CALIFORNIA SCIENCE & ENGINEERING FAIR
2018 PROJECT SUMMARY

Name(s)
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Project Number
J1102

Project Title
Biodegradable Fog Harvesters

Abstract

Objectives/Goals
The objective of this project is to create or find the most effective biodegradable mesh out of burlap, cotton, linen and cotton/rayon to replace the nylon or polypropylene mesh used in the average fog harvester.

Methods/Materials
My materials were a Waterproof fan, Ultrasonic humidifier ("fog maker"), Stack-able plastic storage container with lid, Measuring cup
Fabrics to be tested, Something to mount fabrics on, Water. I timed the amount of time each fabric had fog blowing onto it, measured the amount of water each fabric collected and tested another fabric repeatedly 3 times for each fabric

Results
My test results showed that burlap was the most effective biodegradable fabric for collecting fog water, collecting on average 145 ml. of water. This result is very helpful in finding a potential alternative fabric to use in fog harvesting that is biodegradable because burlap is extremely biodegradable and can even improve the fertility of the ground that it breaks down in through the composting process. One clear drawback with using biodegradable fabrics appears to be that after being saturated, it is much less effective. The amount of water decreased as I reused the biodegradable fabrics, while the nylon or polypropylene showed no decrease in the rate of water collection. Another drawback that my project did not test for but which seems likely is that these biodegradable fabrics may not be as durable as the nylon or polypropylene fabric that is currently used, since they may degrade quickly when exposed to sun, water, and wind over the course of time. Lastly, this project did not analyze other relevant factors such as fabric cost.

Conclusions/Discussion
Based on my results I can conclude that among the fabrics tested, the most effective biodegradable fabric- burlap- was not as effective as the nylon or polypropylene fabric currently used in most fog harvesting set-ups. Although my objectives were met in my project, my hypothesis was incorrect. I thought that the cotton fabric would be the most effective of the biodegradable fabrics in harvesting fog, but really it was the burlap that was optimal.
If I were to continue my project, I would try to find a fabric that is biodegradable like burlap, but effective and durable like nylon and polypropylene, and is also comparable in cost to these non-biodegradable fabrics that are currently in use.

Summary Statement
I found a biodegradable material that was close to as effective as the one currently used in todays fog harvesters.

Help Received
I would like to thank my Dad for buying the materials and providing a printer for me. My grandparents for letting me use their house for testing, and my teacher for giving me support in the writing process and structuring my board.