Observation and Result :-

Test Type	PPt appear	Time Taken
Seliwanoff's Test	· Cherry red pink colored in 30 sec	30 seconds

Result :-

→ Hexoketoses are confirmed

→ So, Seliwanoff's test is a ketoses identifying test.

EXPERIMENT # 05

30-Nov-2020

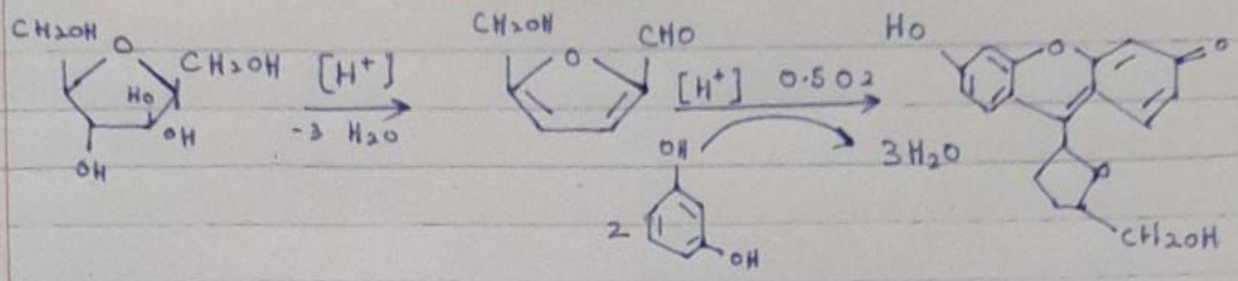
Title :-

Determine the Seliwanoff's Test :-
(For keto Sugars)

Principle :-

This test can differentiate between aldose and ketose because aldohexoses will produce light pink color after sometime.
However after prolong boiling, the color is deepen, so restrict the prolong boiling.
This test is based on the fact that when carbohydrates are heated, ketoses are more rapidly dehydrated than aldoses.
Therefore boiling should before 30 seconds. In concentated HCl, ketoses undergo dehydration to fulfil or to yield furfural derivatives more rapidly than do aldoses
These derivatives forms complexes with resorcinol to yield deep cherry red color. It is tinned color reaction specific for ketoses.
Ketoses react more readily with seliwanoff's reagent because: ketones have 3 carbon atoms where aldehyde has 2 hydrogen atoms and one carbon atoms.

Formula :-



Fructose + HCl → Hydroxymethyl Furfural + levulinic Acid
Hydroxymethyl Furfural + Resorcinol → Cherry red complex
Sucrose will also gives a positive test

Preparation of Seliwanoff's Reagent :-

Dissolve 0.05 grams or resorcinol in 50 ml of distilled water. Add 33 ml of Conc. HCl. (37%.) to this solution and further add distilled water upto total volume 100ml.

Procedure :-

Take 3 ml of seliwanoff's reagents and one ml of given carbohydrate solution in a test tube and mix.

- Boil for 30 seconds only and then cool the solution Note the color that appears.
- Appearance of a cherry red color or pink color within 30 sec indicates the presence of ketohexoses.

Precautions :-

1- The final concentration of HCl is Seliwanoff's should not exceed 12% HCl, because in the presence of very strong acid aldolases maybe

converted to ketohexoses and give a false positive test.

2- Similarly in the case with the boiling and hence should not be done for a prolonged period. It goes without saying that other precautionary measures of the laboratory have to be taken.

Clinnical Correlation :-

- HCL Poisoning
- Carbon monoxide poisoning