

USING RED CABBAGE AS A pH Indicator

Red Cabbage pH Indicator Colors

pH	2	4	6	8	10	12
Color	Red	Purple	Violet	Blue	Blue-Green	Greenish Yellow

You can make your own pH paper strips using a red cabbage indicator. Take filter paper (or coffee filter) and soak it in a concentrated red cabbage juice solution. After a few hours, remove the paper and allow it to dry (hang it by a clothespin or string). Cut the filter into strips and use them to test the pH of various solutions. To test a sample, place a drop of liquid on the test strip. Don't dip the strip in the liquid because you'll get cabbage juice in it. An example of a basic solution is laundry soap. Examples of common acids include lemon juice and vinegar.

Cabbage pH Indicator Basics

Red cabbage contains a pigment molecule called flavin (an anthocyanin). This water-soluble pigment is also found in apple skins, plums, poppies, cornflowers, and grapes. Very acidic solutions will turn anthocyanin into a red color. Neutral solutions result in a purplish color. Basic solutions appear in greenish-yellow. Therefore, you can determine the pH of a solution based on the color that it turns the anthocyanin pigments in red cabbage juice.

The color of the juice changes in response to changes in its hydrogen ion concentration; pH is the $-\log[H^+]$. Acids will donate hydrogen ions in an aqueous solution and have a low pH (pH 7).

Materials You Will Need

- Red cabbage
- Blender or knife
- Boiling water
- Filter paper (coffee filters work well)
- One large glass beaker or another glass container



Three jars containing red cabbage juice, turned red by adding lemon (acid), green by adding soap (alkali), and blue with nothing added. Clive Streeter / Getty Images