CALIFORNIA STATE SCIENCE FAIR
2016 PROJECT SUMMARY

Name(s)

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Project Number

36116

Project Title

Are Hand Sanitizers and Antimicrobials Effective?

Abstract

Objectives/Goals

The purpose of this experiment was to test the effectiveness of 9 common store bought antimicrobial, a 30% and 50% dilution of ethanol, and a 5% dilution of bleach on 5 types of bacteria.

Methods/Materials

10 bacterial lawns were made utilizing k-12 E. coli, Pseudomas fluorescens, S. epidermidis, Bacillus subtillus, and Enterobacter aerogenes on Mueller Hinton agar. Sterile disks were placed on the different dilutions and antimicrobials, then placed on the bacteria lawns. Plates were incubated for 24 hours at 37 degrees Celsius, and the zone of inhibition of each antimicrobial was measured in millimeters using a ruler. The experiment was repeated 3 times.

Results

After 3 trials, the zones of inhibition for each antimicrobial was averaged out. The averages show that 409 All-Purpose had the overall average zone of inhibition of 14.26 mm, making it the most effective antimicrobial.

Conclusions/Discussion

409 All-Purpose cleaner was the most effective antimicrobial due to having a higher quantity of a specific quaternary ammonium compound. This can help kill bacteria more effectively and prevent the development of MDR.

Summary Statement

I discovered how effective commonly used antimicrobials are, and that 409 All-Purpose Cleaner is the most effective antimicrobial tested.

Help Received

I received guidance and help for this project by Adan Rodriguez who is a medical student at CSUN studying microbiology and his professor Dr. Cooper