

Chemistry with cabbages

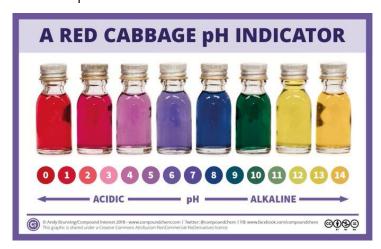
In this experiment we will use red cabbage to make a pH indicator.

You will need:

Red cabbage (diced into 2cm pieces), access to water and a hotplate/cooker, a range of household substances to test

Directions:

- 1. Dice the cabbage and cover with boiling water.
- 2. Simmer gently for 15 minutes, then discard the cabbage and retain the liquid (tip: you can also blend the mixture with a stick blender and then sieve).
- 3. Use the cabbage indicator to test a range of different household chemicals, such as lemon juice, vinegar, soap, and washing powder.
- 4. Compare colours to the scale below





The colour of red cabbages comes from anthocyanins. These colourful chemicals change colour depending on the pH, and red cabbage has a particularly rich colour range.

Anthocyanins are present in lots of bright red/purple fruits and flowers, including blackberries, geraniums, peonies, and beetroot.

Electrochemistry and cabbages

If you hook a 9V battery up to a battery snap and place the wires into the red cabbage solution you will see something interesting happening.

At the negative electrode, the solution will become more alkaline and fizzy; at the positive electrode the solution will become more red/pink. This is because electrochemical reactions happening at the electrode cause the solution nearby to become more acidic or more alkaline





