

D.PHARM 2ND YEAR

BIOCHEMISTRY

CARBOHYDRATES

(PART-2)

2026-27



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Oligosaccharides

- By this convention, trioses, pentoses, hexoses are all oligosaccharides.



इस परिपाटी के अनुसार, ट्रायोसेस, पेंटोज़, हेक्सोज़ सभी ऑलिगोसेकेराइड हैं।

- Occurs as glycoconjugates like Glycoproteins , Glycolipids.



ग्लाइकोप्रोटीन, ग्लाइकोलिपिड्स जैसे ग्लाइकोकोन्जुगेट्स के रूप में होता है।

Oligosaccharides



Raffinose



Stachyose

Polysaccharides

- Contains > 10 monomers.
- found in lentils, beans, peanuts, potatoes, peas, corn, whole-grain bread, cereals, etc.



दाल, सेम, मूंगफली, आलू, मटर, मक्का, साबुत अनाज की ब्रेड, अनाज आदि में पाया जाता है।

- Examples of polysaccharides include starch, glycogen, cellulose, etc.



पॉलीसेकेराइड के उदाहरणों में स्टार्च, ग्लाइकोजन, सेलूलोज़ आदि शामिल हैं।

❑ **Starch:** is composed of two components-

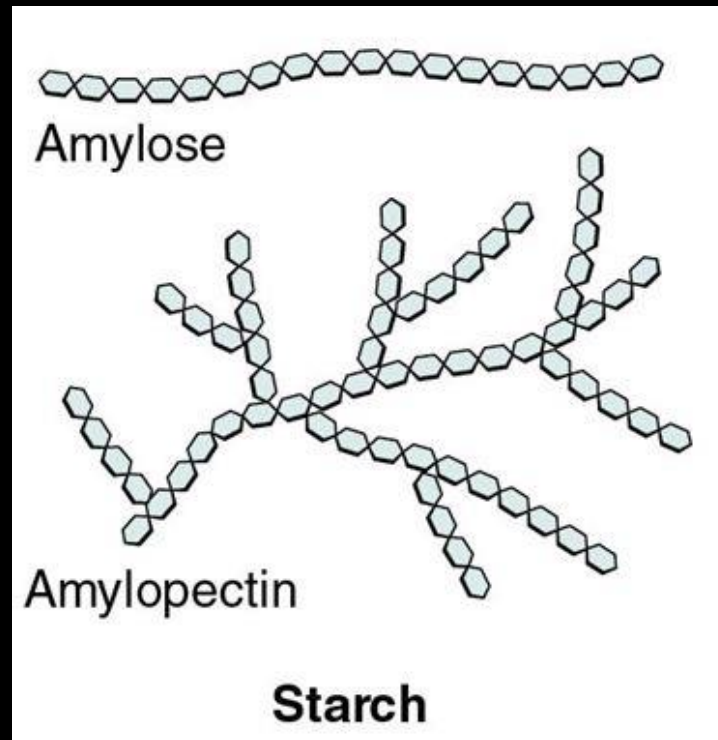
Amylose

amylopectin

- Amylose forms the linear chain and amylopectin is a much-branched chain.



एमाइलोज रैखिक श्रृंखला बनाता है और एमाइलोपेक्टिन एक अधिक शाखाओं वाली श्रृंखला है।

