

عنوان مقاله:

Evaluation of the performance of the intermittent cycle extended aeration system in detergent removal from bathroom greywater

محل انتشار:

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خلاصه مقاله:

On average, 67 % of household wastewater is made up of greywater, which includes wastewater produced in household other than toilets. There are different biological treatment processes for greywater treatment. One of these systems is the sequencing batch reactor (SBR), which has proven to be an effective way of treating wastewater. One of the amendments to the SBR process is the intermittent cycle extended aeration system (ICEAS). The purpose of this study was to investigate the performance of an advanced-SBR in the bathroom greywater (BGW) treatment. For this purpose, a rectangular SBR reactor (402020 cm) with a working volume of 12 liters was developed and utilized. The primary microorganisms of this reactor were prepared from the active sludge return to the aeration pond of the Arak municipal wastewater treatment plant. The reactor was fed with the effluent from the initial settling ponds of the same treatment plant. After the system was set up and sufficient microorganisms were grown, the exploitation phase began with synthetic greywater. The experiments were carried out in three cycles of 4, 6 and 8 hours. The concentrations of linear alkyl benzene sulfonates (LAS), chemical oxygen demand (COD) and biochemical oxygen demand (BOD₅) at the inlet were 6.8 mg/L, 385 mg/L and 170 mg/L, and in the outlet, 0.95 mg/L, 19.25 mg/L and 8.5 mg/L, in a 8-hour cycle. Therefore, the removal efficiency of the system in 8 h cycle was 86 %, 93 % and 95 %, respectively.

کلمات کلیدی:

Activated sludge system, Bathroom greywater, Intermittent cycle extended aeration system, Linear alkyl benzene sulfonates, Sequencing batch reactor

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