

## **ACID-BASE AT HOME EXPERIMENT**

### **A. INTRODUCTION**

How will you know if a mixture is acidic or a basic? In this activity, you will distinguish between acidic and basic mixtures based on their color reactions to an indicator. An indicator is a dye that changes into a different color depending on whether it is in acid or in base. There are many indicators that come from plant sources. Each indicator dye has one color in an acidic mixture and a different color in a basic mixture. A common indicator is litmus, a dye taken from the lichen plant. Litmus turns red in acidic mixtures and becomes blue in basic mixtures.

#### **Acid-Base indicator from plant indicators available in your place.**

Since you are at the comfort of your own home. We will use the extract from plants to use as indicators instead of litmus paper. You can use any of the following:

- violet eggplant peel,
- purple camote leaves, (recommended)
- red mayana leaves or
- violet Baston ni San Jose.

These plant materials contain anthocyanins. These plant pigments produce specific colors in solutions of different acidity or basicity.

### **B. MATERIALS:**

- Purple Camote tops
- Water
- Sprite
- Sanitizer
- Bleach
- Vinegar
- Baking powder
- Sugar
- Calamansi
- 8 Cups or disposable glasses (to keep the 8 solutions)

## C. PROCEDURES

### Part 1. Preparation of Indicator

1. Cut the camote tips into small pieces and place in a small casserole or milk can.
2. Add about  $\frac{1}{3}$  to  $\frac{1}{2}$  cup tap water to the leaves depending on the size of the camote used. Boil for 5 minutes. Stir from time to time.
3. Transfer the mixture into a bottle while it is still hot. There is no need to filter, just remove the solid portion. The mixture may change if left in open air for more than 5 minutes
4. Stir well while still hot. This is now the indicator solution

### Part 2. Determining the acidity or basicity of some common household items

1. Prepare 8 cups and labeled each (water, vinegar, sanitizer, bleach, baking powder, sugar, sprite and calamansi extract)
2. Put 2 tbsp of the specific solution in each cup. Like 2 tbsp of water, 2 tbsp of sprite... etc.)
3. Add  $\frac{1}{4}$  cup of water in each solution in the cup and mix in order to blend the camote extract in each solution afterwards.
4. Add the camote leaves extract to each of the solution filling it to half of the cup.
5. Take note of the color change of each solution.
6. Arrange the solutions according to their pH (take a video or image).
7. Start to the left with the most basic and to the right with the most acidic.

## D. DATA AND RESULTS

Table 1. Acidic or Basic nature of household materials

SAMPLES	COLOR OF INDICATOR	ACIDIC OR BASIC
1. Water	Violet	Basic
2. Sprite	Red orange	Acidic
3. Sanitizer	Violet	Basic
4. Bleach	Yellow	Acidic
5. Vinegar	Dark red	Acidic
6. Baking Powder	Light Violet	Basic
7. Sugar	Light Violet	Basic
8. Calamansi	Dark Red	Acidic

## **E. OBSERVATION**

- I noticed in my performed experiment is all of the sour tastes and smells are acidic. Also, the main indicator of my experimentation, mayana leaves, needs to boil for about 3-5 minutes so as to achieve extraction and flawless flow of assessment. During testing and undertaking analysis, there is a presentation of lightness and darkness of the color.

## **F. CONCLUSION**

- I, therefore, conclude that starting from yellow up to red is acidic; on the other hand, colors starting from violet up to blue are basic. Calamansi is the most acidic of all I used for the experiment. In addition, during the process of experimentation, the indicator and the application of materials must be practically precise to meet the complete and magnificent representation of colors. Simply, every procedure must be followed chronologically.

## **G. POST-LABORATORY QUESTION**

1. Why do you think is it important to know about pH?

- The pH is significant to have knowledge because it determines the acidity of the particular liquid, such as vinegar, sprite, and citric juices. Also, this is an insight of awareness because strong basic and strong acidic can cause severe reactions like burns or allergies. We have to be aware of our surroundings, especially the objects we touch.

2. How would you neutralize the distilled water if it is acidic?

- In some cases, distilled water is slightly acidic. It is safe to drink distilled water since it undergoes a long process to purify its content. But if you are anxious, put a pinch of Sodium Bicarbonate in the water to put a normal pH level. Sodium Bicarbonate is a kind of salt that can see in the content of soft drinks.

3. What Kremil-S for?

- The Kremil-S is a tablet or drug that can use for people who experienced stomach pain caused by hyperacidity and heartburn. It is prescribed by a doctor to eliminate the pain. It is a category of the base since Kremil-S is an antacid that neutralizes acidity and reduces acid production in the stomach.