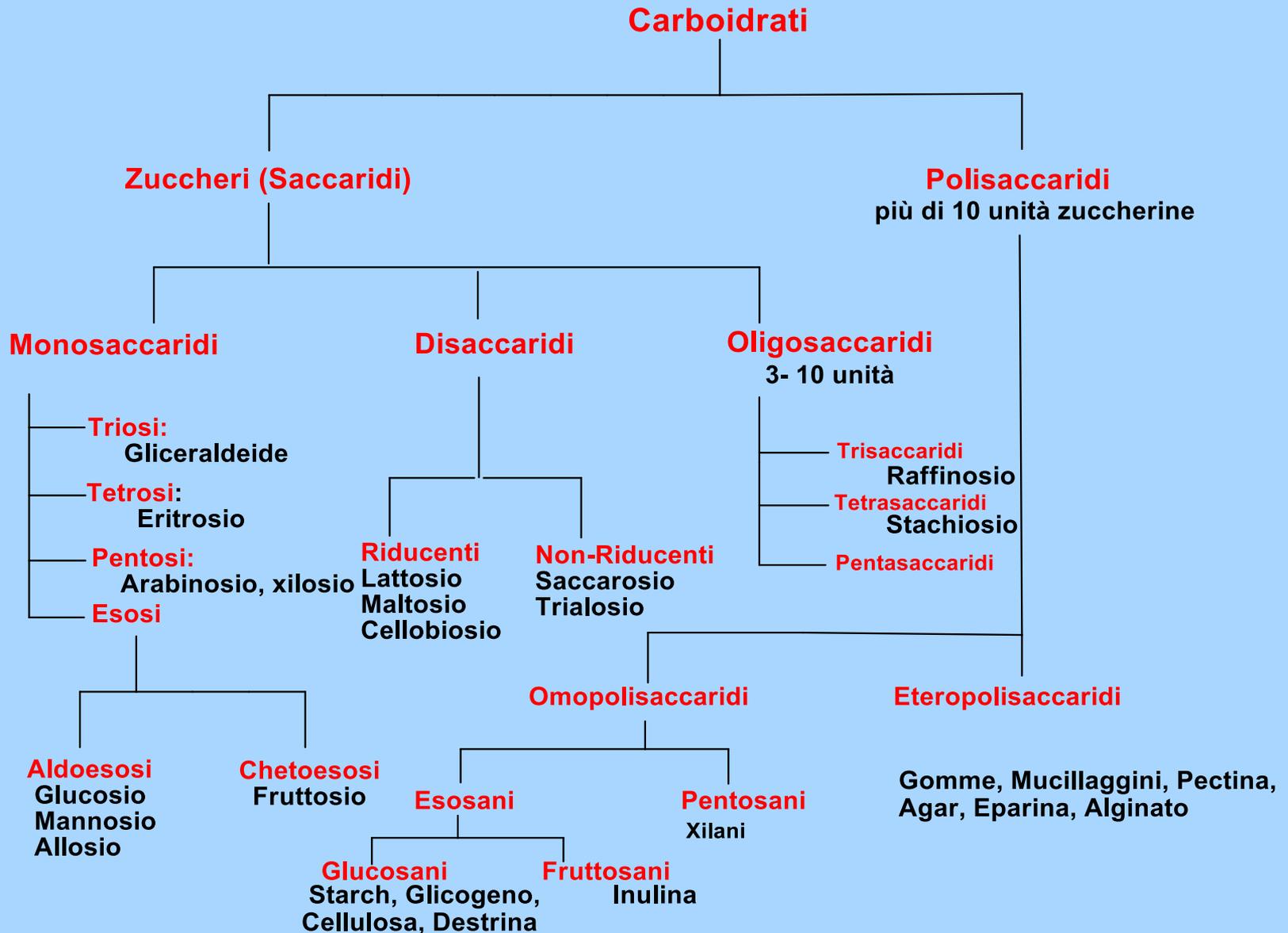


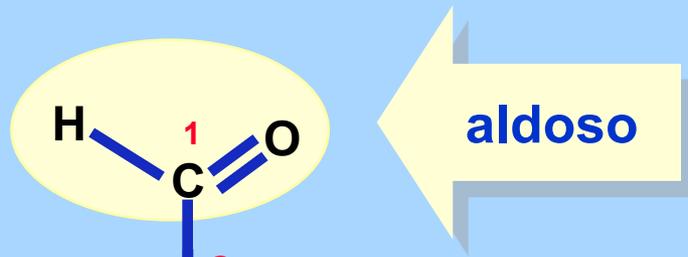
# **SAGGI DI RICONOSCIMENTO DEI CARBOIDRATI**

**Prof. Antonio Lavecchia**

# Classificazione dei Carboidrati

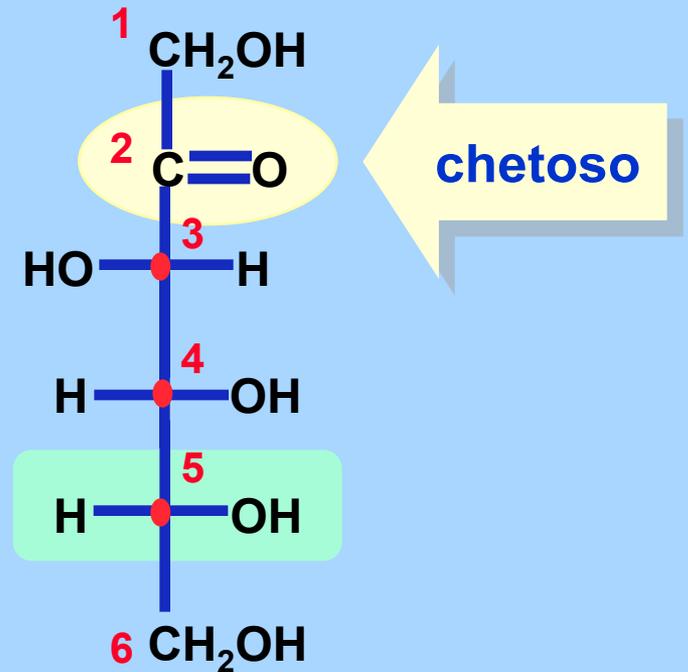


# Carboidrati



2(R),3(S),4(R),5(R),6-pentaidrossi-esanale

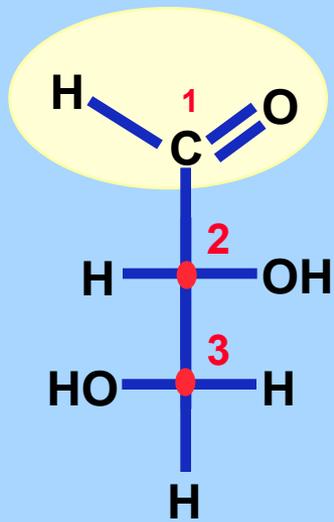
**D-glucosio**



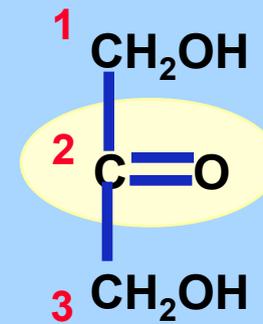
1,3(S),4(R),5(R),6-pentaidrossi-esan-2-one

