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EFFECT OF AERATION RATE ON DOMESTIC WASTEWATER TREATMENT USING AN INTERMITTENTLY AERATED SEQUENCING BATCH REACTOR (IASBR) TECHNOLOGY

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Abstract

Effects of the aeration rate on nutrient removal from synthetic domestic wastewater using an intermittently aerated sequencing batch reactor (IASBR) were studied at ambient temperature. Two aeration rates, 0.8 and 1 L air/min, were studied. At the aeration rate of 0.8 L air/min, removals of COD, $\text{NH}_4^+\text{-N}$, total nitrogen (TN) and $\text{PO}_4^{3-}\text{-P}$ were 84%, 96%, 75% and 99%, respectively. At the aeration rate of 1 L air/min, removals of COD, $\text{NH}_4^+\text{-N}$, TN and $\text{PO}_4^{3-}\text{-P}$ were 90%, 99%, 70% and 66%, respectively. The increased DO concentrations resulted in improved nitrification, but interfered with denitrification and enhanced biological phosphorus removal (EBPR).

Key words: aeration, denitrification, EBPR, IASBR, nitrification

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