



BOOK of **ABSTRACTS**

4th INTERNATIONAL CONFERENCE ON PLANT BIOLOGY (23rd 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

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on Plant Biology
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(23rd SPPS Meeting)
6-8 October, Belgrade

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THURSDAY 6TH OCTOBER

- 12:00-18:00 **Registration**
- 12:00-14:00 *NEPETOME project workshop (Science Fund of the Republic of Serbia, #Grant No 7749433): "Methodologies for the iridoid diversity investigation within the genus Nepeta" (Botanical Garden "Jevremovac")*
- 18:00-22:00 *Welcoming cocktail and Celebration of SPPS jubilee (Botanical Garden "Jevremovac")*

FRIDAY 7TH OCTOBER

- 09:00-09:15 **Opening Ceremony**

SECTION 2 · PLANT STRESS PHYSIOLOGY

Chairs: Jelena Dragišić Maksimović & Tamara Rakić

- 09:15-10:00 **Keynote: Mondher Bouzayen**
Uncoupling fruit softening from fruit ripening: a paradigm shift of thinking
- 10:00-10:30 **Plenary lecture: Miroslav Lisjak**
*Growth conditions may affect the nutritional quality of wheatgrass (*Triticum aestivum* L.)*
- 10:30-11:00 **Plenary lecture: Hermann Heilmeier**
The functional role of non-essential elements in the root zone: how interactions between essential and non-essential elements shape the chemical rhizosphere environment
- 11:00-11:30 **Coffee break**
- 11:30-11:50 **Invited talk: Zsófia Bánfalvi**
*Regulation and function of GIGANTEA genes in *Solanum tuberosum* cultivar 'Desirée'*
- 11:50-12:10 **Invited talk: Ingeborg Lang**
Drought or heavy metals – investigating the abiotic stress tolerance in bryophytes
- 12:10-12:30 **Invited talk: Biljana Kukavica**
Flooding and antioxidative response in plants
- 12:30-12:50 **Invited talk: Sonja Milić Komić**
Distinctive regulation of different phenolics biosynthesis by high light and UV-B in three basil varieties
- 12:50-13:05 **Selected talk: Mariana Stanišić**
*What happens with phloretin in plants? – Phloretin real-time effects and post-treatment metabolism in treated *Arabidopsis* seedlings*
- 13:05-13:20 **Selected talk: Danijela Arsenov**
*Fullerenol (C₆₀(OH)₂₄) as a potent stress alleviator against drought and trace-element toxicity in *Alliaria petiolata* (M.Bieb.) Cavara et Grande*
- 13:20-14:00 **Poster session**
- 14:00-15:30 **Lunch break**

SECTION 1 · PLANT GROWTH, DEVELOPMENT, METABOLISM AND NUTRITION

Chairs: Ivana Maksimović & Slavica Ninković

- 15:30-16:00 **Plenary lecture:** Panagiotis Kalaitzis
A prolyl-4-hydroxylase and Arabinogalactan proteins are involved in relocation of tomato abscission zone
- 16:00-16:30 **Plenary lecture:** Marjorie Guichard
State-dependent protein interaction networks of a central regulator of plant growth and metabolism
- 16:30-16:50 **Invited talk:** Václav Motyka
Hormone and role of desiccation in somatic embryogenesis of conifers
- 16:50-17:20 **Coffee break**
- 17:20-17:40 **Invited talk:** Julien Pirrello
Transition to ripening in tomato fruit needs genetic reprogramming initiated in gel tissue
- 17:40-18:00 **Invited talk:** Guido Grossmann
Robust yet adaptive - morphogenesis and growth regulation in roots
- 18:00-18:20 **Invited talk:** Jan Fíla
The beta-subunit of nascent polypeptide associated complex plays a role in flowers and siliques development of Arabidopsis thaliana
- 18:20-18:35 **Selected talk:** Kiril Mishev
The interaction network of the plant NudC family protein NMig1
- 18:35-19:15 **Poster session**

