CALIFORNIA SCIENCE & ENGINEERING FAIR
2018 PROJECT SUMMARY

Name(s)
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Project Number
J0514

Project Title
Unveiling the Hidden Culprit: Sugar

Abstract

Objectives/Goals
The purpose of this project is to analyze how the enzyme invertase converts sucrose into glucose and how this affects the amount of actual glucose digested from different foods.

Methods/Materials
Used graduated cylinders, invertase solution, glucose powder, graduated transfer pipettes, stop watch, and urinalysis test strip that measure glucose. Tested different foods (pancake syrup, tomatoes, potatoes, Oreo ice cream, baby food (blueberry banana), tangerines, mango juice, ranch dressing, and Pepsi soda) for glucose concentration before and after adding invertase at the linear point time, which was determined from invertase testing activity. Three different samples of each selected food were tested to ensure accurate results.

Results
The data supported the hypothesis that Pepsi will contain the highest amount of glucose concentration after adding the invertase. Pancake syrup also matched Pepsi's concentration of 1.5 % on the urinalysis glucose strip. Since these samples along with other sugary foods were diluted 10 fold, the actual glucose concentration in the sample is 15%. Next in line was mango juice with 7.5% concentration followed by baby food (blueberry banana) and Oreo ice cream which showed 5% concentration. Tomato's reading was 1.5% which was surprising to see being a vegetable. Ranch dressing and tangerine followed next and the lowest reading was of potato at .25%. After adding the invertase, each food sample's concentration increased or remained the same.

Conclusions/Discussion
It shows that the sweeter the food is the more glucose it contains, such as sodas and high fructose corn syrup. This experiment proves foods containing sucrose or fructose can have hidden glucose in it which only gets released after digestion. The more glucose our bloodstream has the more insulin it requires and more chances are of it being converted into fat (triglycerides). The simple sugars such as glucose give us more sugar spikes and less storage energy. It is very crucial to see what kind of foods we are consuming and which types of sugars they actually contain.

Summary Statement
Actual amount of glucose digested from the different types of sugars we consume.

Help Received
I selected various foods to be tested for glucose content and my teacher reviewed my data and results.