Determination of Ascorbic Acid Content of Some Fruit Juices.

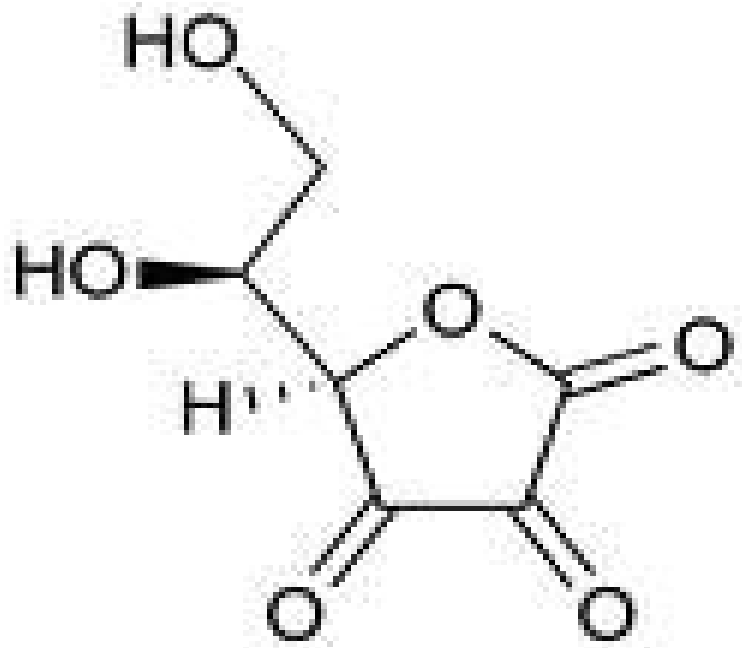
OBJECTIVES

- To measure the concentration of ascorbic acid

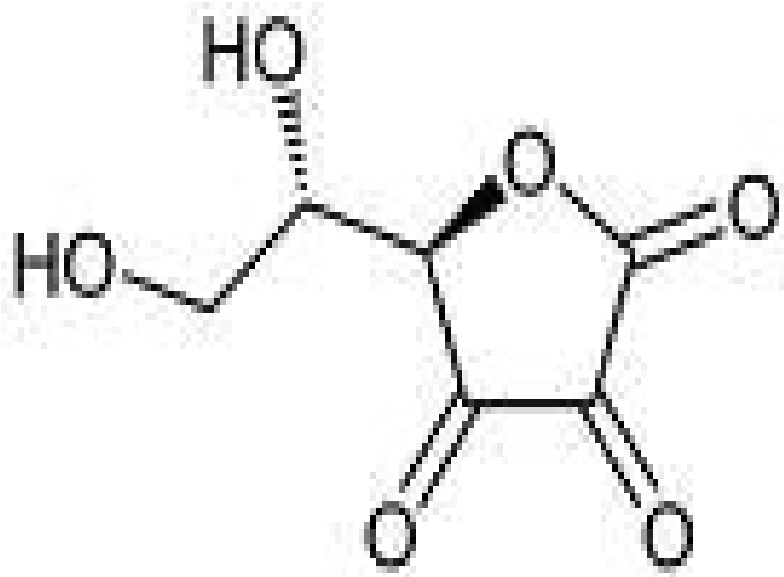
Introduction

- Vitamin C is a water-soluble vitamin that is necessary for normal growth and development.
- Water-soluble vitamins dissolve in water. The body cannot store them. Leftover amounts of the vitamin leave the body through the urine. That means you need a continuous supply of such vitamins in your diet.

