Cow Manure and Kitchen Scraps: Year Two, Comparison of Cow and Pig Manure for Methane Production

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Biodigesters are used in a multitude of places as a producer of sustainable energy for buildings and appliances. They use anaerobic digestion to produce methane gas and fuel ammenities. In my project, I wanted to replicate that process, while comparing the use of pig and cow manure, as well as the use of potato scraps, onion peels, mashed banana, and just plain manure. My hypothesis stated that the cow manure samples would produce more methane than the pig manure samples and the pig manure and onion samples would produce more methane than the other biomasses. I placed the biomasses as well as manure and water in bottled closed off by balloons. This allowed anaerobic digestion to occur within the bottles and methane to be produced. After letting the bottles sit for two weeks, I used a gas chromatograph and a formula to calculate the percentage of methane that was yielded from the samples. In the end, the cow manure samples did produce more methane than the pig manure samples with 0.91225% CH_4. However, the onion and pig manure samples only produced the second highest percentage with 0.045% CH_4. The pig manure and potato samples produced more with 0.1333% CH_4. These findings can be used when determining what to use while building one’s own biodigester.

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