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# Diploma in Pharmacy 2<sup>nd</sup> Year

## Biochemistry & Clinical Pathology

### Experiment

To study the hydrolysis of starch from acid.

#### Aim:

To study the hydrolysis of starch from acid.

#### Reference :

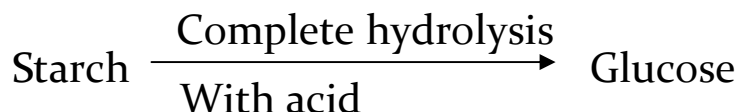
‘ Dr. Gupta G.D. , Dr. Sharma Shailesh, Kaur Manpreet, “Practical Manual of Biochemistry & Clinical Pathology” Published by Nirali Prakashan, Page no 71 – 74

#### Materials Required

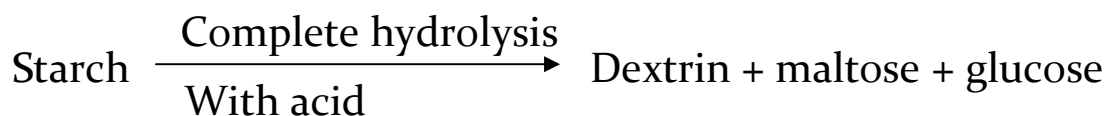
Iodine solution, Benedict's reagent, starch paste, conc. HCl, boiling water and six test tubes.

#### Theory :

- 1) Polysaccharides are polymers and their complete hydrolysis results in hundreds of monosaccharide molecules.
- 2) The end product of completely hydrolysed starch is glucose.



- 3) Partial hydrolysis of starch results in a variety of sugars, including dextrin, maltose, and glucose.



- 4) A specific test for polysaccharides, oligosaccharides, and disaccharides is hydrolysis with acid.
- 5) One of the important elements in this reaction is heating time.
- 6) The solutions must react with Benedict's reagent to confirm that the hydrolysis of sucrose or starch occurred. (If hydrolysis is carried out, monosaccharides will be released and a red-colored cuprous oxide precipitate will be produced).
- 7) Conc HCl should be added carefully.
- 8) **Achromic Point:** It is a point at which iodine solution fails to form any colour. All the erythrodextrin get converted into archrodextrin and maltose at this point.
- 9) **Chromic Point:** It begins at zero and continues until the achromic point is reached, or it is the time needed to reach that point.

## Procedure

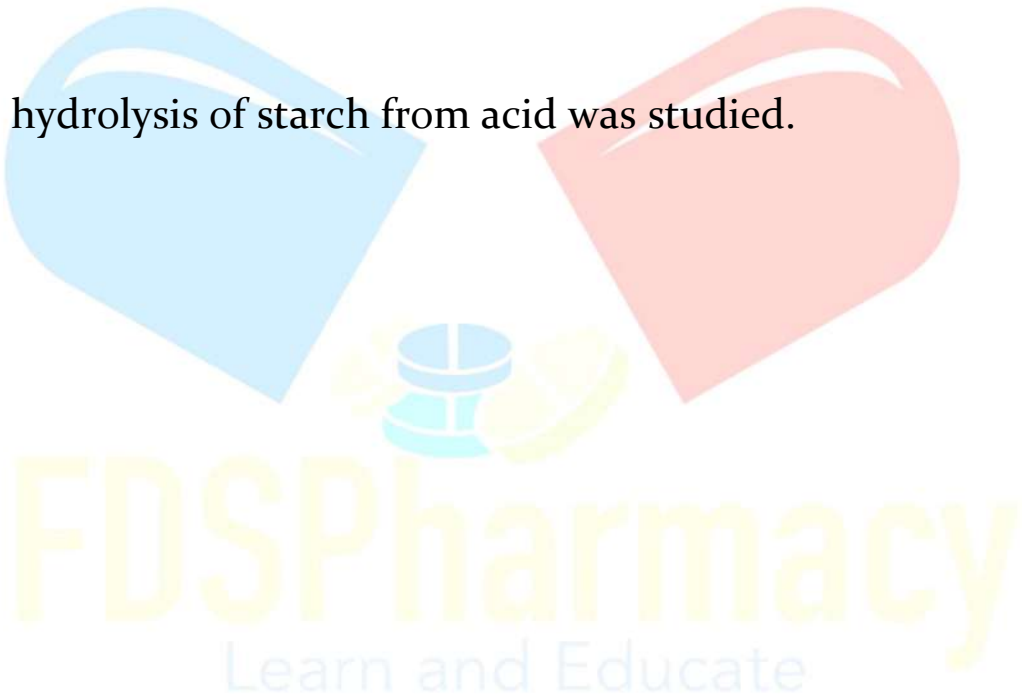
- 1) Two sets of test tubes each containing six test tubes should be taken.
- 2) 1 ml of iodine solution should be added in all the test tubes of first set.
- 3) 5ml of Benedict's reagent should be taken in all test tubes of second set.
- 4) 35ml of starch paste should be taken in a beaker.
- 5) 15 to 20 drops of conc. HCl should be added in this beaker and then mixed. As a result, the contents will swell.
- 6) This mixture should now be transferred into a test tube.
- 7) This test tube should be placed in boiling water and time should be recorded.
- 8) Sample should be taken from the test tube for iodine and Benedict's test.
- 9) Sample should be taken from the bottom of the test tube, if possible. Iodine and Benedict's test should be performed.
- 10) The procedure should be repeated till achromic point is reached.

## Interpretation

- 1) As starch is hydrolysed by acid in test tubes containing Benedict's reagent. the Benedict's test will gradually turn positive.
- 2) The hydrolysis of starch will cause the iodine test to gradually turn negative as any polysaccharides that are present turn into reducing monosaccharides

## Result :

The hydrolysis of starch from acid was studied.



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