Introduction



Ascorbic acid



Dehydroscorbic acid

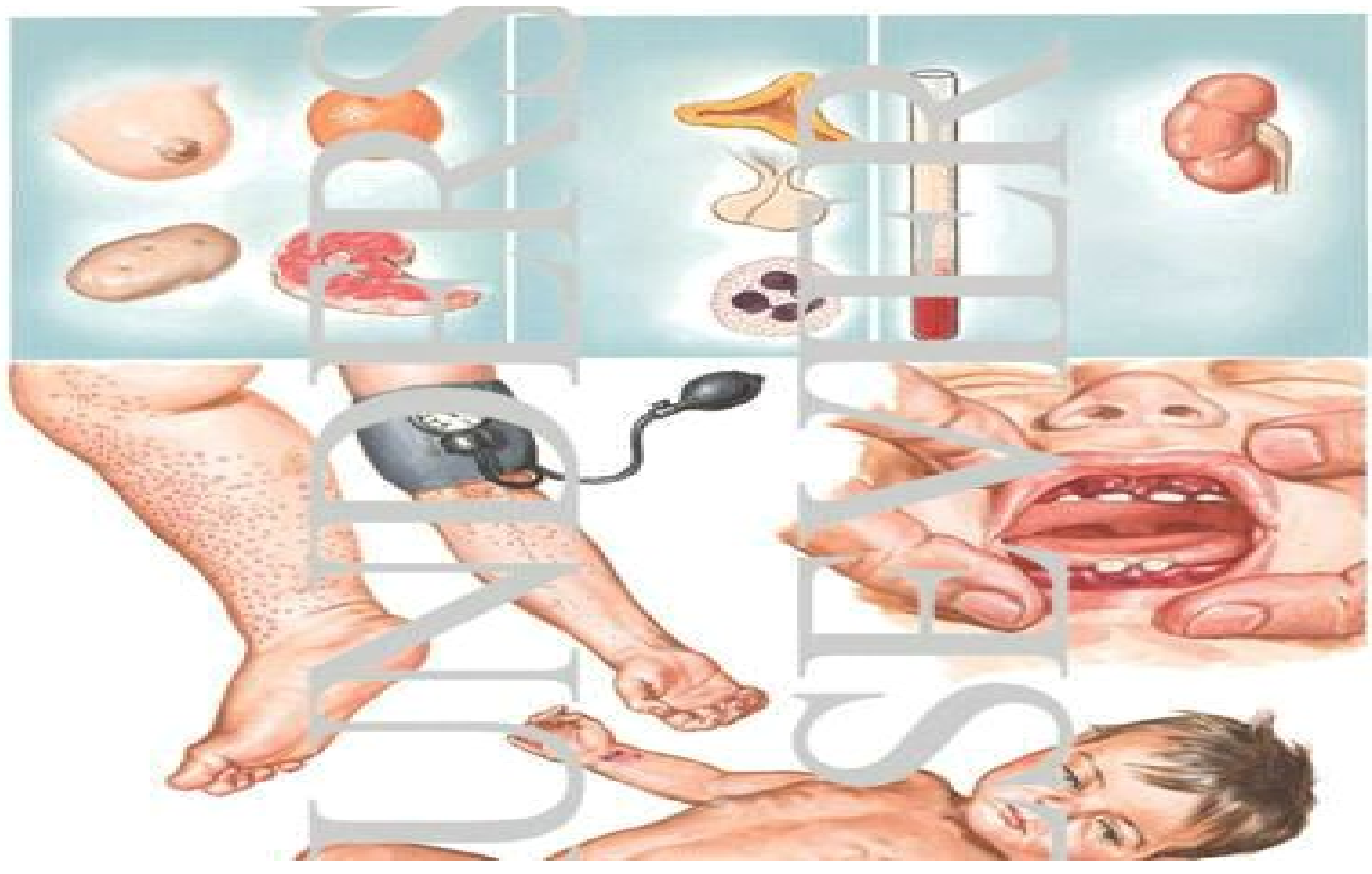
Functions of Vitamin C

- Vitamin C is required for the growth and repair of tissues in all parts of your body.
- It is necessary to form collagen
- Vitamin C is one of many antioxidants in the body

* The body does not manufacture vitamin C on its own (Why ?)

Deficiency of Ascorbic acid

- “Scurvy “



Principle

- Equipment Needed
  - burette and stand
  - 100 mL or 200 mL volumetric flask
  - 20 mL pipette
  - 10 mL and 100 mL measuring cylinders
  - 250 mL conical flasks.


100
200
150

Solutions Needed

- Iodine solution: (0.005 mol L^{-1}). Weigh 2 g of potassium iodide into a 100 mL beaker. Weigh 1.3 g of iodine and add it into the same beaker. Add a few mL of distilled water and swirl for a few minutes until iodine is dissolved. Transfer iodine solution to a 1 L volumetric flask, making sure to rinse all traces of solution into the volumetric flask using distilled water. Make the solution up to the 1 L mark with distilled water.

Solutions Needed

- Starch indicator solution: (0.5%). Weigh 0.25 g of soluble starch and add it to 50 mL of near boiling water in a 100 mL conical flask. Stir to dissolve and cool before using

Sample Prepare

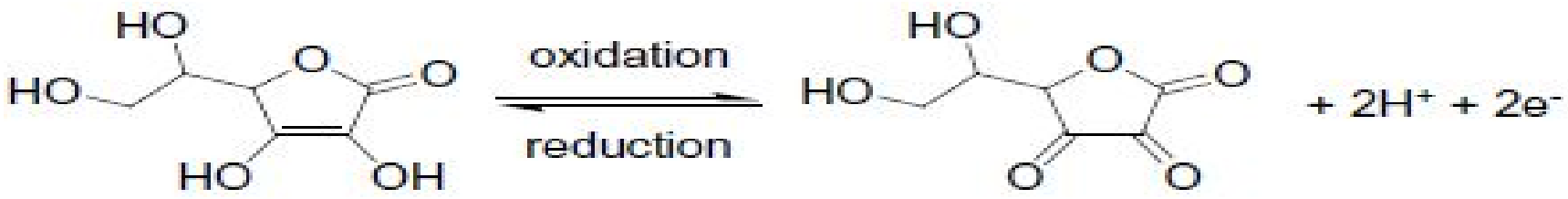
- Strain the juice through cheesecloth(filter paper) to remove seeds and pulp which may block pipettes.

Titration

- Pipette a 20 mL aliquot of the sample solution into a 250 mL conical flask and add about 150 mL of distilled water and 1 mL of starch indicator solution.
- Titrate the sample with 0.005 mol L^{-1} iodine solution. The endpoint of the titration is identified as the first permanent trace of a dark blue-black color due to the starch-iodine complex.
- Repeat the titration.
- Calculate the concentration of ascorbic acid solutions.

Chemical Equations

- ascorbic acid + $I_2 \rightarrow 2\ I^- +$ dehydroascorbic acid



ascorbic acid

dehydroascorbic acid