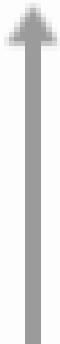


Acidic

MAKING YOUR OWN ACID-BASE INDICATOR



Neutral



Basic



bleach pH 12.5

S4

Au Sin Yi

Chen Man Yan

Poon Ka Ki

baking soda

detergent pH

rain pH 5.5

apple juice pH 7.5



OBJECTIVE

To test whether the following plants be used as an acid-base indicators or not.

- Blueberries
- Beetroots
- Strawberries



Safety Precautions

1. Avoid direct contact with chemicals . Wash immediately with plenty of tap water if chemicals spill on skin.
2. Do not touch any hot object with bare hands.
3. Heat flammable solvent in a hot water bath on a hotplate instead of direct heating using naked flame.
4. Do not ingest any plant materials used in experiments.
5. Do not use plants which are known to contain irritants that induce allergy or dermatitis on skin contact.

Safety Precautions

6. Wear disposable plastic gloves when handling the plant materials because plant pigments may stain the hands.
7. Take care when dealing with plant specimens which bear spines or thorns.
8. Wear suitable protective gloves when necessary.
9. Use sharp tools carefully.
10. Wash hands after handling plant materials.

Procedure

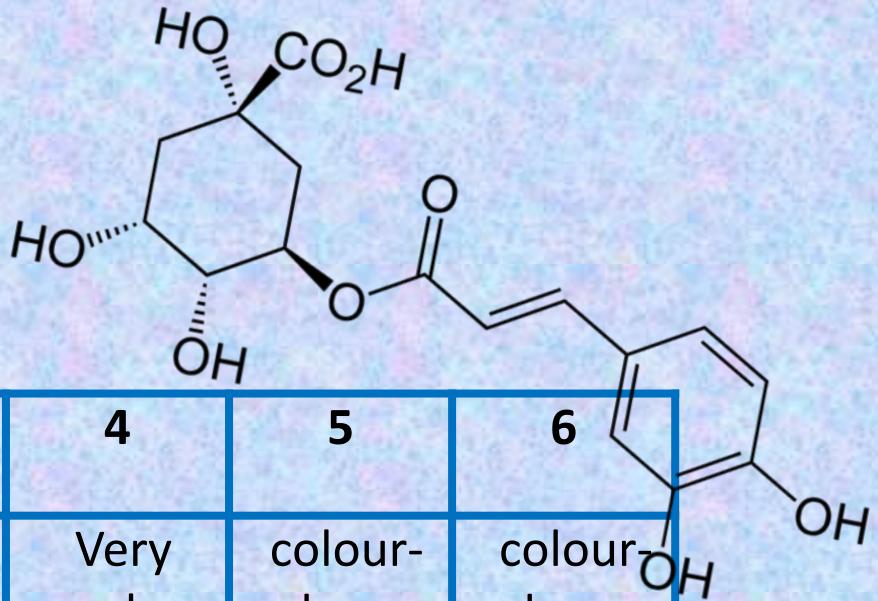
blueberries

1. A colour plant (blueberries) materials were cut into small pieces.
2. A measured amount of materials were placed in a beaker and distilled water was added.
3. The material were heated by a hotplate for ten minutes.
4. The materials were stirred occasionally while they were being heated.
5. After cooling down the plant were extracted by filtration.
6. Solutions with different pH value (2-12) were added into 12-hole plate.
7. Extracted plants were added into solution with different pH values and mixed.
8. The colour of plants were record .
9. Repeat Step 1 to 8 by using strawberry and beetroot.

Results

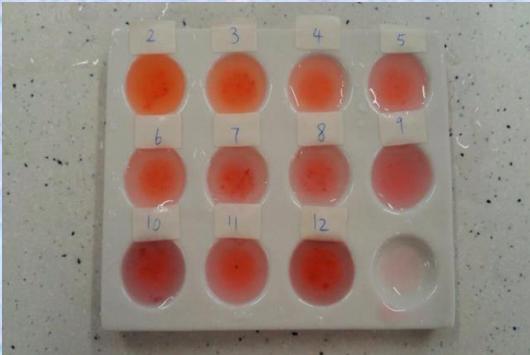
Blueberries

pH	1	2	3	4	5	6
Colour	N/A	Pink	Pale pink	Very pale pink	colour-less	colour-less
pH	7	8	9	10	11	12
Colour	colour-less	very pale green	pale green	light green	green	dirty green



Results

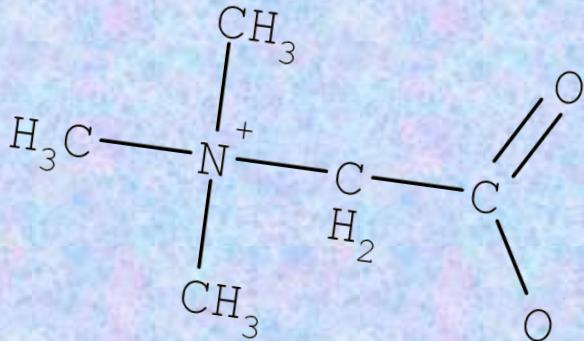
Strawberry



pH	1	2	3	4	5	6
Colour	N/A	orange	orange	light orange	pale orange	very pale orange
pH	7	8	9	10	11	12
Colour	light pink	pink	light pink	light pink	pale pink	pale pink

Results

Beetroot



pH	1	2	3	4	5	6
Colour	N/A	Pale red	Pale red	Pale red	Light red	Light red
pH	7	8	9	10	11	12
Colour	Light pink	Pink	Very Pale Pink	Pale Purple	Light Purple	Purple



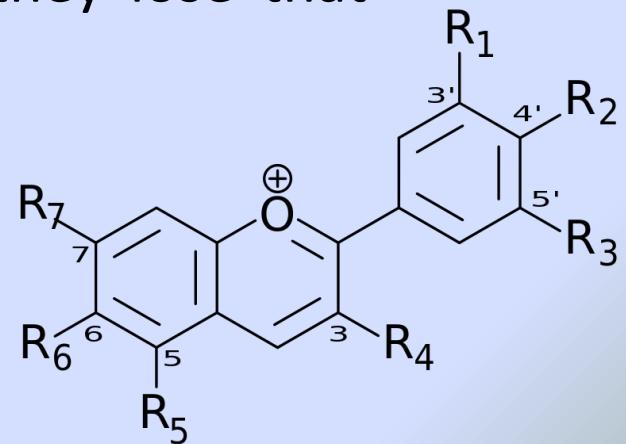
Conclusion

According to the results, we found that Blueberries, Strawberries and Beet root can be used as natural acid-base indicator. Within the three food and fruits, the blueberries is the best natural acid-base indicator since it has a sharp colour change on different pH value.



Discussions

The Anthocyanin that most all of which are pH sensitive inside plant materials can be used as acid-based indicator. In the presence of bases, anthocyanin undergo a chemical reaction that alters which wavelengths of light they can absorb and reflect. In their natural state, anthocyanin tend to be bright and colorful, but after reacting with bases, they lose that color and appear darker.



Structure of anthocyanin

Reference

Thought Co.

<http://chemistry.about.com/od/acidsbase1/a/red-cabbage-ph-indicator.htm>

FOOD-INFO Since1999 [www.food-
info.net/uk/colour/anthocyanin.htm](http://www.food-info.net/uk/colour/anthocyanin.htm)

eHow

[http://www.ehow.com/how_8249969_use-
blueberries-test-ph.html](http://www.ehow.com/how_8249969_use-blueberries-test-ph.html)

