CALIFORNIA SCIENCE & ENGINEERING FAIR
2018 PROJECT SUMMARY

Name(s)
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Project Number
J1412

Project Title
Comparing Rates of Decomposition of Different Plastics

Abstract

Objectives/Goals
The objective of this study was to determine which plastic decomposes the fastest. The results of this experiment will help solve an important issue: plastic pollution.

Methods/Materials
In order to conduct this experiment, I first recorded the initial weights for each of the plastic utensils, which were cornstarch-based, wood-based, and petroleum-based plastic. Then, I buried the utensils in three pots containing soil, one pot for each trial. I gave a cup of water each day for about a month to maintain moisture levels. After one month, I removed the utensils from the soil, and recorded the weights of the decomposed utensils.

Results
The outcome was that cornstarch had the best results. The cornstarch decomposed .86% of its average weight. The wood bioplastic decomposed .14% of its average weight. The plastic forks did not decompose at all.

Conclusions/Discussion
Nowadays, plastic pollution has become an increasing issue, and needs to be addressed as soon as possible. Plastic accumulates on both the land and earth, and harms wildlife, wildlife habitats, and humans. In fact, 90 percent of seabirds have plastic in their stomachs. Often, plastics take thousands of years to decompose, and during those thousands of years it releases toxins into the soil and the environment. Also, plastics are made from petroleum, which is a non-renewable resource that contaminates the environment. However, bioplastics are a great alternative to traditional petroleum-based plastic, as it is made from organic, non-toxic materials, and decomposes at a much faster rate. Using the results of this experiment, I plan to raise awareness of this issue, and help companies and businesses take the steps towards developing a cleaner environment. I have tested the use of different materials in the production of plastic, as well as evaluated and compared the rates of decomposition, in order to determine the material that decomposes the fastest. If more and more people make the switch to using bioplastics, we can reduce the amount of plastic in our environment, conserve our non-renewable resources, and save the wildlife.

Summary Statement
In this experiment, I compared the rates of decomposition of different plastics.

Help Received
I would like to thank my mother for helping me with the experiment by buying the materials and taking pictures of me conducting the experiment. I would also like to recognize my teacher, Ms. Sofio, for supporting me all this time. In addition, my brother, Caden, helped me conduct this experiment.