**D-fruttosio**

# Carboidrati

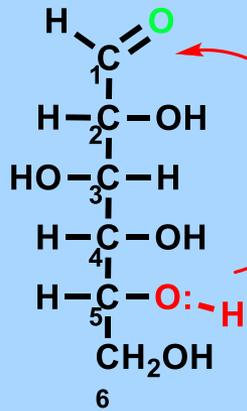


Gliceraldeide

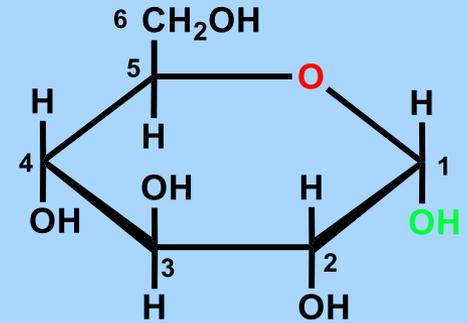
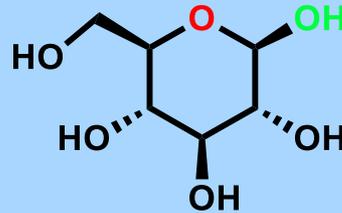
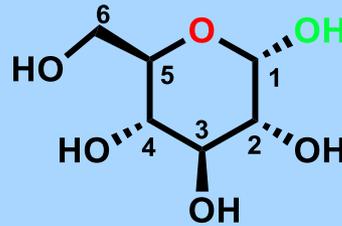


Diidrossiacetone

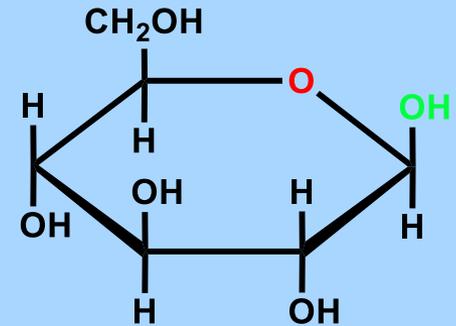
# Carboidrati



glucoso

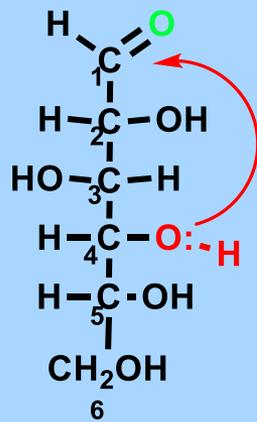


$\alpha$ -D-Glucopiranosio

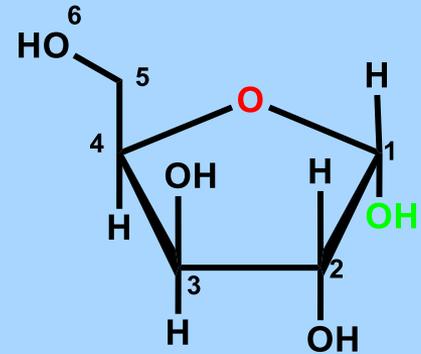
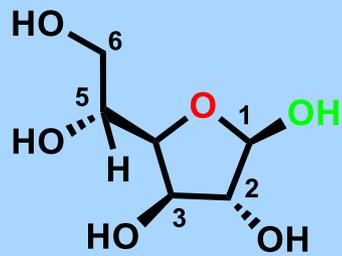


$\beta$ -D-Glucopiranosio

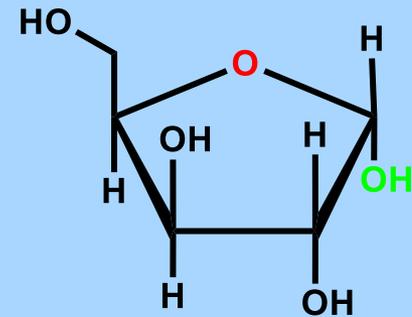
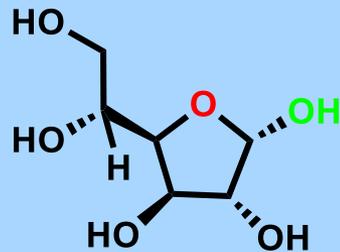
# Carboidrati



glucoso

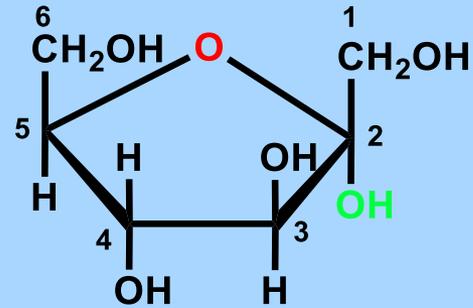
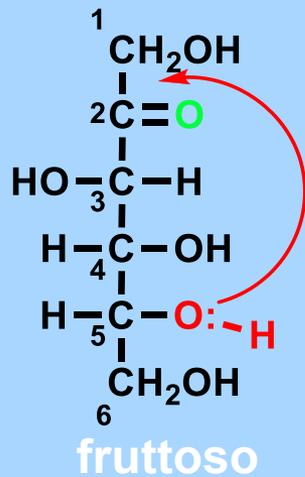


