERBIA)
Angelos Kanellis, (Theassaloniki, GREECE)	Milan Dragičević, (Belgrade, SERBIA)
Biljana Kukavica, (Banja Luka, BOSNIA AND HERCEGOVINA)	Milan Mirosavljević, (Novi Sad, SERBIA)
Branka Vintehalter, (Belgrade, SERBIA)	Milka Brdar Jokanović, (Novi Sad, SERBIA)
Costas A. Thanos, (Athens, GREECE)	Miroslav Lisjak, (Osijek, CROATIA)
Danijela Arsenov, (Novi Sad, SERBIA)	Miroslava Zhiponova, (Sofia, BULGARIA)
Danijela Mišić, (Belgrade, SERBIA)	Mondher Bouzayen, (Castanet-Tolosan Cedex, FRANCE)
Georgy A. Romanov, (Moskva, RUSSIA)	Nataša Barišić Klisarić, (Belgrade, SERBIA)
Hermann Heilmeier, (Freiberg, GERMANY)	Snežana Zdravković-Korać, (Belgrade, SERBIA)
Hrvoje Fulgosi, (Zagreb, CROATIA)	Stéphane Pfendler, (Montbéliard, FRANCE)
Ingeborg Lang, (Vienna, AUSTRIA)	Tijana Cvetić Antić, (Belgrade, SERBIA)
Ivana Dragičević (Belgrade, SERBIA)	Vaclav Motyka, (Prague, CZECH REPUBLIC)
Ivana Maksimović (Novi Sad, SERBIA)	Vuk Maksimović, (Belgrade, SERBIA)
Jelena Dragišić Maksimović, (Belgrade, SERBIA)	Zsófia Bánfalvi, (Gödöllő, HUNGARY)
Jelena Samardžić, (Belgrade, SERBIA)	

---

<b><u>Publishers</u></b>	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
<b><u>Editor</u></b>	Milica Milutinović
<b><u>Graphic design</u></b>	Dejan Matekalo
<b><u>Prepress</u></b>	Marija G. Gray
<b><u>Printed by</u></b>	Alta Nova, Zemun
<b><u>Print run</u></b>	30 pcs Belgrade, 2022

**Supported by the Ministry of Education, Science, and Technological Development of the Republic of Serbia**

## Trichostatin and dimethyl sulfoxide enhance somatic embryogenesis from root apices of spinach

PP1-8

Snežana Zdravković-Korać, Maja Belić, Dušica Čalić, Jelena Milojević

(szk@ibiss.bg.ac.rs)

Department of Plant Physiology, Institute for Biological Research "Siniša Stanković"- National Institute of Republic of Serbia, University of Belgrade, Bulevar despota Stefana 142, 11060 Belgrade, Serbia

Epigenetic modifications of chromatin play a pivotal role in regulation of expression of genes involved in somatic embryo (SE) induction. Hence, the compounds which affect DNA-histone interaction may trigger somatic embryogenesis. Trichostatin (TSA) is a potent inhibitor of histone deacetylases, whose activity leads to increased histone acetylation, thereby affecting gene expression. To explore epigenetic control of SE regeneration from root apices (1 cm) of spinach seedlings, the explants were cultivated on media supplemented with 0, 0.1, 0.5, 1 or 5  $\mu\text{M}$  TSA + 0, 1, 10 or 20  $\mu\text{M}$   $\alpha$  naphthaleneacetic acid (NAA) + 0 or 5  $\mu\text{M}$  gibberellic acid ( $\text{GA}_3$ ). The explants were exposed to TSA for 1, 7 or 14 days, and subsequently subcultivated on TSA free medium of the same composition. TSA was dissolved in dimethyl sulfoxide (DMSO), whose final concentration in all media, including TSA-free controls, was 0.05%. TSA was not sufficient to induce SEs either alone or in combination with NAA or  $\text{GA}_3$ . SE regeneration was observed only from the explants cultivated on media supplemented with 10 or 20  $\mu\text{M}$  NAA + 5  $\mu\text{M}$   $\text{GA}_3$ . In both combinations, TSA promoted somatic embryogenesis, but longer TSA treatment was needed with 10  $\mu\text{M}$  NAA than with 20  $\mu\text{M}$  NAA for efficient SE induction. The highest embryogenic response was attained with 0.1-0.5  $\mu\text{M}$  TSA. DMSO also significantly improved SE induction, probably by enhancing NAA and  $\text{GA}_3$  intake into the plant cells. The results indicate a significant role of epigenetic control in SE induction in spinach.

**Keywords:** Dimethyl sulfoxide, Trichostatin, root apices, *Spinacia oleracea*, somatic embryogenesis

*Acknowledgment: Ministry of Education, Science and Technological Development of the Republic of Serbia supported this work through contract No. 451-03-68/2022-14/200007.*