

BOOK OF ABSTRACTS

3rd International Conference on Plant Biology

(22nd SPPS 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

**3rd International Conference
on Plant Biology
(22nd SPPS Meeting)**



9-12 June 2018, Belgrade

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9-12 June, Belgrade

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PROGRAMME



Saturday 9th 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⁺) 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 10th 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) Guido Grossmann	Cellular growth regulation in roots - how to adapt in a complex environment
10:00-10:20	(Invited talk) Ondrej Novák	Tissue- and cell-specific analysis of phytohormones
10:20-10:40	(Invited talk) Ksenija Radotić	Plant cell walls – mechanical and chemical modifications underpin growth and stress response
10:40-11:00	(Invited talk) Herman Heilmeier	Bioavailability of elements for effective phytoremediation and phytomining: the role of rhizosphere processes
11:00- 11:30	Coffee break	
11:30-11:50	(Invited talk) Václav Motyka	Comprehensive phytohormone profiling during Norway spruce (<i>Picea abies</i>) somatic embryogenesis
11:50-12:05	(Selected talk) Danijela Paunović	Are receptor tyrosine kinases chimeric AGP's?
12:05-12:20	(Selected talk) Jelena Pavlović	Silicon increases iron use efficiency in cucumber- a strategy 1 model plant
12:20-12:35	(Selected talk) Katarina Ćuković	Characterization of <i>Arabidopsis</i> <i>GLN1;5</i> knockout mutant
12:35- 14:00	Lunch break	

Sunday 10th June

Section 4 • Phytochemistry

Chairs: Vuk Maksimović & Vladimir Mihailović

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

Monday 11th June

Section 5 • Applications in Agriculture, Pharmacy and Food Industry

Chairs: Jasmina Glamočlija & Slavica Ninković

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

Monday 11th 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 <i>Iris pumila</i> : 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 <i>Centaureum</i> 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 12th June

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



SECTION 2

**Plant Stress
Physiology**

Long-term high temperature effect on field-grown pumpkins (*Cucurbita maxima* Duchesne and *Cucurbita moschata* Duchesne)

PP2-29

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Temperature stress during reproductive phase of life is among environmental constraints with the most adverse effect on pumpkins, at least in the fields of South and East Europe. The growing season (May–September) of 2017 was characterized by 56 days of high (>30 °C) and 21 days of extremely high (>35 °C) maximum daily temperatures, differing from the temperate season of 2016 (33 and 0 days), and from the 1981–2010 averages of 32.4 and 3.3 days, respectively. This was an opportunity to analyze the effects of the stress on pumpkin quality and agronomic traits. The investigation was undertaken on field-grown *Cucurbita maxima* and *Cucurbita moschata* collections, each comprising 41 genetically divergent accessions. All appropriate agro-technical procedures, including irrigation, were applied in both seasons of the experiment (2016, 2017); therefore high temperature was the only stress to which the plants were exposed. The most affected by the stress was carotenoid content, which was 64.1% (*C. maxima*) and 75.4% (*C. moschata*) lower comparing to the values noted in the temperate season. Concerning other quality traits, protein content was 44.6% reduced in *C. moschata*, and slightly (6.1%) increased in *C. maxima*. Dry weight and total soluble solids contents were moderately increased in both species; and sugar content in *C. moschata* only. Refractive index and pH were unaffected by the stress. Concerning agronomic traits, temperature stress decreased the fruit weight (23.1, 17.3%) and therefore the yield of both *C. maxima* (27.0%) and *C. moschata* (16.1%), exhibiting no significant effect on number of fruits per plant.

Keywords: *Cucurbita maxima*, *Cucurbita moschata*, field conditions, high temperature stress

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Impact of nitrogen form on some stress parameters in Ni-treated kohlrabi (*Brassica oleracea* var. *gongylodes*)

PP2-30

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Brassica oleracea is characterized by high S concentrations. High tolerance of this plant towards heavy metals is very much based on non-enzymatic metal-binding and ROS scavenging properties of S-compounds. In the present experiment, kohlrabi (*Brassica oleracea* var. *gongylodes*) seedlings were transferred, after germination, on nutrient solution (Hoagland 1:4), which was modified to contain either 2.5 mM NO₃-N or 1.25 mM NO₃-N + 1.25 mM NH₄-N. One half of each treatment was exposed to Ni (100 μM). After 7 days of cultivation under controlled conditions, leaf fresh mass, pigment concentrations, total S and non-protein thiol (NPT) concentrations in leaves were determined. Also, the activities of glutathione reductase (GR E.C. 1.6.4.2) and ascorbate peroxidase