



# **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**

## Paclobutrazol and GA<sub>3</sub> synergistically promote somatic embryogenesis from root apices of spinach

PP1-10

Maja Belić, Snežana Zdravković-Korać, 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

Gibberellic acid (GA<sub>3</sub>) is indispensable for somatic embryo (SE) induction from root apices of spinach. To elucidate its role in SE induction, paclobutrazol (PAC), an inhibitor of gibberellin biosynthesis, was used. Root apices (1 cm) isolated from SE-derived, *in vitro*-cultivated plants of a previously selected line with high embryogenic capacity were used for experimentation. The explants were cultivated on media containing 20 μM α-naphthaleneacetic acid (NAA) + 0 or 5 μM GA<sub>3</sub> + 0, 1, 2.5, 5 or 10 μM PAC. NAA alone induced SE regeneration in 89% of the explants, but with only 3.5 SEs per explant, while the explants cultivated on media supplemented with NAA+GA<sub>3</sub> or NAA + GA<sub>3</sub> + 2.5 μM PAC regenerated at 100% with 17.7 and 34.6 SEs per explant, respectively. However, in the absence of GA<sub>3</sub>, higher levels of PAC were needed: 5-10 μM PAC + NAA for 100%-response and 15-22.2 SEs per explant. To get insight into the NAA-GA<sub>3</sub>-PAC interaction, expression of genes encoding the key enzymes that catalyze the final step of bioactive GA biosynthesis (GA20-oxidase and GA3-oxidase) and degradation (GA2-oxidase) was analyzed in the explants during 28 days of SE-induction period, using quantitative real-time PCR. In the explants with high embryogenic capacity, the expression levels of *SoGA20 ox* and *SoGA3 ox* were significantly lower, and *SoGA2-ox1* and *SoGA2-ox3* significantly higher than in those with low embryogenic capacity, cultivated on medium with NAA alone, during the whole SE induction period, indicating that NAA-GA<sub>3</sub>-PAC interaction enabled the acquisition of embryogenic capacity by impacting GA metabolism.

**Keywords:** paclobutrazol, somatic embryogenesis, gibberellins, gene expression, *Spinacia oleracea*

*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*