CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY

Name(s)
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Project Number
S1323

Project Title
Temperature vs. Growth of Bacteria

Abstract

Objectives/Goals
To see how temperature effects the growth of bacteria normally found on raw chicken.

Methods/Materials
3 small boxes, safety goggles, an apron (or a lab coat if you have one), rubber gloves, 12 plate agar, sterile loops, alcohol swabs, dry marker, scotch tape, dilute solution of clorox (1%), 2 sterile swabs, distilled water, 2 tubes of nutrient broth, a lamp, refrigerator, sponge, lighter, thermometer, raw chicken, dry cloth, Clorox, and a clean plate. I obtained a sample of bacteria from raw chicken and incubated it in a tube of nutrient broth for 2 days, then with that culture, I isolated the colonies on 12 plates placing each group of 3 plates in their designated temperatures (-18, 12, 20,and 25 degrees C).

Results
The plates of bacteria at -18 degrees C had the average scale factor of 1; 12 degrees C grew the average scale factor of 1; 20 degrees C at the average scale factor of 3; 25 degrees C at the average scale factor of 4.7. This shows that bacteria grows better at warm temperatures (25 degrees C) than colder temperatures (20 degrees C, 12 degrees C).

Conclusions/Discussion
My hypothesis was correct. My prediction that the bacteria would grow the fastest at 25 degrees C was supported by my data. The control group was put in the freezer at -18 degrees C and none of the bacteria grew. The bacteria at 20 degrees C achieved the average scale factor of 3, the bacteria at 12 degrees C grew the average scale factor of 1, and the bacteria at 25 degrees C grew the average scale factor of 4.7. This also means that most bacteria found on raw chicken are mesophilic bacteria. Since mesophilic bacteria grow well at warm temperatures (25-40 degrees C) it is very important to keep your foods in the refrigerator.

Summary Statement
To find what temperature would bacteria normally on raw chicken would grow best in.

Help Received
My teacher advised me on how to do the project.