CALIFORNIA STATE SCIENCE FAIR
2008 PROJECT SUMMARY

Name(s)

Barbara Shinaver

Project Number

S1518

Project Title

Determining the Effectiveness of Green Tea in the Expression of the SIR2 Gene in Drosophila melanogaster

Abstract

Objectives/Goals

The purpose of my current project is to determine if the expression of the longevity-related SIR2 gene is a factor in the increased life-span of Drosophila Melanogaster bred on Green Tea.

Methods/Materials

From my two previous projects I have established that Green Tea is beneficial to Drosophila Melanogaster in protecting against environmental stresses and extending their lifespan. I have allowed two generations of flies to live on this Green Tea and Drosophila formula food solution, stopping the lives of 1st generation flies at 70 days and 2nd generation flies at 35 days and testing them at this point. With assistance and supervision by a Dr. and a lab technician at a UCLA laboratory, I studied the effects of Green Tea on both protein and the SIR2 gene through RNA by RT-PCR, PCR, electrophoresis, SDS Gel, and Western blot.

Results

After completing the study, I was able to determine with a high degree of certainty that the SIR2 gene was only present in the basal level, the expected amount of expressed gene. The proteins also showed this equal amount of minimal expression through visually equal amounts of protein bands seen in the Western blot test.

Conclusions/Discussion

According to the Agarose electrophoresis gel run with all samples, the SIR2 gene is as affected by Green Tea in the same manner it is affected by distilled water (control). The protein determination showed that the amounts of protein expressed were present and present in equal numbers, showing again (but not with complete certainty) that Green Tea did not abnormally affect the SIR2 gene.

Summary Statement

Based on data collected from previous experiments, I bred Drosophila on Green Tea to determine if it had an effect on the expression of the SIR2 gene.

Help Received

Used lab equiplent at UCLA under the supervision of Dr. Shalini Kumar