

UPTAKE NITRATE & PHOSPHATE BY

Hydrilla verticillata & Vallisneria spiralis

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By

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ABSTRACT

Large quantities of phosphate and nitrate present in the wastewater are the one of main cause of eutrophication that is severely affected on natural water bodies. Nitrate and phosphate in waste water contribute to health and environmental threats such as illnesses and ecosystem disruption through algal blooming. Based on these above facts, the study was conducted using two fresh water aquatic plant species *Hydrilla verticillata* and *Vallisneria spiralis* to evaluate the removal ability of the nitrate and phosphate from the waste water. The main objective of the study was, to investigating the best plant which can absorb large amount of nitrate and phosphate from the wastewater by easily available *Hydrilla verticillata* and *Vallisneria spiralis*. The absorption of nitrate and phosphate were examined under 2 experiments. Through the 1st experiment the best plant species was selected by using 16 g of biomass for each treatment. According to the results the 35 percent phosphate was absorbed by *Hydrilla verticillata* and *Vallisneria spiralis* and 30 percent absorb ability was recorded in combination of *Hydrilla verticillata* and *Vallisneria spiralis*. Though both have same absorption percentage, further studies was recovered that *Hydrilla verticillata* could be remove phosphate easily than *Vallisneria spiralis*. The experiment 2 was carried out to investigate the appropriate biomass for efficient nitrate and phosphate removing. The study investigated that 8 g *Hydrilla verticillata* reduced 76 percent of nitrate and 32 g *Hydrilla verticillata* reduced 40 percent of phosphate from the water. Due to the results 8 g of *Hydrilla verticillata* biomass is the best for nitrate absorption and 32 g of *Hydrilla verticillata* is the best for phosphate absorption effectively. But considering all the results of the experiment the 16 g *Hydrilla verticillata* was the most suitable biomass for absorption of both nitrate and phosphate effectively and efficiently.

Key words: *Hydrilla verticillata*, *Vallisneria spiralis*, Phosphate, Nitrate, Absorption rate