



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

BOOK OF ABSTRACTS
4th International Conference
on Plant Biology
(23rd SPPS Meeting)



Belgrade, 2022

CIP - Каталогизacija y publikaciji - Narodna biblioteka Srbije, Beograd

581 (048)

INTERNATIONAL Conference on Plant Biology (4 ; 2022 ; Belgrade)

Book of Abstracts / 4th International Conference on Plant Biology [and] 23rd SPPS Meeting, 6-8 October 2022, 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 Milica Milutinović]. - Belgrade : Serbian Plant Physiology Society : University, Institute for Biological Research "Siniša Stanković" : University, Faculty of Biology, 2022 (Zemun : Alta Nova). - 169 str. : ilustr. ; 24 cm

Tiraž 30. - Registar.

ISBN 978-86-912591-6-7 (SPPS)

1. Društvo za fiziologiju biljaka Srbije. Sastanak (23 ; 2022 ; Beograd)

a) Ботаника - Апстракти

COBISS.SR-ID 74996233

4th International Conference on Plant Biology
(23rd SPPS Meeting)
6-8 October, Belgrade

Organizing Committee

Jelena Savić (President), Neda Aničić, Jelena Božunović, Milica Milutinović, Luka Petrović, Nina Devrnja, Tatjana Ćosić, Dragana Rajković, Živko Ćurčić, Marina Putnik-Delić, Dragica Milosavljević, Milorad Vujičić, Marija Ćosić, Miloš Ilić

Scientific Committee

Aleksej Tarasjev (Belgrade, SERBIA)	Julien Pirello, (Castanet-Tolosan Cedex, FRANCE)
Ana Ćirić, (Belgrade, SERBIA)	Ljiljana Prokić, (Belgrade, SERBIA)
Ana Simonović †, (Belgrade, SERBIA)	Marijana Skorić, (Belgrade, SERBIA)
Anamarija Koren, (Novi Sad, SERBIA)	Marko Sabovljević, (Belgrade, SERBIA)
Aneta Sabovljević, (Belgrade, SERBIA)	Michel Chalot, (Montbéliard, FRANCE)
Angelina Subotić, (Belgrade, SERBIA)	Milan Borišev, (Novi Sad, SERBIA)
Angelos Kanellis, (Theassaloniki, GREECE)	Milan Dragičević, (Belgrade, SERBIA)
Biljana Kukavica, (Banja Luka, BOSNIA AND HERCEGOVINA)	Milan Miroslavljević, (Novi Sad, SERBIA)
Branka Vintehalter, (Belgrade, SERBIA)	Milka Brdar Jokanović, (Novi Sad, SERBIA)
Costas A. Thanos, (Athens, GREECE)	Miroslav Lisjak, (Osijek, CROATIA)
Danijela Arsenov, (Novi Sad, SERBIA)	Miroslava Zhiponova, (Sofia, BULGARIA)
Danijela Mišić, (Belgrade, SERBIA)	Mondher Bouzayen, (Castanet-Tolosan Cedex, FRANCE)
Georgy A. Romanov, (Moskva, RUSSIA)	Nataša Barišić Klisarić, (Belgrade, SERBIA)
Hermann Heilmeyer, (Freiberg, GERMANY)	Snežana Zdravković-Korać, (Belgrade, SERBIA)
Hrvoje Fulgosi, (Zagreb, CROATIA)	Stéphane Pfendler, (Montbéliard, FRANCE)
Ingeborg Lang, (Vienna, AUSTRIA)	Tijana Cvetić Antić, (Belgrade, SERBIA)
Ivana Dragičević (Belgrade, SERBIA)	Vaclav Motyka, (Prague, CZECH REPUBLIC)
Ivana Maksimović (Novi Sad, SERBIA)	Vuk Maksimović, (Belgrade, SERBIA)
Jelena Dragišić Maksimović, (Belgrade, SERBIA)	Zsófia Bánfalvi, (Gödöllő, HUNGARY)
Jelena Samardžić, (Belgrade, SERBIA)	

Publishers

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

Editor

Milica Milutinović

Graphic design

Dejan Matekalo

Prepress

Marija G. Gray

Printed by

Alta Nova, Zemun

Print run

30 pcs

Belgrade, 2022

SELECTED TALKS

Late embryogenesis abundant (LEA) proteins in *Ramonda serbica* Panc identification, classification and structural characterization

ST3-1

Ana Pantelić¹, Strahinja Stevanović¹, Dejana Milić¹, Sonja Milić Komić², Nataša Kilibarda³, Marija Vidović¹

(anapantelic@imgge.bg.ac.rs)

¹ Institute of Molecular Genetics and Genetic Engineering, Laboratory for Plant Molecular Biology, University of Belgrade, Vojvode Stepe 444a, 11042 Belgrade, Serbia

² Institute for Multidisciplinary Research, Department of Life Science, University of Belgrade, Kneza Višeslava 1, 11000 Belgrade, Serbia

³ Singidunum University, Danijelova 32, 11000 Belgrade, Serbia.

An ancient resurrection plant *Ramonda serbica* Panc. is able to survive a long desiccation period and reestablish metabolic activity upon watering. A hallmark of desiccation tolerance in the resurrection species is the accumulation of protective late embryogenesis abundant proteins (LEAPs). These intrinsically disordered proteins (IDPs) may stabilize the correct structure of proteins and membranes during cellular dehydration. The aim of our study was to assess LEA genes' expression levels in hydrated (HL) and desiccated leaves (DL) and to identify, characterise, and estimate the potential role of *R. serbica* LEAPs in desiccation tolerance. In total, 318 LEAPs from HL and DL were identified and classified into the seven LEA protein family groups ranging from LEA1-LEA5, seed maturation proteins (SMPs), and dehydrins (DEH). Analysis of the physicochemical properties, motif architecture, secondary structure, homology, and phylogenetic relationships demonstrated that *R. serbica* LEAPs greatly differed among the LEA family groups. The most abundant LEA2 proteins (mostly downregulated upon desiccation) exhibited lower hydrophilicity and propensity to fold into organised globular domains. Oppositely, hydrophilic LEA4 proteins tended to form amphipathic, A-type, α -helices. Most of desiccation-upregulated *LEA* genes encoded highly disordered DEH1, LEA1, LEA4.2, and LEA4.3 proteins. While dehydrins might chelate metals and bind DNA under water deficit, other ID LEAPs (e.g. LEA1, LEA3, LEA4) might participate in forming intracellular proteinaceous condensates or adopt amphipathic α -helical conformation, enabling them to stabilise desiccation-sensitive proteins and membranes. Taken together, possible functions of LEAPs are discussed with significant implications on drought tolerance improvement of crops grown in arid areas.

Keywords: 3D protein structure modelling, de novo transcriptome assembly, intrinsically disordered proteins, liquid-liquid phase separation, secondary structure prediction

Acknowledgment: This research was funded by the Science Fund of the Republic of Serbia-RS (PROMIS project LEAPSyn-SCL, grant no. 6039663) and by the Ministry of Education, Science and Technological Development, the Republic of Serbia (Contract No. 451-03-68/2022-14/200042, 2022).

ORGANISERS



DONATOR



SPONSORS

