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Club: Fayette Firecrackers

Grade (completed): 6th

Department: R **Class No.:** 10445 **Project Area:** Food & Nutrition–Educational Display

Exhibit Description: Science Fair project – “Eww Brown Apples”

1. What did you plan to learn or do? (What was your exhibit goal?)

I love apples and don't like it when they turn brown so, I wanted to figure out what keeps an apple from turning brown the longest.

2. What steps did you take to learn or do this?

I gathered my materials for the experiment: apples, bowls, plates, water, apple juice, lemon juice, honey, sprite, salt, and milk. First I put all of the solutions into the bowls and mix the salt, lemon juice and honey with water in the bowls. I left one bowl with nothing in it. Then I cut the apples into eight pieces so one would go in each solution. I let the apples sit in the solutions for about five minutes. Finally I set the apples on a plate and waited until they browned and then compared them.

3. What were the most important things you learned?

I learned that the salt water worked lasted the longest but the lemon juice tasted the best.



Explanation Summary

A fun fact about my project is that when an apple turns brown it is called oxidation. Oxidation is when oxygen meets cells in the apple and makes it turn brown. It is still safe to eat but it may make it taste bitter. Many people may throw an apple away because they may think it is bad.

Section #1

What Keeps an Apple From Turning Brown?

By: Kyson Moss

6-1

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Section #2

Introduction

Have you ever had an apple and after a while it will start turning brown? I wanted to do this because I love apples and I don't like when they turn brown. I selected this question because I want to know what you can use to keep it from turning brown. I hope to achieve the goal of finding out how to keep the apples from turning brown by trying different substances. The groups of people that would benefit from this would be people that like to eat apples or that serve them at an event.

Research

I found out that oxygen is the main part of how apples turn brown. When apples turn brown it can affect the taste, the smell, and even some of the nutrition. There are many things you can use but I chose lemon juice, salt, milk, sprite, apple juice, water honey. I found that some people use lemon juice and say it works and but I think the other ones will change the taste of the apple. I think lemon juice will work best because it is acidic. They said that you only need a little bit of lemon juice and then you mix that with water. They will stay fresh for several days and will not turn brown. They say to soak the apples in the solutions for about 5 minutes. Then take them out of the solutions and rinse them off to get the leftover solutions off.

Section #3

Hypothesis

If I soak an apple in lemon juice, table salt, water, sprite, and apple juice then I think the lemon juice will keep them from turning brown because lemons are very acidic.

Section #4

Procedure

1. Get the lemon juice, salt, milk, sprite, apple juice, water, and honey
2. Put the solutions in the bowls.
3. Mix the salt, lemon juice, and honey with water in the bowls.
4. Cut the apples into 7 pieces and place them in the solutions.
5. Let them sit for about 5 minutes.
6. Take the apples out of the solutions.
7. Rinse them in water to get all of the solutions off of the apple.
8. Set the apples on a plate and compare them.

Materials

- Apples
- Lemon juice
- Salt (table)
- Milk
- Sprite
- Apple juice
- Tap water
- Honey water
- Bowls

Section #5

Independent Variable

The independent variable is the solutions used: lemon juice, salt-water, milk, Sprite, apple juice, tap water, and honey water. One apple had no solution.

Dependent Variable

The dependent variable is the amount of brown on the apple.

