

Biogas Production From Microalgae Grown On Supernatant From Biosolids Dewatering

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Microalgae have been grown in a 85 L, outdoor bubble column located in a large wastewater treatment plant (WWTP) in Northern Italy. The supernatant from biosolid dewatering was used as N and P source while the off-gas from the CHP engine was used as CO₂ source. The microalgae suspension was used to perform solid/liquid separation tests and served as co-substrate with the mixed primary/secondary waste sludge from the same WWTP in anaerobic digestion semi-continuous tests.

Experimental results suggests that: microalgae can be cultured on the supernatant from biosolid dewatering in outdoor conditions. Microalgae can be harvested by centrifugation and the flocculant used for biosolid dewatering appeared effective and could improve the microalgae harvesting efficiency. Microalgae can be co-digested with waste sludge without detrimental effects on the anaerobic consortium. However, longer degradation times than those available in the FS-AD could be required to guarantee an efficient methane production from the microalgal suspension.