BOOK of ABSTRACTS

6th INTERNATIONAL CONFERENCE ON PLANT BIOLOGY

(25th SPPS Meeting)

5-7 NOVEMBER 2026
NOVI SAD, SERBIA

Serbian Plant Physiology Society

Institute for Biological Research "Siniša Stanković"
– National Institute of the Republic of Serbia, University of Belgrade

Faculty of Sciences, University of Novi Sad

University of Belgrade, Faculty of Biology

Institute for Multidisciplinary Research
– National Institute of the Republic of Serbia, University of Belgrade

Serbian Biological Society "Stevan Jakovljević" Kragujevac

Maize Research Institute "Zemun Polje"

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Jan ZUBER
Institute of Analytical Chemistry of the Technical University Mining Academy Freiberg,
Freiberg, Germany



PROGRAMME

THURSDAY 5TH NOVEMBER

from 10:00	Registration
12:00-12:10	Opening Ceremony

SECTION 1 · PLANT GROWTH AND DEVELOPMENT

Chairs: TIJANA CVETIĆ ANTIĆ & MARZENA WARCHOŁ

12:10-12:40	*Keynote*: KALLIOPE K. PAPADOPOULOU *Decoding endophyte-mediated plant resilience to abiotic stress*
12:40-13:10	*Plenary lecture*: GUIDO GROSSMANN *Shaping a cell to invade - dissecting root hair emergence, growth and (surprising) functions*
13:10-13:30	*Invited talk*: DANIJELA PAUNOVIĆ *The Arabinogalactan proteins of centaury (Centaurium erythraea Rafn.)*
13:30-15:00	LUNCH BREAK
15:00-15:20	*Invited talk*: VÁCLAV MOTYKA *Interplay of auxin transport, phytohormones, and plant growth-promoting rhizobacteria in maize responses to aluminium toxicity*
15:20-15:35	*Selected talk*: DAVID HONYS *Pollen Thermotolerance: A Translational Perspective*
15:35-15:50	*Selected talk*: BOGDAN NIKOLIĆ *Brassinosteroids and their influence on seed germination*

SECTION 2 · METABOLISM AND BIOCHEMISTRY

Chairs: DANIJELA MIŠIĆ & VUK MAKSIMOVIĆ

16:00-16:30	*Plenary lecture*: ALAIN TISSIER *How light and temperature affect glandular trichome development and metabolism in tomato*
16:30-17:00	*Plenary lecture*: JAN ZUBER *Unveiling the molecular complexity of plant biopolymers with ultrahigh-resolution FT-ICR-MS*
17:00-17:30	COFFEE BREAK
17:30-17:50	*Invited talk*: DRAGANA JAKOVLJEVIĆ *Basil (Ocimum L.) tissue culture: a tool for the production and characterization of secondary metabolites*
17:50-18:10	*Invited talk*: JAIME MORANTE *Exploring the bioactive profile of elicited Morus alba cell cultures*
18:10-18:25	*Selected talk*: JELENA OŽEGOVIĆ *Chemical composition and antioxidant potential of Raphidiopsis raciborskii strains*
18:25-18:40	*Selected talk*: MILOŠ TODOROVIĆ *Transcriptomic and metabolomics insights into the flower color polymorphism of two Centaurium species*
18:40-20:00	Poster session – sections 1 and 2
20:00-22:00	WELCOMING COCKTAIL AT THE DBE

FRIDAY 6TH NOVEMBER

SECTION 3 · PLANT STRESS PHYSIOLOGY

Chairs: JELENA DRAGIŠIĆ MAKSIMOVIĆ & JAN ZUBER

09:00-09:30	*Plenary lecture*: BILJANA KUKAVICA *Seed priming as a strategy to improve maize resilience to hypoxia*
09:30-09:50	*Invited lecture*: ANA NIKOLIĆ *Decoding chilling resilience: molecular, biochemical, and phenotypic adaptations during early maize development in standard and quality protein maize*
09:50-10:10	*Invited talk*: MILAN ŽIŽIĆ *Illuminating microalgae with synchrotron light*
10:10-10:30	*Invited talk*: DRAGANA NIKOLIĆ *Secret messages in small packages – extracellular vesicles in inter-kingdom war and peace*
10:30-11:00	COFFEE BREAK
11:00-11:15	*Selected talk*: TATIANA ILINA *Desiccation-driven structural transitions of LEA4 proteins from Ramonda serbica*
11:15-11:30	*Selected talk*: JAN FILA *Deciphering the role of bZIP transcription factor family E under heat stress conditions*
11:30-11:45	*Selected talk*: KRISTINA MAJSEC *Moderately elevated temperatures make potato more susceptible to Pseudomonas syringae infection*
11:45-12:45	Poster session- section 3
12:45-13:30	MDPI workshop for students - AI in Publishing
12:45/13:30-15:00	LUNCH BREAK

