

**ASSESSMENT OF POTENTIAL BIOGAS PRODUCTION FROM
BIODEGRADABLE PUBLIC MARKET WASTES
OF MENDEZ, CAVITE**

Undergraduate Thesis
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ABSTRACT

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The study was conducted at Mendez, Cavite from August 2016 to March 2017 to assess the potential biogas production from biodegradable public market wastes of Mendez, Cavite. Specifically, the study aimed to: 1) quantify the amount of biodegradable wastes generated from public market in terms of volume; 2) determine the quantity of gas produced from public market wastes; and 3) design a suitable biogas plant for Mendez Public Market.

The biodegradable wastes include only fruit and vegetable wastes and fish entrails. The total weight of the biodegradable wastes generated for 10 consecutive market days was 3 953 kg with an average weight of 395.30 kg and the total volume of wastes generated was 7.658 m³ with an average of 0.766 m³ per market day.

The experimental setup for determining the biogas production has four treatments with varying frequency of agitation: Treatment 1 - daily agitation; Treatment 2 - alternate day agitation; Treatment 3 - weekly agitation; and Treatment 4 - no agitation. Each treatment was replicated thrice using 1:1 waste to water ratio. The quantity of gas produced was determined by displacement method which yielded the following: Treatment 1 = 77 920.0 mL; Treatment 2 = 65 225.0 mL; Treatment 3 = 52 490 mL; and Treatment 4 = 61 530.0 mL. Treatment 1 has the highest biogas potential at 6 335.0 mL/kg.

The square type DSAC model was used in the design of the biogas plant for public market of Mendez, Cavite. The total digester volume of 18 m³ was designed.