



3rd INTERNATIONAL WORKSHOP ADVANCES IN CLEANER PRODUCTION

“CLEANER PRODUCTION INITIATIVES AND CHALLENGES FOR A SUSTAINABLE WORLD”

Evaluation of the Removal of Heavy Metals in Sewage with the use of Wetland

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Abstract

Currently only 10% of sewage produced in Brazil is undergoing some kind of treatment. Getting a volume of approximately 10 billion gallons to be played every day in the country's rivers and streams, causing major environmental impacts on water resources. The deployment of wetlands also known internationally for wetlands represent an efficient technology for wastewater treatment in places of low purchasing power. The purpose of this study was to evaluate the efficiency of a pilot constructed wetland system, installed at UNICAMP, the removal of metals and other chemicals present in sewage, Faculty of Agricultural Engineering, UNICAMP using the technique for Synchrotron Radiation Total of X-Ray Reflection Fluorescence (SR-TXRF). This study is important because many researchers have studied the rate of removal of total phosphorus, DBO, DQO, fecal coliform, turbidity, etc., but there are not many studies related to analysis of metals. For the project macrophyte species were used: *Typha sp.* and *Eleocharis sp.* for the purification of sewage. There was, for example, that the system input concentration of Cr ranged from 0,050 to 2.9 mg.L⁻¹, while the output with *Typha sp* concentration ranged from 0,001 to 0,050 mg.L⁻¹ and output with *Eleocharis sp* rate ranged from 0,003 to 0,500 mg.L⁻¹. Comparing the removal of P for the two macrophyte species *Eleocharis sp* showed better efficiency, as the removal averaged for the entire sampling period was 71,04%, while to *Typha sp.* the value obtained was in 23,20%.

Keywords: Wetland, environment, heavy metal, total reflection.

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