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Original Article

Measure the amount of vitamin c in sweet Lemon

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ABSTRACT

The present research work deal with the estimation of vitamin c in sweet lemon fruits using redox titration and we have interpreted how much amount of sweet lemon is required for good health and the balree diet.

Keywords: 0.01iodine solution solution, Distilled water, starch indicator.

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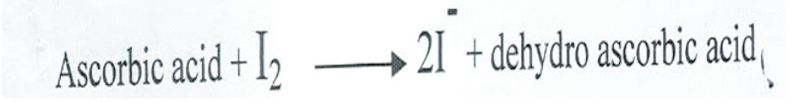
1.Introduction

The method of determine the vitamin c concentration in a solution by redox titration using Iodine vitamin c more properly called ascorbic acid is an essential anti-oxidant needed by the human body.

As the Iodine is added during the titratio9n, the ascorbic acid is oxidized to dehydroascorbic acid. While the Iodine is reduce to iodide ions.



Experimental:-

Materials and Methods-

Equipment needed

Burette & stand,
100 ml or 200 ml volumetric flask,
20 ml pipette,
10 ml & 100ml measuring cylinders,
250ml conical flask

Observation-

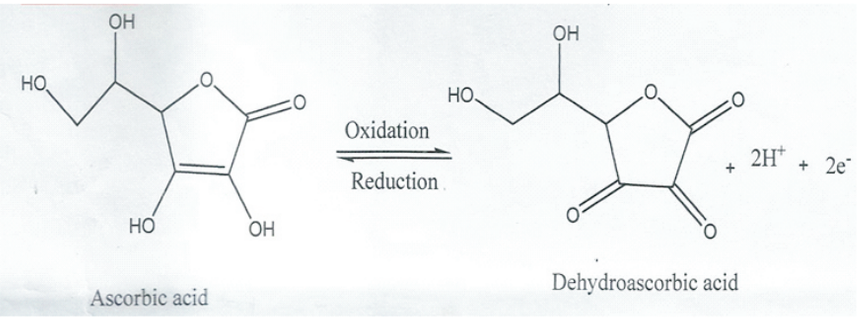
Solution in burette	-	0.01 Iodine solution
Solution in flask	-	20ml dilute solution + 100ml water
Indicator	-	starch indicator
End point	-	colourless to dark blue

Titration:-

1.Pipette out 20ml aliquot of sample solution into 250 ml conical flask & add about 150 ml of distilled water and 1ml of starch indicator.
2. Titrate the sample with 0.01mol/lit Iodine solution the end point of titration is defined as the first permanent trace of dark blue black colour due to starch Iodine complex.
3. Repeater the titration with further aliquot of sample solution until you

obtained concordant result.

Reaction



Observation table-

In normal temperature-

	Reading 1	Reading 2	Reading 3	C.B.R
initial	0.0	0.0	0.0	
final	2.0	2.0	2.0	2ml
difference	2.0	2.0	2.0	

In cool temperature

	Reading 1	Reading 2	Reading 3	C.B.R
initial	0.0	0.0	0.0	
final	0.8	0.8	0.8	0.8ml
difference	0.8	0.8	0.8	

In Hot temperature-

	Reading 1	Reading 2	Reading 3	C.B.R
initial	0.0	0.0	0.0	
final	7.2	7.2	7.3	7.2ml
difference	7.2	7.2	7.3	

Method:- For fresh fruit juice

Stain the juice through cheesecloth to remove seeds the pulp which may block pipettes.

Vitamin c- sweet lemon:-

The sweet lemon (specifically, the sweet sweet lemon) is the fruit of the citrus species Citrus × sinensis in the family Rutaceae. The fruit of the Citrus sinensis is considered a sweet sweet lemon. sweet lemon contain even less vitamin c then papaya fruit contain approximately 30mg of vitamin csupport your immunue system by protecting it against pathogens and fighting diseases. Sweet lemons, like most citrus fruits, are a good source of vitamin c

CALCULATION:-

I.Calculate the average volume of Iodine solution use from your concordant titrates.
II.Calculate the moles of Iodine reacting.
III.Using the equation of the titration determine the no. Of moles of ascorbic acid reading.
IV.Calculate the concentration in mol/lit of ascorbic acid in the solution obtained from fruit juice. Calculate the conc. In mg/100ml or mg/100gm of ascorbic acid, in the sample of fruit juice.
V.1000ml sweet lemon juice contains 30 mg of vitamin c.
VI.20 ml of sample of sweet lemon juice contain 0.0024 mg of vitamin c
VII.Percentage of vitamin c in sweet lemon is 0.192 gm/lit

CONCLUSIONS:-

- ❖After the estimation we got the accurate amount of vitamin c present in it.
- ❖From this proved the sweet lemon is good health natural food in our diet
- ❖It also contains less no. Of carbohydrate.
- ❖It is also proved that the temperature also doesn't matter more in the percent of vitamin present in sweet lemon.
- ❖So it is proved to be good dietary fruit.

Result:- % of vitamin c in sweet lemon extract (5ml) =0.192 gm/lit

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