World Academy of Science, Engineering and Technology
International Journal of Environmental and Ecological Engineering
Vol:9, No:01, 2015

Comparative Analysis of Ranunculus muricatus and Typha latifolia as Wetland Plants Applied for Domestic Wastewater Treatment in a Mesocosm Scale Study

Authors : Sadia Aziz, Mahwish Ali, Safia Ahmed

Abstract : Comparing other methods of waste water treatment, constructed wetlands are one of the most fascinating practices because being a natural process they are eco-friendly have low construction and maintenance cost and have considerable capability of wastewater treatment. The current research was focused mainly on comparison of Ranunculus muricatus and Typha latifolia as wetland plants for domestic wastewater treatment by designing and constructing efficient pilot scale HSSF mesocosms. Parameters like COD, BOD5, PO4, SO4, NO3, NO2, and pathogenic indicator microbes were studied continuously with successive treatments. Treatment efficiency of the system increases with passage of time and with increase in temperature. Efficiency of T. latifolia planted setups in open environment was fairly good for parameters like COD and BOD5 which was showing up to 82.5% for COD and 82.6% for BOD5 while DO was increased up to 125%. Efficiency of R. muricatus vegetated setup was also good but lowers than that of T. latifolia planted showing 80.95% removal of COD and BOD5. Ranunculus muricatus was found effective in reducing bacterial count in wastewater. Both macrophytes were found promising in wastewater treatment.

Keywords : wastewater treatment, wetland, mesocosms study, wetland plants
Conference Title : ICFES 2015 : International Conference on Food and Environmental Sciences
Conference Location : Singapore, Singapore
Conference Dates : January 08-09, 2015