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Biogenic compound removal from municipal wastewater—modeling and optimization

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ABSTRACT

The goal of study is to investigate the efficiency and biokinetics of intermittent cycle aerobic-anaerobic with granular activated carbon-bed reactor (ICAAGACR) in the removal of biogenic compounds from wastewater. 1-year period of study took place using an ICAAGACR with effective volume of 4 L on wastewater. Growth changes of microorganisms were identified by measuring mixed liquor volatile suspended solids (MLVSS) and chemical oxygen demand (COD) variations equivalent to the substrate in the range of 5–500 mg/L. With the data obtained from the experimental conditions, the k_0 and K_S values and the kinetic coefficients of growth of microorganisms were determined according to the changes in MLVSS and COD using the ASM1 model and the developed relationships of the Monod model.

Keywords: Organic compounds removal; Bio-kinetic coefficients; Monod model; Optimization

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