The Potential Use of Biogas as an Energy Source via the Anaerobic Decomposition of Biomass

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In modern society, humans are becoming increasingly dependent on fossil fuels. However, this leads to ozone depletion and the destruction of the earth. One alternative to fossil fuels is biogas. Biogas is a mixture of methane, carbon dioxide, water, and hydrogen sulphide that is produced when organic matter anaerobically decomposes. The biogas can be harnessed and converted into energy. Biogas can be produced through the decomposition of biomass, such as grass clippings, manure, and compost composed of chopped up food. The object of this experiment was to evaluate which medium of biomass produced the most biogas. The hypothesis was that manure would emit the most biogas. To test this hypothesis, an apparatus was set up which consisted of the biomass in a gallon bottle, which was sealed with a glass tube connected to a rubber stopper that provided a pathway for the biogas. The biogas was then measured in the gas syringe, which was connected to the top of the glass tube. The syringe produced the volume of gas in mL, and the results were recorded daily over the course of two weeks. The experiment contained three trials, for a total of nine bottles. The hypothesis was supported when the data showed that the manure yielded the most biogas. This concludes that manure can be effectively used in a compost pile that can produce biogas. If households around the world used their trash to make compost piles, this would dramatically decrease the size of landfills, as well as the levels of pollution in many ecosystems. It would also have a large scale impact on improving the environment.

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