



**CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY**

Name(s) Joshua Hoskinson; Kirt Shelat	Project Number S1710
Project Title The Effectiveness of Allicin on Escherichia coli	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective of the project was to see if allicin, a natural antibiotic found in garlic, kills the bacterium Escherichia coli as well as penicillin.</p> <p>Methods/Materials First the agar was made using 23 grams of nutrient agar and it was poured into a liter over water and was set over a hot plate until it boiled. Then we poured the agar solution into each of the 20 sterilized petri dishes and waited 1 day to harden. Then we took the 1 mL of live E.coli, took an inoculating loop, and swabbed E.coli from the vial and into each of the 20 petri dishes and let the E.coli grow for 1 week. After that, we made the allicin solution using 5 garlicks, 50 mL of mineral oil, and 100 mL of water, and then waited until the allicin rose to the top. Then we put 1 mL of allicin solution on 10 petri dishes and 1 mL of penicillin solution on the other 10.</p> <p>Results The petri dishes that were treated with the penicillin solution did about 10% better than the petri dishes treated with the allicin solution, proving that allicin is a potential alternative to penicillin.</p> <p>Conclusions/Discussion Throughout the course of this investigation, it was found that allicin in fact did kill the bacterium E. coli as well as penicillin; however penicillin killed slightly more E.coli colonies. With this conclusion, it is found that allicin is as powerful as penicillin and could be used as an alternative to penicillin in developing countries that do not have modern medicine, especially those countries that have used penicillin, but the bacteria has developed a resistance to the medicine.</p>	
Summary Statement The project is to find out if allicin kills E .coli as well as modern medicine or not.	
Help Received Vijay Shelat received the penicillin solution; Kristine Jennings helped to put E. coli onto the petri dishes; Michelle Hampton helped with the formatting of the board	