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Performance evaluation and energy potential analysis of anaerobic membrane bioreactor (AnMBR) in the treatment of simulated milk wastewater

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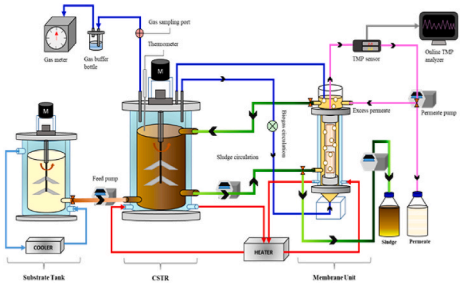
HIGHLIGHTS

- Optimized AnMBR system achieved high degradation and bioenergy recovery.
- Effects of HRT and OLR on biogas production in wastewater were determined.
- Methane yield almost reached the theoretical methane yield value.
- Energy positive at all HRT and AnMBR systems consumed less energy input.
- High NEP was obtained and is suitable to be implemented for real applications.

GRAPHICAL ABSTRACT



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ABSTRACT

An anaerobic membrane bioreactor (AnMBR) was employed as primary treatment unit for anaerobic treatment of simulated wastewater to produce high effluent quality. A lab scale hollow fiber membrane was used to scrutinize the performance of AnMBR as a potential treatment system for simulated milk wastewater and analyze its energy recovery potential. The 15 L bioreactor was operated continuously at mesophilic conditions (35 °C) with a pH

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