$\alpha$ -D-Glucofuranoso



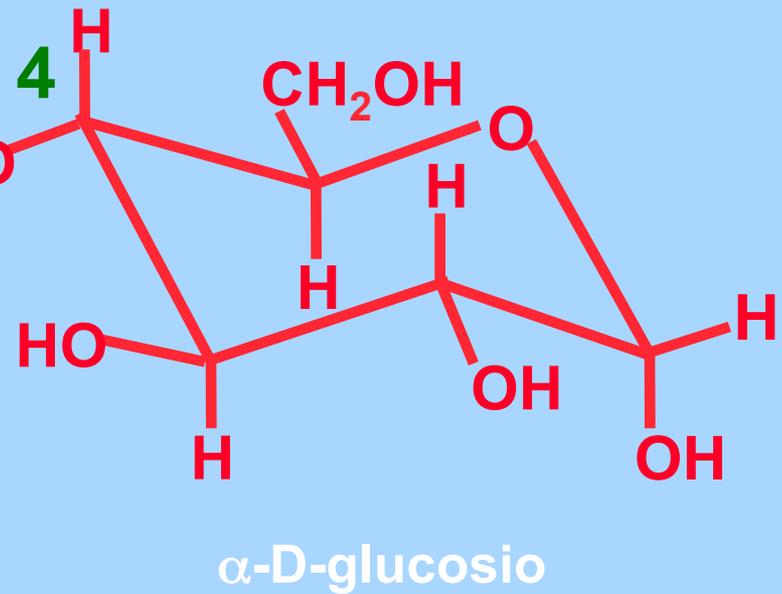
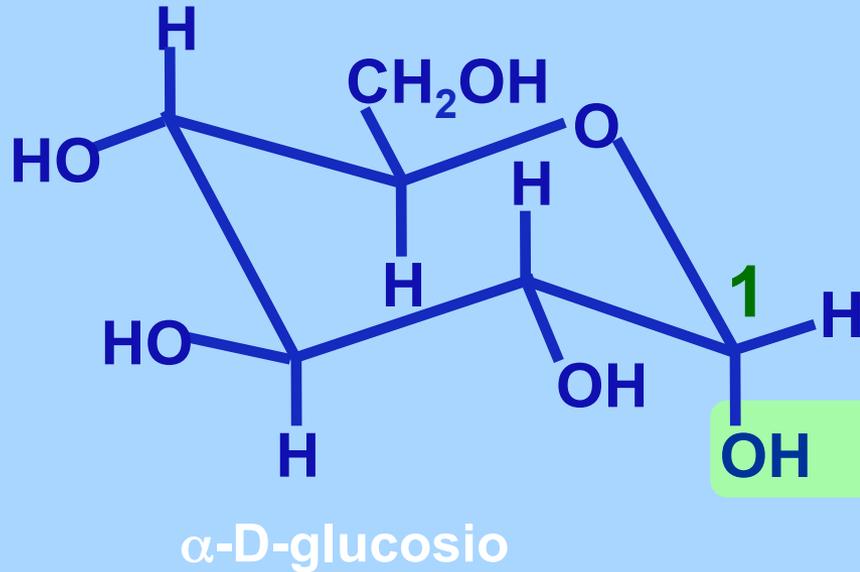
$\beta$ -D-Glucofuranoso

# Carboidrati

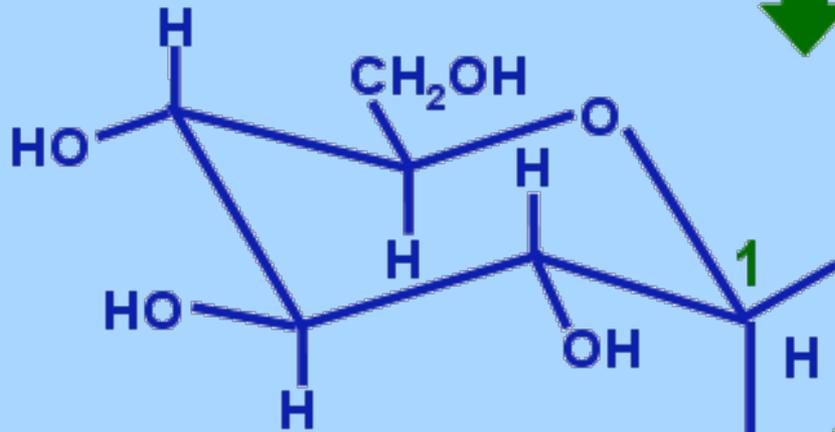


α-D-fruttofuranoso

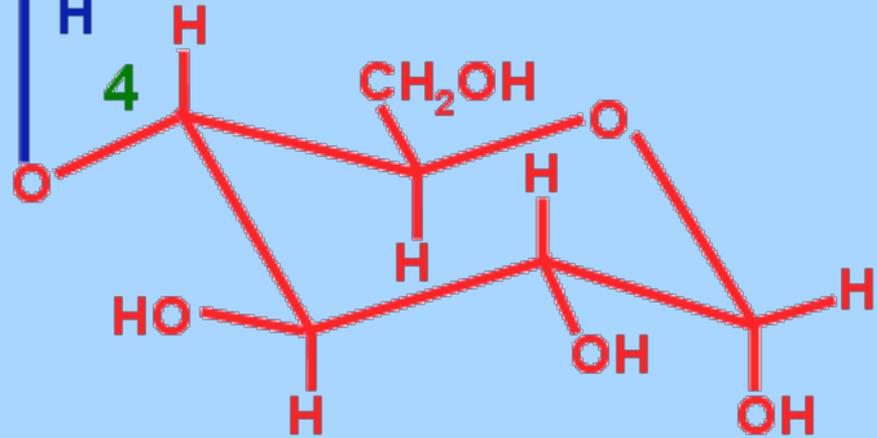
due monosaccaridi  
si legano con  
legame glicosidico



