

A.S.D GOVT. DEGREE COLLEGE FOR WOMEN (A),
(Re- Accredited by NAAC with B Grade)
Jagannaickpur, Kakinada-533002, East Godavari, APS

DEPARTMENT OF ZOOLOGY & AQUACULTURE
TECHNOLOGY

2020-2021



Extension Activity by the
Department of Zoology

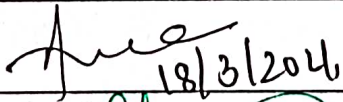
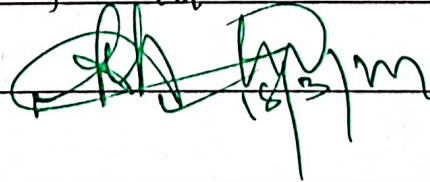
In Collaboration with

AS Junior College

ASD Govt. Degree College for Women (A)

Jagannaickpur, Kakinada

Activity register 2021

Date	18-03-2021.
Conducted through (DRC/JKC/NCC/NSS/Department)	Zoology
Nature of Activity (Seminar/Workshop/Ext. Lecturer etc.)	Extension Activity
Title of the Activity	Extension Activity
Name of the Department/Committee	Zoology
Details of Resource Persons (Name. Designation etc.)	U. Satyanarayana B. Sonia
No. of Students Participated	40
Brief Report on the Activity	Students certainly benefit by themselves when they are participated in .They can know how to gather information relevant to the topic
Name of the Lecturers who Planned & Conducted the Activity	U. Satyanarayana B. Sonia N. Veera chanti
Signature of the in Charge	 18/3/2021
Signature of the Principal	
Remarks	

CARBOHYDRATE TESTS:

Carbohydrates are the most abundant and diverse class of organic compounds occurring in nature. It played a key role in the establishment and evolution of life on earth by creating a direct link between the sun and chemical energy.

Aim:

To study some simple tests of carbohydrates in the given sample.

Theory:

The word carbohydrate is formed from the words carbon and hydrogen. Carbohydrates are combinations of the chemical elements carbon and hydrogen plus oxygen. In the natural world, carbohydrates are the most common chemical compounds used for food.

The following are the tests to identify the presence of carbohydrates.

1. Molisch's test
2. Benedict's test
3. Tollen's test
4. Iodine test

(a) Molisch's Test:

Molisch's test is a general test for carbohydrates. This test is given by almost all of the carbohydrates. In this test, concentrated sulfuric acid converts the given carbohydrate into furfural or its derivatives, which react with α -naphthol to form a purple coloured product.

Note: The appearance of purple or violet ring confirms the presence of carbohydrate..

(b) Benedict's Test:

This test is given by reducing sugars. In alkaline medium, sodium carbonate converts glucose to enediol and this enediol reduces cupric to cuprous forming cuprous hydroxide. This solution is kept in sodium citrate and on boiling, red precipitate of cuprous oxide is formed.

Note: The appearance of red precipitate confirms the presence of carbohydrates.

(c) Tollen's Test:

This test is given by reducing sugars. Carbohydrates react with Tollens reagent and form a silver mirror on the inner walls of the test tube. This confirms the presence of reducing sugars. Silver ions are reduced to metallic silver.

Note: The appearance of silver mirror confirms the presence of reducing sugars.

(d) Iodine Test:

This test is only given by starch. Starch reacts with iodine solution forms complex blue colour solution. On heating the blue colour disappears and on cooling the blue colour reappears.

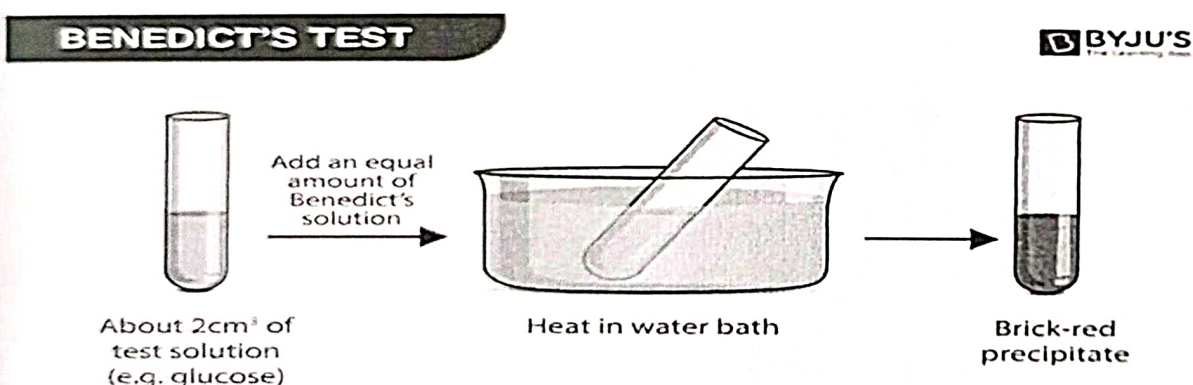
The chemical reaction is given below.

