

## **Assessment of the biochemical antioxidative mechanisms linked to copper tolerance in *Biscutella auriculata* L.**

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Copper (Cu) is a redox-active essential transition metal involved in many physiological processes in plants. Nevertheless, excess Cu can be potentially toxic, causing phytotoxicity by the formation of reactive oxygen radicals (ROS). In this study, *Biscutella auriculata* L. seedlings were cultivated in semi-hydroponic systems, irrigated with Hoogland nutrient solution for 15 days and then treated with a nutrient solution supplemented with 0.125 mM of Cu(NO<sub>3</sub>)<sub>2</sub> for 15 days. Cu treatment produced a significant growth inhibition as well as an important decrease in the photosynthetic parameters. Due to Cu oxidative damage there was an increase in oxidative stress markers (H<sub>2</sub>O<sub>2</sub> content, malon-di-aldehyde and GSH/GSSG ratio). An antioxidant enzyme system was activated in order to withstand the oxidative stress caused. The Cu was mainly spotted in roots and only a small portion was translocated to the aerial part. The analysis of the phytochelatins (PC) showed an increase in the concentration of PC<sub>2</sub> and PC<sub>3</sub> in leaves and roots. The presence of Cu trigger the synthesis of phytochelatins as a mechanism to neutralize its toxic effect. Based on our results, we can conclude that *B. auriculata* is able to grow on places contaminated with Cu, activating a specific mechanism of tolerance that allow it to endure toxic concentrations of Cu.



## ENVIRONMENT WORKSHOPS 2021

### **“UNDERSTANDING PLANT RESPONSES TO CLIMATE CHANGE: REDOX-BASED STRATEGIES”**

**BAEZA, SPAIN. 20<sup>th</sup> to 22<sup>th</sup> September**

