



**CALIFORNIA STATE SCIENCE FAIR
2003 PROJECT SUMMARY**

Name(s) Robin E. Stallard	Project Number S1325
Project Title Comparison of Antimicrobial Activity in Soils	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective is to test different soils to determine frequency, type and activity of antimicrobial organisms. Hypothesis: the organisms from the slough will have the most antimicrobial activity because the soil environment is the most competitive, being the richest in nutrients and water.</p> <p>Methods/Materials Soil samples were obtained from the back yard, Elkhorn Slough and Moss Landing State Beach and were incubated in nutrient broth. Samples were then streaked on nutrient agar plates to identify individual colonies. These were tested for killing of a bacterial tester strain. They were then purified, identified by staining, and then tested for killing of a variety of microbes. Tests were also performed to determine how these products actually prevented growth of bacteria.</p> <p>Results Antimicrobial organisms were obtained from all three sources. The organisms obtained from the beach had broad spectrum activity, killing both bacteria and yeast. The four isolates were Gram positive rods. Microbes from the yard and the beach tended to kill Gram-positive bacteria only, and did not seem to have as much killing activity as those from the beach.</p> <p>Conclusions/Discussion Antimicrobial organisms can be found in a variety of soil environments. These organisms have an advantage because they can kill off other microbes in that environment. My original hypothesis was incorrect. Perhaps the beach soil, which is scarce in nutrients and fresh water, is the most competitive. Most of the microbes isolated from the beach soil had antimicrobial activity. Furthermore, the substance produced by these beach organisms microbes killed a wide range of other microbes.</p>	
Summary Statement The project compared microbes isolated from different soils for the frequency and type of antimicrobial activity that they produced.	
Help Received Mother helped with report and supervised handling bacteria. Hartnell College provided incubators, staining kits and sterile facilities.	