



CALIFORNIA STATE SCIENCE FAIR 2012 PROJECT SUMMARY

Name(s) Cameron D. Newman	Project Number J1019
Project Title Biodegradability of Single-Use Plastic	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The purpose of this project was to test the biodegradability of various single use plastic bags and utensils, as well as paper bags, in various environmental conditions over the course of 8 months. I tested these products in open air, a compost bin, salt water, and fresh water. I also tested several #compostable# plastic bag products and #compostable# plastic utensil products to see if they composted or biodegraded in all the above environments.</p> <p>The pollution and damage to the environment and wildlife caused by disposable plastic is a major concern. The destruction of wildlife and the horrendous conditions in the Pacific Gyre are only the obvious effects of plastic. We will not know how many entire species are being extinguished and the ultimate effect on the food chain on up to humans for years to come. We must find alternatives to single-use plastic.</p> <p>Methods/Materials I tested these products in open air, a compost bin, salt water, and fresh water. I also tested several #compostable# plastic bag products and #compostable# plastic utensil products to see if they composted or biodegraded in all the above environments.</p> <p>Results My 8-month project demonstrated that only #Glad compostable# bags performed as advertised. The Glad bag composted in 6 weeks in perfect conditions in my compost bin. However, it did not biodegrade in any other conditions. The #BioBag# compostable did not compost or biodegrade in any conditions. Taterware and Ingeo #compostable# utensils likewise did not compost in even the best of compost conditions. The Safeway and Walmart single-use bags stayed in #like new# condition in almost all environments. However, the Walmart bag did begin to weaken in the salt water at 7 months. The regular plastic utensils were in perfect condition after 8 months in all environments.</p> <p>Conclusions/Discussion My conclusion is that none of these products are safe for the environment. Although the Glad bag did decompose, it did so only in perfect composting conditions in a compost bin. It will not compost in any other conditions, such as a landfill, open air, salt water, or fresh water. We must stop using single use plastic, and recycle where possible until the technology is invented to convert plastic into fuel or some other harmless product.</p>	
Summary Statement The purpose of this project was to test the biodegradability of various single use plastic bags and utensils, as well as paper bags, in various environmental conditions over the course of 8 months.	
Help Received Mother held products for photographing, and helped finish the crochet bag made from recycled plastic on display.	