Section #6

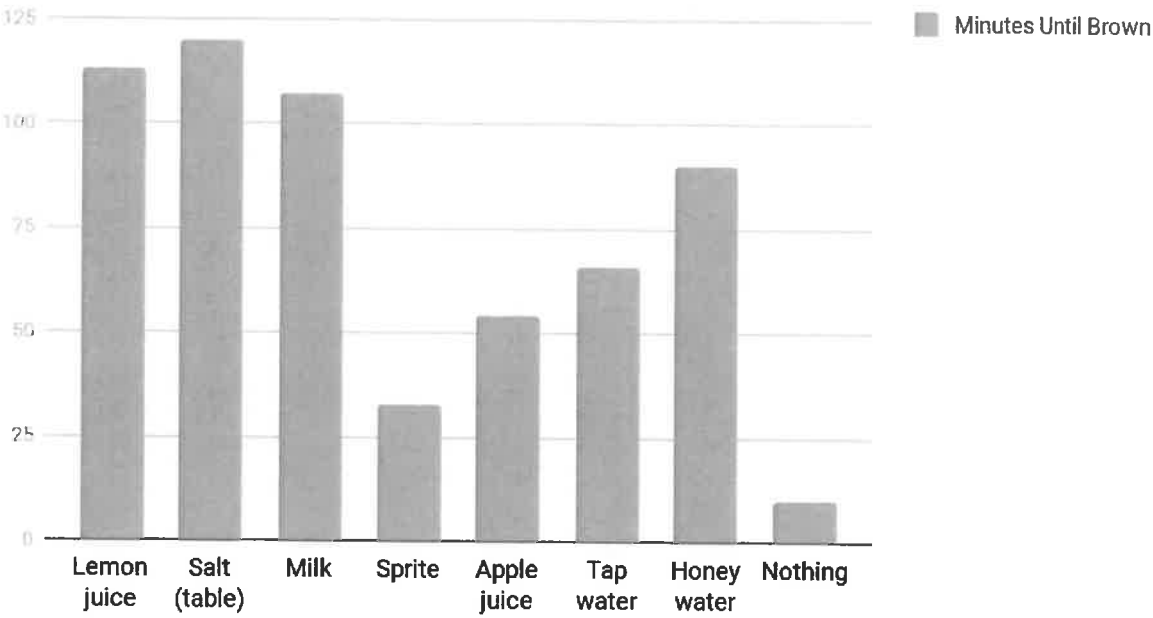
Experiment

I tried this experiment 2 times, one with an older apple and one with a fresher one. I got the apples, cut them into 8 slices and then put each of the slices into their own small bowl that had the solutions in them. Each bowl was labeled so I knew which bowl had which solution. After they soaked for 4 minutes in the different solutions, I took each one out and set it on a plate. I set a timer and observed how long it took for them to start to turn brown and then documented the time and solution the apple was in. I learned that the apple with no solution was the first one to brown because it had nothing to cover it from the air.

Section #7

Data/Results

Apple browning



Section #8

Conclusion

My hypothesis was incorrect. I found from my experiment that the salt-covered apple worked the best. I wanted to find what keeps the apple from turning brown the longest. Some things I did that I would change was the first time I did it I used an older apple but then I did it with a fresher apple and that worked better. I think this would be a good thing to try if you were serving apples at an event or if you would even be eating them in a few days after you cut them.

Section #9

Acknowledgments:

I want to give credit to my mom for helping me with my experiment. I also want to give credit to my teachers for helping me.

Section #10

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Apples slices soaking in solutions for 5 minutes.



Apples taken out of solution and put on plate to start browning.



This was the apple that didn't soak in any substance – browning in 10 min 39 sec



Sprite – browning in 33 min 15 sec



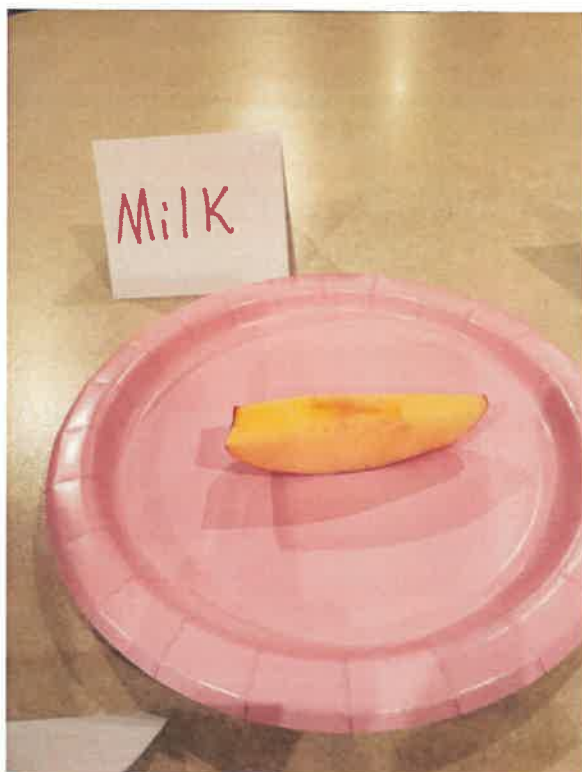
Apple juice – browning in 54 min 54 sec



Water – browning in 1 hour 6 min 54 sec



Honey – browning in 1 hour 30 min 29 sec



Milk – browning in 1 hour 47 min 56 sec



Lemon juice – browning in 1 hour 53 min 23 sec



At the 2 hour mark – salt water still not browning



The next morning