



**CALIFORNIA STATE SCIENCE FAIR  
2007 PROJECT SUMMARY**

<b>Name(s)</b> <b>Fritz Foo</b>	<b>Project Number</b> <b>S1413</b>
<b>Project Title</b> <b>Capsaicin and Microbial Relations</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The objective of the experiment was to test whether capsaicin would inhibit the growth of common bacterial strains. The swabbed bacteria came from a household bathroom, under a cat's claw, and human phlegm from a sore throat, representative of indoor, outdoor, and somatic bacteria. The experiment was conducted to primarily fuel my own curiosity and also set out to prove or disprove the old wives' tale that eating chili peppers can reduce the chances of catching a cold. After my initial research, I hypothesized that capsaicin would inhibit bacterial growth due to its caustic nature. <b>Methods/Materials</b> The project consisted of 35 petri dishes, 25 of which were pre-prepared and the 10 manually sterilized with an autoclave. The pre-prepared dishes came with a special pre-manufactured agar solution, while the blank plates were filled with Luria agar. Approximately 750 kilograms of Habenero Chilis were used to prepare a capsaicin glaze. Initial bacterial strains were taken from the aforementioned sites, cultured, then transferred to the actual plates used in the experiment. In the control plates, nothing was added; however, in the variable group, a capsaicin spread was added on one-half of the agar. <b>Results</b> After seven days of data collection, a conflict of quantitative versus qualitative data emerged. Based on the data gathered from random sampling, the capsaicin showed no effect and, in some cases, even stimulated bacterial growth. However, based on visual qualitative data, it was obvious that the control group had produced larger, albeit less defined and countable colonies. Under a light microscope, the growth patterns suggest the capsaicin had effectually dispersed the bacteria into roaming, isolated colonies, whereas the control group lived in dense colonies near one another. <b>Conclusions/Discussion</b> After careful analysis of the quantitative and qualitative data, the original hypothesis can be validated because, as proven under the microscope, it was clear the control group (unaffected by capsaicin) had healthier colonies and larger areas of dense colonies. The bacteria existent on the capsaicin were sparsely populated. Based on the results of this experiment, I would be willing to assert the claim that mother was right -- eating chilis may deter illness.	
<b>Summary Statement</b> Capsaicin and Microbial relations discussed the effect of capsaicin on bacterial growth; all-in-all, the peppers reduced the number of bacterial colonies.	
<b>Help Received</b> Mrs. Pearce for providing me the incubator and teaching me how to use an autoclave; Mr. Wogee for providing the petri dishes and agar plates; My parents for allowing me to convert the garage into a biohazardous site; My cat for allowing me to swab his claws	