



**CALIFORNIA STATE SCIENCE FAIR  
2003 PROJECT SUMMARY**

<b>Name(s)</b> <b>Eric W. Strege</b>	<b>Project Number</b> <b>J1332</b>
<b>Project Title</b> <b>Herbs and Organics: Bacterial Inhibitors?</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> To analyze through tests what is the most effective herbal/organic substance, (curry, garlic, ginger root, jalapeno pepper, mint, onion, red pepper, thyme, contant) that will inhibit the growth of E. Coli and Bacillus Cereus strains.</p> <p><b>Methods/Materials</b> Eighteen petri dishes were filled with nutrient agar. Three petri dishes served as a constant for E. Coli strain and three as the constant for Bacillus Cereus. The other twelve petri dishes were divided into four sectors with a grease pencil. Six dishes were inoculated with E. Coli and six with Bacillus Cereus. Each sector was labeled for each herb and organic and test number. After macerating each herb and organic, paper disks soaked for 10 minutes each absorbing the herbal and organic qualities, dried the paper disks and placed each one in the appropriate sector in the petrie dishes. Three tests, for five twenty four hour periods were done in two incubators set at 37 degrees centigrade.</p> <p><b>Results</b> In all three tests of Bacillus Cereus Garlic rated the highest at P3 &amp; P4 then ginger root right below it at P2. Curry rated P2 &amp; P3 in some tests then dipped down into the low negatives, Mint and Thyme struggled in the P1 to N1 ratings. Onion, jalapeno pepper and red pepper remained in the negatives. In the three tests of E. Coli Garlic had the hightest rating at P3 &amp; P2, Ginger root again held it own in the P1 &amp; P2 range, suprisingly mint and red pepper and Thyme held the low positives at P1, however curry sank down into the negatives. The onion and jalapeno remained in the negatives. The constant petri dishes were thriving with growth.</p> <p><b>Conclusions/Discussion</b> The herbs and organics I used in all tests at their highest rating never made it past the mid-positive inhibition range, incubating at 37 degrees centigrade. The results showed that some herbs and organics stuggled to keep a positive rating, sometimes dipping back into the negative scale then climbing back up to the positive, many times back and forth, and then some never could leave the negative scale. The most effective way to kill the strains of E. Coli and Bacillus Cereus is to keep all food or things of spoiling nature at the heat of 60 degrees Celcius and refrigerated to the temperature of 4.45 degrees celcius.</p>	
<b>Summary Statement</b> To analyze how herbs and organics with their natural properties, will effect the growth of E. Coli and Bacillus Cereus strains and measure the inhibition of bacterial growth.	
<b>Help Received</b> Mr. Robert Finnell, Biology Teacher at La Quinta High School, helped me with the lab equipment and incubators I needed for my experiements.	