SECTION 4 · ECOLOGY, GENETICS AND EVOLUTION OF PLANTS

Chairs: TIJANA BANJANAC & MILAN BORIŠEV

15:00-15:30	*Plenary lecture*: MARKO SABOVLJEVIĆ *Tiny plants, big impact: recent needs and modern solutions in bryophyte conservation*
15:30-15:50	*Invited talk*: EDYTA SKRZYPEK *Progress in oat DH technology and functional characteristics of oat × maize hybrids*
15:50-16:10	*Invited talk*: DRAGANA TRKULJA *Integrating genetic resources, phenomics, genomics, and transcriptomics to enhance wheat drought resilience*
16:10-16:45	COFFEE BREAK
16:45-17:00	*Selected talk*: VELIMIR MLADENOV *From Field to Genome: UAV Phenotyping and SSR Markers Reveal Drought-Tolerance Signatures Across Maize Hybrid Environments*
17:00-17:15	*Selected talk*: UROŠ ALEKSIĆ *Intercropping modifies species-specific responses to multiple metal stress in flotation tailings*
17:15-17:35	Sponsor talk Analysis d.o.o.
17:35-19:00	Poster session – sections 4 and 5
21:00-00:30	GALA DINNER AT THE RESTAURANT "SOKAČE"

SATURDAY 7TH NOVEMBER	
10:00-11:00	SPPS Assembly
SECTION 5 · PLANT BIOTECHNOLOGY AND APPLICATIONS	
	Chairs: JELENA SAMARDŽIĆ & BILJANA KUKAVICA
11:00-11:30	*Plenary lecture*: ANGELOS K. KANELLIS *Genotype-driven regulation of phenylpropanoid biosynthesis in Cistus creticus: a combined metabolomic, transcriptomic, and functional characterization approach*
11:30-11:50	*Invited talk*: IVANA MOMČILOVIĆ *Aeroponics: from the space station, through high-yield potato farming, to a tool for studying the process of tuberization*
11:50-12:10	*Invited talk*: MIRJANA PEŠIĆ *From plants to bioactive compounds: Metabolomics, food applications and bioaccessibility*
12:10-12:30	COFFEE BREAK
12:30-12:50	*Invited talk*: MARINA SOKOVIĆ *Essential Oils Revisited: Three Decades of Research from Traditional Remedies to Next-Generation Biobased Therapeutics*
12:50-13:05	*Selected talk*: DRAGANA MILADINOVIĆ *Optimizing CRISPR/Cas9 Genome Editing Protocols in Sunflower: Overcoming Recalcitrance and Microbial Bottlenecks in Hypocotyl-Derived Explants*
13:05-13:15	Closing Ceremony
13:15-15:00	LUNCH BREAK
15:00-18:30	EXCURSION SREMSKI KARLOVCI



PLANT STRESS PHYSIOLOGY

IT3-2

Illuminating Microalgae With Synchrotron Light

Žižić, M.[1], Stanić, M.[1], Dimitrijević, M.[1], Kovačević, S.[1], Danilović Luković, J.[1], Santrač, I.[1], Tanović, M.[1], Spasojević, I.[1]

[1] Department of Life Sciences, University of Belgrade - Institute of Multidisciplinary Research, National Institute of the Republic of Serbia, Belgrade, Serbia

E-mail of the presenting author: mzizic@imsi.bg.ac.rs

Investigations of microalgae using synchrotron-based methods have contributed to a comprehensive understanding of cellular processes and responses to environmental stress. Microalgae exhibit remarkable tolerance to diverse stressors, and synchrotron techniques enable these responses to be investigated through complementary imaging and spectroscopic approaches. Element-specific methods can reveal detoxification mechanisms, including the uptake, transformation, and intracellular storage of potentially detrimental metals such as Cu, Mn, and Ni.

The combination of microscopy and spectroscopy using highly brilliant X-ray sources provides complementary information on elemental distribution, chemical speciation, and local structure. X-ray fluorescence microscopy, using both soft and hard X-rays, enables spatially resolved elemental mapping, while X-ray absorption and scattering techniques provide insight into chemical speciation and local structure. Careful experimental design and sample preparation, including physical fixation and cryogenic measurements, are essential for preserving cellular integrity and native chemical states, thereby enabling reliable visualization of elemental distributions and speciation under stress.

Chlorella sorokiniana represents an excellent model for X-ray studies due to its pronounced metabolic response to metal exposure. Under Cu stress, Cu undergoes partial reduction within a chemically heterogeneous cellular environment. In contrast, exposure to high Mn concentrations induces the formation of multivalent Mn–O clusters with magnetic and redox properties resembling those of the oxygen-evolving complex. Acidophilic *Chlamydomonas species* may employ a strategy characterized by limited Mn internalization and sequestration in vacuolar compartments, potentially associated with phosphate-based ligands. A similar mechanism occurs in neutrophilic *Chlamydomonas reinhardtii*, although Mn uptake is more intensive, enabling accumulation of essentially all available Mn.

KEYWORDS: synchrotron; microalgae; x-ray fluorescence microscopy; x-ray absorption spectroscopy

ACKNOWLEDGEMENT: This research was financially supported by the Science Fund of the Republic of Serbia, #7078, Microalgae for biosynthesis of metal cluster compounds – BioSynthClust.

