World Academy of Science, Engineering and Technology
International Journal of Environmental and Ecological Engineering
Vol:13, No:03, 2019

Wastewater Treatment by Floating Macrophytes (Salvinia natans) under Algerian Semi-Arid Climate

Authors : Laabassi Ayache, Boudehane Asma

Abstract : Macrophyte pond has developed strongly in the field of wastewater treatment for irrigation in rural areas and small communities. Their association allows, in some cases, to increase the hydraulic capacity while maintaining the highest level of quality. The present work is devoted to the treatment of domestic wastewater under climatic conditions of Algeria (semi-arid) through a system using two tanks planted with Salvinia natans. The performance study and treatment efficiency of the system overall shows that the latter provides a significant removal of nitrogen pollution: total Kjeldahl nitrogen NTK (85.2%), Ammonium NH_4^+-N (79%), Nitrite NO_2^--N (40%) also, a major meaningful reduction of biochemical oxygen demand BOD_5 was observed at the output of the system (96.9 %). As BOD_5, the chemical oxygen demand (COD) removal was higher than 95% at the exit of the two tanks. A moderately low yield of phosphate-phosphorus (PO_4^3-P) was achieved with values not exceeding 37%. In general, the quality of treated effluent meets the Algerian standard of discharge and which allows us to select a suitable species in constructed wetland treatment systems under semi-arid climate.

Keywords : nutrient removal, Salvinia natans, semi-arid climate, wastewater treatment
Conference Title : ICEPTT 2019 : International Conference on Environmental Pollution and Treatment Technology
Conference Location : Rome, Italy
Conference Dates : March 05-06, 2019