



**CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY**

Name(s) Carolyn Goldenberg	Project Number J1310
Project Title Is Garlic Antibacterial?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals</p> <p>The purpose of this project was to see if fresh garlic, garlic powder, and Kyolic, aged garlic extract are antibacterial. First the fresh garlic was crushed and mixed with 20 milliliters of water and that was used as the 1X dilution. From there, 1/4X and 1/16X serial dilutions were made. For the garlic powder one teaspoon was put in 20 milliliters of water, and again, 1X, 1/4X and 1/16X serial dilutions were tested. For the Kyolic the serial dilutions were taken straight from the extract. All were plated with E. coli bacteria. This was done for four different trials. The data was graphed and recorded.</p> <p>All the dilutions of fresh garlic killed a large amount of bacteria. The 1X stock killed all the bacteria on the plates. The average number of bacteria that grew for fresh garlic in the 1/4X stock trials was 210 colonies, while the 1/16X stock grew an average of was 672.5 colonies.</p> <p>Kyolic killed a very small amount of bacteria. The average number of bacteria that grew was 787.5. The average number of bacteria that grew for the 1/4X stock was 1050, and an average of 865 colonies grew in 1/16X stock. This can be compared to the control group, with no garlic product, which grew an average of 1185 colonies.</p> <p>Although the garlic powder was tested it was uncountable because it produced bacteria on its own.</p>	
Summary Statement Raw garlic, garlic powder, and a garlic supplement were tested to see if the effects on bacteria.	
Help Received Mother helped gather the materials, father helped with the idea, used lab equipment at Scripps Research Institute under supervision of Dr. Cravatt, Mrs. Brenda Joseph with my board, and my teachers Miss Reynolds and Miss Young for their instruction.	