



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

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POSTER PRESENTATIONS

Orchid-soil System Relationship in the Serpentine, Silicate and Limestone bedrocks

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Anacamptis morio occurs on a wide range of habitats showing distinct tolerance to heterogeneous edaphic conditions. Assessment of Li, B, Ba, and Sr phytoavailability in the soils of western Serbia, and metal(oid) uptake by *A. morio* provided new information on less studied elements and revealed their relatively high mobility in the soil-orchid system. Although previous studies have found that *A. morio* prefers neutral and calcareous soils, our study shows that it also inhabits ultramafic and siliceous sites characterized by pronounced differences in soil chemical properties. BCR sequential extraction identified up to 60% of Li and more than 80% of Ba and Sr content as potentially phytoavailable. The total element analyses using ICP-OES showed that B, Ba and Sr predominantly accumulated in the roots, but did not exceed thresholds considered potentially phytotoxic. It revealed the exclusion strategy of *A. morio* which enables it to tolerate differences in elemental composition of contrasting bedrock types. The highest Li concentrations were detected in leaves, pointing to significant Li mobility within the plant. The contents of Li and Ca were highly positively correlated, which may result from Li physicochemical properties that are similar to those of alkali metals, allowing it to share the same transport carriers. Thus, Li could be easily transported to the aboveground plant parts and accumulated mainly in the organs with the highest Ca content, which was confirmed in this study. Bioconcentration factors >1 were detected only for B and Sr in all plants analyzed, irrespective of the bedrock type.

Keywords: *Anacamptis morio*, metal exclusion, metal tolerance, BCR sequential extraction

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