

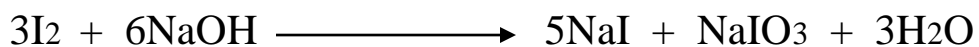
## Polysaccharide:

They are tasteless and odorless compounds contain a large number of monosaccharide chains and these chains are either branched like a glycogen, or straight like cellulose.

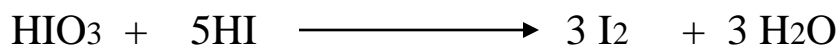
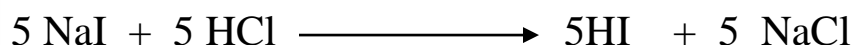
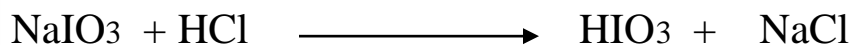
### 7-Iodine test :

Iodine test is used to detect the presence of starch or dextrin. A triiodide ( $I_3^-$ ) solution formed by mixing iodine and iodide ( usually from potassium iodide KI ). Starch contains an alpha – amylose (a helical saccharide polymer) and amylopectin. Iodine forms a coordinate complex between the helically chain and iodine depending on the occurrence of the adsorption process and gives a dark blue color for starch and violet color for dextrin. This process occurs at room temperature because the high temperature lead to increase the motion of the *particles* and that will be not help the process of adsorption to occur, so when we increase the temperature, the color of the test will disappear .This test is influenced by:

- 1- **The temperature** ; when the temperature increased, the color of the test will disappear.
- 2- **pH of the solution**; This reaction occurs in the acidic or neutral medium and it does not occur in the alkali medium because iodine will react with NaOH , the reaction will give iodides and iodates salts according to the following reaction:



But when HCl is added, iodine will be returned again and the color will be back again according to the following reactions:



## **Method ;**

- 1- In a clean and dry test tube, 2-3 drops of Iodine solution are added to 1 ml of starch solution, the dark blue color will appear.
- 2- After that, the tube is heated in the water bath and then cooled it. The different between heating and cooling is noticed when you continue the process of heating and cooling, and we will reach a stage where the color will disappear and not return after cooling because iodine will evaporate as a whole.

## **Caution ;**

The  $I_2/KI$  solution is toxic, corrosive, and an irritant. If you spill the solution on yourself or on the bench, immediately notify the instructor of the laboratory.

