CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY

Name(s)
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Project Number
J1012

Project Title
Is Tap Water Better than Graywater?

Abstract

Objectives/Goals
I became interested in this experiment when I noticed how much tap water I waste from the shower and sink on a daily basis. I wondered how to find harmless ways to conserve water that has already been used one time. I wanted to research Graywater, which is wastewater from bathtubs, showers and laundry machines. I then arrived at a hypothesis. If tap water and graywater are used to water the same kind outdoor plants for five weeks, then the plants watered with tap water will grow more quickly than the plants watered with graywater because tap water has less contaminates than graywater.

Methods/Materials
My project is to test graywater on outside plants of the same species and under the same daily weather conditions. I will use tap water on half the plants and graywater on the other half for over 5 weeks. I plan to use graywater from the shower that has a mix of tap water and soapy water from shampoo and bath soap. I will make sure that the graywater is consistent by using the same type of shampoo and bath soap and take the same water measurement samples each time. My experimental procedure of watering the labeled plants with 2 cups of gray and/or tap water each week, measuring plant growth, monitoring plant health, keeping track of the variables that included tracking weather temperature and type of day, making sure the plants were not damaged by animals, and keeping a weekly photo record.

Results
My results showed that my hypothesis was incorrect because even though graywater and tap water sustained life throughout the 5 weeks, the graywater plants maintained growth and grew. Graywater Plant 1 started at 13 inches and ended at 13 inches. Graywater Plant 2 started at 12.5 inches and ended at 12.75 inches. Tap Water Plant 1 started at 12.5 inches and ended at 12 inches. Tap Water Plant 2 started at 13.25 and ended at 12.75 inches.

Conclusions/Discussion
My results disagree with my original hypothesis. Graywater plants grew more quickly than the tap water plants and the soapy water contaminates did not create a problem related to growth or visible health. Future projects could focus on the safety of graywater irrigation systems for home gardens and crops and how they can sustain our water supply. Can jobs be created for plumbers, engineers, and gardeners? I think my experiment can help give graywater a chance to people that doubt its use and lead to possibilities for other studies.

Summary Statement
To determine if tap water usage is better than graywater to sustain outside plant growth.

Help Received
My Mother helped with cutting the velcro. My Dad helped me with buying the plants.