

Introduction

My brother likes apples, but he does not like brown apples. I heard that citrus fruit can keep apples from turning brown. So I decided to test how well different citrus fruit do.

Citrusy Apple Experiment

Abstract - I wondered which citrus fruit would keep apples fresh the longest. I tested soaking the apple slices in air, water, lemon, lime, orange, and grapefruit juice. Then I kept the apple slices in the fridge and checked them every day. I found out that lemon and lime do the best job at keeping the apple slices from being brown.

Category - Food and Nutrition (FDN)

Conclusion/Discussion

Lemon is the winner! And lime was second place. My hypothesis was incorrect. Orange was not the best. In the future, I would like to test if things other than citrus fruit can keep apples from turning brown. I was also surprised how similar each slice in each citrus juice was.

Research

When you cut an apple, it turns brown. This happens because of an “enzyme” in the apples. If you soak your apples in citrus juice, it makes them less brown. Some people say the citrus juice works by stopping the enzyme. Other people say the liquid blocks oxygen from getting in the apple. I decided to test different citrus fruits to see which one does the best.

Procedures

Step 1: Collect supplies like apples, citrus fruit, and juicer.

Step 2: Juice the citrus fruits.

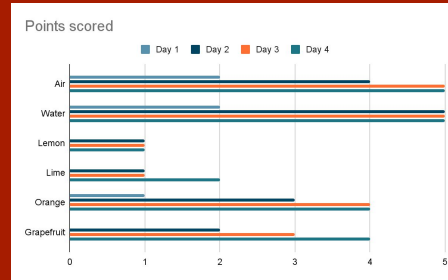
Step 3: Cut the apples.

Step 4: Separate apples into citrus groups.

Step 5: Soak 5 apple slices in each citrus juice for 4 minutes.

Step 6: Store apples in fridge and check them every day.

Results



Hypothesis/Prediction

My hypothesis was that orange juice would do the best job.

Scientific Journal



My Hypothesis was that the orange juice did the best job keeping the apple from turning brown.

References

<https://www.britannica.com/story/why-do-sliced-apples-turn-brown>

<https://learning-center.homesciencetools.com/article/acid-keeps-apple-fresh/>

Citrusy Apple Experiment

Food and Nutrition
(FDN)

Abstract

I wondered which citrus fruit would keep apples fresh the longest. I tested soaking the apple slices in lemon, lime, orange, and grapefruit juice. I also used air and water for controls. Then I kept the apple slices in the fridge and checked them every day. I found out that lemon and lime do the best job at keeping the apple slices from being brown.

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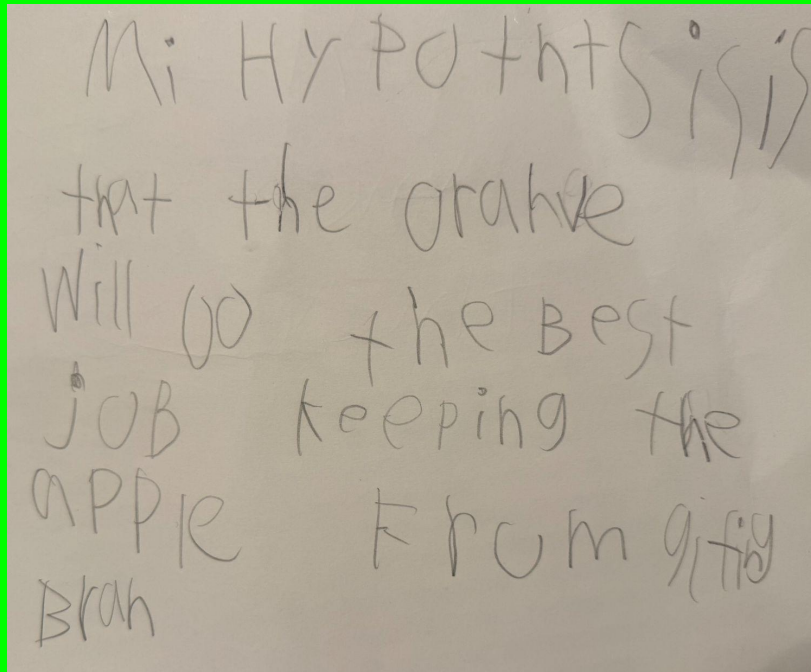
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Hypothesis

My hypothesis was that orange juice would do the best job keeping the apple from getting brown.



