The Effects of E-Cigarettes on Drosophila melanogaster

Gengenbach, Hannah (School: Adams Central Jr.-Sr. High School)
Samuelson, Irelyn (School: Adams Central Jr.-Sr. High School)

The Effects of E-Cigarettes on Drosophila melanogaster. Our project is about the negative effects of E-vapor. This is an important topic because people think that vaping is safe. According to cancer.net, “Further analysis of the nationwide survey found that nearly 1 in 4 young adults views them as harmless and not addictive. Emerging news has underscored the dangers of using e-cigarettes, commonly called vaping, as has the report of rising rates of e-cigarette use among young adults.” We predict that the chemicals in E-cigarettes will have a negative effect on our Drosophila melanogaster. Due to previous research by HealthDay, we predict that vaping will trigger gene changes in cells. In one experiment, we exposed Drosophila melanogaster to E-vapor by transferring the heated vapor from a beaker into the vials containing the Drosophila melanogaster. We exposed the flies for 10 minutes. In addition, we exposed the Drosophila melanogaster larvae to the vapor for 10 minutes, using the same method. In our final experiment, we mixed the E-liquid in with the Drosophila melanogaster' food. After completing these experiments, we found that the flies may have had a genetic mutation occur, which caused them to turn green. We performed an ANOVA and found that the p-value was zero ($p<0.05$). But when we look at differences within groups (1 vs 2, 2 vs 3, 1 vs 3), only “Exposed Adults Offspring” and “Exposed Larva” are significantly different. We believe that the poisoned food had less of an effect on our flies because the e-liquid was never heated up. We know that many dangerous chemicals and metals are made when the e-liquid is heated. Future research will be done to see if a genetic mutation has occurred.

Awards Won: