

Comparison of process stability in methane generation from palm oil mill effluent using dairy manure as inoculum



Santhana Krishnan^a, Lakhveer Singh^b, Puranjan Mishra^a, Mohd Nasrullah^a, Mimi Sakinah^a, Sveta Thakur^a, Nurul Islam Siddique^a, Zularisam Ab. Wahid^{a,*}

^a Faculty of Engineering Technology, Universiti Malaysia Pahang, Kuantan, Pahang, 26300, Malaysia

^b Biological and Ecological Engineering, Oregon State University, Corvallis, OR 97333, USA

H I G H L I G H T S

- This study investigated methane production from dairy manure as inoculum.
 - Addition of dairy manure improved both the start-up time and rate of biogas production.
 - Biogas production was achieved at ambient temperature.
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The potential of methane production in a continuously stirred tank reactor (CSTR) was investigated using dairy manure as inoculum at pH 6.8 and 37 °C temperature in this study. Two identical anaerobic bioreactors namely CSTR₁ and CSTR₂ filled with water

allowed to run for 5 days (d) in batch condition at hydraulic retention time (HRT) 10 d. The CSTR₂ produced 0.85 L/d gas yield and 59% methane content compared to 0.39 L/d gas yield and 20% produced in CSTR₁, respectively. A better chemical oxygen demand (COD) reduction percentage of 48% was found in CSTR₂ compared to CSTR₁ with 33%. The investigation showed that dairy manure as inoculum has a marked influence on the start-up period and the biogas production rate.

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