

Cabbage Chemistry

What you will need:

- Gloves and goggles
- Small red cabbage
- Pot of boiling water
- Strainer
- Small white cups or plates
- Medicine dropper or pipette
- Large bowls (2)
- Worksheets
- Series of house hold items to test pH
- Fruit juice
- Vinegar
- Baking soda
- Salt
- Sugar
- Clear dish soap

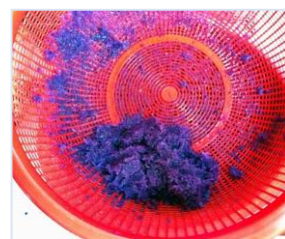
Overview and Objective

In this experiment, you will hypothesize what color the cabbage juice will turn when mixed with common household items to determine how acidic or basic the item is.

Red cabbage contains an indicator pigment molecule called Flavin. This water-soluble pigment is also found in apple skin, red onion, plums, poppies, blueberries, cornflowers, and grapes. Very acidic solutions will turn the indicator a red color. Neutral solutions result in a purplish color. Basic solutions make a greenish-yellow or yellow color.

Process

1. Grate a small red cabbage and place the pieces into a large bowl.
2. Pour boiling water (parent supervision please!) into the bowl to cover the cabbage. **USE CAUTION.**
3. Leave the cabbage mixture steeping, stirring occasionally, until the liquid is room temperature. This may take a half hour or more. The liquid should be reddish purple or deep purple in color.
4. Place strainer over a second larger bowl and pour the mixture through the strainer to remove the cabbage pulp. Press down on the pulp to squeeze more liquid out of the pulp.
5. In the bowl, you should now have a clear liquid that will be purple or blue in color. This is your indicator solution.
6. The color of the liquid will change depending upon the pH. Set aside your indicator solution. You will use it as your "stock" solution for your experiment. (scale on next page)
7. Test various household items with your indicator. Use a separate Dixie cup or white plate for each solution you wish to test. Add your indicator solution to the sample until you see a change in color. We tested vinegar and baking soda.



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pH Indicator Scale

pH	Color
2	Red
4	Purple
6	Violet
8	Blue
10	Blue-green
12	Greenish-yellow



This picture shows some of the different colors that red cabbage juice can become. From left to right, the solutions shown range from very acidic (red) to very basic (yellow).

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What have you found?

Did you test any household products?

What had the highest and lowest pH levels?



Share your experiment results with us!

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