*Subject: Practical Biochemistry MSc.Sawen M.Ezzalddin*

 *Class: 2nd / Exp.: 2*

**CARBOHYDRATES**

A **pentose** is a [monosaccharide](https://en.wikipedia.org/wiki/Monosaccharide) with five [carbon](https://en.wikipedia.org/wiki/Carbon) [atoms](https://en.wikipedia.org/wiki/Atom). Pentoses are organized into two groups: Aldopentoses have an [aldehyde](https://en.wikipedia.org/wiki/Aldehyde) [functional group](https://en.wikipedia.org/wiki/Functional_group) at position 1. Ketopentoses have a [ketone](https://en.wikipedia.org/wiki/Ketone) functional group at position 2. In the cell, pentoses have a higher [metabolic](https://en.wikipedia.org/wiki/Metabolic) stability than hexoses.



**Exp.No3
3- Bials test** for (pentose)

Principle when pentose are heated with conc. HCl furfural is formed which condenses with orcinol in the presence of Fe+3  ions to give a green color.



**Procedure**

1- Place 2ml bials solution in test tube

2- Add 1ml of test solution (pentose solution).

3- Heat gently, until boiling commences.

4- Immediately on cooling, the solution becomes green in the presence of pentose.

**Exp. N0.4**

**4- Aniline test** for (pentose)

Principle*"* when pentoses are heated with cone. HCL, furfural is formed which condenses with Aniline or Aniline acetate to give a red color.

**Procedure**

1- Place 1ml of pentose solution (test solution +1ml of glacial acetic acid +3 drop of Aniline .

2- Place 1ml of hexose solution (test solution + 1ml of glacial acetic acid + 3 drop of aniline

3- Heat gently until boiling (3min) the solution becomes red color.

**Exp. N0.5**

**5-Resorcinol (selivanoffs test, for ketohexoses)**

Ketohexoses fructose is converted to hydroxyl methyl furfural in hot hydrochloric acid .which combines with resorcinol to produce a red color compound. Sucrose may give a positive ketohexose test because of partial hydrolysis to glucose and fructose; sugars like glucose give essentially no color even after ten minutes.

**Procedure:**

1. Place 1ml of selivanoffs reagent in test tube.

2. Add 0.1 ml of 1% carbohydrate solution in water .

3. Heat the solution in a boiling water bath for (5min).

4. A deep red colored precipitate within (5min) indicates ketohexose.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Colors**  | **Reagent**  | **Used for**  | **Tests**  |  |
| **redish violet**  | sulphonated alpha-naphthol  | General test for carbohydrate  | Molischs  | 1  |
| **blue -green**  | anthrone  | General test for carbohydrate  | Anthrone  | 2  |
| **Green**  | orcinol  | Pentose sugar  | Bials  | 3  |
| **Red**  | Aniline or (Aniline acetate)  | Pentose sugar  | Aniline  | 4  |