



**CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY**

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| Name(s) <p align="center">Rachel A. Cleary</p> | Project Number <p align="center">J1106</p> |
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Project Title
Which Hand Cleanser Has the Most Antibacterial Effect?

Abstract

Objectives/Goals
 My objective of this project is to find out which hand cleanser has the most anti-bacterial effect.

Methods/Materials
 11mL of Dial Anti-Bacterial hand soap,11mL Hibiclens antiseptic/antimicrobial skin cleanser,11mL Purell Hand Sanitizer,11mL BD E-Z Scrub,11mL Episoft,11mL Ivory Pure Soap Bar,11mL Vionex Healthcare Personal Hand Wash,11mL Norisc Antimicrobial Liquid Soap,Sterile Water (Control),99 Sterile Applicators,198 Test Tubes,99 Petri Dishes(LB Agar)

Results
 For each test(11 Total) record bacterial growth as a percentage to the control:
 Control: 100% for each test
 Purell: 80%,40%,16%,100%,100%,0%,0%,100%,200%,0%,40%
 BD EZ Scrub: .5%,0%,0%,5%,0%,0%,0%,0%,0%,10%,10%
 Ivory:40%,100%,200%,50%,0%,0%,10%,5%,0%,.3%,30%
 Norisc:33%,33%,0%,5%,0%,0%,0%,0%,0%,0%,0%
 Vionex:1%,3%,0%,0%,0%,0%,0%,0%,0%,.3%,0%
 Hibiclens:2%,0%,0%,0%,0%,0%,0%,0%,0%,0%,0%
 Episoft:.5%,0%,0%,0%,0%,0%,0%,0%,0%,0%,0%
 Dial:2%,2%,50%,0%,0%,0%,0%,0%,0%,0%,0%
 Average All Test Results for each product:
 Control 100%,Purell 61.45%,BD EZ Scrub 2.32%,Ivory 40.48%,Norisc 6.45%, Vionex .39%,Hibiclens .27%,Episoft .05%,Dial 4.91%

Conclusions/Discussion
 This experiment did not completely support the hypothesis. However, the data suggests that several of the hand cleansers had relatively the same amount of bacteria growth. Episoft had the best results, but Hibiclens had only a little more growth. Vionex was a close third. The Ivory Soap had a significant difference in growth in the tests. The experimenter believes this is because Ivory may work differently with different types of bacteria. Dial did well other than in the third test. The experimenter is not sure why but believes that this difference in growth may have been caused by having more bacteria on that sterile applicator than on the others. The experimenter believes that Purell may have done so poorly because it was mixed with water, and is not meant to be. Purell is a hand cleanser that contains water, but is not supposed to be used with it. One would simply poor it on their hands and it would dry right up. My

Summary Statement
 My project tests different types of hand cleansers on killing hand bacteria in order to identify which is the most effective.

Help Received
 Mother helped arrange backboard; Used lab equipment at Invitrogen under the supervision of Laura Voza-Brown Scientist.