



**CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY**

Name(s) Arjun D. Boddu	Project Number J1703
Project Title Everyday Substances in a Fight against Bacteria	
Abstract Objectives/Goals My project tests the antibacterial effect of common household substances such as vinegar, garlic, ginger, and a mixture of honey and lemon juice by studying their effect on the growth of Staphylococcus Epidermis. Methods/Materials Obtained Staphylococcus Epidermis from human skin and cultured on blood agar plates. Five blood agar plates were inoculated with Staphylococcus Epidermis and measured amounts of common household substances were applied. Incubated blood agar plates for three days and then removed and placed at room temperature for 24 hours. Measured diameter of no-growth zone of each plate. Safely disposed of all material in bio-hazard trash. Results Vinegar had the strongest antibacterial effect against Staphylococcus Epidermis with an average of 7.6 mm of no-growth zone. The mixture of honey and lemon had the second strongest antibacterial effect with an average of 6.8 mm of no-growth zone. Garlic juice and ginger respectively had no-growth zones with an average of 2.5 mm in two out of five plates. The other three plates had overgrowth caused by either foreign bacteria or fungi. Conclusions/Discussion In conclusion, the data I gathered proved that all the substances I used in the experiment had an antibacterial effect on Staphylococcus Epidermis in varying degrees. The substance with the greatest antibacterial effect was vinegar. The substance with the second greatest effect was honey and lemon juice mixed together. Garlic and ginger had inconsistent antibacterial effects.	
Summary Statement My project tests the antibacterial effects of common household substances.	
Help Received Father helped with board; Mother proof-read report; Used microbiology lab and apparatus at South Coast Medical Center under the supervision of Dr. Miyamoto	