Testing the Efficiency of Alternative Source of Cellulase to Break Down Cellulose from Biomass Compared to Commercial Cellulase

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Despite technological advances in biofuel viability, there are major flaws of this type of alternative source of energy. Implementation of ethanol is important, because substitution of biofuel would reduce emissions of greenhouse gases that contribute to global warming. Promoting biofuel through converting biomass to ethanol is needed in order to address affordability and consumption of crops in biofuel production. Based on prior research ranging from 2003 to 2019, ethanol is a beneficial viable source of energy and is relatively easy to manufacture. The experiment involved the research into several procedures, and new possible sources of breaking down biomass, a plant-based waste. Importance of this experiment is to develop an economical means to produce ethanol. So based on the research and information, I concluded the amount of ethanol produced by cellulase would be higher than the amount of ethanol produced by the same amount of livestock manure. However, more livestock manure could be utilized to obtain the amounts of ethanol produced by commercial cellulase, since livestock manure is free. The experiment conducted required samples through breaking down biomass into glucose, and fermenting the sugar into ethanol. The ethanol samples were measured by a Vernier Ethanol Sensor for ethanol concentration to evaluate viability of manure in comparison to commercial cellulase. In the experiment, results indicated cow manure is not a viable source to manufacture cellulose in cheaper volumes. However, chicken manure was able to produce 32% of the amount of ethanol yielded by cellulase samples, indicating potential for chicken manure.

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