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 - Каталогизација у публикацији - Народна библиотека Србије, Београд

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)

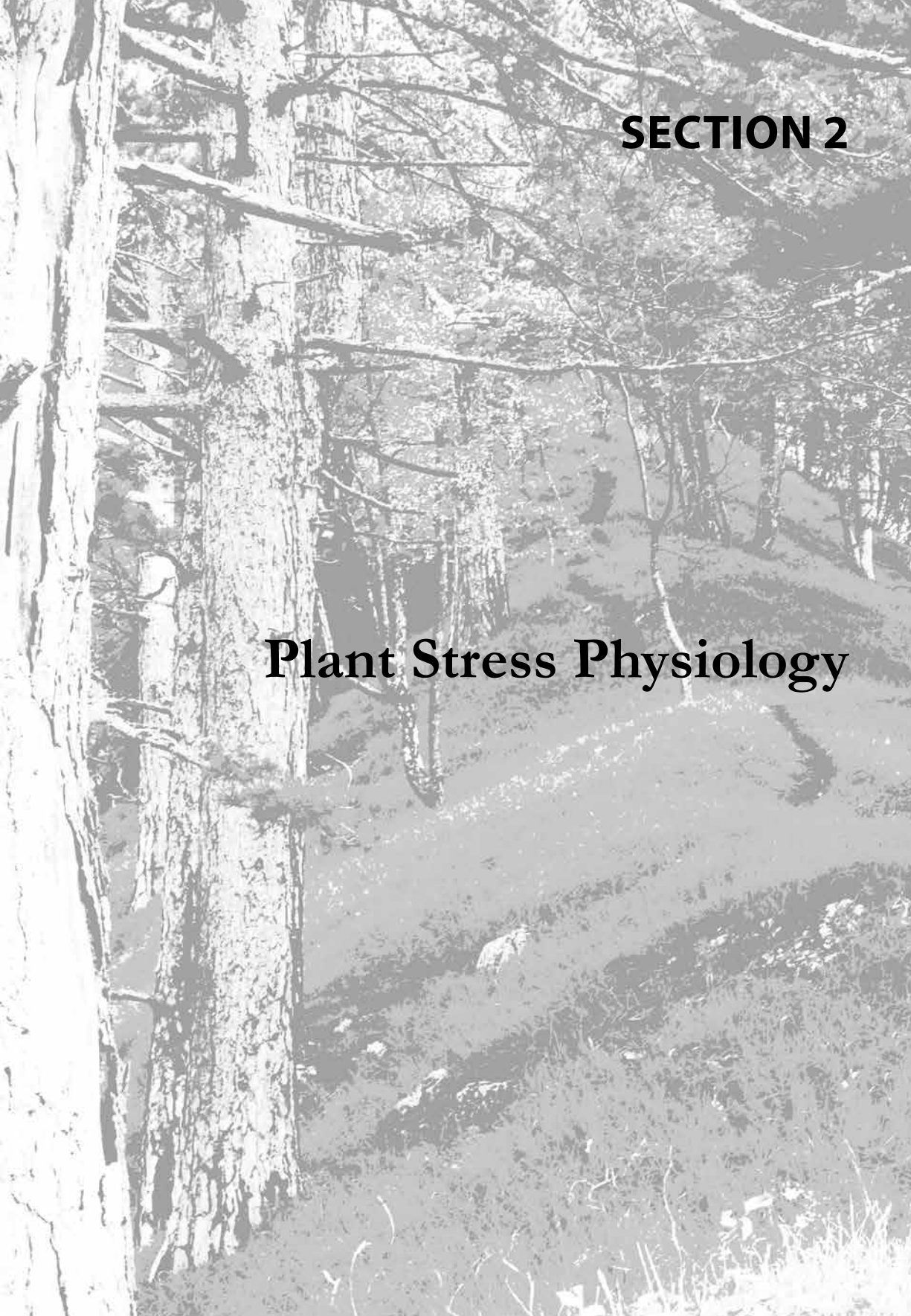
a) Ботаника - Апстракти

COBISS.SR-ID 74996233

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

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

Suported by the Ministry of Education, Science, and Technological Development of the Republic of Serbia



SECTION 2

Plant Stress Physiology

Comparative study of physiological, biochemical and morphological parameters in two tomato genotypes, wild type cv. Ailsa Craig and its ABA-deficient mutant *flacca*

PP2-38

Bojana Živanović[1], Ljiljana Prokić[2], Sonja Milić Komić[1], Nenad Nikolić[1], Ana Sedlarević Zorić[1], Marija Vidović[3], Sonja Veljović Jovanović[1]

bojana.zivanovic@imsi.rs

[1] University of Belgrade, Institute for multidisciplinary research, Kneza Višeslava 1, 11000 Belgrade, Serbia

[2] University of Belgrade, Faculty of Agriculture, Nemanjina 6, 11080 Belgrade, Serbia

[3] University of Belgrade, Institute of Molecular Genetics and Genetic Engineering, Vojvode Stepe 444a, 11010 Belgrade, Serbia

The objective of this study was to determine the constitutive differences in physiological, biochemical and morphological parameters between two tomato genotypes with different levels of abscisic acid (ABA) – wild type Ailsa Craig (WT) and ABA-deficient mutant *flacca*. Due to reduced ABA biosynthesis, *flacca* mutant is a suitable model system for investigating the influence of endogenous leaf ABA level in response to drought in plants. Within this research, plants were grown under controlled conditions at 800 μmol $m^{-2}s^{-1}$, until the end of the vegetative phase when samples were taken. The accumulation of the most abundant soluble sugars, sorbitol, phenolic compounds, and ascorbate in the leaves, as well as the cell walls compounds, were analyzed. Lower constitutive ABA content in *flacca* was accompanied by two times higher stomatal conductance and similar leaf water potential. Higher content of phenolic compounds (HBAs, HCAs, flavonoids) was determined in WT plants, which was in contrast with the elevated accumulation of the epidermal flavonoids in *flacca*. Larger accumulation of sorbitol in WT, and of the most abundant soluble sugars (glucose, fructose and sucrose) indicate that *flacca* accumulates lower content of osmolytes which was opposite to the condition at low light. However, an alternative mechanism related to cell wall modulation imposed its importance in the development of plant acclimation mechanisms under stressful environmental conditions in tomato deficient in ABA. On the other hand, an elevated ascorbate redox state in *flacca* indicates a higher sensitivity to oxidative stress of the mutant compared to WT even in optimal environmental conditions.

Keywords: tomato, *flacca* mutant, phenolic compounds, cell wall, ascorbate

Acknowledgment: This research was funded by the Ministry of Education, Science and Technological Development, the Republic of Serbia (Contract No. 451-03-68/2022-14/200053, 2022, Contract No. 451-03-68/2022-14/200116, 2022).