CALIFORNIA STATE SCIENCE FAIR
2015 PROJECT SUMMARY

Name(s)

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Project Number

35412

Project Title

Obtaining Energy from Trash

Abstract

Objectives/Goals

To obtain the most biogas possible from one of the following biomasses: grated carrots, cow manure, or a mashed banana, and then measure it.
Look for a way to impact the researchers' community in a positive way using the resources of said community. In this case it happened to be Kern County.

Methods/Materials

Some of the key materials in this experiment are, 360 grams of cow manure, grated carrots, and mashed banana, 9 (1) Liter bottles, distilled water, 9 latex balloons, a bucket or large bowl of water, and a beaker.

To obtain the biogas the biomasses were placed in a 1L bottle filled with distilled water and covered with a balloon. The gas trapped inside the balloon is the biogas released.
To measure the biogas trapped inside, the method of water displacement was used, a beaker filled with water was placed over a bucket of water, the tip of the balloon was carefully released under the beaker, the water it displaced was the amount of gas trapped inside the balloon.

Results

The mashed banana produced the least amount of biogas (.025L) with grated carrots at a close second at (.029L), and cow manure taking a big lead by producing (.053L).

Conclusions/Discussion

This experiment reveals that obtaining energy from trash really is possible, and that obtaining energy from trash by this method could help lead into a greener energy use. Although this experiment only helped obtain the biogas from each of the biomasses, this experiment leads to better and greater things. For example the creation of a methane digester that collects manure and other wastes. The methane digester could potentially turn the biogas acquired and turn it into methane. This method can be used to run household appliances. With this inventive and resourceful method the creation of biogas from the cow manure and other biomasses can benefit the environment drastically.

Summary Statement

To obtain the most biogas possible from one of the following biomasses: grated carrots, cow manure, or a mashed banana, and then measure it.

Help Received

Parent's helped acquire cow manure; Neighbor provided juicer to obtain grated carrots and a scale; Mr. Yoon and Mrs. Berry helped give back feedback.

Preliminary