UNIVERSIDAD DE **MURCIA**

<u>Transfer of heavy metals to plants in technosols remediated with calcareous residues.</u>

Carmen Pérez-Sirvent¹, Maria Jose Martinez-Sanchez¹, Salvadora Martinez-Lopez¹, Ines Agudo¹, and Jaume Bech²

(1) Department of Agricultural Chemistry, Geology and Pedology. Faculty of Chemistry, Regional Campus of International Excellence "Campus Mare Nostrum", University of Murcia, Murcia, Spain.,

(2) University of Barcelona. Barcelona, Spain





When dealing with restoration and remediation projects of zones contaminated by waste and activities derived from mining operations, all the aspects that affect the neighbouring areas dedicated to the cultivation of vegetables are especially relevant, and should be carefully considered. According to previous studies carried out, the areas of mining influence affect to a very different extent the bordering areas depending not only of the characteristics of the soil but also of the type of mining activity that was developed, and so of the primary mineralogy involved, and even of the particular type of vegetable that is being cultivated. The diversity and complexity of these factors suggest the convenient of studying the process by clarifying the mechanisms of transfer of potentially toxic elements from the soil to the biotic environment, with the soil-plant-biotic chain sequence





Construction and demolition residues (CDRs) as well as other residues containing high concentrations in limestone filler were used to prepare technosols, and the transfer factors (TF) and bioconcentration factors (BCF) of potentially toxic elements were measured for the selected plant species (chard and broccoli). In this way, in addition to the soil remediation, benefit can be obtained of the re-valorization of such type of easily available, low cost residues. For the realization of the tests in the greenhouse, four technosols were prepared and experiments were planned in duplicate, which constituted eight experimental units, each one containing 21 large pots disposed in such a way that leachates were poured in the same storing tank.



in restored soils.

CEB R1-T4

CEB R1-T2

					800
TOTAL					700 600
	[Zn] mg/kg	[Pb] mg/kg	[Cd] mg/kg	[As] mg/kg	500 400 300 200
S1	86	10	0,2	3	100
S2	5945	301	4	133	0
S3	4574	154	2	122	
S4	4276	99	2	98	
Sc	12415	3889	24	369	140
					120

