

# BOOK OF ABSTRACTS

## 3rd International Conference on Plant Biology (22nd SPSS Meeting)



9-12 JUNE 2018  
BELGRADE

**Serbian Plant Physiology Society**

**Institute for Biological Research "Siniša Stanković", University of Belgrade**

**Faculty of Biology, University of Belgrade**

**3<sup>rd</sup> International Conference  
on Plant Biology  
(22<sup>nd</sup> SPPS Meeting)**



9-12 June 2018, Belgrade

.....  
CIP - Каталогизacija у публикацији - Народна библиотека Србије, Београд  
581(048)(0.034.2)

INTERNATIONAL Conference on Plant Biology (3 ; 2018 ; Belgrade)

[Book of Abstracts] [Електронски извор] / 3rd International Conference on Plant Biology [and] 22nd SPPS Meeting, 9-12 June 2018, 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 Branka Uzelac]. - Belgrade : Serbian Plant Physiology Society : University, Institute for Biological Research "Siniša Stanković" : University, Faculty of Biology, 2018 (Beograd : Друштво за физиологију биљака Србије). - 1 USB fleš memorija ; 1 x 3 x 8 cm

Тираж 230. - Регистар.

ISBN 978-86-912591-4-3 (SPPS)

1. Друштво за физиологију биљака Србије. Састанак (22 ; 2018 ; Београд)

2. Институт за биолошка истраживања "Синиша Станковић" (Београд)

а) Ботаника - Апстрактни

COBISS.SR-ID 264421900

**3<sup>rd</sup> International Conference on Plant Biology**  
**(22<sup>nd</sup> SPPS Meeting)**  
**9-12 June, Belgrade**

---

**Organizing Committee**

Marijana Skorić-President, Dragana Matekalo, Tatjana Ćosić, Milan Borišev, Branislav Šiler, Neda Aničić, Jelena Božunović, Milica Milutinović, Ljiljana Tubić, Nina Devrnja, Suzana Živković, Jasmina Nestorović Živković, Mihailo Jelić, Vladan Jovanović

---

**Scientific Committee**

Adisa Parić (Sarajevo, Bosnia and Herzegovina)	Jovanka Miljuš- Đukić (Belgrade, Serbia)
Alain Tissier (Halle, Germany)	Jules Beekwilder (Wageningen, The Netherlands)
Angelina Subotić (Belgrade, Serbia)	Ljiljana Prokić (Belgrade, Serbia)
Angelos Kanellis (Thessaloniki, Greece)	Marko Sabovljević (Belgrade, Serbia)
Antonio Granell Richart (Valencia, Spain)	Milan Borišev (Novi Sad, Serbia)
Autar Mattoo (Beltsville, USA)	Milka Brdar-Jokanović (Novi Sad, Serbia)
Daniel Chamovitz (Tel Aviv , Israel)	Miroslav Nikolić (Belgrade, Serbia)
Danijela Mišić (Belgrade, Serbia)	Mondher Bouzayen (Castanet-Tolosan Cedex, France)
Dragana Miladinović (Novi Sad, Serbia)	Pavle Pavlović (Belgrade, Serbia)
Guido Grossmann (Heidelberg, Germany)	Peđa Janačković (Belgrade, Serbia)
Hrvoje Fulgosi (Zagreb, Croatia)	Roque Bru Martínez (Alicante, Spain)
Ivana Dragičević (Belgrade, Serbia)	Sokol Abazi (Tirana, Albania)
Ivana Maksimović (Novi Sad, Serbia)	Stevan Avramov (Belgrade, Serbia)
Jasmina Glamočlija (Belgrade, Serbia)	Václav Motyka (Prague, Czech Republic)
Jelena Aleksić (Belgrade, Serbia)	Vuk Maksimović (Belgrade, Serbia)
Jelena Savić (Belgrade, Serbia)	Živoslav Tešić (Belgrade, Serbia)

