

Spring 5-3-2024

Identifying Phytoremediation Performing Plant Species that can be Utilized in the Improvement of Heavy Metal Contaminated Soils


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Recommended Citation

Clark*, Ashley and Mutiti, Samuel, "Identifying Phytoremediation Performing Plant Species that can be Utilized in the Improvement of Heavy Metal Contaminated Soils" (2024). *Graduate Research Showcase*. 125.

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Identifying phytoremediation performing plant species that can be utilized in the improvement of heavy metal contaminated soils

Abstract—Heavy metal pollution is a problem associated with industrialization and development. Two major metals that are commonly mined and can enter the environment, which can jeopardize communities' health, are copper (Cu) and lead (Pb). There are different options for reducing heavy metal pollution in the environment via remediation efforts, including physical, chemical, and biological methods. However, physical and chemical remediation can be costly and labor-intensive, making them unsuitable for regions that do not have the funds to utilize these practices. Biological remediation is a more cost-conservative practice that has been shown in many studies to be effective in the gradual removal of some of the more dangerous heavy metals from the land. The goal of this project was to determine the effectiveness of three plants (*Celosia plumosa*, *Celosia cristata*, and *Moringa oliefera*) in removing Cu and Pb from contaminated soil. Plants were grown in soils contaminated with varying levels of Cu and Pb in a climate-controlled greenhouse. Preliminary results for the present study showed little to no uptake of Pb within these plant species, while there was a considerable uptake of Cu in the leaves and flowers of *C. plumosa*, suggesting that it could be a suitable phytoextractor of this metal.