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Effect of adding small amount of food waste on biogas production and microbial community structure during anaerobic digestion of discarded sludge pretreated yard waste

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In order to promote biogas production from anaerobic digestion of yard waste (YW), an integrated method coupled adding small amount of food waste (FW) with discarded sludge pretreatment (DSP) was investigated. DSP experiment was firstly conducted, where pH, cellulose and hemicellulose of mixture were dynamically tested to determine optimal additive amount of FW as 10 wt.%. Subsequently, anaerobic batch fermentation of pretreated YW with different percentage of FW was conducted to investigate effect of FW on methane production and microbial community structure. Results indicated that, 3-4 days was the optimal pretreatment period. 10 wt.% FW addition significantly improved methane yield of YW with DSP by 124%. Beneficial microbial community components were significantly enhanced by adding 10 wt.% FW, thereby more cellulose and hemicellulose were digested.

Biography

Le Zhang is currently a PhD candidate in Department of Chemical and Bio-molecular Engineering from National University of Singapore. His research field is biogas production from anaerobic digestion of solid organic wastes, including food waste, yard waste, etc.

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