Phytoremediation of Heavy Metals (Mn, Pb, Zn) from Wastewater Chemical Laboratory Satya Wacana Christian University by Water Fern (Azolla pinnata R.Br.)

1) Lenny B.S. Mansawan, 2) Sri Hartini, 3) A. Ign. Kristijanto
1) Mahasiswa Program Studi Kimia Fakultas Sains dan Matematika
2) Dosen Program Studi Kimia Fakultas Sains dan Matematika
Universitas Kristen Satya Wacana
Jl. Diponegoro 52-60 Salatiga, Jawa Tengah, Indonesia
lmansawan569@gmail.com

ABSTRACT
The objective of this study were: firstly to determine the optimum of A. pinnata population densities on the manganese (Mn), zinc (Zn) and lead (Pb) absorption, and secondly to determine the effectivity of Mn, Zn and Pb absorption by different population densities of Water Fern (A. pinnata). Data were analysed by Randomized Completely Block Design (RCBD), 6 treatments and 4 replication. As the treatments are various percentage surface area coverage of the plastic cups by A. pinnata, which are: 0% (control, no A. pinnata), 12.5%, 25%, 37.5%, 50%, 62.5%, respectively. To test the differences between treatment means, the Honestly Significant of Differences (HSD) were used using 5% level of significant. The result of this study show that: firstly, 62.5% population densities of A. pinnata can absorb optimally manganese (Mn), zinc (Zn), and lead (Pb), respectively. Secondly, the effectivity of A. pinnata absorb heavy metals are as follow: Mn 10.48 mg/l (95.11%); Pb 1.77 mg/l (90.90%), and Zn 7.12 mg/l (87.04%), respectively from wastewater Chemistry Laboratory within 4 days.

Keywords: Azolla pinnata, Heavy Metals, Phytoremediation, Wastewater