Evaluation of a Wastewater Treatment System for Constructed Wetland with Aeration Step

ANDRADE, H. H. B. [a*]

a. Graduate Program in Sustainability - School of Arts, Sciences and Humanities University of São Paulo

**Corresponding author, helisson@usp.br*

Abstract

The constructed wetlands (CW) represent an increasingly used way around the world for the wastewater treatment, this technology is based on natural processes of nutrient cycling and degradation of organic matter in the wastewater at similar rates found in nature. The CW have satisfactory efficiencies in the removal of compounds such as organic matter, has low power consumption and operational simplicity, however, may require significant areas for construction and show instability in the removal of nutrients like phosphorus and nitrogen. The objective of this work is to demonstrate the initial performance of a wastewater treatment system by evaluating the physical and chemical parameter settings carried out in a bench scale apparatus treating synthetic substrate. The system consists of septic tank, decanter, free aerated flow wetland and wetland drowned vertical subsurface flow. Efficiencies were obtained up to 89% removal of organic matter in terms of TOC, 87% of total nitrogen removal and 8% free of phosphorus.

Keywords: *constructed wetlands, aeration, wastewater treatment, nitrogen removal.*