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New insights into the enhancement of biochemical degradation potential from waste activated sludge with low organic content by Potassium Monopersulfate treatment

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Abstract: Waste activated sludge with low organic content (WAS-LOC) always led to the failure of anaerobic fermentation. A potentially practical technology based on $\bullet SO_4^-$, i.e. Potassium Monopersulfate(PMS) was used into WAS-LOC anaerobic fermentation system and had been presented to greatly improve both the intracellular and extracellular constituents, which improved the biological enzyme activity and produced a mass of short-chain fatty acids (SCFAs). Results showed that the maximal SCFAs production was 716.72mg chemical oxygen demand (COD)/L (0.08mg PMS/mg SS), which increased to 43.70 times comparing to that of 0.00mg PMS/mg SS level (16.40mgCOD/L). The activities of biological enzymes increased 1.42 times for protease, 4.38 times for α-glucosidase, 2.1 times for alkaline phosphatase, 1.70 times for acidic phosphatase