



Elemental uptake of potentially toxic metallic elements by *Biscutella auriculata* L.: an environmental indicator species

Jesus Peco (1,2), JoseAntonio Campos (1,2), Marta Moreno (1), and Pablo Higuera (2)

(1) Escuela Tecnica Superior de Ingenieros Agronomos. UCLM. Ciudad Real, Spain., (2) Universidad Castilla-La Mancha, Instituto de Geología Aplicada, Almadén, Spain (pablo.higuera@uclm.es)

Abandoned metal sulfide mining areas are spotted in the landscape as an interruption of natural soil conditions with scarce plant cover. The soil disturbance by deposits/piles of “sterile” residua, acid drainage and the presence of minerals with high concentrations of heavy metals, are the key factors responsible of the destruction of the original ecosystem. *Biscutella auriculata* (F. Brassicaceae) belongs to a select group of plants able to survive in the adverse conditions that occur in this specific type of environments. Among others of the same family, this species has evolved to avoid the oxidative stress caused by high concentrations of heavy metals through measures combining physiological and biochemical responses. The detailed study of the physiological behavior of this and other species, resilient enough to the aforementioned harsh edaphic conditions, can yield information for later works that have the purpose of restoring the ecological integrity of these disturbed mine land areas. For this purpose, we have designed an experiment in which *Biscutella auriculata* plants have been grown in hydroponic culture (Hogland’s solution) in a culture chamber under controlled conditions and subjected to different concentrations of Pb, Cu and Cd, in order to check the translocation rates from root to leaves and the possible interactions between the different elements. The results show that a minimum portion of metal is translocated to the leaves, with most of it retained in the root. On the other hand, it has also been observed that there could be an interaction between cadmium and copper since the absorption of cadmium by plants with copper treatment is much greater than that absorbed by the control plants.

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The results also indicate that *Biscutella auriculata* is a good environmental indicator species, which undoubtedly enriches the plant biodiversity in degraded environments.

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