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New insights into enhanced anaerobic degradation of Fischer-Tropsch wastewater with the assistance of magnetite¹

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Abstract

In this study, magnetite (Fe₃O₄), as the typical conductive material, was supplemented in anaerobic sequential batch reactor (ASBR) with the attempt to enhance pollutants removal and methane production during Fischer-Tropsch wastewater treatment. The results showed that COD removal efficiency and cumulative methane production with the addition of optimum magnetite dosage (0.4 g) were as high as 84.3±2.0% and 7.46±0.24 L, which were higher than other test groups (0, 0.2 and 0.6 g). Furthermore, the combination of high-throughput 16S rRNA gene pyrosequencing and metagenomic analysis in this study further confirmed that the *Geobacter* and *Methanosaeta* species were specially enriched in bacterial and archaeal community at the optimum magnetite dosage, suggesting that

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