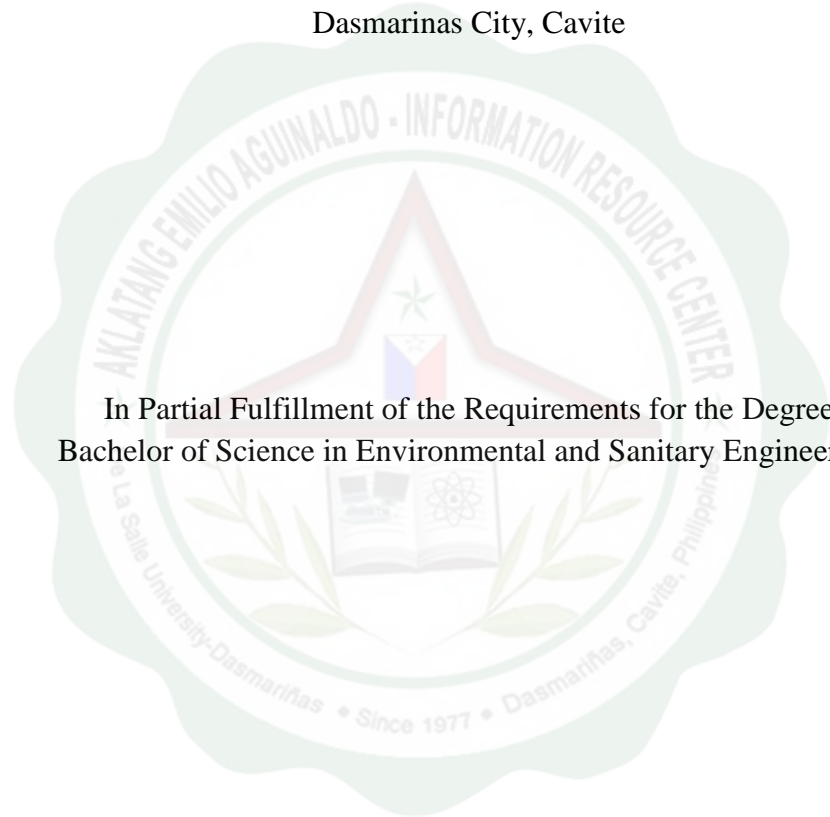


**Design of a Small Scale Anaerobic Digester for Food Wastes at
De La Salle University – Dasmariñas**

A Thesis Presented to the Faculty of Environmental and Sanitary Engineering
College of Engineering, Architecture and Technology
De La Salle University – Dasmariñas
Dasmariñas City, Cavite



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ABSTRACT

We are now facing a rapid depletion of our natural resources due to the huge amount of energy that the world demands. Alternative source of energy is now essential to meet the ever increasing demands of energy. Renewable energy is a source of energy that continually replenishes such as sunlight, wind, rain, tides, waves, and geothermal heat. The researchers emulated this concept by using wastes that continually replenish, like food waste, to be a source of energy. The conversion of food waste to energy is possible through the use of an anaerobic digester. Anaerobic digestion is a natural biological process in the absence of oxygen that uses microorganisms to break down organic material. The insoluble organic matter then breaks down into methane and carbon dioxide. The researchers determined the composition of the food wastes produced at De La Salle University – Dasmariñas. These are vegetable scraps, banana peelings, rice leftovers, fruit scraps, poultry scraps, and eggs. The researchers selected the substrate/inoculum ratio of 1 gram per liter as a safe and effective ratio for the production of biogas of the anaerobic digester. The researchers completed a prototype design and specifications of a small scale anaerobic digester that is capable of decomposing food wastes rapidly and of producing biogas. The researchers selected the location of the anaerobic digester at the right wing of the Materials Recovery Facility of the University near the receiving station of the food wastes. The researchers recommend that the said University fabricate a test unit to evaluate the performance of the proposed small scale anaerobic digester prototype and that every food concessionaire at the said University and community fabricate it to produce free biogas fuel from food wastes to minimize waste collection.

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