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Assessment of growth and phytoremediation potential of *Eichhornia crassipes*, *Salvinia molesta,* and *Pistia stratiotes* for the removal of Total Dissolved Solids and Electrical Conductivity in sludge of common waste water treatment plant at Biyagama EPZ

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Phytoremediation is an environmentally friendly, low cost, promising technique for the removal of TDS and EC in sludge generated from industrial waste water treatment plants. The efficiency of TDS and EC removal by plants mainly depends on the tolerance of plants to the medium and their uptake capability. The present study was planned for the sludge generated from the common waste water treatment plant (CWWTP) at Biyagama EPZ. Since raw sludge caused 100% mortality of *Eichhornia crassipes*, *Salvinia molesta* and *Pistia stratiotes,* raw sludgewas diluted for the study.Thus, the objective of the study was to assess the plant growth and removal of TDS and EC byabove species at different sludge dilutions. The sludge was diluted with de-chlorinated tap water to obtain 1:10, 1:6.67, 1:5, 1:4, 1:3.33 and 1:2.5 dilutions. Similar weights of acclimatized young plants of each species were placed in above dilutions simultaneously. Triplicate samples were maintained for 28 days. the plants were harvested at the end of the experiment to obtain the wet weight. TDS, EC and pH of the medium were measured every 7 days using a HACH HQ 40d Multi-Para Meter. Data were subjected to One-Way ANOVA followed by Tukey's pairwise comparison tests using MINITAB (version 14.12.0). Results revealed that *E. crassipes* at 1:10 dilution showed a significant maximum relative growth rate (0.025 $gg^{-1}day^{-1}$; p=0.000). Both TDS and EC in the medium with *E. crassipes*at 1:10 dilution reduced with increased exposure time. *E. crassipes* showed a significant maximum reduction of TDS (54.0%; p=0.000) and EC (60.0%; p=0.019) at 1:10 dilution by day 28. In addition, *S. molesta* and *P. stratiotes* showed the maximum reduction of TDS (37.7% and 37.3% respectively) and EC (44.3% and 51.8% respectively) at 1:6.67 dilution. Moreover, TDS and EC reduction by all species were accompanied by an increase in pH. Altogether, the results suggested that *E. crassipes* is the best in reducing TDS and EC in the sludge generated at CWWTP at Biyagama EPZ.

Keywords: *E. crassipes,* Biyagama, Total Dissolved Solids, Electrical Conductivity, plant.

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