



**CALIFORNIA STATE SCIENCE FAIR  
2006 PROJECT SUMMARY**

<b>Name(s)</b> <b>Robin T. Trumble</b>	<b>Project Number</b> <b>J1432</b>
<b>Project Title</b> <b>Capsaicin Antagonists</b>	
<b>Objectives/Goals</b> To find the best way to counter the effects of capsaicin in four hot sauces including pure habanero (very hot), Susie's Calypso(hot), Marie Sharp's (medium) and Melinda's (mild.)	
<b>Abstract</b> <b>Methods/Materials</b> I went to Cannery Row and set up a table. Subjects volunteered to take part in the experiment. I gave them their choice of any of the four hot sauces listed above. I did not let them choose the antagonist. The antagonists were: water; orange juice (a mild acid); a sugar solution (lemonade); Milk of Magnesia (a common household base) and milk. I used a stop watch to time how fast it took for the effects of the capsaicin to wear off. I assigned each subject a unique identifier and recorded data including the hot sauce I gave them, the antagonist I gave them, how long it took for the effects of the hot sauce to wear off and the subjects' ages. Over two weekends, I tested 100 subjects.	
<b>Results</b> While there are no known antidotes to the crystalline alkaloid capsaicin -- the substance that makes chili peppers "hot" -- some dietary antagonists appear to work better than others for fiery food first aid. My sampling of test subjects showed that sugar was the most effective, with milk and acid (orange juice) coming in second.	
<b>Conclusions/Discussion</b> There is something in sugar -- and secondarily, milk and acid -- that counteracts the effects of capsaicin. Also, younger people recover more quickly from the effects of capsaicin. This means that capsaicin doesn't work on tastebuds but on some other sense receptor (since younger people actually have more tastebuds than older people, so if it worked on tastebuds younger people would recover more slowly.)  My sample size was only one hundred. Before the State Science Fair, I'm going to test more subjects to see if the results change.	
<b>Summary Statement</b> While there are no known antidotes to the crystalline alkaloid capsaicin -- the substance that makes chili peppers "hot" -- some dietary antagonists appear to work better than others for fiery food first aid.	
<b>Help Received</b> My parents own a hot sauce store. They helped me by providing the hot sauce & pointing me to good news stories and reference materials.	