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Tagetes lemmonii* (Atapethiya) as a Potential Candidate for Phytoremediation of Cadmium in Soils*Wimalajeewa T.G.A.N.I.N.^{1*}, Athukorala A.D.S.N.P.², Koralegedara N.H.³,
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Phytoremediation is one of the eco-friendly strategies used to remove heavy metals such as Cadmium (Cd) from the environment. *Tagetes erecta* is one such plant used in the phytoremediation of Cd polluted soils. *T. lemmonii* which belongs to the same genus was used in the current study to investigate its tolerance to cadmium to determine its suitability in phytoremediation of Cd under greenhouse conditions. One-month-old nursery plants were uprooted and transferred into soil containing pots and allowed to establish under greenhouse conditions for one week. Then, soil in pots was treated with 20 mgkg⁻¹, 50 mgkg⁻¹, 100 mgkg⁻¹, and 200 mgkg⁻¹ Cd²⁺ concentration series with four replicates for each. The control treatments were four pots of plants without Cd²⁺ added and four pots of soil treated with Cd²⁺ in each concentration without plants. At two-day intervals, morphological changes such as the height of the plant, and the number of leaves were observed and after 14 days, plants were uprooted and the number of leaves, leaf area, number of rootlets, length of the root, length of the shoot, and total length of the plants were compared among treatments and controls. Cadmium-treated plants, in comparison to the control plants, showed a significant increase in leaf area ($p=0.000$), fresh weight ($p=0.000$), dry weight ($p=0.000$) and a significant decrease in root length ($p=0.005$ and the number of rootlets ($p=0.000$) except at 100 and 50 mgkg⁻¹ respectively. The increase in plant height ($p=0.950$), the increase in shoot length ($p=0.914$), and the decrease in the number of leaves ($p=0.322$) were not significant. The results suggest that *T. lemmonii* has a significant survival ability under Cd²⁺ in soil. Significant total height increments of *T. lemmonii* plants under Cd²⁺ treatments suggest that this plant is a hyperaccumulator of Cd²⁺. Future investigations on anatomical parameters, accumulation, and reduction of Cd²⁺ in plant tissues and soil respectively will reveal its remediation potential of Cd²⁺. The results of this study will be utilized to develop phytoremediation strategies for Cd²⁺ polluted soils using *T. lemmonii*.

Keywords: Heavy metals, Ornamental plants, Eco-friendly, Hyperaccumulation