

LAB 12 - CABBAGE JUICE INDICATOR (HONORS)

Introduction:

(Write 10 facts from Chapter 19.)

Materials:

cabbage	pipets
400 mL beaker	household solutions
ring stand	test tube rack
wire gauze	7 test tubes
Bunsen burner	well plate
stirring rod	
solutions with pH = 1, 3, 5, 7, 9, 11, and 13	

Procedure:

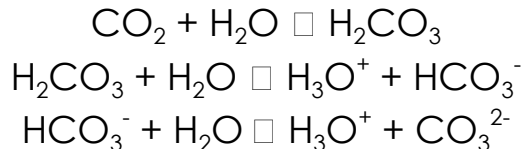
1. Fill the 400 mL beaker with 250 mL of water. Place the beaker on the ring stand and heat to a boil.
2. While the water is heating, obtain some cabbage. Tear the cabbage into very small pieces and put the pieces into the beaker with the water.
3. Boil the cabbage until the water turns a deep purple color. This purple water is your cabbage juice indicator.
4. Fill 7 test tubes about halfway with the cabbage juice indicator.
5. Add a squirt of a pH solution to a test tube until you can see a color change. Repeat for each pH solution. It helps if you go in order. Make a chart showing the pH and the color change.
6. Test the household solutions in the well plate. Add a squirt of each household solution, and then add a squirt of the indicator.
7. Record the color of change of the solutions, and the estimated pH.
8. Clean Up: Rinse out your test tubes and well plate.

Data:

(I will show you how to do data in class.)

Questions: (Write the questions and answer them.)

1. What are some other foods or plants that can be used as pH indicators?
2. What chemical in the cabbage makes it an indicator?
3. Why is this indicator not good for a pH between 4 and 8?
4. Refer to the following reactions that occur in an aqueous solution when carbon dioxide and water combine to form carbonic acid.



Which of the following represent Bronsted-Lowry conjugate acid-base pairs?

- a. H_2O and H_2CO_3
 - b. H_2CO_3 and H_3O^+
 - c. CO_2 and HCO_3^-
 - d. H_2O and H_3O^+
5. The pH of 0.1 molar ammonia is approximately ...
- | | | | | |
|------|------|------|-------|-------|
| a. 1 | b. 4 | c. 7 | d. 11 | e. 14 |
|------|------|------|-------|-------|

Conclusion:

(Write 3 sentences about any mistakes you made, anything that you learned, how the lab relates to real life, or when else you use acids and bases.)