

Chemistry Projects

ANALYSIS OF VEGETABLES AND FRUIT JUICES

AIM

To analyse some fruits & vegetables juice for the contents present in them.

INTRODUCTION

Fruits and vegetable are always a part of balanced diet. That means fruits vegetables provide our body the essential nutrients, i.e. Carbohydrates, proteins, vitamins and minerals. Again their presence in these is being indicated by some of our general observations, like -freshly cut apples become reddish black after some time. Explanation for it is that iron present in apple gets oxidised to iron oxide. So, we can conclude that fruits and vegetables contain complex organic compounds, for e.g., anthocin, chlorophyll, esters(flavouring compounds), carbohydrates, vitamins and can be tested in any fruits or vegetable by extracting out its juice and then subtracting it to various tests which are for detection of different classes of organic compounds. Detection of minerals in vegetables or fruits means detection of elements other than carbon, hydrogen and oxygen.

MATERIAL REQUIRED

- Test Tubes
- Burner
- Litmus paper
- Laboratory reagents
- Various fruits
- Vegetables juices

CHEMICAL REQUIREMENTS

- pH indicator
- Iodine solution
- Fehling solution A and Fehling solution B
- Ammonium chloride solution
- Ammonium hydroxide
- Ammonium oxalate
- Potassium sulphocyanide solution

PROCEDURE

The juices are made dilute by adding distilled water to it, in order to remove colour and to make it colourless so that colour change can be easily watched and noted down. Now test for food components are taken down with the solution.

TEST, OBSERVATION & INFERENCE

Test	Observation	Inference
ORANGE TEST:		
Test for acidity:		
Take 5ml of orange juice in a test tube and dip a pH paper in it. If pH is less than 7 the juice is acidic else the juice is basic.	The pH comes out to be 6.	Orange juice is acidic.
Test for Starch:		
Take 2 ml of juice in a test tube and add few drops of iodine solution. It turns blue black in colour than the starch is present.	Absence of blue black in colour.	Orange juice is acidic.
Test for Carbohydrates (FEHLING'S TEST):		
Take 2 ml of juice and 1 ml of fehling solution A & B and boil it. Red precipitates indicates the presence of producing sugar like maltose, glucose , fructose & Lactose.	No red coloured precipitates obtained.	Carbohydrates absent.
Test for Iron:		
Take 2 ml of juice add drop of conc. Nitric acid. Boil the solution cool and add 2-3 drops of potassium sulphocyanide solution .Blood red colours shows the presence of iron.	Absence of blood red colour.	Iron is absent.
Test for Calcium:		
Take 2 ml of juice add Ammonium chloride and ammonium hydroxide solution. Filter the solution and to the filtrate add 2 ml of Ammonium Oxalate solution. white ppt or milkiness indicates the presence of calcium.	Yellow precipitate is obtained.	Calcium is present.

CONCLUSION

From the table given behind it can be conducted that most of the fruits & vegetable contain carbohydrate & vegetable contain carbohydrate to a small extent. Proteins are present in small quantity. Therefore one must not only depend on fruits and vegetables for a balance diet

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