ORCID ID: 0000-0003-1268-6698

PP3-26

Photosynthetic Pigment Responses of *Chlamydomonas acidophila* PM01 to Reduced Light Intensity: Comparison of Normalization Approaches

Sekereš, F.[1], Stanić, M.[2], Santrač, I.[2], Ćurić, V.[3], Tanović, M.[2], Žižić, M.[2], Dimitrijević, M.[2], Kovačević, S.[2], Korać Jačić, J.[2], Spasojević, I.[2], Danilović Luković, J.[2]

[1] Faculty of Physical Chemistry, University of Belgrade, Belgrade, Serbia

[2] Life Sciences Department, Institute for Multidisciplinary Research, National Institute of the Republic of Serbia, University of Belgrade, Belgrade, Serbia

[3] Faculty of Biology, University of Belgrade, Belgrade, Serbia

E-mail of the presenting author: filipsekeres2000@gmail.com

Light intensity is an important factor influencing microalgal growth, biomass production, and photosynthetic pigment content. However, less is known about the effects of low light conditions. *Chlamydomonas acidophila* is a microalga that thrives in environments and exhibits adaptations in its photosynthetic processes. This study investigated the effect of reduced light intensity on biomass, cell number, and pigment concentration in *C. acidophila* strain PM01 during the early stationary growth phase. After 15 days of cultivation under conditions, cultures were exposed to two-fold lower light intensity for 1 and 24 h. Microscopic cell counts revealed no differences between control and treated cultures, indicating no effect on cell proliferation. Gravimetric analysis showed a significant decrease in biomass after 1 h, followed by recovery after 24 h. Photosynthetic pigment analysis revealed a significant increase in chlorophyll *b* and total carotenoid concentrations after 1 h when normalized to biomass, with pigment levels tending to return toward control values after 24 h. In contrast, no significant differences were observed when pigment concentrations were normalized to cell number. The significant increase observed after 1 h when normalized to biomass may therefore reflect the decrease in biomass rather than a true increase in pigment content, as no changes in cell number were detected. These findings highlight the importance of the normalization approach when interpreting pigment responses. Reduced light intensity induced transient changes in biomass and photosynthetic pigment content, while cell proliferation remained unaffected, suggesting a rapid acclimation response of *C. acidophila* PM01 to short-term light reduction.

KEYWORDS: *C. acidophila* PM01; photosynthesis; pigments; normalization

ACKNOWLEDGEMENT: This research was supported by the Science Fund of the Republic of Serbia (grant number 7078, Project acronym BioSynthClust)

ORCID ID: 0009-0006-3691-7445

PP3-27

Extremophilic Microalga *Chlamydomonas acidophila* PM01: Effective Photoacclimation to Reduced Light Intensity

Sekereš, F.[1], Stanić, M.[2], Santrač, I.[2], Ćurić, V.[3], Tanović, M.[2], Žižić, M.[2], Dimitrijević, M.[2], Kovačević, S.[2], Korać Jačić, J.[2], Spasojević, I.[2], Danilović Luković, J.[2]

[1] Faculty of Physical Chemistry, University of Belgrade, Belgrade, Serbia

[2] Life Sciences Department, Institute for Multidisciplinary Research, National Institute of the Republic of Serbia, University of Belgrade, Belgrade, Serbia

[3] Faculty of Biology, University of Belgrade, Belgrade, Serbia

E-mail of the presenting author: filipsekeres2000@gmail.com

The intensity, duration, and quality of light significantly influence the growth and biomass composition of microalgal cultures, with acclimation to different light intensities involving changes in the organization and function of the photosynthetic apparatus. *Chlamydomonas acidophila* is an extremophilic microalgal species for which previous studies have shown that cultures cultivated under low light from the beginning can maintain cell viability and photosynthetic activity even at light intensities nearly 20 times lower than the optimal level. This study investigated the short-term response of *C. acidophila* strain PM01 to reduced light intensity during the early stationary growth phase. After 15 days of cultivation under the optimal light conditions, the cultures were exposed to a two-fold lower light intensity for 1 and 24 h and analyzed using Pulse-Amplitude-Modulated (PAM) fluorometry. Short-term exposure of *C. acidophila* PM01 to reduced light intensity induced transient changes in photosynthetic performance. F_v/F_m remained statistically unchanged, while Y(II) and ETR were significantly reduced after 1 h, followed by an increase toward control values after 24 h. This indicated the successful acclimation of the photosynthetic apparatus rather than permanent impairment of PSII. NPQ also showed an initially higher value after 1 h, followed by a decrease after 24 h, and exceeded control levels. These changes suggest temporal adjustments in photoprotective energy dissipation in response to altered light availability. Overall, the stable F_v/F_m and recovery of Y(II) and ETR, together with dynamic NPQ responses, indicate that *C. acidophila* PM01 can rapidly adjust photosynthetic activity to reduced light conditions.

KEYWORDS: C.acidophila PM01; photosynthesis; PAM; ETR; NPQ; Y (II); Fv/Fm; photoacclimation

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