

# 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

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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

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<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

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# PROGRAMME





**Saturday 9<sup>th</sup> June**

09:00-14:00      *Registration*

14:00-14:30      *Opening Ceremony*

**Section 2 • Plant Stress Physiology**

*Chairs: Sonja Veljović-Jovanović & Ivana Maksimović*

- 14:30-15:00      (Plenary lecture) **Hrvoje Fulgosi**      Sifting the elements of FNR-TROL bifurcation
- 15:00-15:30      (Plenary lecture) **Autar Mattoo**      Tomato (*Solanum lycopersicum*) lipoxygenase (LOX) gene family: Delineating gene members associated with growth, development and abiotic stresses
- 15:30-15:50      (Invited talk) **Tamara Rakić**      Two-year study of ecophysiological parameters of *Miscanthus × giganteus* grown on tailing pond at the mine "Rudnik" (Serbia)
- 15:50-16:10      (Invited talk) **Vladimir Crnojević**      Data science in biosystems
- 16:10- 16:40      *Coffee break*
- 16:40-17:00      (Invited talk) **Ingeborg Lang**      Tolerance to heavy metals – some examples in bryophyte species
- 17:00-17:15      (Selected talk) **Predrag Bosnić**      Silicon mediates sodium (Na<sup>+</sup>) transport in maize under moderate NaCl stress
- 17:15-17:30      (Selected talk) **Milan Borišev**      Dynamics of Cd accumulation and metabolic adaptation of *Salix alba* grown hydroponically
- 17:30- 17:45      (Selected talk) **Slavica Dmitrović**      Nepetalactone-rich essential oil mitigates BASTA-induced ammonium toxicity in *Arabidopsis thaliana* L. by maintaining glutamine synthetase activity
- 17:45-18:00      *Group Photo*
- 18:00-19:00      *Poster session: Plant Stress Physiology (Section 2)*
- 19:00-21:00      *Welcoming cocktail (Rectorate of the University of Belgrade)*



Sunday 10<sup>th</sup> June09:00-14:00 *Registration*

## Section 1 • Plant Growth, Development, Metabolism and Nutrition

*Chairs: Snežana Zdravković-Korać & Miroslav Nikolić*

09:30-10:00	(Plenary lecture) <b>Guido Grossmann</b>	Cellular growth regulation in roots - how to adapt in a complex environment
10:00-10:20	(Invited talk) <b>Ondrej Novák</b>	Tissue- and cell-specific analysis of phytohormones
10:20-10:40	(Invited talk) <b>Ksenija Radotić</b>	Plant cell walls – mechanical and chemical modifications underpin growth and stress response
10:40-11:00	(Invited talk) <b>Herman Heilmeier</b>	Bioavailability of elements for effective phytoremediation and phytomining: the role of rhizosphere processes
11:00- 11:30	<i>Coffee break</i>	
11:30-11:50	(Invited talk) <b>Václav Motyka</b>	Comprehensive phytohormone profiling during Norway spruce ( <i>Picea abies</i> ) somatic embryogenesis
11:50-12:05	(Selected talk) <b>Danijela Paunović</b>	Are receptor tyrosine kinases chimeric AGP's?
12:05-12:20	(Selected talk) <b>Jelena Pavlović</b>	Silicon increases iron use efficiency in cucumber- a strategy 1 model plant
12:20-12:35	(Selected talk) <b>Katarina Ćuković</b>	Characterization of <i>Arabidopsis</i> <i>GLN1;5</i> knockout mutant
12:35- 14:00	<i>Lunch break</i>	

Sunday 10<sup>th</sup> June

Section 4 • Phytochemistry

**Chairs: Vuk Maksimović & Vladimir Mihailović**

14:00-14:30	(Plenary lecture) <b>Alain Tissier</b>	Engineering plant diterpenoid pathways in yeast: increasing yield and expanding product diversity
14:30-14:50	(Invited talk) <b>Roque Bru Martinez</b>	Metabolic engineering and elicitation strategies to produce stilbenoids in plant cell cultures
14:50-16:10	(Invited talk) <b>Sokol Abazi</b>	New fatty acids discovered for the first time in <i>Vitex agnus-castus</i>
16:10-16:30	(Invited talk) <b>Peđa Janačković</b>	Do plant volatiles reflect taxonomy?
16:30- 17:00	<b>Coffee break</b>	
17:00-17:20	(Invited talk) <b>Angelos Kanellis</b>	The <i>Cistus creticus</i> terpene synthase gene family
17:20-17:40	(Invited talk) <b>Marina Soković</b>	Terpenes and terpenoids: linking bioactivity, opportunities and challenges
17:40-18:00	(Invited talk) <b>Jules Beekwilder</b>	Plant terpenes and bioplastics
18:00-18:15	(Selected talk) <b>Jelena Dragišić Maksimović</b>	Enzymatic behavior of edible berries – “Beroxidases”
18:15-18:30	(Selected talk) <b>Elma Vuko</b>	Inhibition of satellite RNA associated cucumber mosaic virus infection by essential oil of <i>Micromeria croatica</i> (Pers.) Schott
18:30-18:45	(Selected talk) <b>Dorisa Čela</b>	Structure elucidation of a new alkaloid and other 11 known compounds isolated from <i>Gymnospermium</i> species
18:45-19:45	<b>Poster sessions: Plant Growth, Development, Metabolism and Nutrition; Phytochemistry (Sections 1 and 4)</b>	