# Glicosidi: Maltosio



$\alpha$ -D-glucosio



$\alpha$ -D-glucosio

**MALTOSIO**

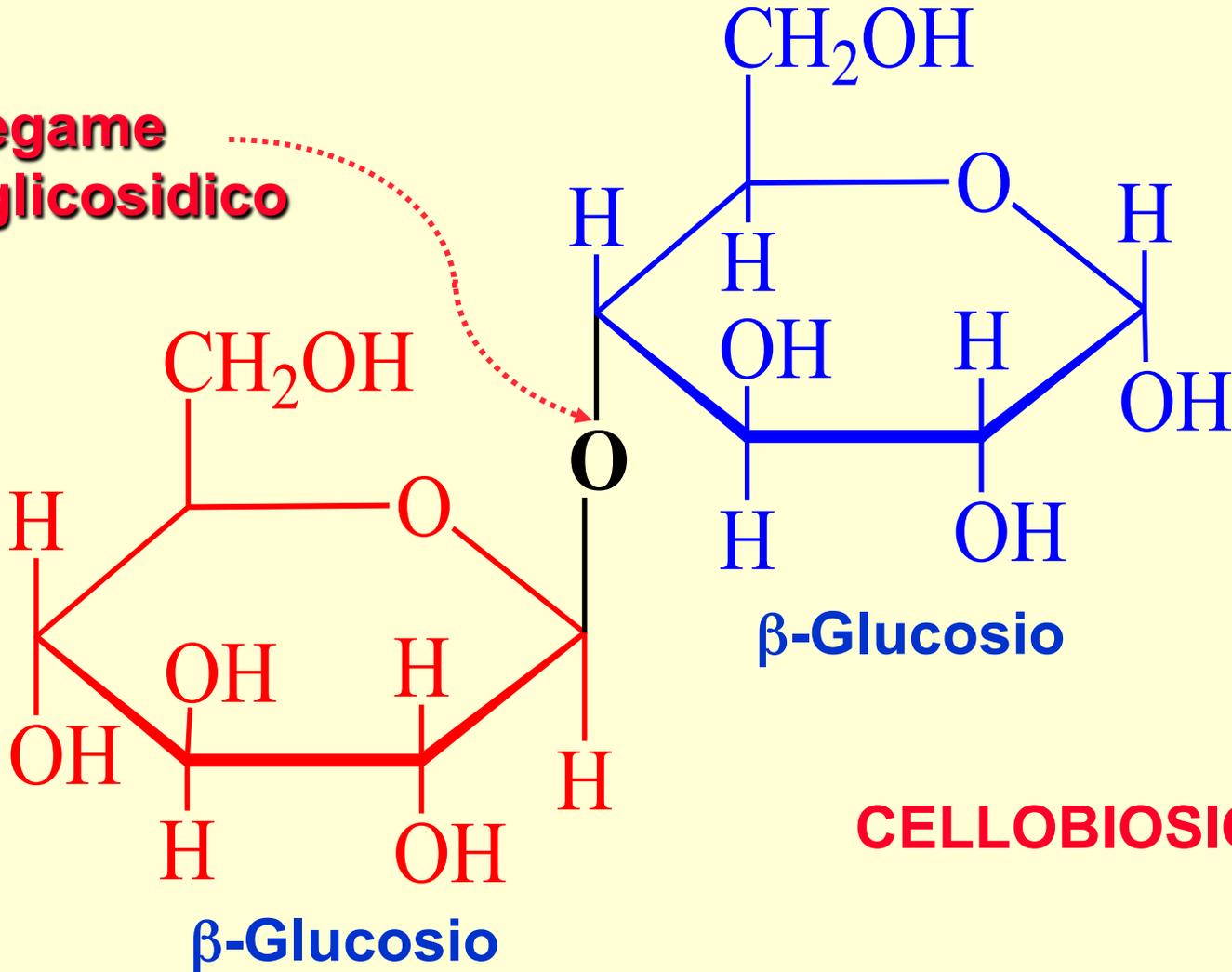
$\alpha$ -D-glucopiranosil-4-D-glucopiranosio

