CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY

Name(s)
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Project Number
J1704

Project Title
The Amazing Antibiotic Race

Abstract

Objectives/Goals
Why is it that some antibiotics don't work as well as others? Well, the math is in the matter! Everyone has different blood cells that react differently to any certain disease. What happens when the disease is too much for your white blood cells to handle? The disease begins to take over, changing from a small bacterium to an army. I wonder trips to the doctor#s office can be cut down or even eliminated? Will natural antibiotics fight harder against bacteria than synthetic ones?

Methods/Materials
I predicted that the natural antibiotics will be more effective in killing bacteria than the synthetic antibiotics. I used the Baur-Kirby test to find out which group of antibiotics work better. In this project I used 9 petri dishes, 3 Bacterial Broth Cultures (E. aerogenes (Gram-negative rods, B. Cerus (Gram-positive rods, S. lutea Gram-positive rods). I used 3 Tubes of synthetic antibiotic disks. Each tube contained 9 Penicillin disks, 9 Tetracycline disks, and 9 Chloramphenicol disks. I also used 3 Natural antibiotics (Garlic, Rose Honey, Pau D#Arco, which were cut to small pieces).
I used 9 Easygel bottles, I used 9 sterile 1mL droppers, and a pair of clean forceps.

Results
Penicillin is one of the oldest used antibiotics. Unfortunately, Penicillin did the worst in fighting the bacteria. Penicillin, for one, is one of the oldest forms of antibiotics. Bacteria, after all of this time, could have developed resistance to Penicillin. Tetracycline did the second most effective, and chloramphenicol was the most effective. The garlic, though less effective than Chloramphenicol, did the best among the natural antibiotics group. Also, overall garlic was more effective in killing bacteria than Penicillin. The Rose Honey did second best, and the Pau D#Arco was ineffective in all three bacteria cultures. Although the results do not completely support my prediction, I believe that its relative success is a huge positive and justifies my entire project#s objective.

Conclusions/Discussion
Even though my hypothesis was technically incorrect, results show that natural antibiotics, such as garlic, have the ability to fight diseases. Of course, antibiotics have evolved and been tested, because after all, no compound becomes an antibiotic overnight. However, this project shows that eating garlic and honey can and will prevent diseases. That#s what this whole project was all about and that#s what I found out.

Summary Statement
This experiment tests the effects of natural antibiotics and synthetic antibiotics on various bacterial cultures.

Help Received
My mother supervized the experiment. We ordered antibiotics and cultures from Micrology Laboratories.