Behavioral Observations of Drosophila melanogaster as Compared to Humans

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Recommended Citation
https://spark.parkland.edu/nsps/153

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Introduction: Not many people know that fruit flies are extremely similar to humans. In fact, many geneticists use fruit fly genes to study and help cure a broad array of diseases (1). With our genes being so similar, we wanted to know if fruit flies could be compared to humans with their manerisms and behavior as well. According to Psychology Today, humans are creatures of habit. Humans do things such as follow the pack or bite our nails because of the wiring in our brains (2). Our brains could be wired this way due to many contributing factors such as a specific environment or repeated exercise (2). We wondered if it would be the same for the flies, and so we hypothesized that the fruit flies would exhibit at least some traits of human-like behavior, ergo we conducted this experiment.

Methods: In order to test our hypothesis, we created “environments” which were exactly alike to observe our flies’ behavior. We conducted this experiment twice, with two sets of flies and the exact same environments.

Results: In experiment one, the Vestigial winged flies began to congregate around the smaller dish of food on the floor. Very few had discovered the petri dish that was on the blocks. By the next day, they discovered the bigger dish and the only thing left in the smaller was 2 larvae. After that, they remained in the bigger dish. After this day, we realized that the top food container was growing a fungus and the other was not. The flies still stayed around the larger food source. The flies continued to breed in the larger food dish for the next 28 days until they exhausted the larger food resource and could no longer breed and they began to die. The bottom container was not touched. The remaining flies were searching through the dead ones on the ground, going from fly to fly.

In experiment two, the Wild type flies ended up having 6 flies living. Even so, the flies stayed together and would come back to the group if one had wandered off. 6 days later it seemed all the flies were dead.

Conclusion: Based on our results, we believe that even though fruit flies do not have individual behaviors similar to human, both our wiring led to the same characteristic of sticking together. We considered the fact that all flies went to the same food eventually, when majority was dead they searched or stayed with the live ones, and once together rarely did one or any move to a different location. Even with all this there are some things that we would have done differently or better. Such as creating a better environment or being able to observe the flies daily. We feel that if we were able to obtain better resources, this experiment would be able to better show the flies behavior.

In order to help future researchers, we suggest that a bigger environment be used and multiple food sources be set.