

## **Effect of Food to Microbe Ratio Variation on Anaerobic Co-Digestion Of Petrochemical Wastewater with Manure**

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### **ABSTRACT**

This work was performed to investigate the influence of the food-to-microbe (F/M) proportion on anaerobic co-digestion of petrochemical wastewater (PWW) and activated manure (AM) in a continuous stirred tank reactor (CSTR). As the F/M proportion varied from 0.25 to 2.0 and organic loadings from 6.31 to 32 (g VS/L), the cumulative biogas generation and the cumulative methane generation was enhanced from 571 to 855 mL/g VS and 425 to 499 mL/g VS at mesophilic (37 °C) state and 620–909 mL/g VS and 519–553 mL/g VS at thermophilic (55 °C) state in 145 days of co-digestion period. The VS and TS removal increased from 55% to 77% and 43% to 53% under mesophilic conditions and from 62% to 79% and 34% to 46% under thermophilic conditions when the F/M ratio increased from 0.5 to 2.0, respectively.

**KEYWORDS:** Anaerobic co-degradation; Petrochemical wastewater; Activated manure; Methane production; Biogas production

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