



**CALIFORNIA STATE SCIENCE FAIR
2007 PROJECT SUMMARY**

Name(s) Barbara Shinaver	Project Number S1520
Project Title The Effects of Herbal Teas on the Ability of <i>Drosophila melanogaster</i> to Withstand Environmental Stress	
Objectives/Goals The purpose of my science project is to determine if <i>Drosophila Melanogaster</i> bred on herbal teas are able to withstand environmental stress such as heat and cold.	
Abstract Methods/Materials I used two different teas: Green Tea and Ginseng. I chose these teas because they yielded the best results of extending the flies' longevity in my previous experiment. I allowed a generation of flies to reproduce on the specific liquids, and used the newly emerged flies after aging two weeks for my tests. I placed ten males and ten females each in twelve vials for each treatment and stress test. I tested vials of each treatment at higher than normal temperatures, ranging in even increments from 40 degrees Celsius to 46 degrees Celsius in ten minute trials, and at a constant freezing temperature for 35 and 45 minutes. After I removed the flies from their stress tests, I observed and recorded the number of living and dead flies. All flies tested were not reused. After collecting all data, I performed statistical analyses to determine the significance of the data.	
Results Using the ANOVA and S-N-K tests, I discovered that Green Tea helped flies survive both freezing tests and the 42 degrees Celsius heat test. These analyses also showed that Ginseng flies survived more than Green Tea flies in 44 degrees Celsius, and that Control flies thrived at 40 degrees Celsius. The varying high temperature test results warrant further research.	
Conclusions/Discussion According to my statistical analyses, Green Tea improved the flies' ability to endure stress in the freezing tests and in the 42 degrees Celsius heat tests. Ginseng flies thrived at 44 degrees Celsius, while all Control flies lived at 40 degrees Celsius. Overall, Green Tea was the best in helping the flies to withstand environmental stress.	
Summary Statement I used Green Tea, Ginseng, and Distilled Water to show that <i>Drosophila Melanogaster</i> bred on these teas can better withstand environmental stress.	
Help Received Nathan Whittington advisor; Dr. Bert Tribbey consultant for statistical analyses.	