Biodegradable Backlash

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The purpose of my project was to reduce the use of polyethylene plastics throughout the world and create a safer alternative. Creating a different type of plastic with the same features, but one that is safer for the Earth is something we can all appreciate. I wanted to be able to find an alternative that can be broken down in nature in an efficient amount of time. I used three different recipes and tested them. One was made from agar powder, glycerol, and hot distilled water. Another was made from cornstarch, white vinegar, distilled water, and glycerol. Finally, the third was made from tapioca flour, hot distilled water, white vinegar, and glycerol. After finding a combination of ingredients that produced the strongest, most flexible type of plastic from each base recipe, I made 16 samples and ran tests over each. The solution with cornstarch was flexible and tough, but it shrank and cracked a lot when it was in the process of drying. My solution that contained tapioca flour was very workable when dried after a few hours, after it became very brittle and hard to work with. Once submerged in water or any form of liquid, it became like a gel again and was easily torn apart. My agar powder solution had the best results overall. It shrank a lot when drying, but maintained shape and did not crack, it also had great flexibility.

Awards Won: