

ABSTRACT

Prawestri Dinda Nugroho. 24020121140179. The Effect of Water Spinach (*Ipomoea aquatica*) as a Phytoremediation Agent in Ammonia Waste of Urea Fertilizer Factory in West Java. Supervised by Riche Hariyati and Fuad Muhammad.

Abstract: The urea fertilizer factory is an industrial facility that produces urea fertilizer for agricultural purposes. This results in the release of wastewater containing hazardous pollutants, including ammonia, which in high concentrations can negatively impact on the environment. Phytoremediation is a biological treatment method that utilizes plants to reduce pollutants. The objective of this study was to examine the impact of using water spinach (*Ipomoea aquatica*) as a phytoremediator in ammonia waste and to determine the effectiveness of water spinach (*Ipomoea aquatica*) in reducing ammonia levels in ammonia waste from a urea fertilizer factory in West Java. The experimental research method was conducted using CRD (Completely Randomized Design), which consisted of 4 treatments and 3 replicates. The treatments included P0/control (plain water), P1 (15 mg/L ammonia waste), P2 (30 mg/L ammonia waste), and P3 (45 mg/L ammonia waste). Each was given 250 grams of *Ipomoea aquatica*. The parameters measured included ammonia, pH, COD, TSS, and plant biomass, and observed on a weekly basis throughout 21 days, starting from day 0, 7, 14, and 21. The results of the study indicated a significant decrease in P3 (45 mg/L ammonia waste) on day 14. Concurrently, there was a decrease in pH, an increase in COD and TSS, and an increase in plant biomass on day 7, followed by a decrease until day 21. It was found that *Ipomoea aquatica* was able to reduce ammonia levels with with the highest effectiveness reaching 98.59% at P3 (45 mg/L ammonia waste) on day 14. It can be concluded that *Ipomoea aquatica* as a phytoremediator has a positive effect on ammonia waste which is able to reduce ammonia levels significantly, and shows high effectiveness in reducing ammonia levels in ammonia waste of Urea Fertilizer Factory in West Java.

Keywords: phytoremediation, ammonia waste, Ipomoea aquatica, water spinach