---

<b><u>Publishers</u></b>	Serbian Plant Physiology Society Institute for Biological Research "Siniša Stanković", University of Belgrade Faculty of Biology, University of Belgrade
<b><u>Editor</u></b>	Branka Uzelac
<b><u>Graphic design</u></b>	Dejan Matekalo
<b><u>Prepress</u></b>	Marija G. Gray
<b><u>Electronic edition</u></b>	230 pcs

---

PGR-free control and IBA treated plants were characterized with the development of both aerial and root tissue, the combined IBA and BA treatments resulted in root inhibition and callusogenesis at the explant base. The root-suppressed morphotype expressed inhibition of some antioxidant enzymes, as compared with normally rooted plants. Root suppression was also characterized by a drop in the content of salicylic acid, as well as abscisic acid and its catabolites. This effect was accompanied by elevation of the levels of jasmonic acid and its conjugate jasmonic acid-isoleucine, as well as of the polyphenolics content, thus leading to a preservation of lipid peroxidation levels, as compared with non-treated control. In addition to polyphenolics, the terpenoid profile of *in vitro* cultivated plants was also affected, as rooting was related to domination of monoterpenoids, and root inhibition – to domination of sesquiterpenoids in the oils from aerial parts. The obtained results imply that morphogenesis plays an important role in the interplay between enzymatic and non-enzymatic defense of *A. alba in vitro* and seems to be an important factor for targeting the biosynthesis of secondary metabolites in this species.

**Keywords:** *Artemisia alba* Turra tissue culture, *in vitro* morphotypes, essential oil profile, polyphenolics production, antioxidant defense

*This work was supported by the bilateral agreement between the Czech and Bulgarian Academies of Sciences.*

---

## **Selection of stable reference genes in *Centaurium erythraea* Rafn during *in vitro* somatic embryogenesis and mechanical wounding**

PP1-14

**Katarina Ćuković<sup>1</sup>, Danijela Paunović<sup>2</sup>, Milica Bogdanović<sup>2</sup>, Milan Dragičević<sup>2</sup>, Slađana Todorović<sup>2</sup>, Angelina Subotić<sup>2</sup>, Ana Simonović<sup>2</sup>**  
(katarina.cukovic@imsi.rs)

<sup>1</sup> Institute for Multidisciplinary Research, University of Belgrade, Kneza Višeslava 1, 11030 Belgrade, Republic of Serbia

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

*Centaurium erythraea* Rafn (Gentianaceae) is a medicinal plant, rich in secondary metabolites, mainly secoiridoid glucosides and xanthenes, known for numerous beneficial effects on human health. In addition, *C. erythraea* possesses remarkable developmental plasticity and is easily cultured *in vitro*, so it represents a suitable model system for studying developmental biology. One of the most notable illustrations of plant cell totipotency is the capability of certain somatic plant cells to initiate embryogenic development through somatic embryogenesis (SE). It has been proposed that mechanical wounding during *in vitro* manipulations of plant material can promote cell differentiation and somatic embryo development. Our recent research is based on elucidating the gene expression profiles of centaury tissues in response to wounding and in different SE stages using quantitative real-time PCR. Considering the fact that these processes exhibit a dynamic genetic activity, the selection of stable reference genes is paramount in order to obtain unbiased conclusions. Hereby we report selection of stable reference genes in *C. erythraea* for studying gene expression during somatic embryogenesis and wounding. Thirteen frequently used reference genes were selected and their expression stability was assessed in different developmental stages, including globular and cotyledonary stages of embryos, as well as wounded tissues. Specific sets of primers were designed relying on previously obtained next-generation RNA sequencing data. The results were interpreted using two algorithmic approaches - geNorm and NormFinder - and the most stable reference genes from a set of tested candidate genes were determined.

**Keywords:** reference genes, gene expression, somatic embryogenesis, wounding

*This research was funded by the Ministry of Education, Science and Technological Development of the Republic of Serbia (Grant Nos. OI173024, TR31019, III43010).*