



**CALIFORNIA STATE SCIENCE FAIR  
2003 PROJECT SUMMARY**

<b>Name(s)</b> <b>Karthik Ganesan</b>	<b>Project Number</b> <b>J1310</b>
<b>Project Title</b> <b>Spicy Juices vs. Antibacterial Effect</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The purpose of my experiment was to figure out the effects of different fruit/vegetable/spice juices on two types of bacteria: e.coli and staphylococcus epidermis. My hypothesis was that juices from various items tested may have antibacterial power but it may vary with the types of juices and bacteria. I predicted that garlic would have the most antibacterial effect.</p> <p><b>Methods/Materials</b> I extracted juices from ten different items using a food processor and refrigerated them in sterilized bottles until I was ready for the experiment. The ten juices were: Garlic, Red Onion, Ginger, Turmeric, Serrano Pepper, Green Cabbage, Eggplant, Cranberry, Blueberry, and I subcultured bacteria in nutrient broth and pipeted it into equally divided petri dishes. Then I poured warm liquefied agar into the dishes and mixed it up with the bacteria. Then I used sterile forceps to place four disks into each petri dish and three of them were soaked in a type of juice. After 48 hours of incubation, I measured the inhibition zone around the soaked disks.</p> <p><b>Results</b> My results showed that garlic had biggest inhibition zone but was not the clearest against both types of bacteria tested. Cranberry inhibition zone clearer but the zone was not as large as garlic. From this, we can conclude that my hypothesis was correct but the results could have occurred because of refrigeration times, shelf life of the crops, etc.</p> <p><b>Conclusions/Discussion</b> Study of everyday foods help us to choose better diet and enhance the quality of life. We can then make educated choices and are more productive in the society. These daily foods may not be as effective as medicines available at stores but a daily intake of the foods in our diet may help us to resist the store medications less and less, thus building immunity against infections in a natural way without harmful side effects. If I had to repeat the experiment again, I would choose my top 2-3 juices and check their effectiveness once more, but at the same time instead of different. In my experiment, there were two different batches of juices that were tested and refrigerated until I could start my experiment. My top two juices came from both batches. If I had an opportunity to continue the study, I would want to test different powders of dry spices like cumin, fenugreek, cinnamon etc.</p>	
<b>Summary Statement</b> My project is about the antibacterial effects of fruits, vegetables, and spices.	
<b>Help Received</b> Mother helped with making the juices, Used lab equipment under supervision of Mr. Lee at Miller Middle School.	