CALIFORNIA STATE SCIENCE FAIR
2011 PROJECT SUMMARY

Name(s)

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Project Number

31085

Project Title

Investigating the Inhibition Rate of Cultural Spices on Bacteria

Abstract

Objectives/Goals

The purpose of my science project is to determine which spice is most effective in blocking bacteria growth.After my experiment,I will be able to determine the effectiveness of primary cultural spices and how they affect bacteria growth.

I will test 7 different spices from different countries around the world.I will research the prominent spices from the different countries and test those spices.I will observe Wasabi, Ginger, Cayenne Pepper, Nutmeg, Turmeric, Saffron, and Rosemary to conclude which spice is the most effective at repelling bacteria.I will perform 20 trials per spice. My experiment consists of soaking each spice on a filter paper, streaking Bacillus substillus onto a petri dish, and then placing 5 hole punched filter paper containing the spice onto the petri dish.Finally I will observe and calculate the results by measuring the rings of resistance around each hole punch, after 48 hours.

Methods/Materials

I will determine which spice effectively blocks bacteria. I will then observe if the particular spice is inhibiting bacteria and find which region the spice pertains to.

Results

Wasabi had an average diameter of 6.21 mm Ginger had an average diameter of 5.24 mm Cayenne had an average diameter of 6.67 mm Discussion: It was the most effective in blocking the spread of bacteria. This was the strongest spice that was tested. It has capsaicin and has a strong effect on bacteria.Nutmeg had an average diameter of 6.27 mm Turmeric had an average diameter of 5.04 mm Saffron had an average diameter of 6.30 mm Rosemary had an average diameter of 5.0 mm.

Conclusions/Discussion

After completing my investigation on the inhibition rate of cultural spices on bacteria,I found that my hypothesis was proven correct. My hypothesis stated that Cayenne Pepper would be the most effective at repelling bacteria.When compared to the other cultural spices, Cayenne Pepper had an average diameter of 6.67 mm.Cayenne Pepper had a greater effect on the Bacillus Substillus because it is in the Capsicium family, meaning chili pepper.It has many canteniods such as: vitamins C, E, and B6.Cayenne also contains capsaicin which can reduce pain and also prevent ulcers.Other spices that repelled bacteria were Saffron, Nutmeg, and Wasabi.Turmeric was barely effective and Rosemary had absolutely no effect.

Summary Statement

The investigation of the inhibition rate of spices on bacteria,

Help Received

Mr. Whittington for providing petri-dishes and bacillus substillus.

Preliminary