**Ha proprietà riducenti**



# Glicosidi: Cellobiosio

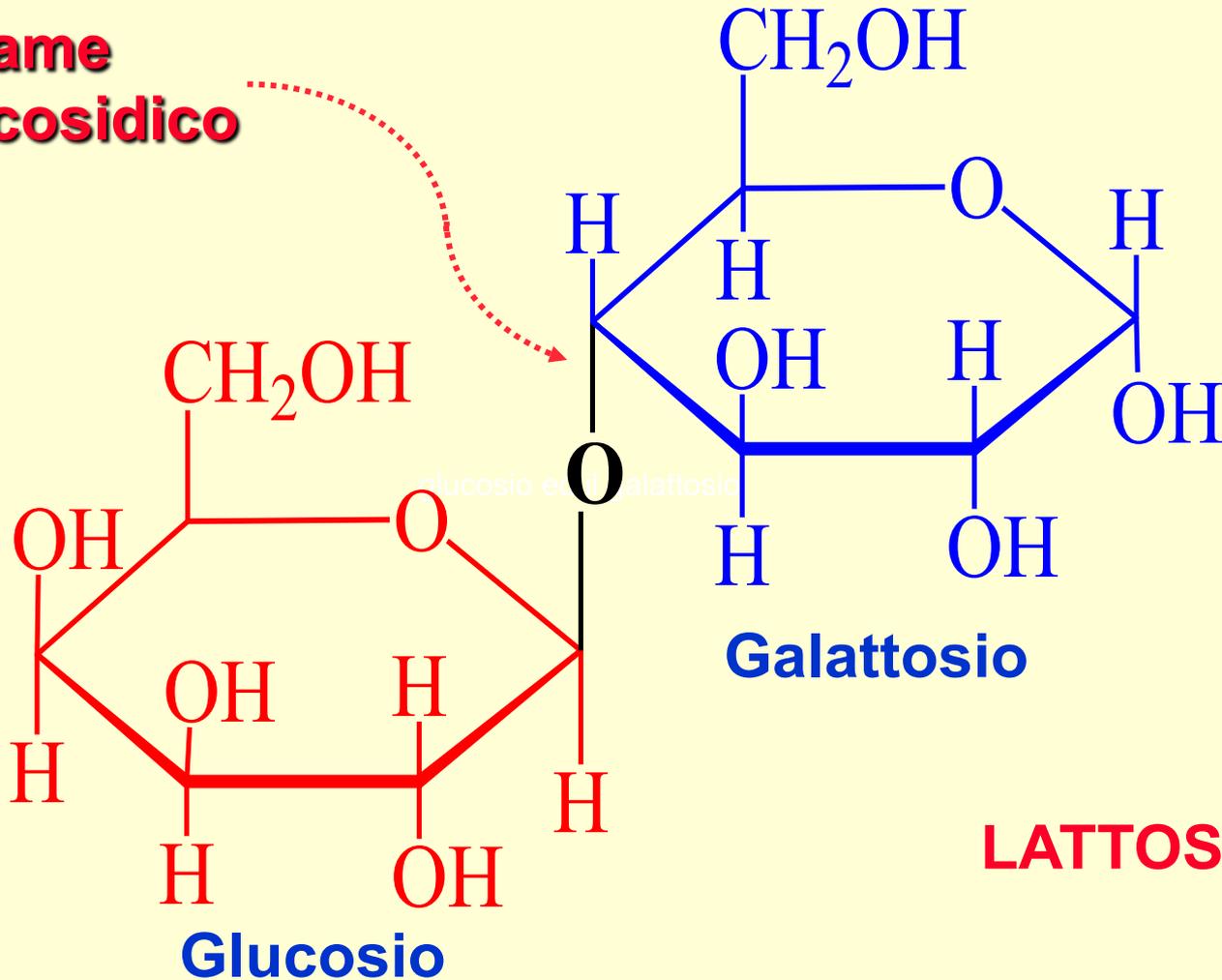
**Legame  
1,4- $\beta$ -glicosidico**



**$\beta$ -D-glucopiranosil-4-D-glucopiranosio**

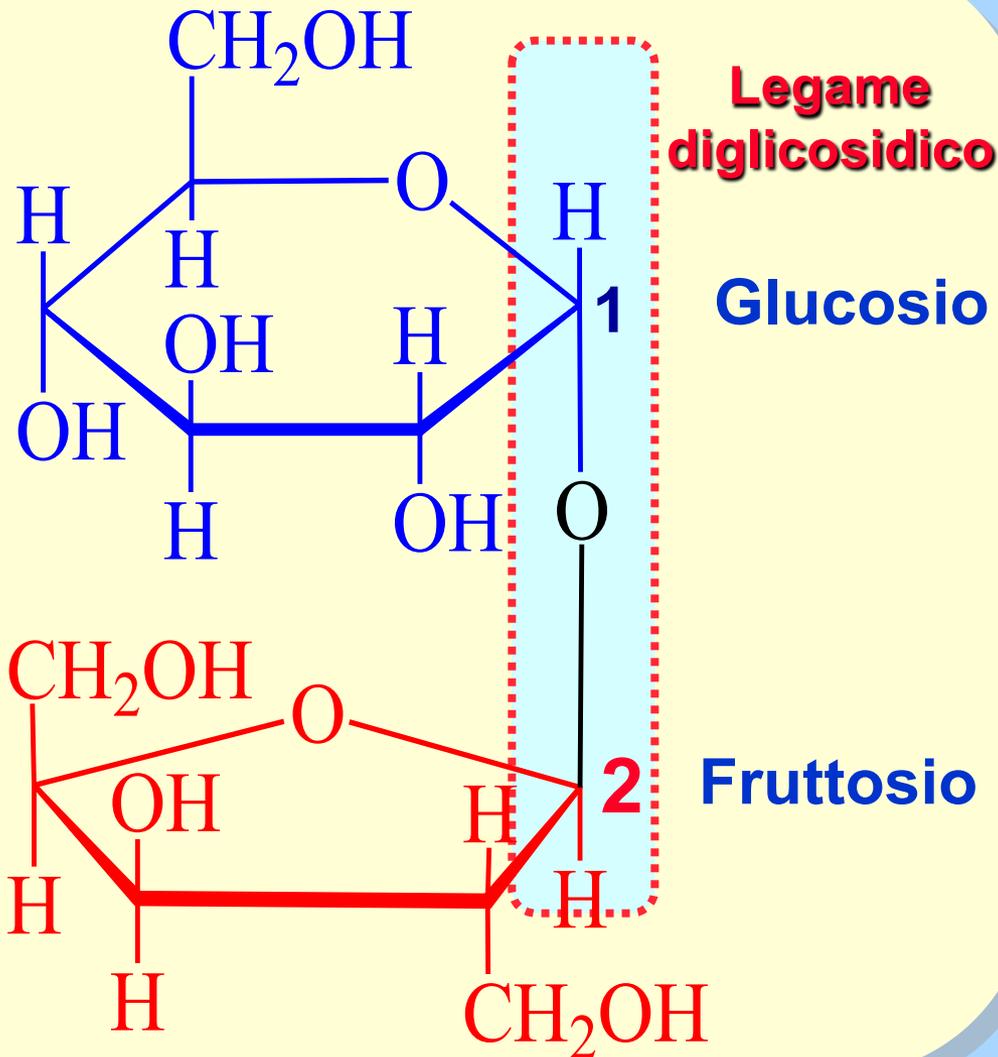
# Glicosidi: Lattosio

**Legame  
1,4- $\beta$ -glicosidico**



**$\beta$ -D-galattopiranosil-4-D-glucopiranosio**

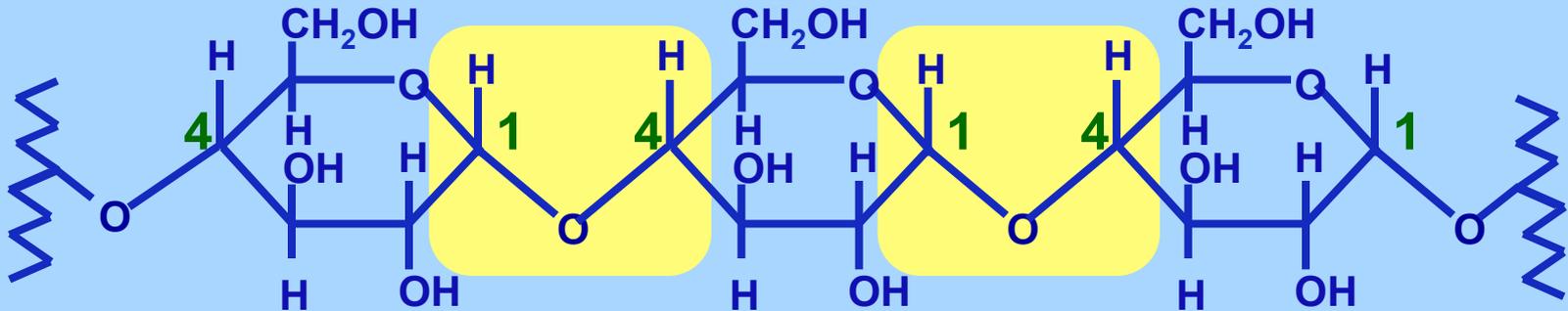
# Glicosidi: Saccarosio



**SACCAROSIO**

**$\alpha$ -D-glucopiranosil- $\beta$ -D-fruttofuranoside**

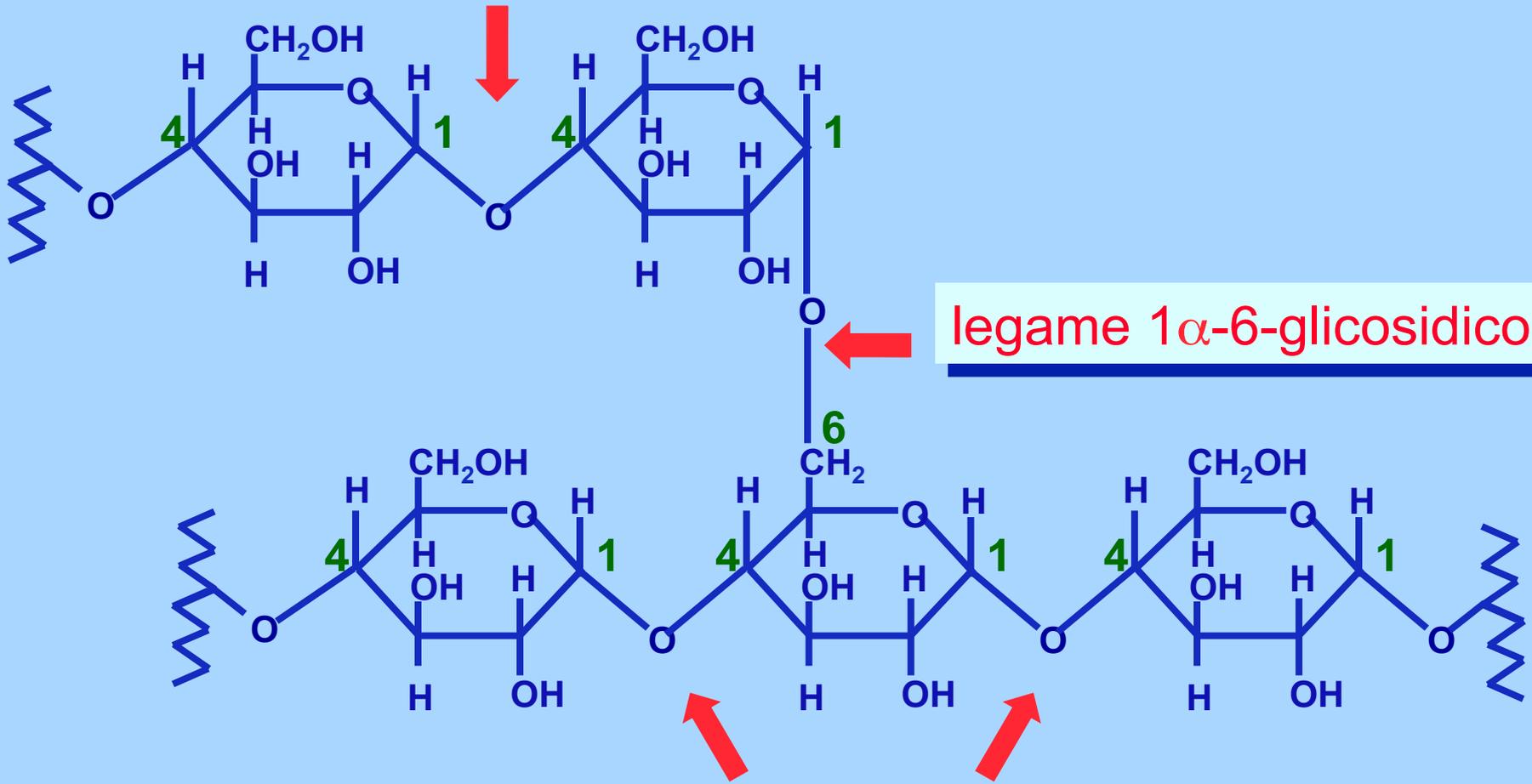
# Amilosio



Polimero del glucosio con legami  $1\alpha-4$ -  
glicosidici fra i monomeri

# Amilopectina

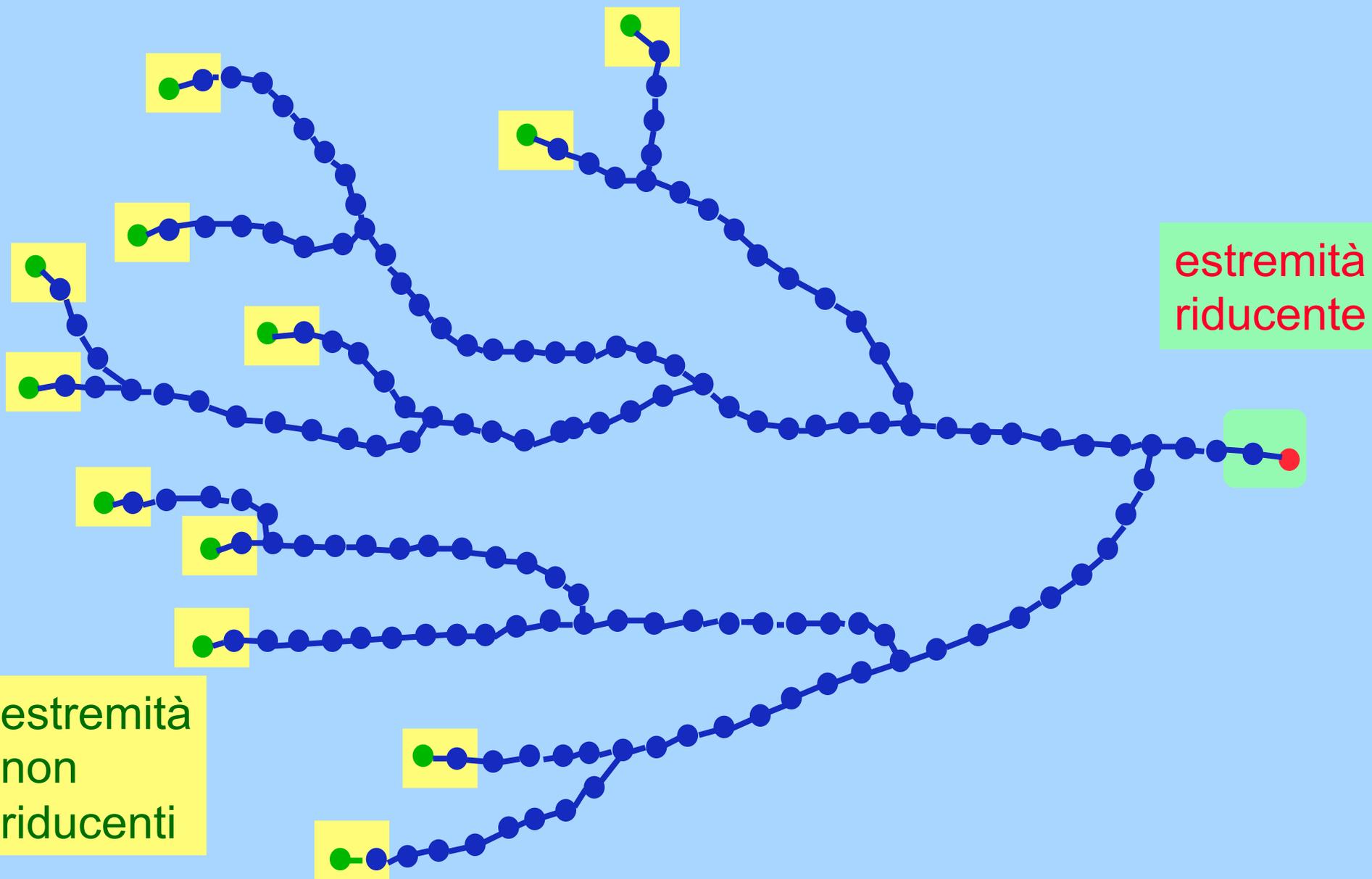
legami 1 $\alpha$ -4-glicosidici



legame 1 $\alpha$ -6-glicosidico

legami 1 $\alpha$ -4-glicosidici

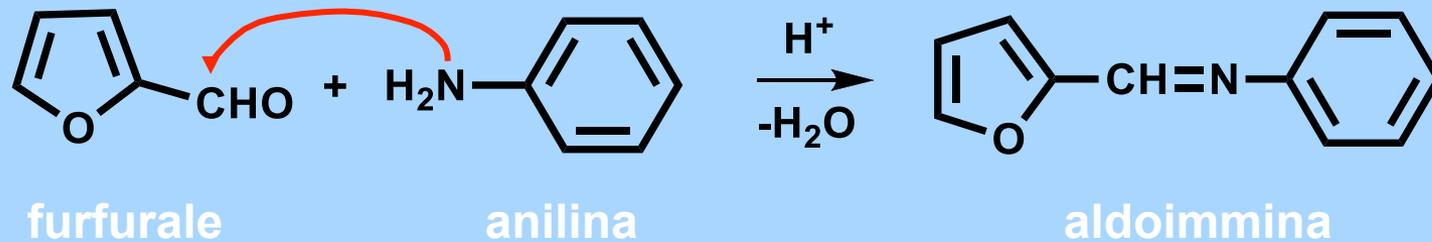
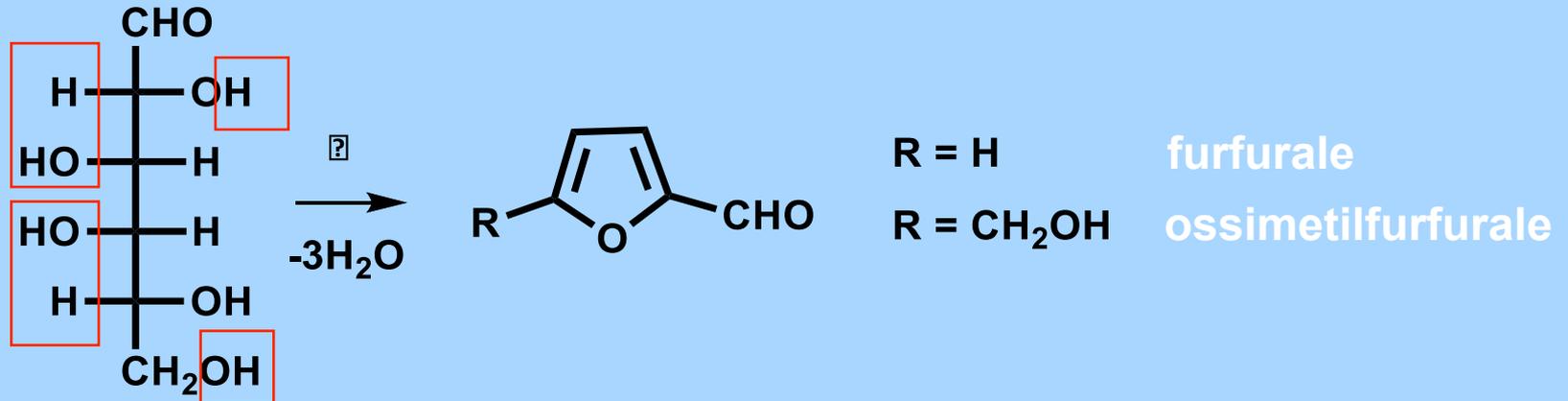
il glicogeno muscolare contiene più di 10000 unità di glucosio



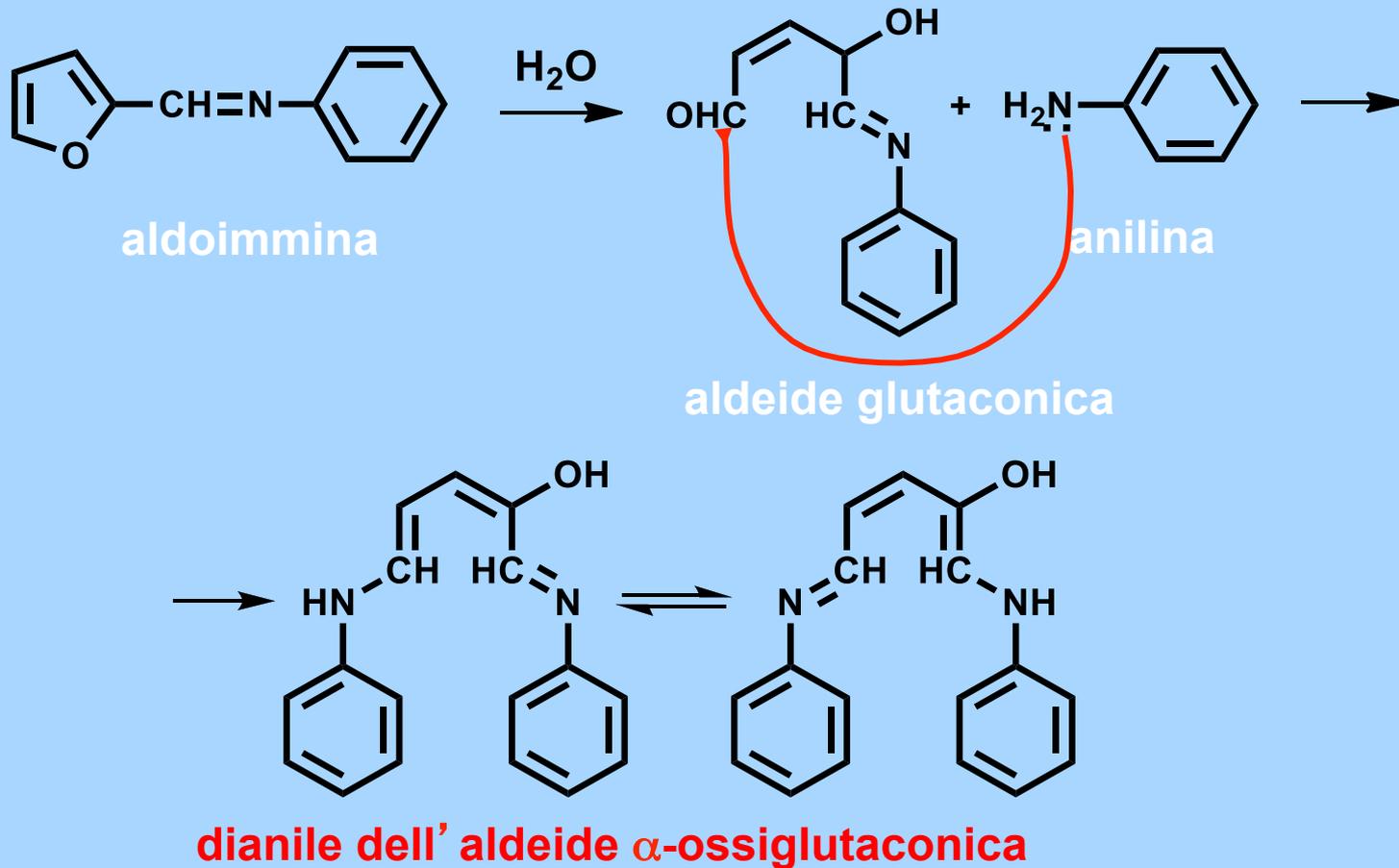
# Riconoscimento dei Carboidrati

- **Saggio con acetato di anilina**
- **Saggio di Molish**
- **Saggio di Fehling**
- **Reazione di Tollens**
- **Saggio di Barfoed**
- **Saggio con Floroglucina**
- **Saggio di Seliwanoff**

