

An Acid/Alkali indicator

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Pick a handful of Unchun (blue pea) flowers. The plants grow wild in South East Asia.



If you don't have Unchun, try blue sweet-pea flowers, violets or any other blue flower. What you want is blue dye from the petals.

Extract the dye



Put the flowers in a Chinese teapot: add boiling water: wait five minutes: pour the blue water into tall glasses. Add lime juice to one of the glasses.

Lime juice is a little bit acidic and turns blue Unchun water purple.



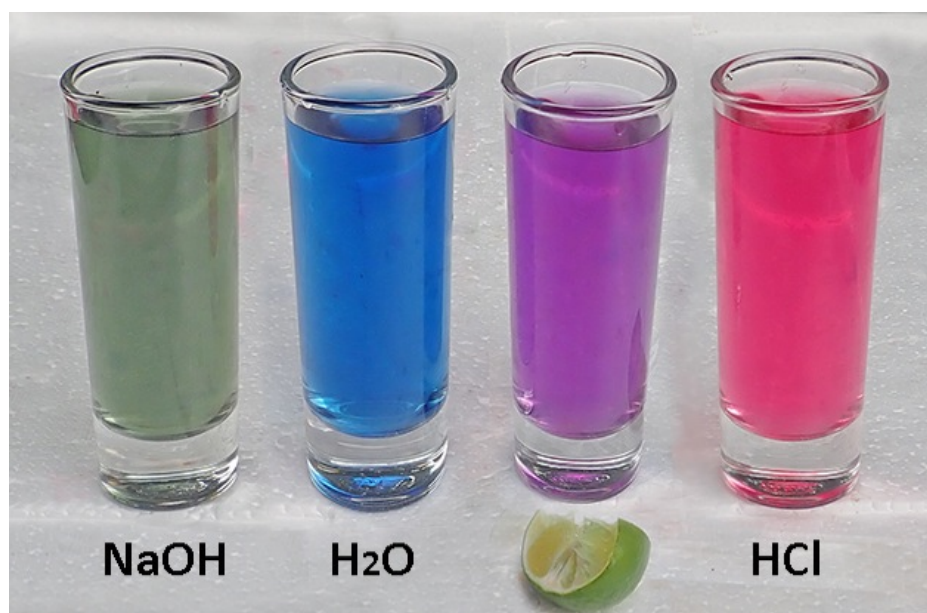
In Cafes in Bangkok they sell Unchun water with sugar and lime juice. The lime juice is put in for taste and for colour.

Acid and Alkali

Acid in your stomach burns your throat when you burp too much. It's called *hydrochloric acid*. It helps to break down food for digestion and kills the bacteria you swallow.

Hydrochloric acid can be made by dissolving HCl (hydrogen chloride gas) in water. To keep things simple we write the formula for hydrochloric acid as HCl and remember that the gas is dissolved in water. We have some in a squeeze bottle.

For an alkali we use *sodium hydroxide*. The formula for sodium hydroxide is NaOH and the common name is caustic soda. Caustic soda is sold as crystals in packets to clean drains and as "sugar soap" to clean walls before painting. We have some of that in water in a squeeze bottle.



Adding HCl (on the right) changed blue to a bright pink.

Adding NaOH (on the left) changed blue to muddy green.

Adding more HCl, more NaOH, or more lime juice to the same glasses didn't do anything. The colours stayed the same.

Mixing

I wondered what would happen if I mixed the pink and green together. I put the green water in a larger glass and added the pink to the green.



When I stirred the purple and green together the water went back to blue. The acid in the pink water was neutralised by the alkali in the green water. I did this at a school science assembly with big glass buckets, and help from my teacher with the pouring. It was fun and worked very well.