The Effectiveness of Biomass in the Production of Biogas

Gonzalez Hernandez , Abner (School: Ramon Quinones Medina)

Biogas is a fuel obtained in a biological way by the anaerobic fermentation of organic matter (biomass), which contains mainly methane, carbon dioxide and other gases such as hydrogen, nitrogen, oxygen and hydrogen sulfide. Production of biogas from animal manure, especially cow is very potential and has an advantage because its environmentally friendly (Ginting, 2007 as cited by Putria, Saputrob & Budiyono, 2012). The purpose of this investigation is to study what kind of biomass will produce more quantity of biogas: cow manure, cow manure with vegetable peelings or cow manure with ripe banana. The null hypothesis stated that biomass using fresh cow manure combined with other agricultural wastes, produces the same average amount of biogas as manure. The alternative hypothesis stated that biomass that uses fresh cow manure combined with other agricultural wastes, produce more biogas than manure. To verify the hypotheses proposed, the cow manure was collected by microbiologist in a dairy farm and carried to a BSL-2 laboratory. Once in the laboratory, a lab technician handled the cow manure samples. Three groups of biomasses were classified and placed in containers: Cow Manure (6), Cow Manure + Vegetable Peelings (6), and Cow Manure + Ripe Banana (6). To measure the quantity of gas generated, a calibrated syringe was attached to the orifice of the containers. The data was collected for five days and analyzed with the variance system (ANOVA). It was concluded that the container with cow manure and ripe banana had more biogas production.