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## Selective Removal of selenium by phytoremediation from post mining coal wastes: practicality and implications

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Selenium (Se), a metalloid typically natural in origin, is also present in coal washery by-products such as fly-ash stockpiles. The removal of Se in coal washery by-products can be achieved through various bio-physico-chemical processes. In the attempt to find more environmentally friendly and cost effective methods phytoremediation has been selected as a remediation option. This study was a small scale, screening test that investigated the phytoremediation of Se from post coal process wastes using *Brassica juncea* species. Therefore, the aim of this study was to assess the concentration of Se, and target elements (As, Cd, Cu, Pb). The selected plant species was grown in coal process wastes enriched with a growth soil mix. The concentrations of the elements were determined by ICP-MS. 48% Se extraction was achieved. Low percentages of As, Cd, Cu, Pb were accumulated in the biomass, (in the order Cd>Cu>As>Pb). The results overall indicate that a minimal amount of Se can be accumulated within the plant biomass of *Brassica juncea*. Therefore, this study provides only as an initial step towards continued studies on phytoremediation of the coal washery by-products.

Keywords: phytoremediation; phytoextraction; selenium; *Brassica juncea*