



***SRI SARADA COLLEGE OF EDUCATION
(AUTONOMOUS), SALEM - 16***

CRITERIA III : Research and Outreach Activities

***KEY INDICATOR 3.1 Resource Mobilisation for
Research***

***Metric No : 3.1.4. Institution has created an eco-system for
innovation and other initiatives for creation and transfer
of knowledge***

***3.1.4(A) Innovations tried out and ideas incubated
(2021-2022)***

***Document Evidences of Multiple Intelligence-Based
Teaching***

Sri Sarada College of Education (Autonomous), Salem – 636 016

Re-Accredited by NAAC with "A" Grade (III Cycle)

Affiliated to Tamil Nadu Teachers Education University, Chennai

MULTIPLE INTELLIGENCE BASED LESSON PLAN

NAME OF THE STUDENT TEACHER: AZEERUNNISA.H

NAME OF THE SCHOOL

: SRI SARADA VIDYALAYA GIRLS HIGHER SECONDARY SCHOOL

CLASS

: XI - "B"

SUBJECT

: BOTANY

UNIT

: II

TOPIC

: POLYSACCHARIDES

DURATION

: 45 MINUTES

DATE

: 18.9.2022

TEACHER'S SIGNATURE

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GENERAL OBJECTIVES

The Pupil

- recognises the structure of Polysaccharides
- understands the functions of structural polysaccharides
- knows about Benedict's test.
- develops their knowledge about cellulose and chitin

SPECIFIC OBJECTIVES

The Pupil

- mentions the properties of polysaccharides
- defines amylose
- illustrates the structure of chitin
- demonstrates the test for starch.

TEACHING AIDS

- * Iodine Solution and Benedict's solution
- * Potato and Glucose
- * Chart with cellulose structure.
- * Video of amylose and amylopectin structure.

TEACHING METHODS

- * Demonstration Method
- * Interactive Method
- * Lecture Method
- * Cooperative Method.

LEARNING OUTCOMES	CONTENT	TEACHER-STUDENT ACTIVITY	EVALUATION
Mentions what are metabolites.	<p><u>MOTIVATION</u></p> <p>Most plants, fungi and other microbes synthesises a number of organic compounds called as metabolites.</p>	Teacher tests the previous knowledge of the students.	What are metabolites?
Mentions two properties of water.	<p>Water has high melting and boiling point.</p> <p>Water is a universal solvent.</p>	Teacher checks the previous knowledge of the students.	Mention any two properties of water.
Answers what is the other name of carbohydrates.	<p>Saccharides is the other name of carbohydrates.</p>	Teacher tests the previous knowledge of the students.	What is the other name of carbohydrates?
Defines glycosidic bond.	<p>The bond formed between the glucose and fructose molecule by removal of water is called glycosidic bond.</p>	Teacher checks the previous knowledge of the students.	Define Glycosidic bond.

EVALUATION

Explain the structure of polysaccharides.

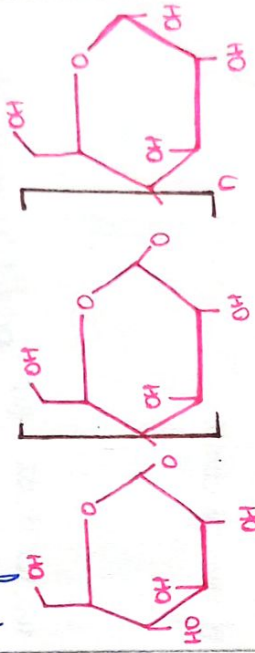
Discuss the properties of polysaccharides.

How many types are there in polysaccharides?

TEACHER-STUDENT ACTIVITY

The teacher writes the topic on the black board - "Polysaccharides"

Teacher shows the structure of polysaccharide drawn on a chart.



Structure of Polysaccharide
[Spatial Intelligence]

Teacher asks the students to discuss the properties of polysaccharides and tell the answer. [Interpersonal Intelligence]

Teacher explains with the help of oral communication. [Linguistic Intelligence]

CONTENT

PRESENTATION

These are made of hundreds of monosaccharides units. Polysaccharides are also called "Glycans". Long chain of branched or unbranched monosaccharides are held together by glycosidic bonds.