Monday 11<sup>th</sup> June

## Section 5 • Applications in Agriculture, Pharmacy and Food Industry

**Chairs: Jasmina Glamočlija & Slavica Ninković**

09:00-9:30	(Plenary lecture) <b>Mondger Bouzayen</b>	New factors controlling fruit development: epigenetic modifications associated with the fruit set transition in tomato
09:30-10:00	(Plenary Lecture) <b>Andrew Allan</b>	New breeding technologies for fruit trees
10:00-10:20	(Invited talk) <b>Slađana Žilić</b>	Food and pharmacy application of anthocyanins originating from colored grains
10:20-10:40	(Invited talk) <b>Eligio Malusa</b>	Microbial-based inputs: opportunities and challenges for sustainable and resilient agricultural productions
10:40-11:10	<b>Coffee break</b>	
11:10-11:30	(Invited talk) <b>Dragana Miladinović</b>	Old problems, new tools - Integrated approach to oil crop breeding
11:30-11:45	(Selected talk) <b>Brankica Tanović</b>	Prospects of cabbage leaf debris use in the control of <i>Fusarium</i> wilt of pepper
11:45-12:00	(Selected talk) <b>Nina Devrnja</b>	Effects of tansy essential oil on fitness and digestion process of gypsy moth larvae
12:00-12:15	(Selected talk) <b>Zora Dajić-Stevanović</b>	Advantages and limitations of phytogetic feed additives
12:15-14:00	<b>Lunch break</b>	

Monday 11<sup>th</sup> June

Section 3 • Biodiversity, Conservation and Evolution of Plants

**Chairs:** Jelena Aleksić & Aleksej Tarasjev

- 14:00-14:30 (Plenary lecture) **Hendrik Poorter** Meta-Phenomics: Converting data into knowledge
- 14:30-15:00 (Plenary lecture) **Antonio Granell Richart** The biodiversity present in European tomato, phenotypes galore and a first insight in the underlying genetics
- 15:00-15:20 (Invited talk) **Zlatko Šatović** Origin and genetic diversity of Croatian common bean landraces
- 15:20-15:50 **Coffee break**
- 15:50-16:10 (Invited talk) **Aneta Sabovljević** Conservation physiology of bryophytes
- 16:10-16:30 (Invited talk) **Nataša Barišić Klisarić** Biomonitoring: Plants' (in) perspective
- 16:30-16:50 (Selected talk) **Sanja Budečević** Morphological diversity of functionally distinctive floral organs in *Iris pumila*: Does the flower color matter?
- 16:50-17:05 (Selected talk) **Žaklina Marjanović** First data on arbuscular mycorrhizal communities from selected climatic borderline forest ecosystems of the Balkan Peninsula
- 17:05-17:20 (Selected talk) **Tijana Banjanac** Verification of interspecies hybridization within the genus *Centaureum* Hill using *EST-SSR* molecular markers
- 17:20-18:20 **Poster sessions: Applications in Agriculture, Pharmacy and Food Industry; Biodiversity and Conservation, Evolutionary Plant Biology (Sections 5 and 3)**
- 18:20-18:30 **Closing Ceremony**
- 18:30-19:00 **SPPS General Assembly Meeting**
- 21:00-01:00 **Gala dinner: Restaurant "Vizantija"**

Tuesday 12<sup>th</sup> June

- 10:00-16:00 **Excursion: Special Nature Reserve "Carska bara"**

## Seasonal dynamics of the rhizosphere phosphorus and citrate exudation by grapevine roots in a low P soil: a field experiment

PP1-26

Pavle Đorđević<sup>1</sup>, Ljiljana Kostić Kravljanac<sup>1</sup>, Predrag Bosnić<sup>1</sup>,  
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Low phosphorus (P) availability is a common constraint for crop productivity in both acid and calcareous soils due to formation of insoluble P complexes. As far as we are aware, grapevine is not considered a P-efficient species, whereas P deficiency is rarely reported under the field conditions.

We performed a field experiment under extremely low P conditions (Olsen P < 2 mg kg<sup>-1</sup>) using own-designed rhizotron (80 cm depth), installed in 8-y-old vineyard with cultivar Chardonnay, grafted on 5BB rootstock. The device enables easy access to the new intact roots while preventing root drying. We collected the exudates from root tips every 2 h (during daytime) at the different growth stages (i.e. shoots 10 cm, flowering, berries pea-size and veraison). At the same time, both rhizosphere and bulk soil samples were collected and subjected to the sequential P analyses. The results of HPLC analyses of the root exudates showed that citrate can be considered as the main P-mobilizing compound, with clear seasonal and diurnal patterns: the highest anion exudation rate was recorded at flowering (lower pick) and veraison (higher pick), and at each growth phase in the morning (10 a.m.) and in the afternoon (4 p.m.), with a rapid depression at 1-3 p.m. Consequently, the relative share of soluble P fractions (H<sub>2</sub>O- and NaHCO<sub>3</sub>-extractable) in the rhizosphere was very high (20% of the total P fractions), leading to the leaf P concentration of 0.2% DW which is above the critical P-deficient level (0.15% DW) for grapevine leaves at flowering.

**Keywords:** citrate, grapevine, phosphorus, rhizosphere, root exudates.

## Seasonal variations of photosynthetic efficiency in invasive species *Amorpha fruticosa* L.

PP1-27

Selma Mlinarić<sup>1</sup>, Tanja Žuna Pfeiffer<sup>1</sup>, Ljiljana Krstin<sup>1</sup>, Dubravka Špoljarić Maronić<sup>1</sup>,  
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Indigobush (*Amorpha fruticosa* L.) is widely distributed invasive species native to North America. It was deliberately introduced to Europe primarily to prevent soil erosion, but recently it is often planted for decoration, honey production and biomass energy production. Uncontrolled expansion of Indigobush represents a significant threat to native species due to its rapid growth and reproduction as well as its allelopathic activity that negatively affects nearby vegetation. The aim