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High methane production potential of activated sludge accumulating polyhydroxyalkanoates in anaerobic digestion

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Highlights

- Activated sludge with polyhydroxyalkanoates (PHAs) was anaerobically digested.
- Kinetic models showed high biogas production rate and yield of PHAs.
- Sludge accumulating PHAs has high potential for biogas production.

ABSTRACT

A technique for using waste activated sludge (WAS) accumulating intracellular storage materials was studied for enhancing methane production through anaerobic digestion. Model WAS samples with various contents of poly-β-hydroxyalkanoates (PHAs) were used for anaerobic digestion tests. Methane production during 32 d from WAS with PHA content of 290 mg g^{-1} of dry mass was higher by 30% than that from WAS with PHA content of 30 mg g^{-1}. Kinetic models showed that PHAs have