

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