CALIFORNIA STATE SCIENCE FAIR
2015 PROJECT SUMMARY

Name(s)
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Project Number
J1512

Project Title
Spice Up Bacteria

Abstract

Objectives/Goals
This experiment was created to find the effects of spices on bacteria. Spices are used in many countries to preserve food, and are said to prevent bacterial growth. By testing the effects of spices on bacteria, one can use the results as a natural method to prevent bacteria.

Methods/Materials
The spices cinnamon, garlic, ginger, turmeric, and cayenne pepper were tested in this experiment. A mixture of agar powder and water was made, 1/8 tablespoon of each spice was added into the mixture, and poured in the petri dish. Once 6 dishes were filled, each with a different spice, and one controlled dish, with no spice, they were swabbed with bacteria and placed in a dry, warm cupboard for seven days. After one week, several bacterial colonies formed in the dishes.

Results
The results revealed that out of the five spices tested, cinnamon and garlic inhibited the most bacteria, and cayenne pepper, the least. After four, seven day trials, neither cinnamon nor garlic displayed any signs of bacterial growth, but cayenne averaged 7.75 bacterial colonies, the same as the controlled dish, inhibiting none. The other spices average were in-between; ginger, 1.75 colonies, and turmeric, 2.75. Although all were kept in the same place for seven days, the results could have been altered by daily changes in temperature.

Conclusions/Discussion
The results were supported by the hypothesis. However, it was not expected that garlic would inhibit the same amount of bacteria as cinnamon. The results show that by adding cinnamon or garlic to one#s food, there is a better chance that it will prevent bacterial growth.

Summary Statement
This experiment was conducted to discover which spices inhibited the most bacteria, so the results could be used as natural preservation in foods.

Help Received
Teacher, Dawn Jacobson, helped with the outline for abstract, and final report; Father, Doug Jones, helped purchase the materials for my project.