



## **The selection of plant species-organic amendment combinations aids to restore soil microbial function recovery in a metal-contaminated soil**

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A mesocosm experiment was established to evaluate the effect of two organic wastes: fermented sugar beet residue (SBR) and urban waste compost on the stimulation of plant growth, phytoaccumulation of heavy metals and soil biological quality and their possible use in phytostabilisation tasks with native (*Piptatherum miliaceum*, *Retama sphaerocarpa*, *Bituminaria bituminosa*, *Coronilla juncea* and *Anthyllis cytisoides*) and non-native (*Lolium perenne*) plants in a heavy metal contaminated semiarid soil. Excepting *R. sphaerocarpa*, SBR increased the contents of shoot N, P and K and shoot biomass of all plants. The percentage of mycorrhizal colonization was not affected by the organic amendments. The highest increase in dehydrogenase and  $\beta$ -glucosidase activities was recorded in SBR-amended *P. miliaceum*. SBR reduced toxic levels of HM in shoot of *P. miliaceum*, mainly decreasing Fe and Pb uptake to plants. This study pointed out that the SBR was the most effective amendment for enhancing the plant performance and for improving soil quality. The combination of SBR and *P. miliaceum* can be regarded the most effective strategy for being employed in phytostabilisation projects of this contaminated site.