

CBA1 Extended Experimental Investigation

OXIDATION

WHAT IS OXIDATION?

- Have you ever bit/cut into an apple or a potato and then if you left it turned brown? Well this is due to oxidation. Oxidation takes place when the apple/potato loses electrons. What are electrons? might be your next question. Electrons are negative subatomic (smaller than or occur get within an atom) particles that are found in all atoms and act as the primary carrier of electricity through solids. So when an apple or potato starts losing electrons it turns brown. The apples have this thing called a polyphenol oxidase (which is an enzyme which oxidises something). They also have just a polyphenol enzyme. These two are usually kept apart but when you cut into an apple you are breaking the cell walls and allowing them to mix together, and causing oxidation to take place. The result is the browning of an apple/ or potato and many other foods.

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THE EXPERIMENT

- The point of the experiment was to find out which one of the liquids we used would slow down the process of oxidation.
- Out of all the liquids we used my predictions were that vinegar would be the best and water would be the worst.
- I think that vinegar would be the best because I the oxygen will react with it first before it reacts with the polyphenol oxidase and there fore delaying the process of oxidation.

ITEMS USED

- The liquids we used were.....
- Vinegar, oil, water and salt
- We tested these liquids on.....
- Apples and potatoes



1. Makes a clear prediction with justification.

2. Describes the method used to accurately collect and record good quality, reliable data in a manner that could be easily repeated.

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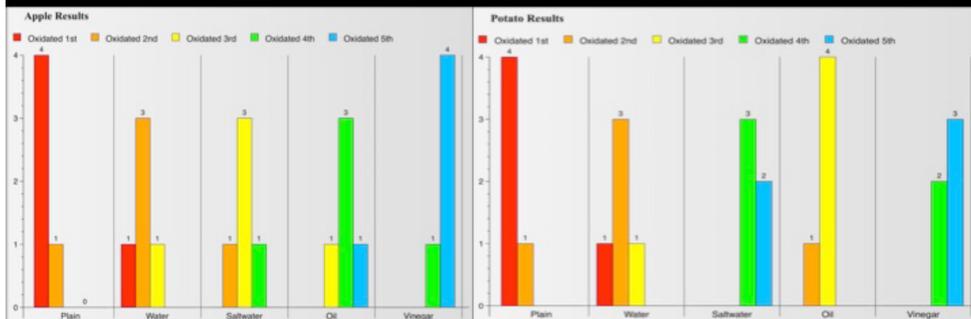
METHOD

- We first cut the apples and potatoes into small, even pieces.
- We then filled different beakers with all the different liquids
- After that we submerged separate apples & potatoes into different liquids and left one bare so that we could test all the liquids against a non-tempered one
- We set the apples & potatoes in front of the right liquid they belonged to
- We then observed them to see which liquid took the longest to oxidate and which one was second best and so on
- We repeated this 4 times for apples and 4 times for potatoes

RESULTS

For apples the order for the best liquid to prevent oxidation is: vinegar, oil, saltwater and then water

For potatoes the order for the best liquid to prevent oxidation is: Vinegar ,saltwater, oil and then water



3. Records Raw data.

4. Displays data in charts.

5. Does not report on safety considerations

6. States a relationship between the variables appropriate for this investigation.

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OBSERVATIONS

- Overall the vinegar was the best liquid to prevent oxidation from the liquids that we used
- Something I noticed was that the saltwater had a different effect on the potatoes than the apples.
- The water was the worst liquid but it does last quite a bit and is the best for taste so if you look at it from a taste point of view it is the clear winner.

THE END

7. The student draws a simple conclusion based on the results of the experiment but does not suggest any improvements.

Overall judgement:  In line with expectations