

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.