CALIFORNIA STATE SCIENCE FAIR
2014 PROJECT SUMMARY

Name(s)
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Project Number
34945

Project Title
Basic or Acidic: The pH Lab

Abstract

Objectives/Goals
The pH scale is used to measure acidity of an object. Acidity is measured with pH paper which turns red in acidic and blue in basic/alkaline solutions. My objective is to create pH paper using red cabbage juice, which is naturally pH sensitive due to a pigment called flavin. If my pH paper works then I hypothesize that baking soda will have the highest acidity and milk will have the lowest acidity.

Methods/Materials
Materials
Red Cabbage # Lab Filter Paper # Acid test items: Lemon juice, vinegar, soda. Orange juice, banana, black coffee, milk, saliva, pure water, salt water, baking soda, soapy water
Procedure
1. Slice cabbage at 1 inch intervals 2. Place leaves in a cooking pot and cover with water 3. Cook on medium heat for ½ hour 4. Allow cabbage to cool than pour the liquid into a bowl using a strainer 5. Soak 5 sheets of filter paper in the solution for about ½ hour 6. While sheets dry cut them into strips 7. pH paper is now complete. 8. Test acidic solutions on it. My experiment has 2 trials for each solution. The measurements I intend to take are the intensity of the color of the paper which indicates the pH level of the substance.

Results

ITEM	PREDICTION	RESULT
Lemon Juice	Acidic	Most Acidic
Vinegar	Basic	Acidic
Soda	Acidic	Acidic
Orange Juice	Acidic	Acidic
Black Coffee	Basic	Unknown (Failed to get result due to dark color)
Milk	Most Basic	Neutral
Saliva	Acidic	Neutral/possible basic
Banana	Basic	Basic
Pure Water	Neutral	Neutral
Salt Water	Acidic	Most Basic
Soapy Water	Acidic	Basic
Baking Soda	Most Acidic	Basic

Conclusions/Discussion

Summary Statement
My project is about the pH scale, and measuring the acidity of various substances we encounter in our daily lives.

Help Received
Father helped me prepare cabbage juice solution that involves boiling water.