



BOOK of ABSTRACTS

5th INTERNATIONAL CONFERENCE ON PLANT BIOLOGY

(24th SPPS Meeting)

3-5 OCTOBER 2024
SREBRNO JEZERO
SERBIA



Serbian Plant Physiology Society

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

Faculty of Biology, University of Belgrade

Serbian Biological Society "Stevan Jakovljević" Kragujevac

**Institute of Molecular Genetics and Genetic Engineering,
University of Belgrade**

BOOK OF ABSTRACTS

**5th International Conference
on Plant Biology**

(24th SPPS Meeting)



3–5 October 2024, Srebrno jezero

.....
CIP - Каталогизacija у публикацији Народна библиотека Србије, Београд

581(048)

INTERNATIONAL Conference on Plant Biology (5 ; 2024 ; Srebrno jezero)

Book of Abstracts / 5th International Conference on Plant Biology [and] (24th SPPS Meeting), 3–5 October 2024, Srebrno jezero ; [organized by] Serbian Plant Physiology Society ... [et al.] ; [editor Milica Milutinović and Ksenija Jakovljević]. - Belgrade : Serbian Plant Physiology Society : University, Institute for Biological Research "Siniša Stanković" : University, Faculty of Biology, 2024 (Zemun : Alta Nova). - 211 str. : ilustr. ; 24 cm

Tiraž 30. - Registar.

ISBN 978-86-912591-7-4 (SPPS)

1. Društvo za fiziologiju biljaka Srbije. Sastanak (24 ; 2024 ; Srebrno jezero)

а) Ботаника -- Апстрактни

COBISS.SR-ID 152475657

5th International Conference on Plant Biology
(24th SPPS Meeting)

3–5 October, Srebrno jezero

Organizing Committee (in alphabetical order by last name):

Milica Milutinović – President	Tomica Mišljenović
Tijana Banjanac	Filip Nikolić
Đorđe Božović	Luka Petrović
Marija Ćosić	Jelena Savić
Marija Đurić	Sofija Stupar
Ksenija Jakovljević	Miloš Todorović
Nikolina Matić	Milena Trajković

Scientific Committee (in alphabetical order by last name):

Nevena Banjac (Belgrade, Serbia)	Snežana Milošević (Belgrade, Serbia)
Milan Borišev (Novi Sad, Serbia)	Milan Miroslavljević (Novi Sad, Serbia)
Ana Ćirić (Belgrade, Serbia)	Danijela Mišić (Belgrade, Serbia)
Dragana Cvetković (Belgrade, Serbia)	Václav Motyka (Prague, Czech Republic)
Olivia C. Demurtas (Rome, Italy)	Slavica Ninković (Belgrade, Serbia)
Namraj Dhami (Gandaki, Nepal)	Velemir Ninković (Uppsala, Sweden)
Gianfranco Diretto (Rome, Italy)	Ljiljana Prokić (Belgrade, Serbia)
Ian Dodd (Lancaster, UK)	Aneta Sabovljević (Belgrade, Serbia)
Guido Grossmann (Düsseldorf, Germany)	Marko Sabovljević (Belgrade, Serbia)
Angelos K. Kanellis (Thessaloniki, Greece)	Jelena Samardžić (Belgrade, Serbia)
Marianna Marschall (Eger, Hungary)	Raman Samusevich (Prague, Czech Republic)
Stefan Martens (Trento, Italy)	Marijana Skorić (Belgrade, Serbia)
Germán Martínez (Uppsala, Sweden)	Ádám Solti (Budapest, Hungary)
Sonja Milić Komić (Belgrade, Serbia)	Milan Stanković (Kragujevac, Serbia)
Danijela Miljković (Belgrade, Serbia)	Milorad Vujičić (Belgrade, Serbia)
Dijana Krstić Milošević (Belgrade, Serbia)	

<u>Publishers</u>	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
<u>Editor</u>	Milica Milutinović and Ksenija Jakovljević
<u>Graphic design</u>	Dejan Matekalo
<u>Prepress</u>	Marija G. Gray
<u>Year published</u>	2024
<u>Printed by</u>	Alta Nova, Zemun
<u>Print run</u>	30 pcs

Effects of cesium on photosynthesis in moss *Atrichum undulatum* (Hedw.) P. Beauv grown *in vitro*

PP2-31

Jelena Stanojković¹, Pragya Singh², Đorđe P. Božović³, Marija Ćosić³, Ana Čučulović¹, Michal Goga², Milorad M. Vujičić^{3,4}, Aneta D. Sabovljević^{3,4}, Marko S. Sabovljević^{2,3,4}

¹ Institute for the Application of Nuclear Energy – INEP, University of Belgrade, Serbia

² Department of Plant Biology, Institute of Biology and Ecology, Faculty of Science, Pavol Jozef Šafárik University, Košice, Slovakia

³ Institute of Botany and Botanical Garden "Jevremovac", Faculty of Biology, University of Belgrade, Belgrade, Serbia

⁴ Center of Plant Biotechnology and Conservation (CPBC), Belgrade, Serbia

(Jelena Stanojković, jelenas@inep.co.rs, +381628858247)

Radiocesium is the most significant anthropogenic radionuclide, with an important role in environmental radioactivity. Cs⁺ is a chemical and biological homologue with potassium and easily enters into the plant via K-transporters. Bryophytes are used as bioindicators for assessing radioactive contamination in the environment, due to their morphological structure, widespread distribution, and the cost-effectiveness among biomonitoring methods. Environmental radioactivity as abiotic stress can induce changes in photosynthetic activity. The aim of this study was to investigate the effects of cesium on photosynthesis in the moss *Atrichum undulatum* grown *in vitro*. The present study evaluated the impact of cesium-acetate at four concentrations (0, 0.5, 1, and 1.5 mM) and different exposure times (2h (T1), 24h (T2) and 5 weeks (T3)). Results showed that concentrations of Chla and Chlb in T1 increased with increasing cesium concentration. In T2, pigments content in treated plants were lower than in control plants. In T3, pigment contents are significantly different from control only at 1 mM cesium-acetate. The Chl a/b ratio showed a significant difference at higher cesium-acetate concentration. The maximum efficiency of PSII photochemistry (QYmax) and quantum yield of PSII electron transport (QY) increased with cesium increase in case of T1 and T2. In the case of T3, a decrease in QYmax was noticed. There were no significant differences in non-photochemical quenching (NPQ) and photochemical quenching (qP). Cesium-acetate showed rather light positive effects on the process of photosynthesis with short exposure time. On the other hand, with long exposure time, a negative effect on the photosynthesis process was documented.

Keywords: chlorophyll, QYmax, QY, qP, NPQ

Acknowledgement: This study was supported by the Ministry of Science, Technological Development and Innovation of the Republic of Serbia, Grant No. 451-03-65/2024-03/200178, 451-03-66/2024-03/200178 and 451-03-66/2024-03/200019.