Name(s)	Project Number
Eva M. Gleizer	**J1714**

Project Title

Eliminating E. coli: How Hard Can It Be?

Abstract

Objectives/Goals

My objective was to determine which condition would eradicate the most E.coli when applied to ground beef.

Methods/Materials

The materials I used were cotton swabs, test tubes, distilled water, auger plates, surgical style gloves, a harmless strain of E.coli, a dark colored Sharpie, a glass spreader, Methanol, sterile costar STRIPETTE, a test tube rack, a graduated cylinder, a small glass bowl, ground beef, bleach solution, cheese cloth, a kitchen scale, a lighter, and a pair of kitchen scissors. I 'infected' distilled water with E.coli (10 milliliters) before mixing it in with the bowl of ground beef. After that I added whatever condition I was testing, and the froze the meat. When the meat had frozen I tested one gram pieces by mixing them into 10 more milliliters of distilled water before I spread the water onto auger plates. The plates incubated for 3 days, and then the colonies were counted manually by myself.

Results

After my experimentation, I discovered that chili powder grew the least amount of colonies with an average of 46 'regular' sized colonies. There was also an average of 4 colonies which were abnormally sized, i.e. they were larger or discolored in comparison to the majority of the bacterium. Cinnamon grew the most colonies with an average of 69 regular and 9 abnormally sized colonies of E.coli. Lime juice had an average of 57 regular colonies and 8 abnormal colonies, whilst the control group had 113 regular colonies and 8 abnormal colonies.

However, currently I am not yet finished with my testing. There are still two more variables that have not been factored in.

Conclusions/Discussion

After completing my project, I came to the conclusion that chili powder was the most effective at eliminating the E.coli bacterium. This contradicted my hypothesis, as I had predicted that lime juice would be the most effective. I did, however, obtain my objective successfully. Due to this project, I have learned when consuming raw meat which is safer to add out of the three candidates, and I also have a better knowledge of ground beef, specifically how it is manufactured, as a whole.

Summary Statement

My project is about finding which condition (cinnamon, lime juice, or chili powder) will hinder the growth of the E.coli bacterium the most.

Help Received

Parents provided materials for project in addition to support; Teachers helped by providing information and helpful resources; Other Teacher in the district assisted in both ideas and materials, he provided the testing space and supervision required.