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## **INFLUENCE OF INOCULUM ACCLIMATION IN THE BIODEGRADATION RATE AND ESTIMATED BIODEGRADABILITY OF COW MANURE, FOOD WASTE AND OIL**

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### **Abstract**

Two different inocula - acclimated and non-acclimated to fat- were used to evaluate the methane production of cow manure, food waste and oily waste in batch assays. The inoculum adapted to fat had a better performance in the methanisation of substrates with significant lipids content. Furthermore, it is demonstrated that an increase in the ratio inoculum/substrate can enhance the initial methane production rate of oily waste when using a non-adapted inoculum, improving also the ultimate methane production. Additionally, this work also reveals that changing from mesophilic to thermophilic temperature conditions an inoculum can overcome adaptation setbacks to a substrate, while another one, that displayed good mesophilic performance, can become unproductive. As the results demonstrate, the microbial consortium present in each inoculum can bring about different outcomes while degrading different organic wastes, especially in anaerobic digestion of oily waste.

Key words: anaerobic digestion, cow manure, food waste, oily waste inoculum source

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