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Effects of 2-chlorophenol and 2,4,6-trichlorophenol on an activated sludge sequencing batch reactor

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ABSTRACT

In the work, the effect of 2-chlorophenol and 2,4,6-trichlorophenol on the performance of a sequencing batch reactor operated with suspended municipal recycle activated sludge (RAS) in terms of total carbon and total nitrogen removal is presented. The total carbon removal achieved ranged in 80%–100% and total nitrogen removal in 10%–84%. The results showed that chlorophenols did not inhibit either the activated sludge growth or the total carbon removal significantly. However, inhibition is observed in total nitrogen removal. 2-chlorophenol inhibited the ammonium oxidation (nitrification) while such an effect was not observed in the case of 2,4,6-trichlorophenol indicating that the later inhibits the ammonification step. Moreover, the results indicated that total removal of both chlorophenols was achieved during the first day of the processing.

Keywords: 2-CP; 2,4,6-TCP; Inhibition; Sequencing batch reactor; Activated sludge

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