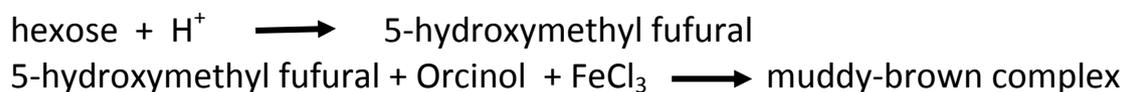
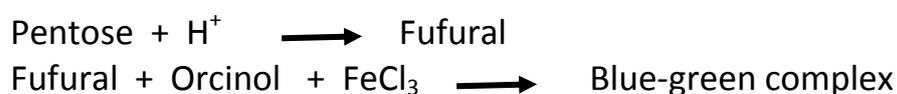


## C. Bial's test

### 1. Principle.

This test is used to distinguish between pentose monosaccharide and hexose monosaccharide. Bial's reagent contains concentrated HCl as a dehydrating acid, orcinol and ferric chloride as condensation reagent. The test reagent dehydrates pentoses to form fufural and dehydrates hexoses to form 5-hydroxymethyl fufural, fufural reacts with orcinol and ferric chloride to produce blue-green complex, while 5-hydroxymethyl fufural produce muddy-brown color complex.



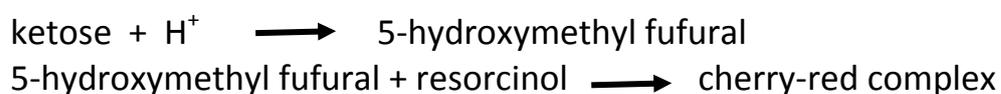
### 2. Procedure.

1. In clean dry test tube add 1 ml of 5% ribose solution (pentose).
2. In the second test tube add 1 ml of 5% glucose solution (hexose).
3. For each tube add 2.5 ml of Bial's reagent and mix well.
4. Keep both tubes in boiling water bath for one minutes and allow the tubes to cool down to room temperature.
5. Observe the appearance of blue-green color for ribose, and brown color for glucose.

## D. Seliwanoff's test

### 1. Principle.

This test is used to distinguish between aldoses and ketoses sugars. This test uses hydrochloric acid as a dehydrating agent and resorcinol as a condensation agent. On treating with HCL, ketoses are dehydrated more rapidly to give furfural derivative (5-hydroxymethyl fufural) which condensed with resorcinol producing cherry-red color complex. Aldoses react to form same product but more slowly giving yellow to faint pink color complex.



### 2. Procedure.

1. In clean dry test tube add 1 ml of 5% sucrose solution (ketose).
2. In the second test tube add 1 ml of 5% glucose solution (aldose).
3. For each tube add 3 ml of Seliwanoff's reagent and mix well.
4. Keep both tubes in boiling water bath for two minutes.
5. Observe the appearance of cherry-red color for sucrose (positive result).

## **E. Iodine test**

### **1. Principle.**

This test is a specific test used to detect the presence of starch and is used to distinguish poly, di and monosaccharides. Iodine forms a colored complex with starch, the color of the complex depends on the three dimensional structure of starch which is a coiled structure. The appearance of dark blue color indicates the presence of starch.

### **2. Procedure.**

1. In clean dry test tube add 2 ml of 1% starch solution (polysaccharide).
2. In the second test tube add 2 ml of 1% glucose solution (monosaccharide).
3. Incubate both tubes in boiling water bath for one minute.
4. Add four drops of iodine reagent for each tube and mix gently.
5. Observe the appearance of dark-blue color for starch tube (positive result).