CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY

Name(s)
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Project Number
J1303

Project Title
Could Spicy Food Be Safer to Eat?

Abstract

Objectives/Goals
Throughout the centuries, people have used spices for preserving food. The objective of this project was to observe how microbes react to spices. The goal of this project was to see if spices can control the growth of a microbe that causes food poisoning, bacillus cereus. Perhaps an ancient method can prevent food poisoning.

Methods/Materials
This experiment was performed twice with petri dishes with agar and bacillus cereus swabbed on the agar. The following spices were sprinkled on the surface of each agar plate: garlic, oregano, rosemary, sage, onion, and thyme. The independent variable was the type of spice, and the dependent variable was the amount of microbal growth. The petri dishes were placed in an oven with the oven light on, which served as an incubator for three 24-hour periods of time. The type of microbe and temperature were kept constant.

Results
Garlic and sage were found to be the best inhibitors of microbial growth. Onion powder and oregano were also good inhibitors. Thyme and rosemary had little effect on the microbial growth.

Conclusions/Discussion
The hypothesis for this project was that garlic and oregano would be some of the best inhibitors of microbial growth. Overall, the hypothesis was correct. However, the hypothesis did not predict that sage would be nearly the best inhibitor. According to this experiment, foods with garlic, sage, or oregano would be safer from bacillus cereus food poisoning than foods without these spices. Therefore, spicy food could be safer to eat. Several questions have arisen after the execution of this experiment. One example is Could different foods be more susceptible to bacillus cereus food poisoning? Another possible question is Could food that is kept at different temperatures be safer? For example, Is food that is kept warm less likely to have food poisoning toxins? The limits of this study include the small number of trials. This experiment should have had more than two trials for optimum results and reliable information. In addition, if this experiment were performed in a lab that had proper equipment, the results might have been more accurate.

Summary Statement
The focus of this project was to test the ability of commonly used spices to inhibit the growth of the bacillus cereus microbe.

Help Received
Teacher, Mrs. Armstrong, guided project deisgn; Father aided in the execution of the experiment; Mother helped with board and report.