



Comparative study of Fenton's reagent performance in disinfection of raw wastewater and activated sludge effluent

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ABSTRACT

In this study, Fenton's reagent was investigated for its possible use in the disinfection of raw and secondary treated sanitary wastewater. Different doses of hydrogen peroxide, ferrous (Fe^{2+}) ions, and their combination were evaluated at three experimental phases of the disinfection of raw wastewater. Hydrogen peroxide and ferrous ions as single disinfectants showed no significant reduction in fecal coliforms. Fenton's reagent inactivated 4 and 3.16 log of fecal coliforms from raw wastewater and activated sludge effluent, respectively. However, at CT values up to 3750 mg min/l for raw wastewater and 11250 mg min/l for activated sludge effluent, no observable effects were noted. A dose of Fenton's reagent of 600 mg/l H_2O_2 plus 150 mg/l of Fe^{2+} ions led to a 3.16 log inactivation of fecal coliforms in the activated sludge effluent and discharge standards were achievable.

Keywords: Disinfection; Fe; Hydrogen peroxide; Fenton's reagent; Wastewater; Reuse

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