

## The newly explored application of *Conocarpus erectus* “an energy crop” for the management of multi-metals contaminated soils

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During the past two decades, most of the studies have comprehensively discovered the phytoextraction/phytostabilization capabilities of various plants for specific metals. Though, none of the plants was capable to resolve the issue of multi-metal pollution of the soils. We report herewith the potential of *Conocarpus erectus* to extract Pb and stabilize Cd, Ni, and Cr in contaminated soil. The *C. erectus* was allowed to grow for 120 days in a spiked soil having four different levels of Pb (0, 600, 1200 and 2400 mg kg<sup>-1</sup>), Cr (0, 150, 300 and 600 mg kg<sup>-1</sup>), Ni (0, 50, 100 and 200 mg kg<sup>-1</sup>) and Cd (0, 20, 40 and 80 mg kg<sup>-1</sup>). Results correlated with physiology, growth, biochemistry and antioxidant enzymes activities depicted that the significant reduction was noted in all concerned parameters with increasing metal concentrations in the soil. In contrast, metal removal efficiency, shoot/root metal concentration and contents and bioavailable metals (DTPA-extractable metals) were increased with increasing metals in the soil. Similarly, the highest Pb concentrations were found in shoots followed by roots but an opposite trend was recorded for Ni, Cr, and Cd. Further, the values of BCF and TF were greater than 1 for Pb and surprisingly remained lower than 1 for Ni, Cd, and Cr. Our findings conclude that *C. erectus* has great potential for the phytoextraction/stabilization of Pb, Ni, Cr, and Cd, respectively from contaminated soils and could be used for the reclamation of multi-metal contaminated soils.

Keywords: *Conocarpus erectus*; Phytoextraction; Phytostabilization; BCF; TF