A Novel Model of Microplastics Pollution for Terrestrial Environments in Drosophila melanogaster

Lindenthal, Stephan (School: Saint Edward's School)

Humans have fallen in love with plastics, from toys, to food containers, to bags, and straws. Scientists have been researching and warning about plastic pollution in the ocean for decades. Today, researchers have identified microplastic pollution (bits of plastic smaller than 5mm) as a major concern for ocean ecosystems. Microplastics are impacting these ecosystems by causing developmental, survival, and reproductive issues on the organisms living within these areas. However, there has been little research conducted on the impact of microplastic on terrestrial ecosystems. This project aims to develop a fruit fly model for microplastic research. The researcher hypothesized that exposure to microplastics across generations would lead to alterations in behavioral patterns. Three experiments were created to test the fruit flies' behavior towards gravitaxis (directional movement), phototaxis (light), and chemotaxis (damp environment). After conducting a Chi-Square Analysis with the data collected, the evidence implies that there is a statistically significant difference between the behavior of the controlled group and the group exposed to microplastics. The Chi-Square values for each of the three experiments were all larger than the critical value meaning the differences were not due to random variations. Therefore, this experiment provides evidence explaining that there are impacts due to microplastics not only on aquatic ecosystems but on land as well. Since there is no significant current research on terrestrial impacts from microplastic pollution, it is very important for scientists to become more aware of this issue and figure out the impacts it has on terrestrial life.

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