

Phytoremediation and Bioremediation of Heavy Metal from Domestic Wastewater by *Lepironia Articulata*, *Monochoria Vaginalis* and *Typha Angustifolia*

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Abstract

Wastewater from domestic effluents and industrial discharges continues contaminating freshwater resources. It could contain different chemicals and various of heavy metals. Heavy metals are toxic to human, causing water and soil pollution. The objectives of this research are to investigate the concentration of heavy metals in wastewater and to determine the percentage concentration of contaminants removal after using aquatic plants as phytoremediation agents. Three aquatic plants were used in this study; *Lepironia Articulata*, *Monochoria Vaginalis* and *Typha Angustifolia*. Ten parameters are used to measure the effectiveness of phytoremediation process which are; Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Total Suspended Solid (TSS), pH, Turbidity, Chromium, Copper, Iron, Lead and Zinc. The results comply with Standard A in the Environmental Quality Act 1974. All three aquatic plants have 100% potential removal of Copper, Iron, Lead and Zinc metal. Oval-Leaf Pondweed (*Monochoria Vaginalis*) has 70% potential in removal of Chromium metal. Grey Sedge (*Lepironia Articulata*) has proven high percentage of removal for BOD with 85%, TSS removal with 92% and Turbidity removal with 97%. Meanwhile, Oval-Leaf Pondweed (*Monochoria Vaginalis*) has proven a high percentage of removal for COD, i.e., 97%.

Keywords: Phytoremediation; Wastewater; *Monochoria vaginalis*; *Typha angustifolia*; *Lepironia articulata*; Heavy metal.