CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY

Name(s)
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Project Number
S1313

Project Title
Bacteria's Worst Enemy: Testing the Antibacterial Properties of Colloidal Silver

Abstract

Objectives/Goals
Colloidal silver is known to have germ killing and antibacterial properties. The purpose of this experiment was to not only test the anti-bacterial properties of silver in general but to also create a colloidal-silver based soap.

Methods/Materials
The colloidal-silver and soap were applied to the Petri dishes through circles of filter paper. I collected the data using two different methods, a standard colony count to determine which method removed the most colonies, and I measured the surface area of the bacteria to determine the surface area in cm2 that has been removed by the silver.

Results
In the Petri dishes containing the colloidal silver, there was an average of 3.00 colonies removed with a standard deviation of 1.22. One possibility why there may not have been many colonies removed is because the concentration of the colloidal silver is too low. The test with the colloidal-silver soap had even lower results than the silver as expected, with an average of 2.00 colonies removed with a standard deviation of 0.70.

Conclusions/Discussion
These results seem to be consistent with my hypothesis being that the colloidal-silver would be more effective, although I expected them both to have larger effects on the bacteria. I predict that applying a stronger concentrate of silver than 20ppm would show better results, such as that in the 300+ ppm range.

Summary Statement
To test the antibacterial properties of colloidal silver and if it would be effective in a soap form.

Help Received
I Used the lab in De La Salle High School under the supervision of Mrs. Victoria Acquistapace, M. Ed.