Determination of Ascorbic Acid content

Ascorbic acid also known as Vitamin C is an antiscorbutic. It is water soluble and heat-labile Vitamin. The ascorbic acid was determined by volumetric method as described by Sadasivam and Manickam (2008). Ascorbic acid reduces 2, 6-dichlorophenol indophenols dye to a colourless leuco-base. The ascorbic acid gets oxidized to dehydro-ascorbic acid. Though the dye is a blue coloured compound, the end point is the appearance of pink colour. The dye is pink coloured in acid medium. Oxalic acid is used as the titrating medium.

Reagents and materials

Oxalic Acid 4%, ***Dye solution***: weighed 42 mg sodium bicarbonate into a small volume of distilled water. 52 mg 2, 6-dichloro phenol indophenols was dissolved in it and made up to 200 ml with distilled water. ***Stock standard solution***: 100 mg ascorbic acid was dissolved in 100 ml of 4% oxalic acid solution in a standard flask. ***Working standard***: 10 ml of the stock solution was diluted to 100 ml with 4% oxalic acid. The concentration of working standard was 100 g/ml.

Procedure

Five ml of working standard solution pipetted out in 100 ml conical flask. 10 ml of 4 % oxalic acid was added and titrated against the dye (V_1 ml). End point was the appearance at pink colour which persists for a 30 seconds. The amount of the dye consumed was equivalent to the amount of ascorbic acid. The sample (2 g) was extracted in 4 % oxalic acid and made the volume 100 ml and centrifuged. Pipetted out 5 ml of supernatant, 10 ml of 4% oxalic was added and titrated against the dye (V_2 ml). The % of Vitamin C was calculated by the formula written below:

$$\text{Amount of ascorbic acid}\,\frac{\text{mg}}{100}\text{g} = 0.5\,\frac{\text{mg}}{\text{V1ml}} \times \frac{\text{V2}}{\text{5ml}} \times \frac{\text{100ml}}{\text{wt. of the sample}} \times 100$$

Note: 3% metaphosphoric acid can be used in place of 4% oxalic acid solution.