

BOOK OF ABSTRACTS

3rd International Conference on Plant Biology (22nd SPSS Meeting)



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Serbian Plant Physiology Society

Institute for Biological Research "Siniša Stanković", University of Belgrade

Faculty of Biology, University of Belgrade

**3rd International Conference
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(22nd SPPS Meeting)**



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tive parts- 0.135 mg kg⁻¹; flower - 0.122 mg kg⁻¹). The obtained results confirmed that the above-ground parts accumulated potassium ($BAC_{vegetative} = 2.42$; $BAC_{flowers} = 1.56$). Also, all plant parts have shown the ability to bond selenium from soil in significant quantities ($BAC_{rhizomes} = 1.38$; $BAC_{vegetative} = 1.20$; $BAC_{flowers} = 1.08$). This suggests that this specie have potential in phytoremediation.

Keywords: bioaccumulation; *Iris pumila*; Deliblato sands; phytoremediation

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Organ-specificity and genotype-dependency of secoiridoid glucosides' constitutive biosynthesis in *Centaurium erythraea* Rafn

PP4-26

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Plant species *Centaurium erythraea* Rafn (fam. *Gentianaceae*) is characterized by the presence of secoiridoid glucosides (SGs) as dominant secondary metabolites. The SG biosynthetic pathway has not yet been fully elucidated, despite the great pharmacological importance of this species. Here, an insight into the SG biosynthesis is achieved by comparing chemical profiles and secoiridoid-related gene expression patterns of different *C. erythraea* genotypes and plant organs. The results revealed that leaves are the main site of secoiridoid biosynthesis and accumulation in *C. erythraea*. The key function in the secoiridoid glucoside biosynthetic pathway has been assigned to genes encoding GES, G8O, 8HGO, 7DLGT and 7DLH2, while for *SLS* and *CPR* a potential biosynthetic-flux regulatory role has been determined. The correlation between the levels of these genes' expression and SG content is evident in different plant organs. Also, the analysis of SG high- and low-productive genotypes of *C. erythraea* points out that chemical variability existing at intra-species level is, at least partially, determined by the different patterns of expression of SG-related genes in different genotypes. Taking into consideration the biological activity of secoiridoid glucosides, not only is the information obtained in this study of importance for further SG biosynthesis elucidation, but it also shows a great potential for future biotechnology-based sustainable production of these valuable metabolites.

Keywords: *Centaurium erythraea* Rafn, secoiridoid glycosides, qPCR, UHPLC-MS/MS

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