BOOK of ABSTRACTS

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Orchid response to metalliferous soils – does physiology give us the answer?

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Orchids, one of the largest families of terrestrial plants, are found in a variety of habitats that differ greatly in their characteristics, including the presence of excessive concentrations of metals and metalloids. However, not many species have adapted to these conditions, as is the case with species such as *Gymnadenia conopsea* and *Dactylorhiza sambucina*. These species were collected on three different geological substrates (carbonate, ultramafic and siliceous) to reveal the variations in plant response by analyzing parameters such as the concentrations of photosynthetic pigments, phenolic compounds, proline and DPPH. Some differences in plant tolerance were found, with populations from carbonate soils with the optimum concentrations of metals and metalloids being less stressed. In contrast, the highest concentrations of proline, chlorophyll b and carotenoids were observed in metalliferous populations, such as those from the ultramafic area of Mt. Maljen (Serbia). Although the correlations between biochemical parameters and substrate properties are not negligible, the response of the plants is generally weak. This could be due to their pronounced adaptability, but also to the fact that they avoid habitats with extremely high metal concentrations.

Keywords: metal accumulation, stress tolerance, metal tolerance

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