* Polysaccharides are insoluble in water.

* Polysaccharides are sweetish.

LEARNING OUTCOMES

Explains the structure of polysaccharides.

Discusses the properties of polysaccharides.

Mentions how many types are there in polysaccharides.

Depending on the function,

LEARNING OUTCOMES

Explains about the storage polysaccharides.

Mentions what is meant by amylose.

CONTENT

polysaccharides are two types -

- * Storage polysaccharides
- * Structural polysaccharides

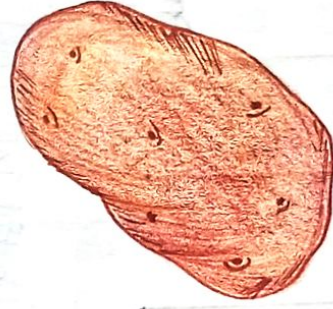
Starch is a storage polysaccharide made up of repeated units of amylose and amylopectin. Starch grains are made up of successive layers of amylose and amylopectin, which can be seen as growth rings.

amylose is a linear, unbranched polymer which makes up 80% of starch. amylopectin is a polymer with some 1,6 linkage that gives it a branched structure.

TEACHER-STUDENT ACTIVITY



Teacher shows a potato and explains the content. [Naturalist Intelligence]



Potato

Teacher shows a video of amylose and amylopectin structure. [A Musical Intelligence]

EVALUATION

Explain about the storage polysaccharide.

What is meant by amylose? and amylopectin?

LEARNING OUTCOMES

Demonstrate how to know the presence of starch in any given sample of food.

CONTENT

We test the presence of starch by adding a solution of **Iodine** in potassium iodide. Iodine molecules fit nearly into the **starch helix**, producing a **blue-black colour**.

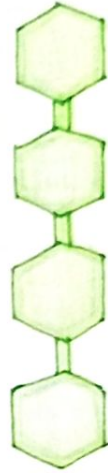
Outlines the structure of cellulose.

cellulose is a **structural polysaccharide** made up of thousands of glucose units. In this case, β -glucose units are held together by **1,4 glycosidic linkage**, forming long unbranched chains. cellulose fibres are straight and unrolled.

TEACHER-STUDENT ACTIVITY

Teacher demonstrates an experiment to explain the concept. **[Logical Reasoning Intelligene]**

Teacher explains with the help of **[Spatial Intelligene]**

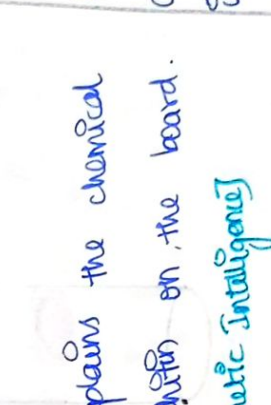


CELLULOSE MOLECULES

EVALUATION

How to know the presence of starch in any given sample of food?

Outline the structure of cellulose.

LEARNING OUTCOMES	CONTENT	TEACHER-STUDENT ACTIVITY	EVALUATION
<p>Discusses and tells the industrial uses of cellulose.</p> <p>Explains the structure of chitin and mentions where it is present.</p>	<p>It has many industrial uses which include cellulose fibre as cotton, rayon, retrocellulose for explosives, cellulose acetate for fibres of multiple uses and cellulose for packing.</p> <p>Chitin is a homo polysaccharide with amino acids to form muropolysaccharide. The basic unit is a nitrogen containing glucose derivative known as N-acetyl glucosamine. Chitin forms the exoskeleton of insects and other arthropods. It is also present in the cell walls of fungi.</p>	<p>The students discuss among themselves and gives the answers. [Interpersonal Intelligence]</p> <p>The trainer explains the chemical structure of chitin on the board. [bodily - kinesthetic Intelligence]</p>	<p>Discusses and tells the industrial uses of cellulose.</p> <p>Explains the structure of chitin and mentions where it is present.</p>
	 <p style="text-align: center;">N-acetyl D-glucosamine</p>		

LEARNING OUTCOMES

Explains what is a Benedict's test.

