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Screening of potential hyperaccumulator for cadmium from contaminated soil

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ABSTRACT

In this study, cadmium hyperaccumulation potential of four species, Guinea grass (*Panicum maximum*), cosmos (*Cosmos sulphureus*), African marigold (*Tagetes erecta* L.) and sunflower (*Helianthus annuus*), was investigated in pot culture experiments in triplicate in a greenhouse. The concentration of cadmium solution was varied from 50 to 400 mg kg^{-1} of soil. Samples of different parts of plants after reaching flowering stage were harvested for cadmium analysis. The present study demonstrated that based on the total cadmium accumulation in plant, marigold showed higher potential, compared to other species. However, based on total biomass and total uptake, Guinea grass also showed high ability to uptake Cd from soil. Translocation factors (TFs) of marigold and cosmos were above one. Under all Cd treatments, the bioconcentration factor (BCF) of marigold was greater than one. Taking into consideration all factors, *Tagetes erecta* L. showed high potential for Cd uptake from contaminated soil.

Keywords: Cadmium contaminated soil; Marigold; Guinea grass; Translocation factor; Bioconcentration factor

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