

## Phytoremediation potential of *Talinum triangulare* (Ceylon spinach) towards Cr in different soils

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Phytoremediation has emerged as a plant-based and cost-effective alternative to remediate heavy metal contaminated soils. Although this technique is widely known, a significant study has not been reported yet to find out a potentially capable plant to clean Cr contaminated soils. In studies carried out by our group, six plant species (*Vernonia cinerea*, *Tridax procumbens*, *Sphagnaticola trilobata*, *Talinum triangulare*, *Clitoria ternatea* and *Vernonia zeylanica*) have been tested under Cr contaminated conditions and identified *T. triangulare* (Ceylon spinach) with comparatively higher tolerance to Cr with relatively higher biomass than other plants under contaminated conditions. The aim of this study was to compare the phytoremediation potential of *T. triangulare* towards Cr for various soil types under Cr contamination conditions. Pot experiments were carried out using four different types of soils (sand, loamy sand, clay and laterite) under Cr contamination conditions (treatments with 200 and 300 mg of Cr/ kg dry soil). Plants were harvested at 60 days of growth and Cr uptake by plant shoot and root were separately analysed by atomic absorption spectrometry.

The Cr uptake by *T. triangulare* under different soil types with maximum contaminated conditions of Cr (300 mg/kg) were analysed (ANOVA,  $p < 0.05$ ) and showed no significant difference between loamy sand and sandy soil with the mean value of  $109.30 (\pm 18.45) \text{ mg kg}^{-1}$  and  $136.00 (\pm 34.70) \text{ mg kg}^{-1}$  respectively and also no significant difference between Laterite and Clay with the mean value of  $36.26 (\pm 6.12) \text{ mg kg}^{-1}$  and  $43.44 (\pm 4.29) \text{ mg kg}^{-1}$  respectively. The results of this study indicated that, Cr uptake capacity and the tolerability of *T. triangulare* significantly change with soil types. Even though *T. triangulare* shows to be capable of habituation in different soils, its Cr uptake capacities varies significantly. *T. triangulare* shows potential of being introduced to different terrestrial environments to remediate Cr. However, future study of the plant in different soil environments is suggested.

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