Mentions which property decides the result of Benedict's test.

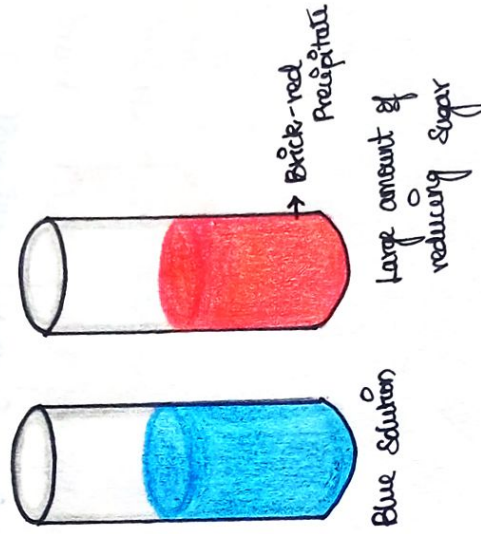
CONTENT

Aldehydes and ketoses are reducing sugars. This means that, when reacted with an alkaline solution of copper(II) sulphate (Benedict's solution), the aldehyde or ketone group reduces Cu^{2+} ions to Cu^+ ions forming bricks red precipitate of copper(I) oxide.

The results of Benedict's test depends on concentration of the sugar. If there is no reducing sugar it remains blue.

TEACHER-STUDENT ACTIVITY

The teacher demonstrates the Benedict's test and explains the content. [Logical Reasoning Intelligence]



Teacher explains with the help of oral communication [Linguistic Intelligence]

EVALUATION

What is a Benedict's test?

Which property decides the result of Benedict's test?

LEARNING OUTCOMES	CONTENT	TEACHER-STUDENT ACTIVITY	EVALUATION
<p>Names a hemo polysaccharide.</p> <p>Mentions which solution is used to test the presence of reducing sugar in a sample.</p> <p>states what is the other name of polysaccharide.</p> <p>Mentions the two types of polysaccharide.</p>	<p><u>RECAPITULATION</u></p> <p>chitin is a hemo polysaccharide with amino acid</p> <p>Benedict's solution is used to test the presence of reducing sugar in a sample.</p> <p>"Glycans" is the other name of polysaccharide.</p> <p>* Storage polysaccharide</p> <p>* structural polysaccharide</p>	<p>Teacher tests the knowledge gained by the students.</p> <p>Teacher tests the knowledge gained by the students.</p> <p>Teacher checks the knowledge gained by the students.</p> <p>Teacher checks the knowledge gained by the students.</p>	<p>Name a hemo polysaccharide</p> <p>Which solution is used to test the presence of reducing sugar in a sample?</p> <p>What is other name polysaccharide?</p> <p>Mention the two types of polysaccharides.</p>

HOME ASSIGNMENTS:

- * Illustrate the structure of starch. [Bodily-Kinesthetic Intelligence]
- * Collect details about Insulin, Agar and Heparin. [Intrapersonal Intelligence]
- * Write the functions of chondroitin sulphate and keratan sulphate. [Linguistic Intelligence]
- * Collect any two types of mushroom [Naturalist Intelligence]
- * Take a section of the mushroom and view its cell wall under microscope (Group Activity) [Interpersonal Intelligence]
[Bodily-Kinesthetic Intelligence]
- * Create a small video on the uses of cellulose. [Musical Intelligence]
[Spatial Intelligence]

Signature of the Student Teacher

Signature of the Mentor

Glimpes of Multiple Intelligence-Based Teaching by N.T. Roshini at Bharathi Vidhyalaya Higher Secondary School, Salem



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Multiple Intelligence-Based Teaching by N.Thanikodi at Government Higher Secondary School, Ramiyampatti



Glimpse of Self-Regulation Remedial Teaching taken by N. NandhiniPriya in Practice Teaching School



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