



Mesophilic and thermophilic biomethane production by co-digesting pretreated petrochemical wastewater with beef and dairy cattle manure



Md. Nurul Islam Siddique^a, Mimi Sakinah Abd Munaim^b, A.W. Zularisam^{a,*}

^a Faculty of Civil Engineering and Earth Resources, University Malaysia Pahang (UMP), Lebuhraya Tun Razak, 26300 Gambang, Kuantan, Pahang, Malaysia

^b Faculty of Chemical Engineering and Natural Resources, University Malaysia Pahang (UMP), Lebuhraya Tun Razak, 26300 Gambang, Kuantan, Pahang, Malaysia

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ABSTRACT

The use of pretreated petrochemical wastewater as provender wastewater for anaerobic degradation was explored in a continuous stirred tank reactor with dairy and beef cattle manure, under both mesophilic and thermophilic states. The co-digestion of the wastewaters contributed 50% enhancement in methane production, followed by a $98 \pm 0.5\%$ reduction in chemical oxygen demand at 10 days hydraulic retention time. No VFA aggregation was identified. In comparison with the digestion of PWW alone, methane yield increased by 50–60% under mesophilic conditions and 50–65% under thermophilic conditions due to co-digestion.

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* Corresponding author. Tel.: +60 95 493006; fax: +60 9 5492998.

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