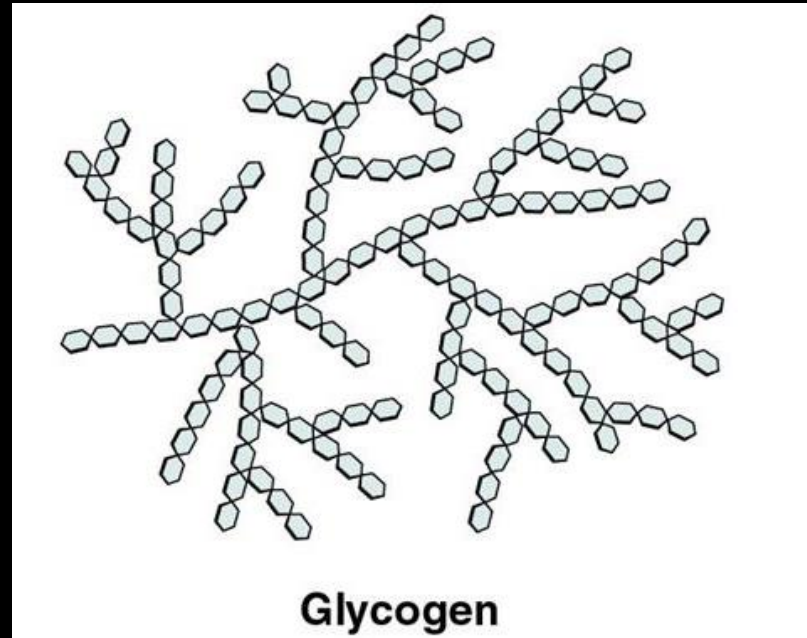


□ **Glycogen:** It is called animal starch.

- It has a structure similar to starch, but has more extensive branching.



इसकी संरचना स्टार्च के समान है, लेकिन इसकी शाखाएं अधिक व्यापक हैं।



□ Cellulose: Cellulose forms a linear polymer.

- It is a structural carbohydrate and is the main structural component of the plant cell wall.

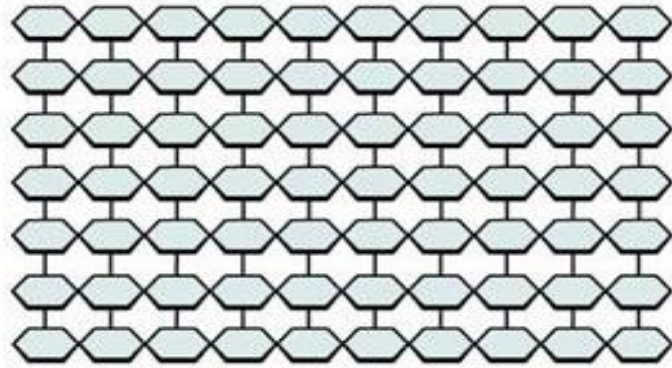


यह एक संरचनात्मक कार्बोहाइड्रेट है और पौधे की कोशिका भित्ति का मुख्य संरचनात्मक घटक है।

- It is a fibrous polysaccharide with high tensile strength.



यह उच्च तन्यता शक्ति वाला एक रेशेदार पॉलीसेकेराइड है।



Cellulose (fiber)

