CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY

Name(s)
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Project Number
J1329

Project Title
Effectiveness of Various Spices in Promoting or Inhibiting the Spoilage Rate of Food

Abstract

Objectives/Goals
The purpose of my science project was to determine which types of commonly available spices would inhibit the growth of bacteria in food, and could be used as food additives to help prevent spoilage.

Methods/Materials
I used five different types of spices, each added to three different types of foods. I choose Beach Nut Naturals baby foods as my test foods because they are foods that contain no added preservatives. For the spices I used: onion, garlic, salt, orange zest, and curry. For the foods, I used: Vegetables & Beef, Vegetables & Chicken, and Chicken.
I mixed one teaspoon of each spice with each different jar of food. My control consisted of an open jar of each food with no spices added. All jars stood at room temperature for 48 hours. I mixed down a dilution solution sample from each jar of food and swabbed it into an agar plate. After incubation, I counted the bacterial colonies in each plate to determine the relative bacterial growth from each sample.

Results
The results of my experiment showed that the garlic and salt were overall the best inhibitors of bacterial growth in food. Curry was consistently the highest promoter of food spoilage, causing the most bacterial growth in all of the different types of food.
In interpreting my data, I also learned an unexpected fact: the type of food to which the spice was added played as big a role in the outcome of food spoilage as the type of spice that was added to the food.

Conclusions/Discussion
Spices do have an effect on the spoilage rate of food. They can promote or inhibit the growth of bacteria depending upon the type of spice and the type of food to which it is added.

Summary Statement
I used diverse spices and added them to certain types of food to show that there are spices that can inhibit the spoilage rate of food.

Help Received
Used lab equipment from local high school. Parents helped me with sterilization with flame.