

Madagascar Hissing Cockroach Scientific Report

Title: Food Preference and Air Blast Response in the Madagascar Hissing Cockroach

Introduction

The purpose of this experiment is to learn about the biology of a Madagascar hissing cockroach by doing the following: naming the pet, finding a suitable home, discovering its food preference (what they do or do not like), and documenting interesting behaviors (hissing behavior). My cockroach is male and I named it "Tebow." He lives in a small, plastic terrarium that has aspen bedding on the bottom. His water source is a cotton ball soaked in water. I put the following foods in his cage over a period of several weeks: blackberry, banana, chocolate chip cookie, grape, bacon, and banana bread.



The Madagascar hissing cockroach is in the order Blattodea and in the family Blaberidae. Its scientific name is *Gromphadorhina portentosa*. This cockroach is native to Madagascar, and lives on the forest floor in rotten logs and feeds on fallen fruit. Its metamorphosis is Paurometabolous (gradual). It develops from an egg to a nymph to an adult. Nymphs emerge from an ootheca, then molt six times before becoming an adult. The ecological importance of the Madagascar hissing cockroach is that they are decomposers and an important food source for other animals. It is also a model insect to study because it is easy to maintain.

I developed two testable hypotheses, one concerning food preference and one concerning behavior, for this experiment.

Hypothesis 1: If I put a blackberry and half of a grape in the cage, the cockroach will eat the grape instead of the blackberry.

Hypothesis 2: If I blow on the cockroach, it will hiss.

Methods

For my first hypothesis, I put one whole blackberry on one side of its cage and one red grape sliced in half on the opposite side of its cage. I then observed over a 12 h period which piece of fruit the cockroach ate. I repeated this experiment 5 times over 5 days for 5 replications. At the end of each replication, I removed the fruit and examined them for signs that they had been eaten.

For my second hypothesis, every evening around 5pm for five days (5 replications), I took the cockroach out of its cage and blew on its body. I listened for hissing noises and recorded my results.

Results

For my first experiment of testing the two pieces of fruit, I observed that over the period of five days, the cockroach only ate from the grape. After I removed the pieces of fruit from the cage, it was clearly visible that the cockroach had eaten the grape. But, when I examined the blackberry pieces thoroughly, I did not see any markings which would indicate that he ate it.

Table for hypothesis #1: Days I observed the cockroach eating

Fruit	Day 1	Day 2	Day 3	Day 4	Day 5
Grape	Yes	Yes	No	No	No
Blackberry	No	No	No	No	No

For my second experiment of testing to see if the cockroach would hiss if I blew on it, I detected that it did not hiss any of the five times that I blew on it.

Table for hypothesis #2: Days I blew on the cockroach and listened for hissing

	Day 1	Day 2	Day 3	Day 4	Day 5
Hiss	No	No	No	No	No

Conclusions and Discussion

My first hypothesis stated that if I put a blackberry and half of a grape in the cage, the cockroach will eat the grape instead of the blackberry. I determined this to be correct. The cockroach did indeed eat the grape and not the blackberry. I believe that my

conclusions are reasonable based upon the hypothesis I tested and the data that supports it because.... My results are also consistent with the biology of the hissing cockroach. According to ... Other variables that could have influenced this experiment are that maybe after the cockroach ate the grape, he was no longer hungry enough to eat the blackberry. Also, maybe if I had cut the blackberry in half like the grape, the cockroach would have been more inclined to eat the fleshy center.

My second hypothesis stated that if I blow on the cockroach, it will make a hissing sound. My data did not support this hypothesis. My cockroach never made a hissing sound when I conducted my experiment. My conclusions are reasonable based upon the hypothesis I tested and the data that I recorded because... This is consistent with what I have researched on the behavior of the Madagascar Hissing cockroach. According to... I believe that my cockroach did not hiss because he was not threatened. Also, he also was not participating in courtship or mating.

References

Weissling, T. (2015) Roach Info. Retrieved from <http://entomology.unl.edu/k12>

Laing, F. (1938) The cockroach, its life-history and how to deal with it, 3rd ed. London, UK Trustees of the British Museum.