Biomass to Biofuel: Optimal Enzymes

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This research and experiment will prove which enzyme will bring out the optimal production in switch grass ethanol production. Information will be calculated from an experiment where ethanol levels from switchgrass and corn fermentation will be recorded on a spreadsheet data base. This recorded information will show the influence of various enzymes on both corn and switchgrass biomass, and will show which biomass has the most ethanol energy potential to ferment into useable ethanol biofuel. Corn and switch grass will be studied with the selected enzymes of Alpha-Amylase and Cellulase to see which biomass has the most potential to create an efficient ethanol product in equal comparative terms. Ethanol levels will be taken from each sample using Vernier ethanol sensor and Labquest. This data will be correlated into a spreadsheet data base, and will be calibrated to commercial grade corn ethanol at concentrations of 10% and 99.4%. This information will show the conclusion of which enzyme can produce the most efficient ethanol, and which biomass works best with said enzyme. Further scientific investigation will be done to state whether or not the leading enzyme and biomass combination is a viable choice in large scale ethanol biofuel production.

Awards Won: