Science Fair Report

Student 4B20

SSA Elementary School Science Fair

Which Liquid Blooms Best

Introduction

My science fair project looks at how different liquids affect plant growth. Plants usually grow with water, but I wanted to see if other liquids could be used instead of water to help plants grow. I chose liquids like milk, orange juice, Sprite, and apple juice to see if they would affect the growth of baby plants differently. This experiment helps me learn more about what plants need to grow strong and healthy.

Purpose and Hypothesis

The purpose of this experiment is to find out if any liquid other than water can help plants grow well. My hypothesis is that if I water the plants with orange juice, milk, Sprite, or apple juice, then the plants watered with milk will grow the fastest. I thought this might happen because milk helps young children grow strong, so I wondered if it might help plants grow too.

Materials and Methods

Materials

- 15 petunia plants
    - 3 watered with orange juice
    - 3 watered with milk
    - 3 watered with Sprite
    - 3 watered with apple juice
    - 3 watered with water (control)
- Measuring cups
- Ruler
- Phone stand
- Soil

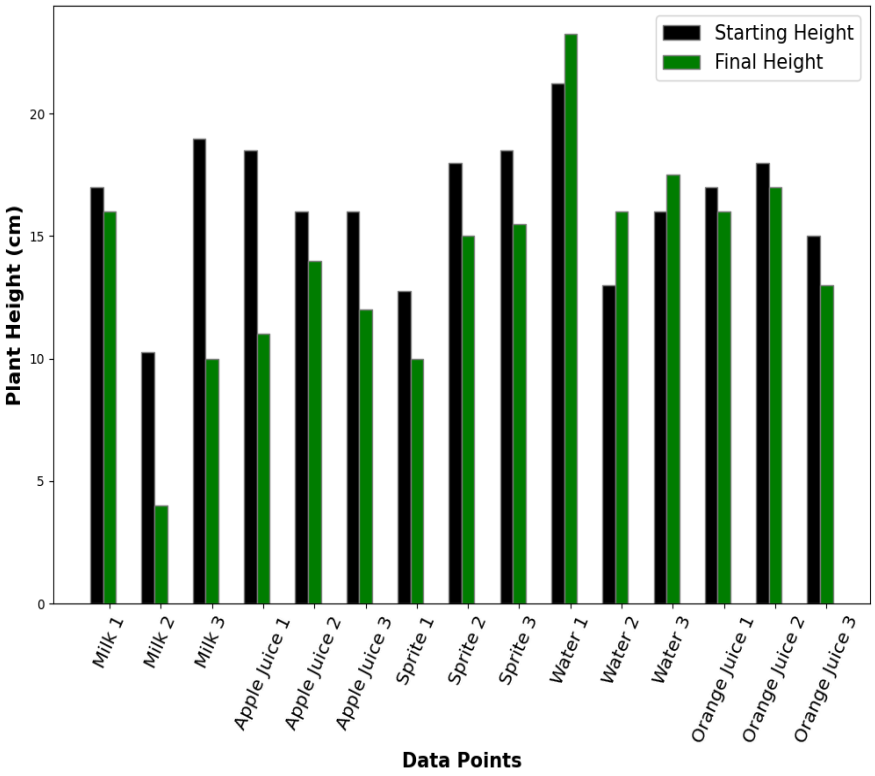
Methods

1. Plant the petunias in soil.
2. Water each plant with exactly 40 milliliters of its assigned liquid every day at 6:00 p.m.
3. Repeat this process for two weeks.
4. Measure the height of each plant using a ruler.
5. Record all observations and measurements.

Data and Results

The table below shows all the measurements I made over the two weeks, along with some early observations about how well the plants were doing.

	Liquid	Starting Height (cm)	day 3 observations	Week 2 Height (cm)
0	milk	17.0	healthy	16.0
1	milk	10.25	healthy	4.0
2	milk	19.0	healthy	10.0
3	apple juice	18.5	droopy	11.0
4	apple juice	16.0	healthy	14.0
5	apple juice	16.0	healthy	12.0
6	Sprite	12.75	wilting	10.0
7	Sprite	18.0	wilting	15.0
8	Sprite	18.5	healthy	15.5
9	water	21.25	healthy	23.25
10	water	13.0	healthy	16.0
11	water	16.0	healthy	17.5
12	orange juice	17.0	unhealthy bottom	16.0
13	orange juice	18.0	unhealthy bottom	17.0
14	orange juice	15.0	healthy	13.0



The bar chart illustrates that only water led to positive growth over the two weeks. Milk led to the greatest decrease in plant height.

After two weeks, the plants watered with water grew the best and looked healthy and strong. The plants watered with milk actually got shorter and showed signs of damage. The plants watered with orange juice grew a little but did not do as well as the water plants, and they had an unpleasant smell. The plants watered with Sprite and apple juice mostly died or did not grow at all.

Conclusion

My experiment shows that water is the best liquid for growing plants. None of the other liquids helped the plants grow better than water. Milk, orange juice, Sprite, and apple juice either slowed growth or harmed the plants. This means that even though some liquids are good for humans, they are not good substitutes for water in plant growth.

This experiment shows why plants need water to grow strong and healthy, which is important for farmers, gardeners, and people who grow plants at home. Understanding what liquids help plants grow can also help us take care of plants in schools, homes, and gardens. This project helped me learn more about plant needs and why water is essential for life.

Bibliography

"Can You Water Plants with Other Liquids? Experiment from Science-U @ Home." *Science-U.org*, 2023, science-u.org/experiments/can-you-water-plants-with-other-liquids.html.