

**POTENTIAL OF AQUATIC MACROPHYTES IN PHYTOREMEDIATION
OF FARM EFFLUENT**

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Water bodies are increasingly polluted from excess fertilizer run-off and industrial wastewater, resulting in nutrient enrichment and creating algal blooms. The addition of nitrogen and phosphorus is significant in eutrophication, and phosphorus most often limits the growth of phytoplankton than nitrogen. Farm effluents have high phosphorus (P), and this study aims to recover the phosphate using phytoremediation using macrophytes, *Salvinia molesta* and *Pistia stratiotes*. Cattle farm effluent was collected from the Mawelawaththa farm, Faculty of Agriculture, University of Peradeniya. Initial nutrient composition, pH and electrical conductivity (EC) of the effluent were determined. *S. molesta* and *P. stratiotes* were weighed (100.0 g) and introduced to 3.0 L of farm effluent in 6 trays (40 x 30cm²) to determine the P removal. As a control, 100 g of the two macrophytes were introduced to tap water-filled trays. Residual phosphate concentration in the trays was measured after 3, 6, 9, 12, 15, 18 and 21 days from the introduction of macrophytes using the Ascorbic Acid Blue method. Concentrations were calculated and compared using basic statistics in Minitab 17 statistical software. The phosphate removal efficiency for *S. molesta* was 25.02±2.60% and for *P. stratiotes* was 72.56±5.13%. As uptake per fresh weight during the 21 days, this was equivalent to 0.07506±0.00781 mg g⁻¹ for *S. molesta* and 0.2177±0.0154 mg g⁻¹ for *P. stratiotes*. As a whole, *P. stratiotes* was more efficient in P uptake compared to *S. molesta*. Similar efficiencies were noted in previous research studies in Sri Lanka. Hence, the cultivation of the macrophytes was effective as a phytoremediation process to remove the residual phosphorus present in farm effluents. These findings suggest the possibility of utilizing farm effluents treated with *S. molesta* and *P. stratiotes* to make organic fertilizer. Therefore, P-rich macrophyte fertilizer can be used as a substitute for inorganic P fertilizers such as Triple Super Phosphate on a commercial scale.

Financial assistance from the National Institute of Fundamental Studies is acknowledged.

Keywords: Macrophytes, P removal efficiency, Phosphate, Phytoremediation