Types of Polysaccharides

Homopolysaccharides

Starch

Glycogen

Cellulose

Chitin

Inulin

Heteropolysaccharides

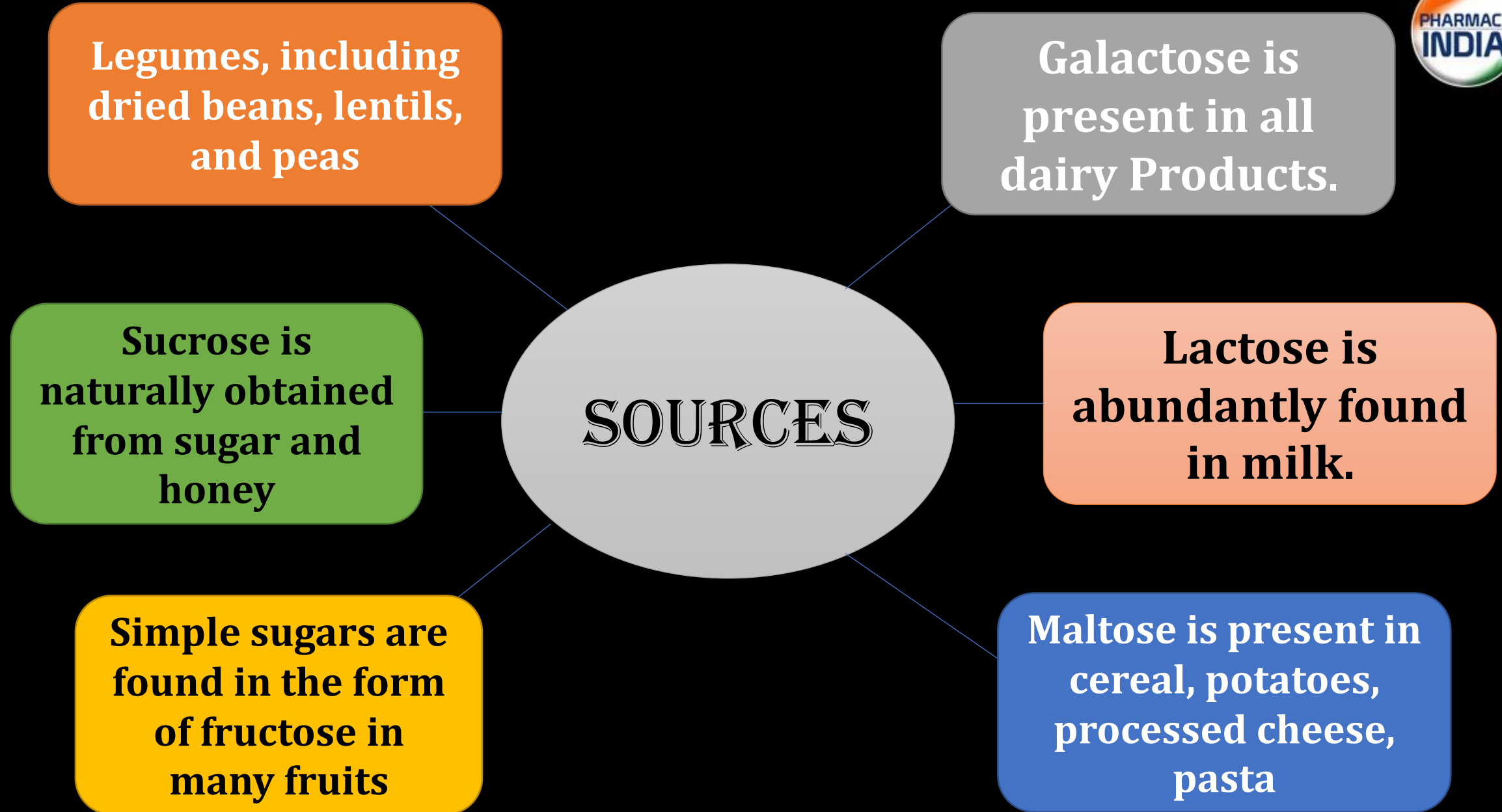
Agar

Agarose

Gum

Pectin

Hyaluronic acid



S.NO	TEST NAME	PROCEDURE	OBSERVATION
1.	Reduction of Fehling's Solution	Solution of carbohydrate + equal quantity of Fehling's solutions A and B after heating	brick red precipitate obtained
2.	Molisch Test	Solution of carbohydrate + α -naphthol + concentrated sulphuric acid	gives purple colour

S.NO.	TEST NAME	PROCEDURE	OBSERVATION
3.	Resorcinol Test for Ketones	A crystal of resorcinol carbohydrate solution warmed on a water bath with an equal volume of concentrated hydrochloric acid	rose colour is produced if a ketone is present
4.	Test for Pentoses	Heat a solution of the substance in a test tube+ equal volume of hydrochloric acid containing a little phloroglucinol	Formation of a red colour indicates pentoses

5.	Keller-Kiliani Test for Deoxysugars	A Deoxysugar (found in cardiac glycosides)+ acetic acid + trace of ferric chloride→→→→ transferred to the surface of concentrated sulphuric acid	at the junction of the liquids a reddish- brown colour is produced which gradually becomes blue.
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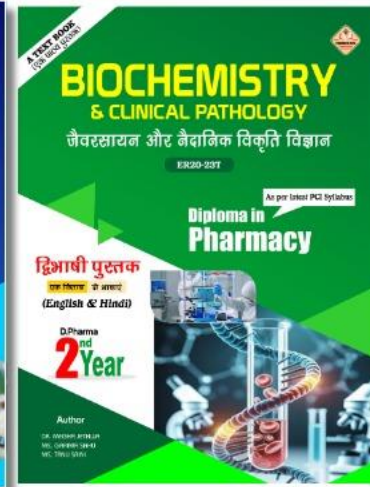
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