The Effect of Caffeine on the Development and Nervous System of Drosophila melanogaster

Hogan, Kate

My goal in this project was to determine the effect on caffeine and the development and nervous system of drosophila melanogaster. To do this, I cultured flies with food that contained 0, 0.5, 1, or 2 milligrams of caffeine per milliliter of food. I counted the number of flies every other day to determine the effect of each dose of caffeine on lifespan. I found that as caffeine concentration went up, the fly death rate also increased. Surviving flies were examined through the RING Assay, which analyzed general nervous system functioning, specifically the upward geotaxis. I found that flies exposed to a higher dose of caffeine took longer to move upwards in their vial, when compared to flies that were fed food with no caffeine. My third method was a protein gel. I isolated protein from the heads of flies exposed to each level of caffeine, then ran the protein through a gel. I found that flies that experienced a high dose of caffeine had a smaller amount of several proteins than the control flies. Overall, my hypothesis was supported and I found that flies exposed to caffeine develop more slowly and have more nervous system impairments than flies that are not exposed to caffeine.

Awards Won: