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Characterization and Phytoremediation of Crude Oil Contaminated Wetland

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Levels of metal and hydrocarbon contaminants were determined in water from a wetland around an abandoned oil well in Mgbuoba Community in the Nigerian Niger Delta. The efficacy of *Hevea brasilensis* for cleaning up the resulting effluent was also investigated. *H. Brasilensis was* grown hydroponically in the effluent for 43 days in the presence of white light and a salted variant while growth indices were measured. Deionized water was used as control and all experiments were done in triplicate. Levels of Phenol and some heavy metals were determined at 0d and 43d to determine performance. Observed reduction levels of Fe, Pb, Cd, Phenol and total hydrocarbons were statistically significant at $p \leq 0.05$ (reduced by 99.8%, 99.9%, 99%, 99.9% and 80.01% respectively). Cyanide, mercury and chromium were not detected in all samples. Salted regimes showed markedly higher uptake of heavy metals (Fig. 1). Also, produced biomass compared favourably with control, and is indicative of remarkable tolerance to induced phytotoxicity. Generally results indicate excellent phytoextraction of studied contaminants, leaving relatively low values in the effluent, and thus indicate that *H. brassilliensis* is a candidate for the phytoremediation of crude oil contaminated soil.

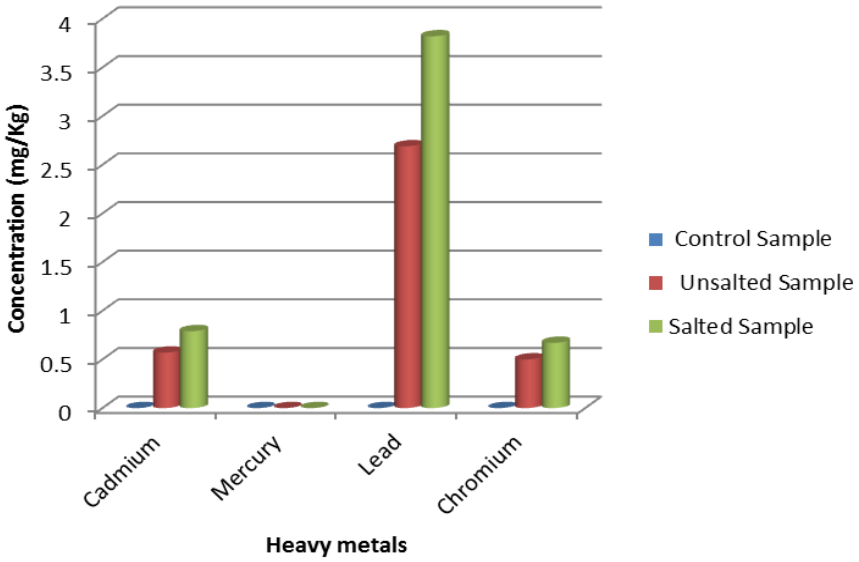

Figure 1. Some heavy metals uptake levels by plants (shoots) in the control (deionized water as growth medium), unsalted and salted contaminated samples.

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