Note: The appearance of blue colour solution confirms the presence of starch.

Materials Required:

1. Molisch's reagent
2. Fehling's reagent
3. Benedict's reagent
4. Tollen's reagent
5. Iodine solution
6. Concentrated sulfuric acid
7. Sodium hydroxide solution
8. Test tubes
9. Test tube holder
10. Test tube stand
11. Bunsen burner
12. Water bath
13. Dropper
14. Stirrer

Apparatus Setup:



Procedure:

Preparation of Reagents:

- **Molisch's reagent** – It is prepared by adding α -naphthol in 10% alcoholic solution.
- **Benedict's reagent** – To a solution of sodium citrate 0.25g of anhydrous sodium carbonate in distilled water is added and copper sulfate solution is added to it. Make the total volume up to 125ml by adding distilled water.
- **Tollen's reagent** – Add sodium hydroxide solution to the silver nitrate solution. Then add ammonium hydroxide solution dropwise till the precipitate dissolves. The clear solution is called Tollens reagent.
- **Iodine solution** – Iodine solution is obtained by dissolving iodine in potassium iodide solution.

(a) Molisch's Test:

1. Take 2ml of the given sample solution in a clean test tube.
2. Add 2-3 drops of Molisch reagent slowly.
3. Now add concentrated sulfuric acid along the sides of the test tube.
4. The acid layer forms a layer at the bottom.
5. Note the junction of the two layers.
6. If there is a formation of the violet ring then the presence of carbohydrate is confirmed.

(b) Benedict's Test:

1. Take the given sample solution to be tested in a clean test tube.
2. Add 5ml of Benedict's reagent to it.
3. Boil the solution for about 2 minutes.
4. Cool the solution and observe the solution.
5. If there is formation of green, red or yellow precipitate then there is presence of reducing sugars.

(c) Tollen's Test:

1. Take the given sample solution in a clean test tube.
2. Add 2-3ml of tollens reagent to it.
3. Keep the test tube in a boiling water bath for 10 minutes.
4. If there is the appearance of shiny silver mirror confirms the presence of reducing sugars.

(d) Iodine Test:

1. Take the sample solution to be tested in a clean test tube.
2. Add 2-3 drops of iodine solution.
3. Observe the change in colour.
4. If there is the appearance of a blue colour then the presence of starch is confirmed.

Observations and Inference:

Test	Glucose	Lactose	Sucrose	Starch
Molisch's test	Purple ring	Purple ring	Purple ring	Purple ring
Benedict's test	Red precipitate	Red precipitate	No precipitate	No precipitate
Tollen's test	Appearance of silver mirror.	Appearance of silver mirror.	No silver mirror	No silver mirror

<i>Iodine test</i>	No reaction	No reaction	No reaction	Appearance of blue colour solution.
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Results and Discussions:

The given organic compound is a _____ (reducing sugar/starch/carbohydrate) compound.

Extension Activity



A.S.D. Govt Degree college for women (A), Kakinada

Department of zoology 2020-2021

Extension activity

S.no	Name of the Student	Group	Signature
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6	M. satya suramala.	Bi.P.C [E.M]	M. S. Suramala
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29.	ch veeravenkatalakshmi	Bi.P.C (T.M)	ch.V.V. Lakshmi
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36.	A. Durga Tharani	Bi.P.C (E.M)	A.D. Tharani
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46.	L. Naga Lanmi	Bi.P.C (E.M)	L. Naga Lanmi
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51.	T. pallavi	Bi.P.C (T.M)	T. pallavi
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