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Improvement of biodiesel production using waste cooking oil and applying single and mixed immobilised lipases on polyhydroxyalkanoate

Resilience of anaerobic digestion to polypropylene microplastic contamination: Kinetic and structural evidence

Sithikittanya, Napatat; Reungsang, Aissara
Plos One

The increasing occurrence of microplastics (MPs) in organic waste streams raises concerns about their impact on anaerobic digestion (AD). This study examined the effect of polypropylene MPs (PP-MPs) on methane production during AD of foo...

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An Environmentally Friendly Process for Textile Wastewater Treatment with a Medium-Chain-Length Polyhydroxyalkanoate Film

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1. ชื่องานวิจัย “An Environmentally friendly process for textile wastewater treatment with a medium-chain-length polyhydroxyalkanoate film”

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Resilience of anaerobic digestion to polypropylene microplastic contamination: Kinetic and structural evidence

By [Seriakaporn, N. \(Sittakijpanya, Napat\), Keungang, A. Reungsang, Wittawat](#)

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Abstract: The increasing occurrence of microplastics (MPs) in organic waste streams raises concerns about their impact on anaerobic digestion (AD). This study examined the effect of polypropylene MPs (PP-MPs) on methane production during AD of food waste for 150 days under batch conditions. PP-MPs were added at 10–300 mg/g total solids (TS), covering reported MP levels in food waste and food packaging materials and relating to worst-case scenarios. Methane yields ranged from 210.2 to 324.4 mL CH₄ g⁻¹ volatile solids (VS) across treatments versus 334.3 ± 5.2 mL CH₄ g⁻¹ VS in the control, with no significant differences ($p > 0.05$). Kinetic modeling confirmed no consistent inhibitory trends. FTIR and SEM analyses indicated minor surface oxidation and cracking on PP-MPs, while the polymer backbone remained intact, suggesting only superficial aging. These results provide

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