

Science Experiments: Chemistry

Lemon Juice And Tea Colour Change



Materials:

- three clear drinking glasses
- cold tea
- lemon juice
- liquid dish detergent

Experiment:

1. Line the three glasses up in a row and pour an equal amount of cold tea into each of them.
2. Add a few drops of lemon juice to the glass of tea on the far left. Watch to see what happens to the colour of the tea.
3. Add several drops of the liquid dish detergent into the glass on the far right. Watch to see what happens to the colour of the tea.
4. Now compare the glass of tea with lemon juice and the glass of tea with liquid dish detergent to the glass of tea in the middle. What do you see?
5. Things you could change to experiment further:
 - What happens if you use more than 1 teabag?
 - Do limes, grapefruit and other citrus fruits produce the same effect?
 - What if you use apple juice or other juices?
 - Try soft vs hard water
 - Try different teabags from different companies.
 - Try green tea vs black tea

What is happening?

Black tea contains pigment called thearubigins. These are typically a red/brown colour in water. However if the water is acidic the pigment changes to a much lighter colour. Lemon juice is acidic. The pigments in the black tea become much darker if the water becomes more alkaline, the liquid dish detergent is alkaline.

