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عنوان مقاله:

Effect of Sludge Retention Time (SRT) on Carbon Recovery and Bioflocculation in High-loaded Membrane Sequencing Batch Reactor (HL-MSBR)

محل انتشار:

کنفرانس بین المللی نمک زدایی و تصفیه آب (سال: 1399)

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خلاصه مقاله:

In the present study, the performance of a High-loaded Membrane Sequencing Batch Reactor (HL-MSBR) operated at an HRT 12 hours and SRT 5 and 2 days for the treatment of synthetic municipal wastewater was considered. There was no pronounced difference in the COD removal efficiency when MSBR was operated at SRT of 2 and 5 days. The TMP variation indicated that the membrane fouling was more severe at an SRT of 2 days than that of 5 days. Both the bioflocculation efficiency (defined as the percentage of suspended COD in the mixed liquor) and COD mineralization improved when SRT was increased from 2 to 5 days. Total extracellular polymeric substances (EPS), loosely bound (LB) EPS, and the ratio of EPS protein (EPSp) to carbohydrate (EPSc) were also measured via SRT variation. EPS concentrations, in particular EPSp concentrations, enhanced when the SRT was prolonged from 2 to 5 d. The LB concentration was also reduced at higher SRT. Particle size distribution (PSD) analyses revealed a bigger mean particle size at SRT of 5 days compared to 2 days, indicating a better bioflocculation efficiency at the higher SRT. In this study also COD recovery has been quantified and the results show that lower SRTs have a better COD recovery due to reducing the COD oxidation.

کلمات کلیدی:

COD Recovery, Bioflocculation, High-rate activated sludge, Sludge retention time, High-loaded Membrane Sequencing Batch Reactor

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