CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY

Name(s)
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Project Number
22058

Project Title
What Is the Most Effective Treatment for Bacteria in Salmon?

Abstract

Objectives/Goals
My objective was to learn which of lemon juice, vinegar, garlic solution or water was the most effective in killing bacteria from fresh and refrigerated raw salmon. Many people die from bacterial food poisoning each year, thus it is essential to know what can be added to the food so that the bacteria level is lowered.

Methods/Materials
Agar plates were used to cultivate the bacteria. The mixtures of the bacteria from the salmon (fresh and refrigerated) and the treatments (vinegar, lemon juice, garlic solution, and water) were ejected onto ag plates and incubated at 37 degrees for 24 hours. The bacteria colonies that had cultivated on the plates were then counted and recorded.

Results
Vinegar resulted being the most effective in killing the bacteria whereas the water resulted in being th least effective. Lemon was the second most effective and the garlic solution was the third. The level of bacteria on refrigerated salmon was a bit higher than that of the fresh salmon.

Conclusions/Discussion
There was a slight positive correlation between the acidity of the treatments and the number of bacteria it killed. It was also found that short period refrigeration did not have much effect on bacteria levels. T results of this experiment could provide health guidance for those who like to eat raw/rare meat and sushi. Now, restaurant owners and chefs could also learn to be more cautious of how long food has been kept in the refrigerator.

Summary Statement
This project is about which of lemon juice, vinegar, garlic solution, or water kills bacteria on fresh and refrigerated raw salmon best.

Help Received
Used lab equipment at UC Berkeley under the supervision of Professor Antje Hofmeister.