BIOGAS PRODUCTION FROM WASTEWATER AND SLUDGE OF WASTEWATER TREATMENT PLANT

Undergraduate Thesis
Submitted to the Faculty of the
College of Engineering and Information Technology
Cavite State University
Indang, Cavite

In partial fulfilment
of the requirements for the degree
Bachelor of Science in Agricultural Engineering

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April 2015

ABSTRACT

MIRANDA, MARIA LORIZA A. Biogas Production from Wastewater and Sludge of Wastewater Treatment Plant. Undergraduate Thesis. Bachelor of Science in Agricultural Engineering. Cavite State University, Indang, Cavite. April 2015. Adviser. Dr. David L. Cero.

The study was conducted from July 2014 to February 2015 in Amaya, Tanza, Cavite to produce biogas from wastewater and wastewater sludge of Cavite Economic Zone's wastewater treatment plant. Specifically, it aimed to determine the quantity of gas produced from wastewater sludge and determine the physical quality (odor) of gas produced from wastewater sludge.

A set-up was prepared for six treatments with three replicates each. Six treatments were: Treatment 1 (3:1 dewatered sludge to water), Treatment 2 (2:1 dewatered sludge to water), Treatment 3 (1:1 dewatered sludge to water), Treatment 4 (1:2 dewatered sludge to water), Treatment 5 (1:3 dewatered sludge to water), and Treatment 6 (Pure wastewater). Displacement method was the technique used to gather data for volume of biogas produced.

Among the six treatments used, only Treatments 1, 2 and 3 were able to produce biogas during the 60-day period. Treatment 1 had the greatest volume of biogas produced with a mean total of 397.67 mL, while Treatments 3 and 2 produced 335.50 mL and 263.17 mL, respectively. Treatment 3 obtained an odorless biogas which was a characteristic of a good biogas quality. Chemical quality was not measured because the average volume of biogas produced was not enough to fill-in the space in the biogas analyzer. Sludge from wastewater treatment plant can be recommended for biogas production but the volume of biogas is limited.