



Colorado Science and Engineering Fair

2024 Individual Project Abstract Form

Please print 2 copies of the completed form. Sign both copies, keep 1 for your notebook and submit 1 copy to your Regional Fair Director with your other paperwork.

Title of Project: The Effect of the Amount Sugar in Kombucha Leather

Finalist's Name: Eli Harrison

School and City: homeschool, Erie

Sponsor's Name: Danielle Harrison

Category: Chemistry (CHEM)

Division: Junior (6th - 8th grades)

Abstract (250 words or less):

If everyone in the world stopped using animal products, we could still feed the world and use 75% less farmland. Animals are also used for products like leather so we must find a better way to make leather. Kombucha leather is a better alternative to current faux leather because it uses no plastics or chemicals. This project looks at making kombucha leather two different ways. My hypothesis was more sugar would make the leather stronger and more durable. I made kombucha leather using two different amounts of sugar (independent variable) to see how sugar affects its mechanical properties (dependent variable). First, I had to grow the two types of leather by brewing kombucha and waiting for the biofilm to grow. They had to grow for around 1 month in a dark, warm environment with good air flow (controls). When they were done growing, I harvested and dried them. Then I tested the mechanical properties. I had to change my experiment from my original plan because I tried to grow 3 pieces of biofilm for each recipe, but 2 of the 3 pieces in recipe 1 were too thin to test, and 2 of the 3 pieces in recipe 2 dried out. My experiment did not support my hypothesis. The recipe with more sugar performed worse than the recipe with less sugar in 3 out of the 4 tests. The recipe with less sugar could be a reasonable replacement for some leather products and does not use farmland like cattle.

I hereby certify that the above statements are correct and the information provided in the Abstract is the result of one year's research. I also attest that the above properly reflects my own work.

Finalist's Signature:

Date:

In addition, all students must complete the ISEF Student Checklist (1A), Research Plan, Approval Form (1B), and Checklist for Adult Sponsor (1), and any other ISEF forms required for this type of project. See the International Rules and Guidelines for form requirements. Return COPIES of all of these forms to your Regional Fair Director with you Finalist Verification/Permission Form. A signed copy of this form must be included in your notebook.