CALIFORNIA STATE SCIENCE FAIR
2015 PROJECT SUMMARY

Name(s)
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Project Number
35073

Project Title
Bottled Energy

Abstract

Objectives/Goals
Which biomass- food waste, cow manure, or a combination of produces the most biogas?

Methods/Materials
Measure equal amounts of 3 products (cow manure, food, and mixture of the two) into bottles and fill with distilled water. Cover bottle with balloons to capture biogas. Measure the circumference of the balloons every day at same to see how much biogas was produced.

Results
Overall, the food waste by itself produced the most biogas, but only one of the bottles was actually doing well, with the circumference of the balloon being 7.5-10 centimeters the whole time, and it was affecting the average. The combination did the best at the beginning, with all of the balloons doing well, but the levels eventually went down to zero. The cow manure didn#t produce any gas at all, and the balloons seemed to be sinking into the bottles.

Conclusions/Discussion
Most of the balloons didn#t produce any gas, and at the end, almost none of them did. This is probably because it takes time for the materials to break down and produce biogas, and I only tested for 9 days. Also, the weather became cooler, and that could slow down the process. During my research, I found that many digesters are kept at 30-38 degrees celsius, which is much warmer than the temperature of my testing environment.

Summary Statement
I tried to find whether cow manure, food waste, of a mixture of the two produce the most biogas.

Help Received
my mom helped me collect materials.