CALIFORNIA SCIENCE & ENGINEERING FAIR
2018 PROJECT SUMMARY

Name(s)
Isaac M. Pitts

Project Number
J1122

Project Title
Plastic Eating Worms for a Healthier Environment

Abstract

Objectives/Goals
Two worm species are known to have the ability to digest certain forms of plastic and excrete environmentally safe waste. The objective of this study is to determine which of the two worm species would break down the most plastic over a six week period.

Methods/Materials
An equal mass of waxworms and mealworms were placed separately in containers with either a styrofoam cup (polystyrene) or a shopping bag (polyethylene). The two types of plastic were then weighed weekly over a period of 42 days to determine how much of each sample had been consumed.

Results
Weekly measurements showed both worm species were consuming the two varieties of plastic used in the experiment. At the end of six weeks the final measurements showed the mealworms had consumed 3.8% more polystyrene than the waxworm, and 4.1% more of the polyethylene.

Conclusions/Discussion
The experiment confirmed the two worm species capable of digesting both polystyrene and polyethylene. The mealworms were found to be only slightly better than the waxworms at breaking down both types of plastic. Other factors such as worm cost and species longevity may need to be considered. Also, further testing should explore the impact of varying light, temperature, and humidity on plastic consumption.

Summary Statement
I was able to show that mealworms were slightly better than waxworms at consuming two varieties of plastic.

Help Received
None. I designed, built, and performed the experiments myself.