

REMOVAL OF *GIARDIA* SPP. AND *CRYPTOSPORIDIUM* SPP. BY A COMBINED ANAEROBIC/AEROBIC TREATMENT SYSTEM IN BENCH SCALE TREATING SEWAGE EFFLUENT FROM A HOSPITAL.

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Giardia spp. and *Cryptosporidium* spp. are important waterborne pathogens that were responsible for several outbreaks related to consumption of contaminated water. Due to its long term survival and peculiar behavior during sewage treatment, changes in system performance may result in decreased removal of these protozoa. The aim of this study was to evaluate the removal of cysts and oocysts in a combined anaerobic/aerobic sewage treatment system in a bench scale. The system used is composed of fixed bed reactors: anaerobic filter (AF) followed by aerobic submerged biofilter (ASB) and clarifier (CLA). The system is continuously fed with hospital sewage from Unicamp. Sludge samples derived from the three points described above, were collected monthly from October 2009 to March 2010. All samples were processed by centrifugal-concentration technique followed by clarification with ether and protozoa were visualized by direct immunofluorescence assay and confirmed by the incorporation of a vital dye DAPI. Both protozoa were detected in AF and ASB in different months of sampling. *Giardia* cysts were present in high concentration that ranged from 20,000 to 120,000/L and *Cryptosporidium* oocysts concentration ranged from 20.000 to 40.000/L. Cysts and oocysts were not detected in the clarifier. *Giardia* cysts removal efficiency rate was 83% in October, 100% in November, 50% in January, 33% in February and 50% in March. *Cryptosporidium* oocysts removal efficiency rate was 100% in January. The removal study of these pathogenic parasites highlights the importance of wastewater treatment plants improvement to reduce the impact of effluents into the environment and public health. Institution Development: Doctoral Scholarship- Edictal 05/2008 Propex / FURB

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