Biofuel: Testing Oils for Energy Efficacy

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This project is an accurate representation of the process of obtaining fuel from oil and biogas from organic plant materials. I asked how the amount of starch in potatoes and other starchy crops relate to how much bioenergy produced and which oil will be the best in the production of biofuel. The purpose of these experiments was to understand how oil can be used as a renewable diesel source and the importance of starch in the production of biogas. Biodiesel was created from 5 different oil types using a mixture of sodium hydroxide and methanol. The transmittance and absorbance of the biofuel was measured and recorded to see which oil type was the most efficient and the most clean. Starchy plant materials were observed over 28 days to see how much biogas could be produced. In the anaerobic digestion experiment, sweet potatoes were found to have created the most biogas, subsequently being the best starchy organic material even though the experiment experienced setbacks from outside variables. As a result of these experiments, we now know flaxseed oil is the most efficient of the 5 oil types, managing to produce 87% biodiesel and peanut being the cleanest oil type with 98.8% transmittance.

Awards Won: