



UTEC

UNIVERSIDAD DE INGENIERÍA
Y TECNOLOGÍA



Carbohidratos II

UTEC

Objetivo de la sesión online:

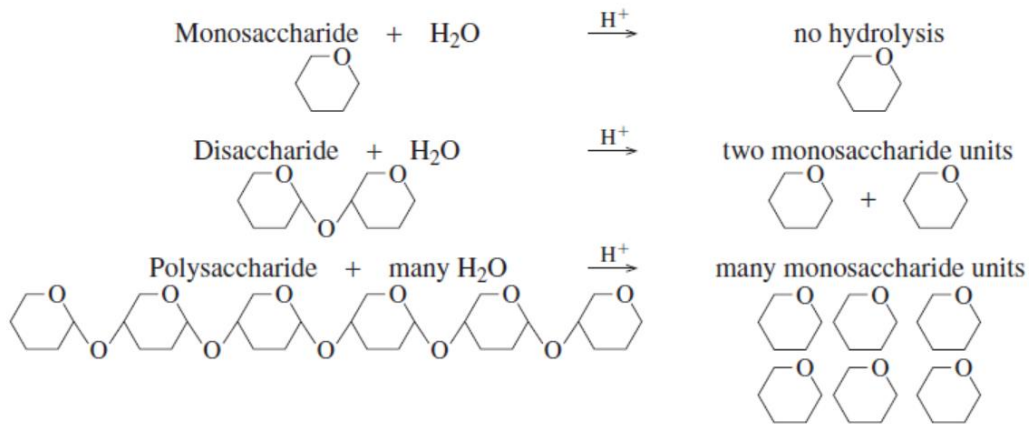
- **Explicar** la importancia de los carbohidratos en la química biológica a partir de: su clasificación (de acuerdo a su estructura química), sus propiedades y función en los seres vivos, respondiendo a la hoja de trabajo de manera clara, concisa y ordenada.

Contenidos:

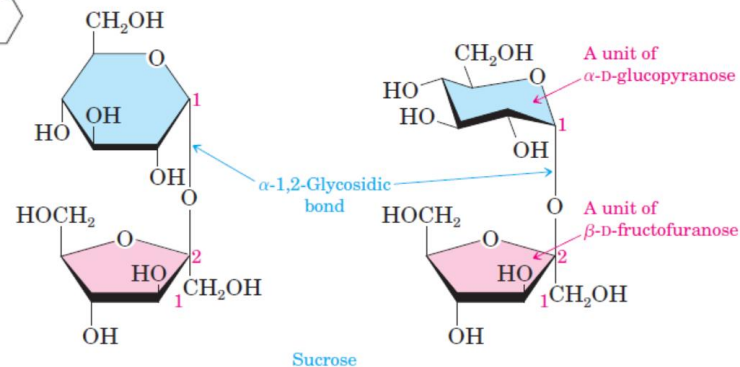
- Enlace glucosídico
- Disacáridos más importantes
- Oligosacáridos
- Polisacáridos
- Ejercicios de aplicación



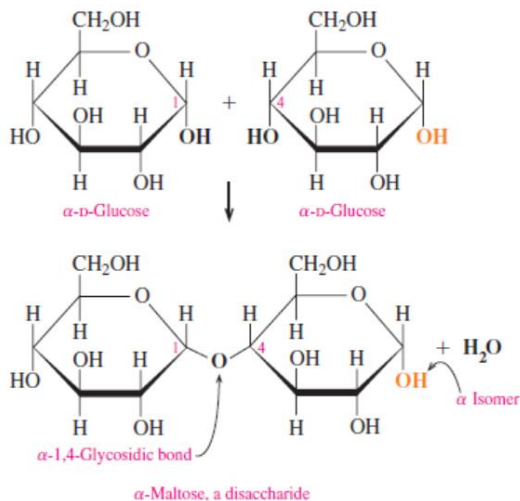
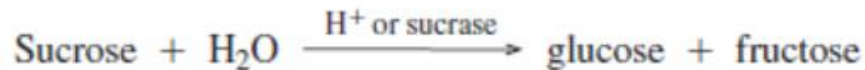
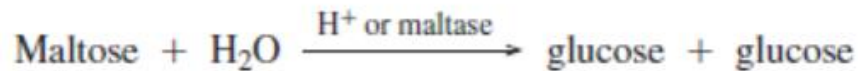
Enlace glucosídico - el origen de los disacáridos



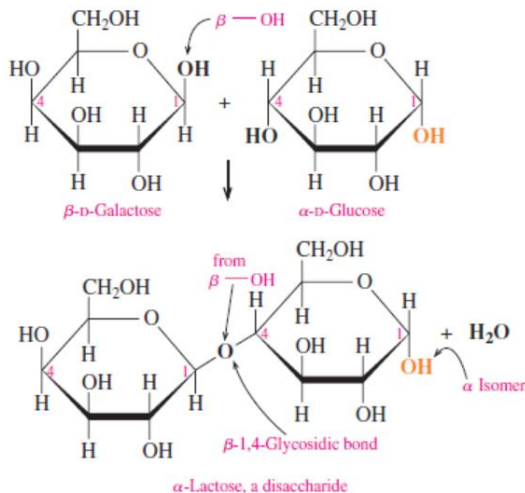
Reacción de condensación con la pérdida de una molécula de H₂O por enlace



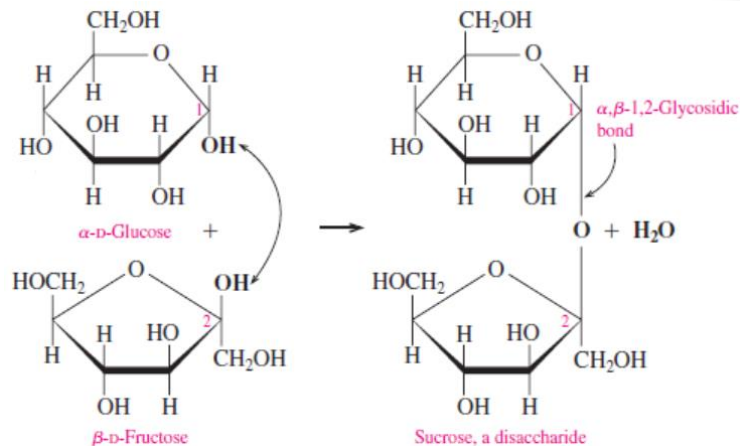
Disacáridos más comunes



Maltosa



Lactosa



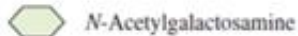
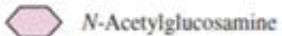
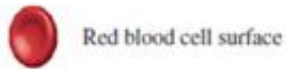
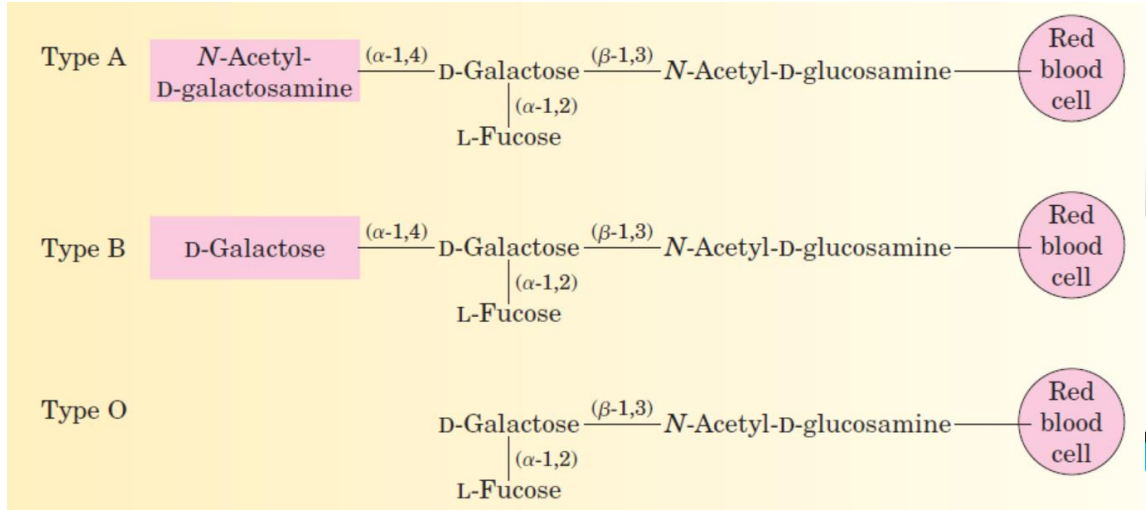
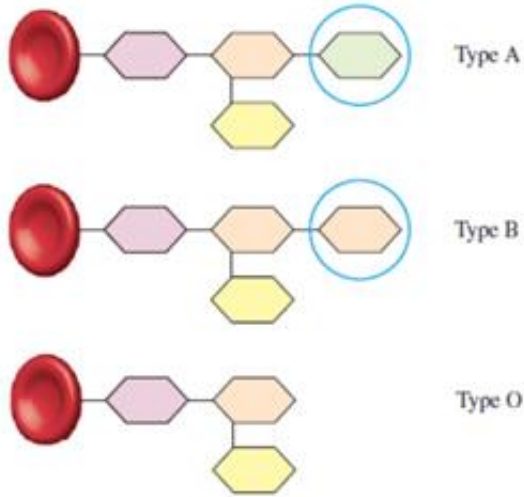
Sacarosa o sucrosa

Video - Oligosacáridos en acción



Link al video

Oligosacáridos - importantes en la identificación celular



Compatibilidad de grupos sanguíneos

Sugar on cell surface: O
 Has antibodies against: A and B
 Can receive blood from: O
 Can donate blood to: O, A, B, and AB

Type O



Type A



Type B



Type AB



Sugar on cell surface: B
 Has antibodies against: A
 Can receive blood from: B and O
 Can donate blood to: B and AB

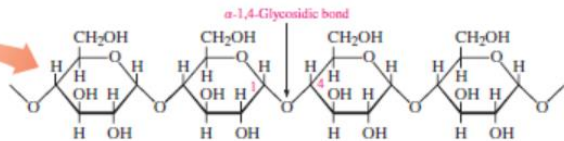
Sugars on cell surface: A and B
 Has antibodies against: None
 Can receive blood from: O, A, B, and AB
 Can donate blood to: AB

Blood Type	Can Receive	Produce Antibodies Against
A	A, O	B, AB
B	B, O	A, AB
AB [*]	A, B, AB, O	None
O ^{**}	O	A, B, AB

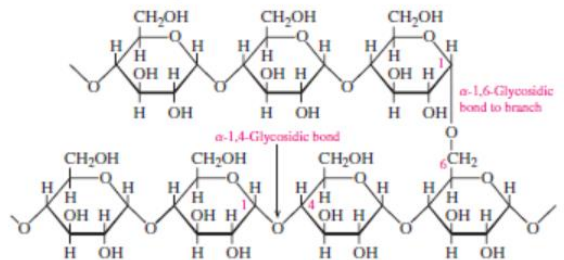
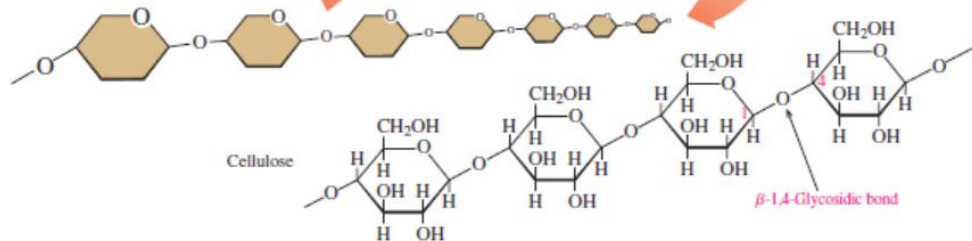
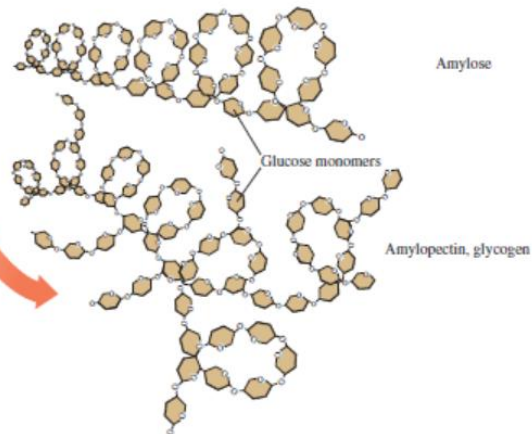
^{*}AB Universal recipient

^{**}O Universal donor

Polisacáridos

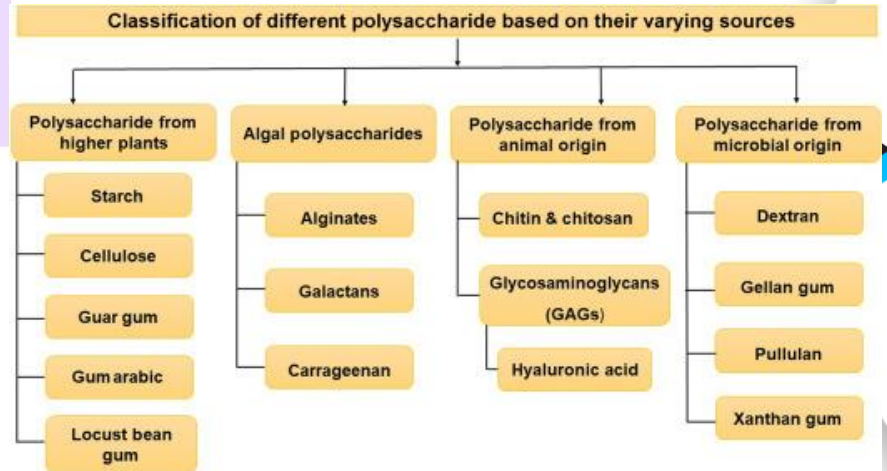


(a) Unbranched chain of amylose

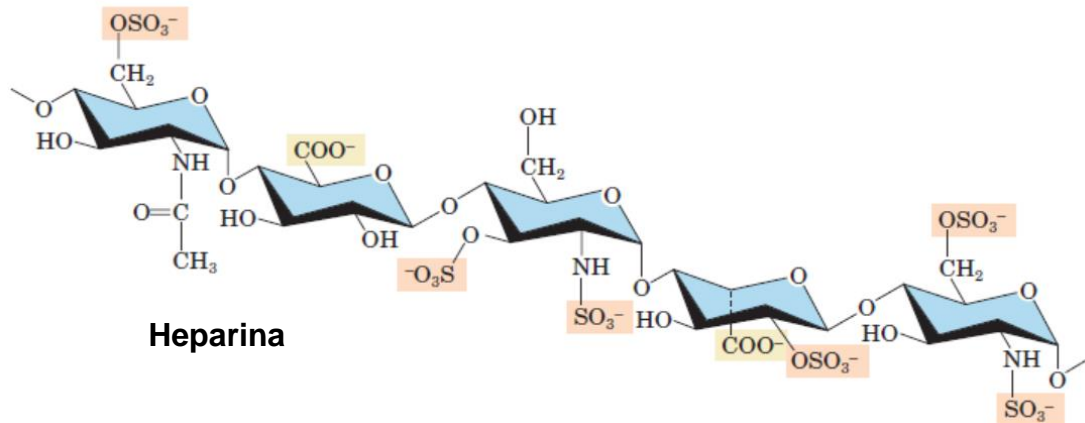


(b) Branched chain of amylopectin

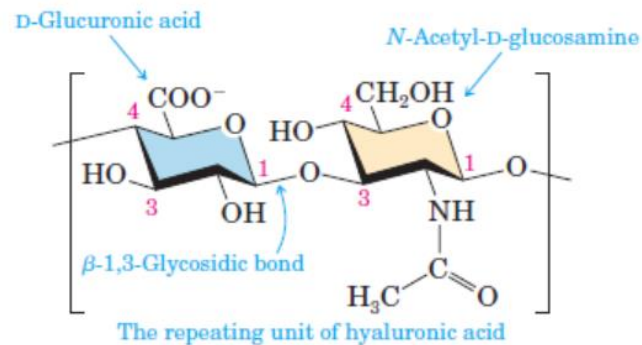
	Cellulose	Starch		Glycogen
		Amylose	Amylopectin	
Source	Plant	Plant	Plant	Animal
Subunit	β -glucose	α -glucose	α -glucose	α -glucose
Bonds	1-4	1-4	1-4 and 1-6	1-4 and 1-6
Branches	No	No	Yes (~per 20 subunits)	Yes (~per 10 subunits)
Diagram				
Shape				



Otros polisacáridos de importancia biológica



Heparina



Ácido hialurónico

Aplicar lo aprendido

Canvas → Página de inicio → Semana 9



Quiz de salida

Bibliografía

Yurkanis Bruice, P. (2007), Fundamentos de Química Orgánica, México, Pearson.
Cap.16.

Imágenes de google imágenes



 www.utec.edu.pe

 www.ce2a.utec.edu.pe

