METAFARM SG DESKTOP LAB TRIAL

Abstract

Anaerobic digestion effectively addresses food waste management by breaking down organic materials to produce biogas and nutrient-rich digestate. In Singapore, where food waste is a significant concern, on-site compact systems can efficiently process this waste in urban settings, reducing landfill reliance and generating renewable energy.

However, challenges persist, particularly the effectiveness and efficiency of such process in an onsite system is not clear. Tackling these issues is essential for harnessing anaerobic digestion as a sustainable solution to Singapore's food waste problem.

The primary objective of this desktop lab trial is to utilize a single stage Anaerobic Digestion (AD) process for co-digesting food waste, FOG and additives. The process aims to address specific industry needs, namely:

- Compact for application in the urban context,
- Exploration of potential IP for novel anaerobic digestion of food waste
- Increased tolerance to inhibitors found in food waste streams to reduce capacity loss and downtime arising from process failures, and
- Enhanced performance in terms of bio methanation to facilitate optimal carbon recovery as methane from the waste stream.

Key goals:

- Compact AD system for application in the urban context
- Increased tolerance to inhibitors found in food waste streams to reduce capacity loss and downtime arising from process failures
- Enhanced performance in terms of bio methanation to facilitate optimal carbon recovery as methane from the waste stream.

Anaerobic digestion effectively addresses food waste management by breaking down organic materials to produce biogas and nutrient-rich digestate. In Singapore, where food waste is a significant concern, on-site compact systems can efficiently process this waste in urban settings, reducing landfill reliance and generating renewable energy. The primary objective of this desktop lab trial is to utilize a single stage Anaerobic Digestion (AD) process for co-digesting food waste, with fats, oils, grease (FOG) and additives.

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