Introduction

This lab report has been compiled upon evidence that was collected when I was present, using facts that were given for the most part when I was not. I was, given the initial report on enzymes, more interested in the effect of pH then the others, as it seemed to have a very interesting effect: preservation. The brown spots and wrinkling that were present on every apple but the one treated with lemon juice puzzled me, and led me to desire a greater understanding of what happened with the change in pH.

Hypothesis

If one lowers the pH of an enzyme, then it is more likely to be partially removed, revoking at least a good deal of the chance of a rot, because acid corrodes, and if one raises the pH of an enzyme, then it is more likely to remain, but be better suited for what is to come, because bases cleanse things well.

Materials

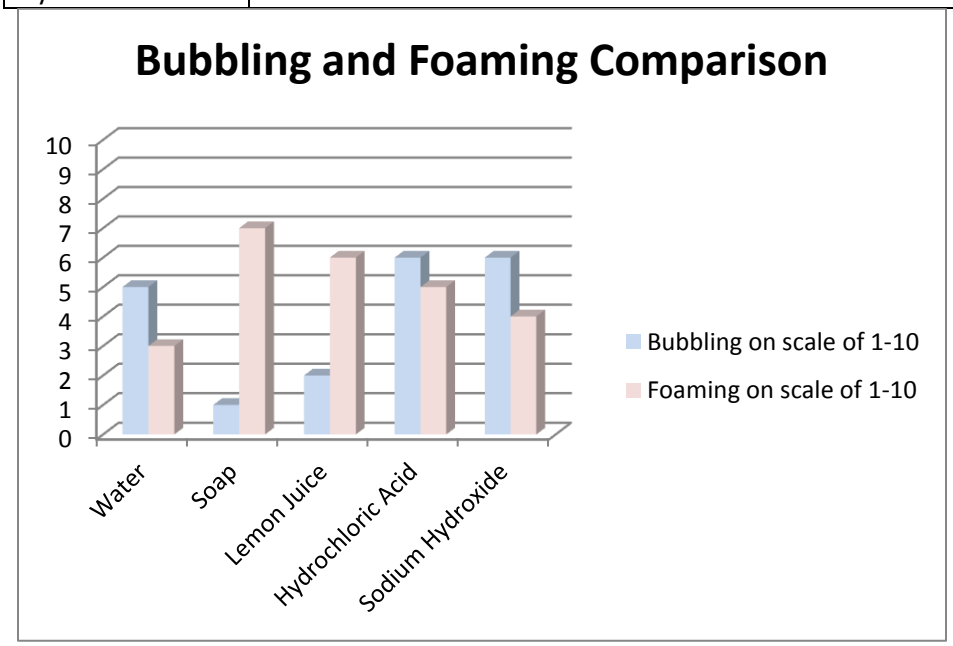
- 5 slices of potato
- 2 beakers
- 40 mL of water
- A good deal of soap
- 40 mL of lemon juice
- 40 mL of Sodium Hydroxide
- 40 mL of Hydrochloric Acid

Procedures

1. Fill Beaker 1 with 40 mL of water.
2. Place the control slice of potato into Beaker 1.
3. Add soap to Beaker 2.
4. Place the second slice of potato into Beaker 2.
5. Observe Beaker 1.
6. Clean Beaker 1.
7. Fill Beaker 1 with 40 mL of lemon juice.
8. Place the third slice of potato into Beaker 1.
9. Observe Beaker 2.
10. Clean Beaker 2.
11. Fill Beaker 2 with 40 mL of Sodium Hydroxide.
12. Place the fourth slice of potato into Beaker 2.
13. Observe Beaker 1.
14. Clean Beaker 1.
15. Fill Beaker 1 with 40 mL of Hydrochloric Acid.
16. Place the fifth slice of potato into Beaker 1.
17. Observe Beaker 2.
18. Clean Beaker 2.
19. Observe Beaker 1.
20. Clean Beaker 1.

Results

| | Observations |
|---|---|
| Water | Bubbling, some foaming around potato |
| Soap | Huge amount of foaming, no bubbling |
| Lemon Juice | Large amount of foaming, a tiny bit of bubbling |
| Hydrochloric Acid | Some foaming, large amount of bubbling |
| Sodium Hydroxide | Medium foaming, large amount of bubbling, potato very white under water |




Analysis

The buffer-type lower acids or bases seemed to rely a lot more on foaming, and this seemed to replace a good deal of the bubbling which was actually found in water, a more neutral liquid, and the foaming seemed to decrease when the real chemical reactions were taking place, in the Hydrochloric Acid and Sodium Hydroxide.

Conclusion

My hypothesis was pretty much the opposite of what was true. The only truly puzzling thing was the difference with the pH's. The foaming lessened in the bases, which seems to say that it was actually proving my hypothesis correct in terms of protecting the enzyme; however the whiteness of the potato proves otherwise. The corrosion of the acids did not affect the enzyme and just resulted in other components of the potato foaming. In the future, I could experiment like my classmates with other factors initially given to us like temperature.