CALIFORNIA STATE SCIENCE FAIR
2015 PROJECT SUMMARY

Name(s)
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Project Number
35139

Project Title
Can Water Be Disinfected Using Only Sunlight?

Abstract

Objectives/Goals
My goal was to see if I could disinfect water using the SODIS method. SODIS is a type of water disinfection process using sunlight. You put the contaminated water in a PET (water) bottle and leave in the sun to be disinfected.

Methods/Materials
The SODIS method to disinfect the contaminated water
PET bottles
Watercheck Test (Water color changing test)
Coliscan Easygel Test (Growth test with petri dishes)
Aluminum pan
A location with sunlight for at least 9 hours
Black light
Distilled water
Contaminated water

Results
My results were that it only took six hours for water to be disinfected. Water disinfection is defined as removal, deactivation, or killing of pathogenic microorganisms. Checking at three hour intervals, six and nine hours were completely disinfected of coliform and more specifically E. coli. We used E. coli as our indicator organism because it is the hardest pathogen to kill. But at three hours, the water was still contaminated. My positive and negative controls for the project turned out as expected.

Conclusions/Discussion
In conclusion, my hypothesis was both correct and incorrect. It was correct because I was able to disinfect the water. My hypothesis was also incorrect because it took only 6 hours for the water to be disinfected, not 9 hours that I hypothesized. I will conclude that for people who cannot boil water or afforded to buy chlorine, they can use this SODIS method, but they would only have to leave it in the sunlight for 6 hours to be fully disinfected.

Summary Statement
I wanted to see if it was possible to disinfect water by only using sunlight in the SODIS method.

Help Received
My grandmother helped me by suppling me with materials and a location to do my project. My mother helped me edit my report. My dad helped me find a contaminated water source.