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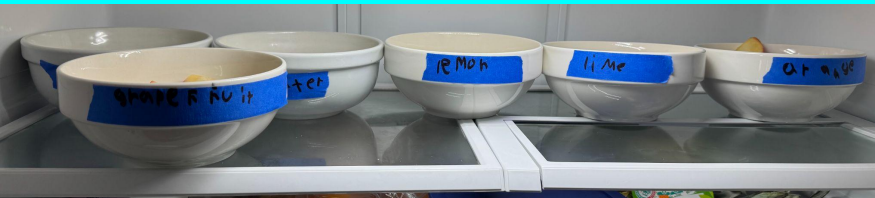
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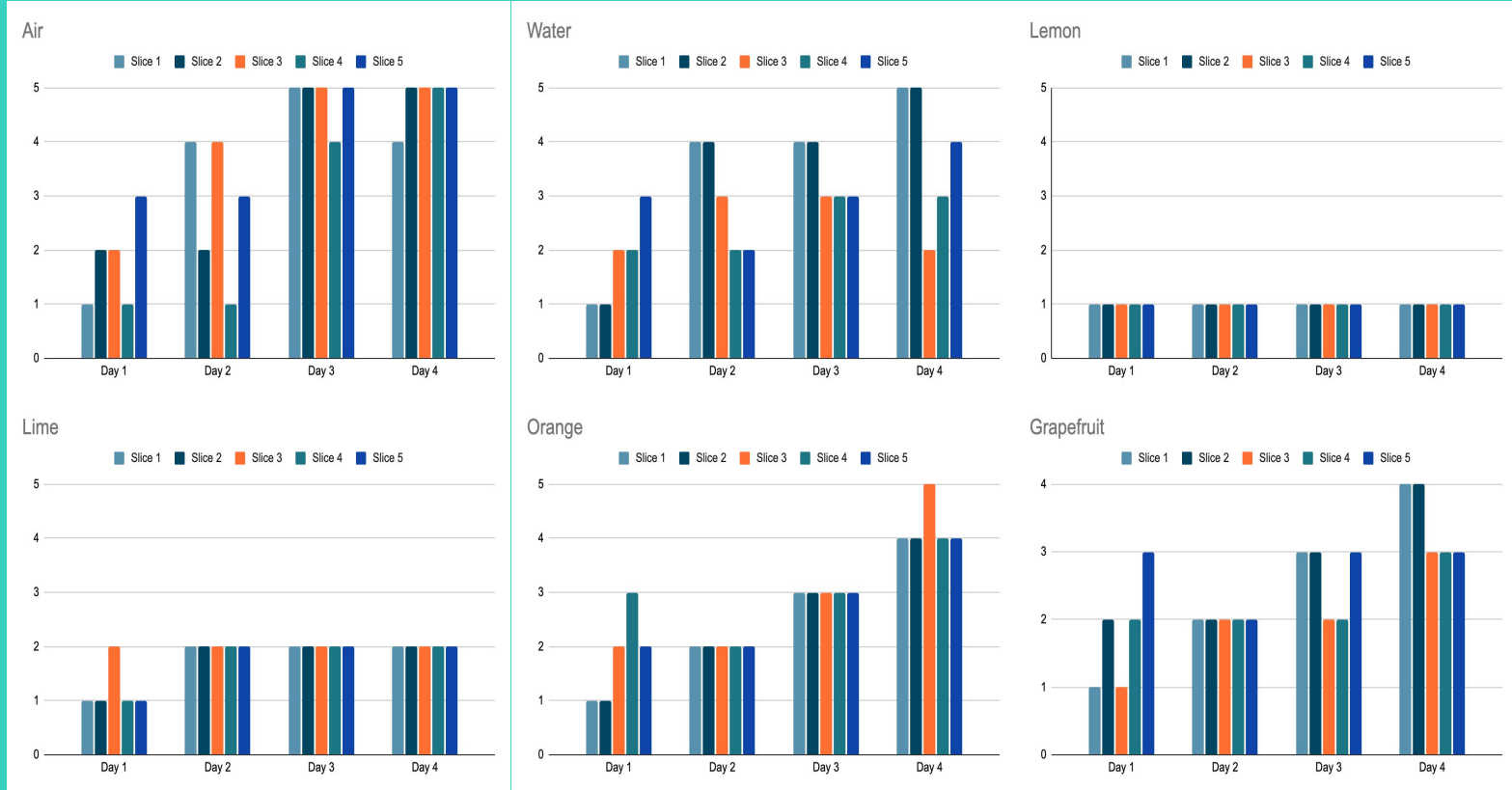


Results

I scored each slice on how brown they were.

0 = not brown

5 = super brown



Conclusion/Discussion

Lemon is the winner! And lime was second. My hypothesis was incorrect. Orange was not the best. In the future, I would like to test if things other than citrus fruit can keep apples from turning brown.

After, I tested how much acid was in the different juices. We call that “pH”. The lower the pH number, the more acid the fruit has. Lemon and lime had more acid than orange and grapefruit!



pH scale

Lime (pH 2)

Orange (pH 4)

Lemon (pH 2)



Grapefruit (pH 3)

Scientific Journal

Just for Fun! My family did a taste test to see
which flavor we liked the best!
Me = Lime | Brother = Lime | Dad = Lime | Mom = Orange

Air

Water

Lemon

Lime

Orange

Grapefruit

Day 1



Day 2



Day 3



Day 4



	Air	Water	Lemon	Lime	Orange	Grapefruit
Day 1	12 31	12 23	12 21	12 21	12 21	12 23
Day 2	12 31	12 23	12 21	12 21	12 21	12 23
Day 3	12 31	12 23	12 21	12 21	12 21	12 23
Day 4	12 31	12 23	12 21	12 21	12 21	12 23

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Good news!

Our family is going to start soaking our apple slices in lime juice and now my brother will eat more apples!

Hooray!