CONSTRUCTED WETLAND SYSTEM FOR TREATMENT OF HOSTEL GREYWATER USING CATTAIL PLANTS

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Constructed wetlands (CW) are considered as a low-cost wastewater treatment technology designed to mimic processes found in natural wetland ecosystems. The greywater from the students' hostel is discharged into the environment without treatment. Hence, this study was aimed to investigate the feasibility of using a Free Water Surface (FWS) constructed wetland for treatment of greywater generated from the hostel complex at Faculty of Agriculture, Rajarata university of Sri Lanka using *Typha angustifolia* (Cattail). A pilot scale FWS constructed wetland was established near the hostel complex and the bathroom greywater was discharged into the system at a rate of $0.05m^3/hr$ after a preliminary settlement. The Hydraulic Retention Time (HRT) was 17 hours. The quality of the influent and effluent were monitored for a period of six weeks by analyzing water quality parameters such as Biochemical Oxygen Demand (BOD_5), Total Phosphorus (TP), Nitrate-Nitrogen (NO_3^--N), Ammonium-Nitrogen (NH_4^+-N), Total Suspended Solids (TSS), Total Dissolved Solids (TDS), pH and Electrical Conductivity (EC). According to the results, removal efficiencies of the contaminants increased throughout the monitoring period. This wetland system was able to reduce the concentrations of BOD_5, TP, NO_3^--N, NH_4^+-N, and TSS in hostel greywater by 58%, 43%, 67%, 78%, and 81% respectively. The CW system was successful in reducing concentrations of above contaminants present in hostel greywater in considerable level within six weeks. It proved that the FWS constructed wetlands with *Typha angustifolia* can be effectively used to treat the greywater, before releasing into the natural environment. This study should be continued until the quality parameters of the effluent reach the National Standards for discharging effluent into inland surface water.

Keywords: Cattail, Constructed wetlands, Greywater Treatment, Removal Efficiency