Aim 29

To estimate the Vitamin - C Content in the given sample

Introduction

Titration of Vitamin C or L-ascorbic acid in the sample with 2,6-dichlorophenol indophenols solution is used for the estimation. The dye used has colourless reduced form while oxidized form is red (under acidic condition) and blue (under alkaline solution).

In alkaline solution, Vitamin C gets oxidised to dehydroascorbic acid and remains stable under acidic conditions. Therefore, Vitamin C is extracted in metaphosphoric acid.

Requiements

1. Burette
2. Test sample.
3. *Standard Vitamin C solution.*

   10 mg of vitamin C in 6% (w/v) metaphosphoric acid is added. Then, add metaphosphoric acid to make the final volume to 1 liter.

4. *2,6-dichlorophenol indophenols solution (dye solution).*

   0.052 g of sodium salt of dye and 0.042 g sodium bicarbonate are dissolved in water to make final volume to 500 ml.

5. Metaphosphoric acid – 6%

Procedure

1. Add metaphosphoric acid for diluting the test sample.
2. 25 ml of standard vitamin C is taken in flask and titrated it with the dye solution till pink colour disappears. Write down the volume of the dye used.
3. Repeat the same for 25 ml of test solution and note the volume of the dye used.

Observation Table

S. No.	Initial volume	Final volume	Volume
1.			
2.			

Calculations

Suppose,

Volume of dye used for the oxidation of vitamin C in 25 ml of the standard solution = x ml

Volume of dye used for the oxidation of vitamin C in 25 ml of test sample = y ml

Concentration of vitamin C in standard solution =

10 mg /litre

or

10,000 µg/1000ml

or

10 µg/10ml

Amount of vitamin C in 25ml of standard solution = 10 X 25 = 250 µg

or

So amount of vitamin C in 25ml of test sample will be = (250/x) X y µg

And in 100 ml (250/x) X y X (100/25) µg Or y/x mg/100 ml.