CALIFORNIA STATE SCIENCE FAIR
2010 PROJECT SUMMARY

Name(s)
Kaitlyn Spong

Project Number
J2131

Project Title
The Effects of Acids and Bases on Cooking Potatoes

Abstract

Objectives/Goals
This project explains the relationship of the pH of water to the consistency of potatoes cooked in it. In a cooking magazine, it was written that adding a little vinegar to the water before you boil potatoes helps to keep the potatoes from falling apart. The purpose of the project was to further explore this idea.

Methods/Materials
In the experiments, potatoes were boiled first in regular water, for a control, then in slightly more acidic water, and then in slightly more alkaline water. The idea was that if acidic water -with added vinegar- caused the potatoes to be firmer, then alkaline water - with added baking soda - would cause potatoes to be softer. To get consistent measurements of firmness, a homemade apparatus was used. The apparatus used wire and weights. A wire was placed over a cube of cooked potato. Then weights would be stacked in a bucket hanging off the end of the wire. At a certain point, the weights would cause the wire to slice through the potato. The weight in the bucket was recorded as data.

Results
My data supported my hypothesis, as the potatoes cooked in more acidic water were indeed firmer than those cooked with regular water or alkaline water. The potatoes cooked in the alkaline water were also of a significantly different consistency, softer than the potatoes cooked in acidic or regular water.

Conclusions/Discussion
This project has proved that an acidic pH of water will produce firmer boiled potatoes, while an alkaline pH of water will result in softer boiled potatoes.

Summary Statement
My project is about how the acidity or basicity of water affects the cooking of potatoes.

Help Received
Father helped construct apparatus