



## Intisari

Penelitian ini bertujuan untuk mengetahui kemampuan *Azolla* sp. dalam memperbaiki kualitas air limbah *laundry* berdasarkan parameter COD dan fosfat serta mengetahui kepadatan pertumbuhan dan waktu efektif *Azolla* sp. dalam memperbaiki kualitas air limbah *laundry*. Penelitian dilakukan menggunakan 6 perlakuan dengan masing-masing 3 ulangan dan disusun berdasarkan Rancangan Acak Lengkap. Perlakuan terdiri dari P0 (0 gram), P1 (50 gram), P2 (100 gram), P3 (150 gram), dan P4 (200 gram) yang diletakan dalam bak berisi 30 liter air limbah *laundry* dengan pengenceran 50%. Parameter kualitas air yang diamati yaitu COD, fosfat, pH suhu air, dan biomassa setiap 7 hari selama 21 hari. Hasil penelitian menunjukan bahwa *Azolla* sp. memiliki kemampuan untuk memperbaiki kualitas air limbah *laundry* terutama menurunkan COD, tetapi tidak mampu memperbaiki nilai fosfat limbah *laundry* karena pada kondisi basa *Azolla* sp. tidak efektif menyerap fosfat. Limbah *laundry* setelah diperlakukan dengan *Azolla* sp. selama 21 hari nilai COD dari 133,43 mg/L turun menjadi 41,52 mg/L, sedangkan nilai fosfat meningkat dari 18,04 mg/L menjadi 25,28 mg/L. Kepadatan dan waktu efektif *Azolla* sp. dalam memperbaiki kualitas air limbah *laundry* yaitu pada perlakuan 150 gram dengan lama pemeliharaan 7 hari atau perlakuan 50 gram dengan lama pemeliharaan 14 hari.

Kata kunci : *Azolla* sp., COD, fitoremediasi, fosfat, limbah *laundry*



### *Abstract*

This research aims to know the ability of *Azolla* sp. to improve the water quality of laundry wastewater based on COD and phosphate and also to find out the effective time and the density of *Azolla* sp. in improving the quality of the water. This research applies 6 treatments with 3 replications using Completely Randomize Design (CRD) analysis. The treatment consists of P0 (0gram), P1 (50 gram), P2 (100 gram), P3 (150 gram), and P4 (200 gram) which was placed in a tank that contains 30 liters of laundry wastewater with 50% dilution. The parameters of water quality such as COD, phosphate, pH, water temperature, and biomass were being observed in every 7 days for 21 days. The result shows that *Azolla* sp. has the ability to improve the quality of the water from laundry wastewater, especially in lowering the COD level. However, it is found that *Azolla* sp is not able to adjust the amount of phosphate because its ability in absorbing phosphate can be considered not effective. The results showed that the laundry wastewater's COD decreases from 133,43 mg/L to 41,52 mg/L. Meanwhile, the amount of phosphate increases from 18,04 mg/L to 25,28 mg/L. The density and the effective time of *Azolla* sp. in improving the quality of laundry wastewater is on 7 days of 150 gram treatment or 14 days of 50 gram treatment.

Key words : *Azolla* sp., COD, laundry waste water, phosphate, phytoremediation