Tishk International University
Faculty of Applied Science
Department of Nutrition and Dietetics

Nutritional Biochemistry I
LAB (3)
2nd Grade – Fall semester

Experiment Name: Seliwanoff's test

Lecturer: Amani Tahsin
Contact Info: amani.tahsin@tiu.edu.iq

Seliwanoff's test

Seliwanoff's test is used to differentiate between sugars that have a ketone group (ketose) and sugars that have an aldehyde group (aldoses).

Principle

- The test is based on the idea that ketones dehydrate more quickly than aldoses when exposed to acid. Simple sugars are produced via acid hydrolysis of polysaccharide and oligosaccharide ketoses, followed by **furfural.**

- In a sequence of condensation events, the dehydrated ketose interacts with two equivalents of resorcinol to generate a molecule with a rich cherry red hue.

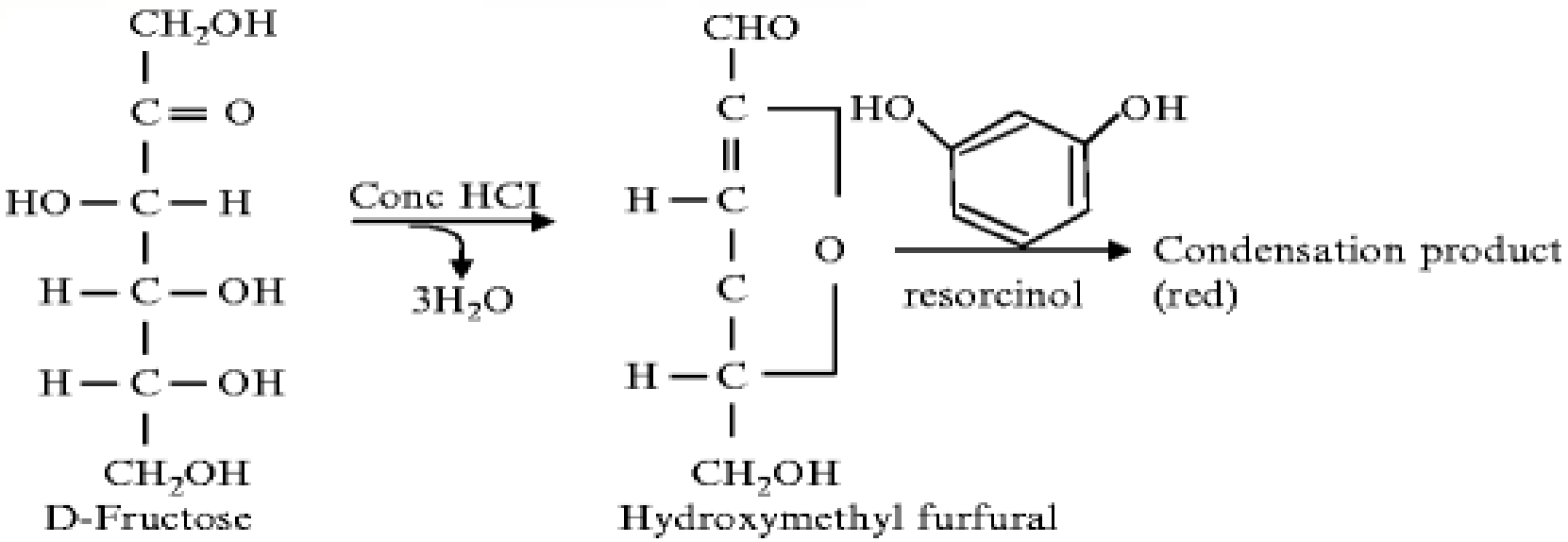
- **Positive Seliwanoff's Test:** If the colour changes to red, the Seliwanoff's Test is affirmative, indicating keto sugar (Fructose and Sucrose) is present in the solution.

- **Negative Seliwanoff's Test:** If no red colour or a faint pink tint appears, your result is negative, indicating that Aldose sugar (Glucose) is present in the solution.

Seliwanoff's Test for Ketoses

Ketose monosacch. (fructose)	Ketose containing Disacch. (Sucrose)	Aldose	Control (DW)
Deep cherry red	Cherry red	faint pink/red	No colour change
+ve test	+ve test	-ve test	-ve test

Reaction


CH2OH
C=O
HO—C—H
H—C—OH
H—C—OH
CH2OH
D-Fructose
Conc HCl
3H2O
CHO
C
H—C
C
H—C
CH2OH
Hydroxymethyl furfural
O
HO
OH
resorcinol
Condensation product
(red)

Requirements

- **Reagent**

Seliwanoff's reagent

Test sample

Distilled water

- **Materials required**

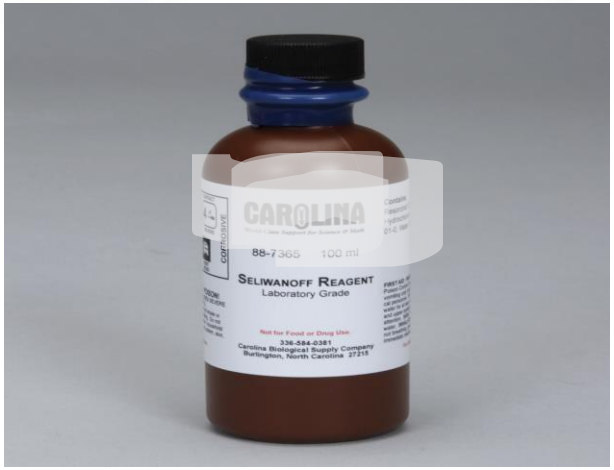
Test tubes

Test tube stand

Pipettes

- **Equipment**

Water bath



Procedure

1. Take two clean, dry test tubes and add 1 ml of the test sample in one test tube and 1 ml of distilled water in another as blank.
2. Add 2 ml of Seliwanoffs' reagent to both the test tubes.
3. Keep both the test tubes in a water bath for 1 min.
4. Observe the formation of color and note it down.

Result (Observation)

Negative
Seliwanoff's Test

Ketoses Absent

Positive
Seliwanoff's Test

Ketoses Present

cherry red-colored
complex formed

Test sample	Result / Color


WHAT ?
WHERE
WHEN
WHY