SATURDAY 8TH OCTOBER

- 09:00-10:00 **SPPS Assembly**

SECTION 4 · ECOLOGY, GENETICS AND EVOLUTION OF PLANTS

Chairs: Branislav Šiler & Sanja Manitašević Jovanović

- 10:00-10:30 **Plenary lecture:** Velemir Ninković
Plant signaling and behavior mediated via volatiles
- 10:30-11:00 **Plenary lecture:** Janez Kermavnar
Impacts of forest management on plant functional traits and ecological conditions in the Dinaric fir-beech forests (Slovenia)
- 11:00-11:30 **Coffee break**
- 11:30-11:50 **Invited talk:** Ksenija Jakovljević
Ecophysiology of metal-hyperaccumulation in plants: what do we know so far?
- 11:50-12:10 **Invited talk:** Jelena Milojević
Elucidation of the mechanism underlying somatic embryo induction in spinach

- 12:10-12:30 **Invited talk: Miroslava Zhiponova**
Catmint (Nepeta nuda L.) Phylogenetics and Metabolic Responses in Variable Growth Conditions
- 12:30-12:50 **Invited talk: Neda Aničić**
Progress in disentangling the diversity of iridoids within the genus Nepeta: surprising biosynthetic and evolutionary insights
- 12:50-13:05 **Selected talk: Denitsa Teofanova**
Distribution, host range, and genetic variability of the holoparasitic genus Cuscuta in Bulgaria
- 13:05-13:20 **Selected talk: Katarina Hočevar**
Variation in Hsp70 and Hsp101 levels in response to experimental warming in Iris pumila L.: an open-topped chamber experiment
- 13:20-14:00 **Poster session**
- 14:00-15:30 **Lunch break**

SECTION 3 · APPLICATION IN AGRICULTURE, PHARMACY AND FOOD INDUSTRY

Chairs: Ana Ćirić & Ana Marjanović Jeromela

- 15:30-16:00 **Plenary lecture: Angelos K. Kanellis**
Aroma formation in Vitis vinifera grape berries
- 16:00-16:30 **Plenary lecture: Ekaterina-Michaela Tomou**
Metabolomic strategy for detecting herbal products' differentiations and potential adulteration
- 16:30-16:50 **Invited talk: Mila Grahovac**
Essential oils and hydrolates in control of plant pathogens
- 16:50-17:20 **Coffee break**
- 17:20-17:40 **Invited talk: Carla Vogt**
Determination of elements, isotopes and organics in plants with high local resolution by mass spectrometric methods
- 17:40-18:00 **Invited talk: Milan Mirosavljević**
Integrating physiological traits in local small grains breeding program
- 18:00-18:20 **Invited talk: Nada Ćujić Nikolić**
Chokeberry, from natural polyphenol resource to promising functional foods and pharmaceuticals
- 18:20-18:35 **Selected talk: Ana Pantelić**
Late embryogenesis abundant (LEA) proteins in Ramonda serbica Panc identification, classification and structural characterization
- 18:35-18:50 **Selected talk: Dejan Stojković**
Supercritical fluid extraction of Chicory reveals its antimicrobial, antibiofilm and wound healing potentials
- 18:50-19:15 **Poster session**
- 19:15-19:30 **Closing Ceremony**
- 20:00-00:00 **Gala Dinner**

INVITED TALKS

Essential oils and hydrolates in control of plant pathogens

IT3-1

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Under conditions of intensive plant production and intensive international trade with plant material, coupled with climate changes, plant pathogens became one of the major limiting factors in food and feed production. Besides these extremely favorable conditions for reproduction and dissemination of plant pathogens, resistance development to available control tools and ecotoxicological properties of these tools show that plant pathogen control has never been more challenging. Development of alternative, eco-friendly control tools against phytopathogens, became a necessity of contemporary agriculture.

Essential oils are mixtures of complex volatile compounds. They are synthesized through secondary metabolic pathways in many plant species. Essential oils are normally extracted by hydro-distillation or steam distillation of plant tissues. Hydrolates are co-products of the distillation formed in significantly higher quantities than the target substance. Hydrolate represents aromatic water containing approximately 0.1% essential oil compounds. Essential oils play important roles in plants helping them trigger defense mechanisms, acting as antimicrobials and as signal molecules to communicate with other plants and beneficial insects. These properties made essential oils and their hydrolates an important part of alternative control tools against plant pathogens. There are many data suggesting high antimicrobial activity and effective control of plant pathogens by essential oils and hydrolates, *in vitro* and *in vivo*. Also, there are commercially available products based on these substances – biofungicides and bio-bactericides already in use in plant protection. There is no doubt that advantages of biocontrol tools are numerous, but there are also certain limitations when it comes to essential oils and their hydrolates.

Keywords: essential oils, hydrolates, biocontrol, phytopathogens

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