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Response of *Chromolaena odorata* to Different Soil Textures

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Abstract

The ability of *Chromolaena odorata* to acclimate under different soil textures was studied for understanding invasion success of the plant. This study was conducted at the Faculty of Engineering, University of Ruhuna at Galle. Plants were cultivated under sandy loam, clay loam, and clay soils. Each experiment contained six replicates and subjected to three different soil textures as randomized block design. *C. odorata* grown in sandy loam soil was 80% higher in relative growth rate, 82.27% higher in total dry weight, and 82.66% greater than the root dry weight compared with the plants grown under clay soils. Moreover, highest seedling height of 79.0 cm was observed in sandy loam soil. However, root weight ratio was not significantly different among the three treatments. Morphological variations of the plants grown in clay loam and sandy loam are not significantly different. Seedling, mortality was not observed under any soil texture, which may explain their tolerance to heterogeneous conditions. Overall, *C. odorata* showed growth retardation under clay soils and reduction in relative growth rate, height and reduced biomass accumulation for both above ground and below ground biomass. These results indicate that *C. odorata* growth and morphological performances were similar under the sandy loam and clay loam texture while poor in clay condition. The presence of plasticity in response to soil texture conditions suggest that *C. odorata* can survive in a broad range of soil types by changing morphological characters.

Keywords: *Chromolaena odorata, clay loam, morphology, soil texture*

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