



# **BOOK** of **ABSTRACTS**

## **4<sup>th</sup> INTERNATIONAL CONFERENCE ON PLANT BIOLOGY (23<sup>rd</sup> 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**  
**4<sup>th</sup> International Conference**  
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**SECTION 2**

**Plant Stress Physiology**

## Distinctive regulation of different phenolics biosynthesis by high light and UV-B in three basil varieties

IT2-4

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Three varieties of basil (*Ocimum x citriodorum*, *Ocimum basilicum* var. Genovese and *Ocimum basilicum* var. *purpurascens*) were used to examine the effect of different PAR intensities (100, 400 and 1400  $\mu\text{mol photons m}^{-2}\text{s}^{-1}$ ), as well as different UV-B/PAR ratios, on leaf phenolics accumulation, and components of the ascorbate-glutathione cycle. Phenolic compounds represent the most abundant class of secondary metabolites, and their function in plants involves protection against numerous abiotic stresses, role in growth and development, flowering, reproduction and seed dispersion. A preferential accumulation of HCAs over Flav, induction of class III POD activity and decreased ascorbate content were characteristic responses to pro-oxidative effect of the high UV-B/PAR ratio in all three basil varieties. The most remarkable result was the lack of accumulation of epidermal UV absorbing substances, which appeared to be a crucial photoprotective mechanism in sunlight. The contrasting effect of ecologically relevant UV-B radiation on basil plants, pro-oxidative vs. acclimative, was determined by the quality and intensity of the background light. Acclimation of basil to high light comprises a number of processes, among which are the accumulation of epidermal flavonoids and total leaf phenolics, antioxidant response (increase in Asc and GSH) and lack of downregulation of PSII upon increasing light intensity. Among varieties that we used as model system in this study, purple basil, with the highest constitutive amount of anthocyanidins, showed the least induction of epidermal flavonoids and lack of light effect upon transfer from initial 50 to 250  $\mu\text{mol photons m}^{-2}\text{s}^{-1}$ .

**Keywords:** basil varieties, phenolics, high light, leaf anthocyanins

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