



**CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY**

Name(s) Christopher J. Fieschko	Project Number J1112
Project Title Effect of Disinfectants on the Growth of Soil Microorganisms	
Abstract Objectives/Goals The purpose of this study was to examine the inhibitory effect of different commonly used household disinfectants on the growth of soil microorganisms. The household disinfectants used in the study included gin (approximately 50% ethyl alcohol), rubbing alcohol (70% isopropyl alcohol), Equate mouthwash, hydrogen peroxide, and Lysol disinfectant. Methods/Materials The inoculum for the study was prepared by incubating a small amount of backyard soil in a tube containing a clear sterile nutrient solution for several days. After the solution became turbid, three milliliters of this inoculum were then transferred to approximately one hundred milliliters of sterile clear nutrient solution and mixed. This inoculated solution was then evenly distributed into a twenty-four well clear plastic container. Four concentrations of each of the five disinfectants were added to the wells containing the inoculated nutrient solution, and four wells were used as a control without any added disinfectant. Growth of the microorganisms in the wells was monitored over time by visually observing the turbidity of the solutions and comparing them to the control wells. Results After 12 hours of incubation, all of the control wells, most of wells containing gin and some of the wells containing isopropyl alcohol became turbid. After 23 hours of incubation, the well with the most dilute concentration of Lysol also became turbid. Throughout the study, all wells containing either Equate mouthwash or hydrogen peroxide remained clear. Conclusions/Discussion The results demonstrate that Equate mouthwash and hydrogen peroxide are the disinfectants most effective at inhibiting the growth of soil microorganisms. Lysol is slightly less effective, and gin (ethyl alcohol) and isopropyl alcohol are much less effective.	
Summary Statement The study compared the inhibition of growth of soil microorganisms by Lysol disinfectant to other disinfectants.	
Help Received Father helped type report and use Microsoft Excel, neighbor provided sterile nutrient solution.	