CALIFORNIA STATE SCIENCE FAIR
2016 PROJECT SUMMARY

Name(s)

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Project Number

36025

Project Title

Acid Base Effect on Catalase

Abstract

Objectives/Goals

My objective was to see if food types varying on the pH scale would affect how quickly Catalase breaks down Hydrogen Peroxide (H2O2).

Methods/Materials

To complete this experiment I took USDA approved cow liver and blended it. I poured 1/8 of a teaspoon of H2O2 onto one tablespoon of cow liver and timed how long the bubbles effervesced. I also did the same thing but with various food types mixed into the liver. All of the food types were sampled separately. I did each experiment three times per food item the recorded all of my data.

Results

100% of the samples with alkaline foods had a quicker reaction rate than the controlled variable. Of the acidic foods, 60% of the samples had a faster reaction rate than the controlled variable. 40% of the acidic foods demonstrated a slower reaction rate than the cow liver alone.

Conclusions/Discussion

I conclude that the various food types will affect how our body works, including the body's enzymatic reactions. The alkaline foods lower the Activation Energy. This is important to make chemical reactions occur quicker, which saves our body energy.

It is possible that not all of the acidic foods demonstrated a slower reaction rate because this experiment was not done in the human body.

It is important to eat healthy. Alkaline foods are better for our body; although, we do need to balance our intake of both acidic and basic foods.

Summary Statement

This project tests how various food items can affect the reaction rate for Catalase to break down Hydrogen Peroxide in the liver.

Help Received

I blended the liver and mixed the food items but I was assisted in timing how long the bubbles effervesced.