



Evaluation of the assimilation of As by vegetables in contaminated soils submitted to a remediation process

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A greenhouse trial was carried out to evaluate the assimilation of heavy metals by three types of plants (lettuce, onion and broccoli), different parts of which are destined for human and farm animals consumption (leaves, roots, fruits).

The experiments were carried out to check the validity of the use of calcareous materials to recover soils contaminated with heavy metals. The aim of this work was to apply a technology for decontamination to ensure that As do not enter into the trophic chain at risky levels and analyze and to assess the risk pre and post operational of the different treatments proposed.

The materials used was a soils to be remediated (mining soils) and the materials used for remediation were lime filler and Construction and Demolition Waste (CDW).

The plants were cultivated in greenhouse with several types of soil. Five experiments were used, namely, Tc (contaminated soil), T1 (uncontaminated soil (blank soil)), T2 (50% T1 + 50% Tc), T3 (Tc + (25%) lime residues coming from quarries) and T4 (Tc + (25%) residues coming from demolition and construction activities). The entire project involves twenty experiments which were prepared from soils highly contaminated mixed with two types of calcareous materials.

The total As content of the soils samples, rhizosphere and vegetable samples, were measured and the translocation factor (TF), which is defined as the ratio of metal concentration in the leaves or shoots to the roots, and the Bioconcentration factor (BCF), which is defined as the ratio of metal concentration in the roots to that in soil were calculated.

The use of CDR is shown to be a suitable way for remediating soils contaminated by metals. The methodology permits a revalorization of CDW.