

THE POTENTIAL OF WATER HYACINTH PLANTS (*EICHHORNIA CRASSIPES*) AND APU APU (*PISTIA STRATIOTES* L.) IN PHYTOREMEDIATION OF NICKEL HEAVY METAL POLLUTED WATER

Netty Syam¹⁾, Hidrawati¹⁾, Rafiah Hafid²⁾,

¹⁾Program Studi Agroteknologi, Fakultas Pertanian, Universitas Muslim Indonesia

²⁾Program Studi S1 Agroteknologi, Fakultas Pertanian, Universitas Muslim Indonesia, Makassar

¹⁾E-mail: netty.said@umi.ac.id

²⁾E-mail: fiahhafid98@gmail.com

Abstract.

Water pollution by heavy metals is a significant environmental issue affecting water quality and the health of aquatic ecosystems. Heavy metals such as nickel often contaminate water sources through industrial waste, mining, and other human activities. Nickel in high concentrations can cause various health problems in humans and damage aquatic ecosystems. Some aquatic plants show promising potential in phytoremediation, especially in overcoming heavy metal pollution. This study aimed to identify the remediation ability of water hyacinth (*Eichhornia crassipes*) and Apu Apu (*Pistia stratiotes* L.) and their accumulation in nickel-polluted water. The plants were grown in a hydroponic solution with 0.13 ppm (below the quality standard), 0.55 ppm, 0.75 ppm, and 0.95 ppm of nickel. The Experiment used a randomized block design with 3 replications. The results of the study showed that both plants planted showed symptoms of toxicity. Water contaminated with 0.95 ppm nickel decreased to 0.69 ppm after being planted with water hyacinth within 15 days. Likewise, water contaminated with 0.95 ppm nickel experienced a decrease to 0.69 ppm after being planted with *Pistia stratiotes* for 15 days. The results of the water hyacinth tissue analysis showed nickel accumulation Ni as much as 451.93 ppm, while *Pistia stratiotes* can accumulate Ni up to 921.30 ppm. Thus, it is known that both plants are effective accumulator plants used as phytoremediators because they are quite tolerant of high concentrations of Ni.

Keywords: Phytoremediation; Polluted Water; Nickel (Ni); Water Hyacinth; *Pistia stratiotes*