Exercise-07- To Detect the pr

EXERCISE 07:- TO DETECT THE PRESENCE OF PROTEIN

AIM:- To Detect the presence of protein.

PRINCIPLE-

① Protein respond to some colour rxn due to the presence of one or radicals or groups of the complex protein molecule.

② Nitrogen atoms in the peptide chain form a complex (violet colour) with copper ion in the Biuret test. (Biuret test is for peptide bond in the molecule of a protein)

③ Xantho protein test is specific for protein containing aromatic amino-acids.

(4) The benzene ring in the amino-acids is nitrated by heating with nitric acid and forms yellow nitro-compounds which turns to Orange colour with alkali.

REQUIREMENT:

The Required materials are-

① Glasswares:-, Test tube, spirit lamp; Chemical: 40% NaOH, 1% $CuSO_4$ solution, Concentrated HNO_3, 20% NaOH solution.

② Miscellaneous: test tube holder, test tube stand.

(10)

PROCEDURE -

(A). BIURET-TEST -

(1). We have to take 2 mL of protein solution (milk, albumin of egg or gram seed extract) in a test tube.

(2). Now we add 1 mL of 40% NaOH solution and 1 or 2 drops of 1% CuSO4 solution.

(3). We get a violet colour, which indicates the presence of proteins. We take care that excess of copper sulphate is must not be added, other wise there will be blue colour instead of violet colour.

(B) XANTHOPROTEIC TEST -

(1) We add 1mL of concentrated HNO_3 to 2 mL of protein solution (albumin of egg, milk or gram seed extract).

(2) A white precipitate is formed.

(3) Now we boil the solution. The colour changes to yellow.

(4) Now we cool the test tube. Now we add 2mL of 20% NaOH (or ammonia solution) to make it alkaline.

(5) Now the colour changes to orange, which indicate the presence of proteins.

DISCUSSION (After observation).

A yellow stain is often observed on skin when it comes in contact with Nitric acid. The reason for yellow stain is - Xanthoprotein rxn.

To Do

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