The Effect of a Genetically Modified Yeast on Alcohol Production in Corn-based Ethanol

Rodriguez, Jessica

Rodriguez-Chavez, Jessica

Varela-Gastelum, Nancy

This experiment investigates the effectiveness of genetically modified yeasts on fermentation in corn-based ethanol production. The experimental hypothesis states that GMO yeasts would yield a higher alcohol concentration than non-GMO yeast because GMO yeasts are genetically engineered to have a higher efficiency. In order to test the hypothesis, pre-treated corn mash was obtained from an industrial laboratory. Two different strains of Saccharomyces cerevisiae, one genetically modified and the other used as the control, yeasts were analyzed before and after the fermentation process, distilled, and compared. The initial alcohol concentration was compared to the final alcohol concentration using a SHIMZDU high-pressure liquid chromatographer. The results indicate the alternate hypothesis was accepted. Non-GMO yeast produced a 50% higher increase in alcohol percentage than the GMO yeast. GMO yeasts do not yield a higher alcohol percentage than non-GMO yeast. The null hypothesis was rejected after concluding a t-Test statistical analysis.