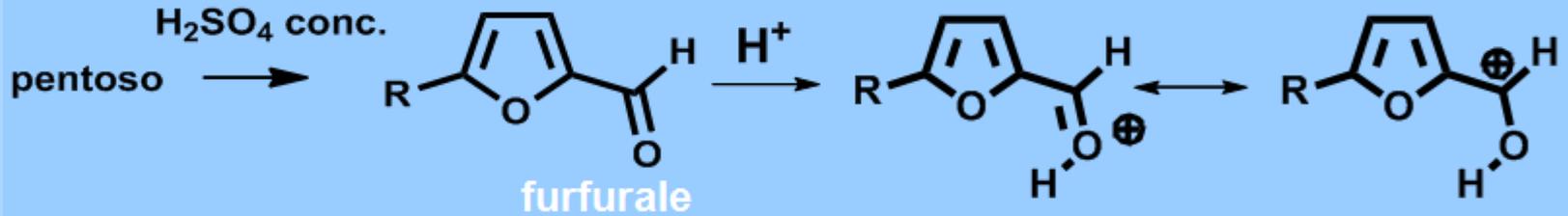
# Saggio con Acetato di Anilina



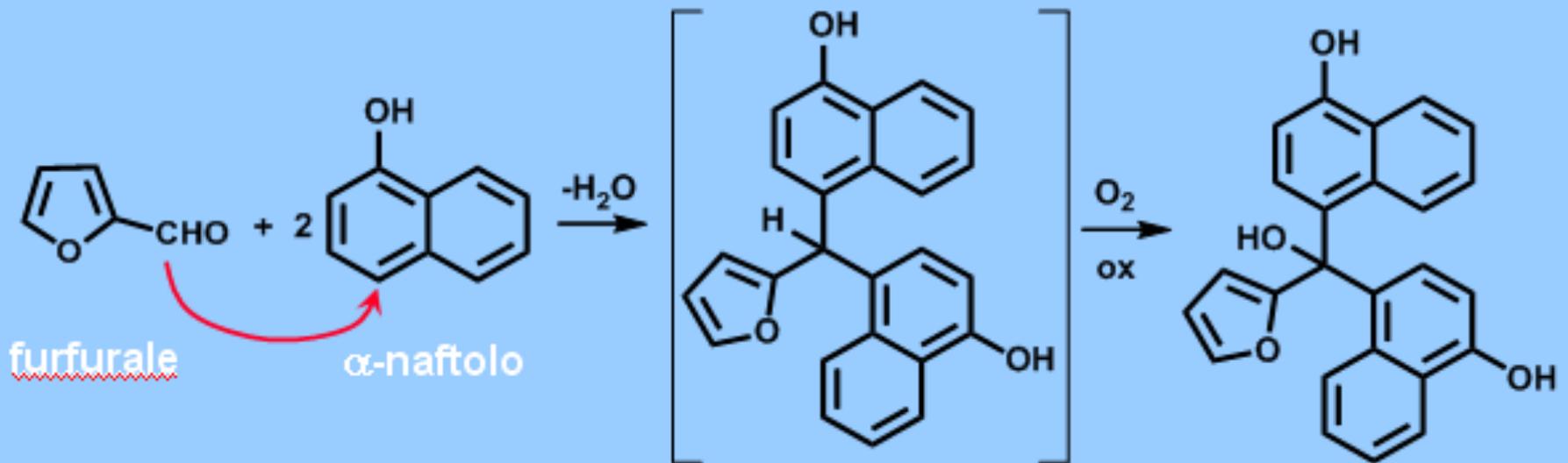
# Saggio con Acetato di Anilina



# Saggio di Molish

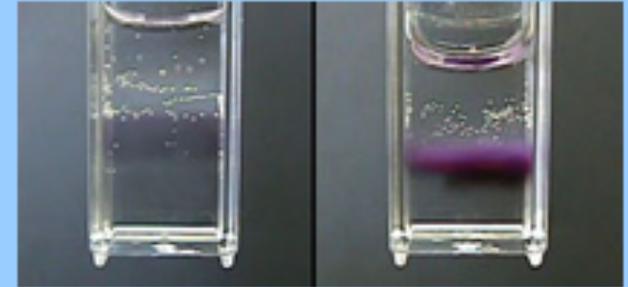
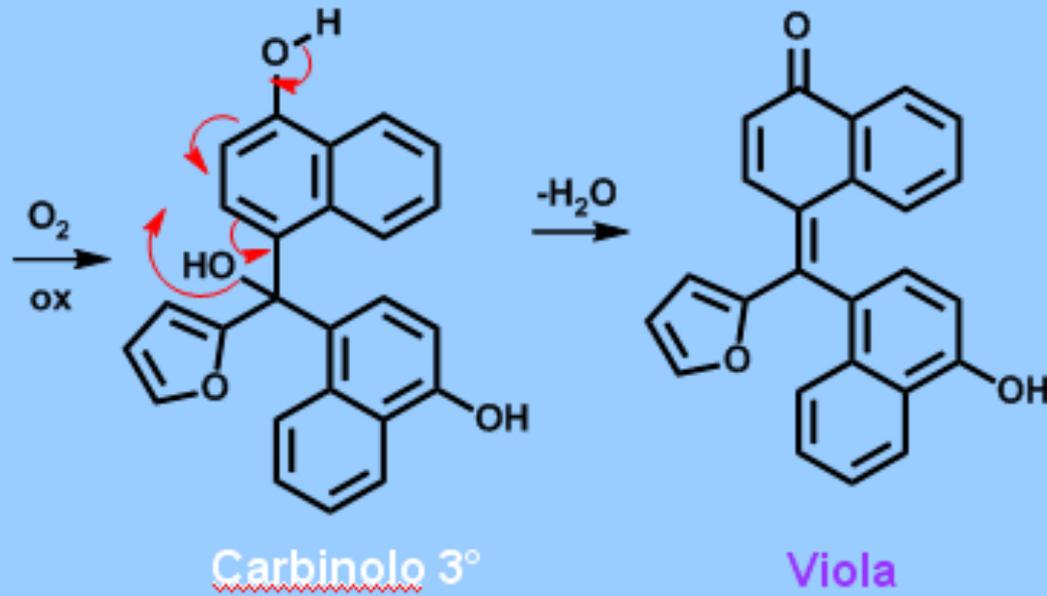


ossimetilfurfurale



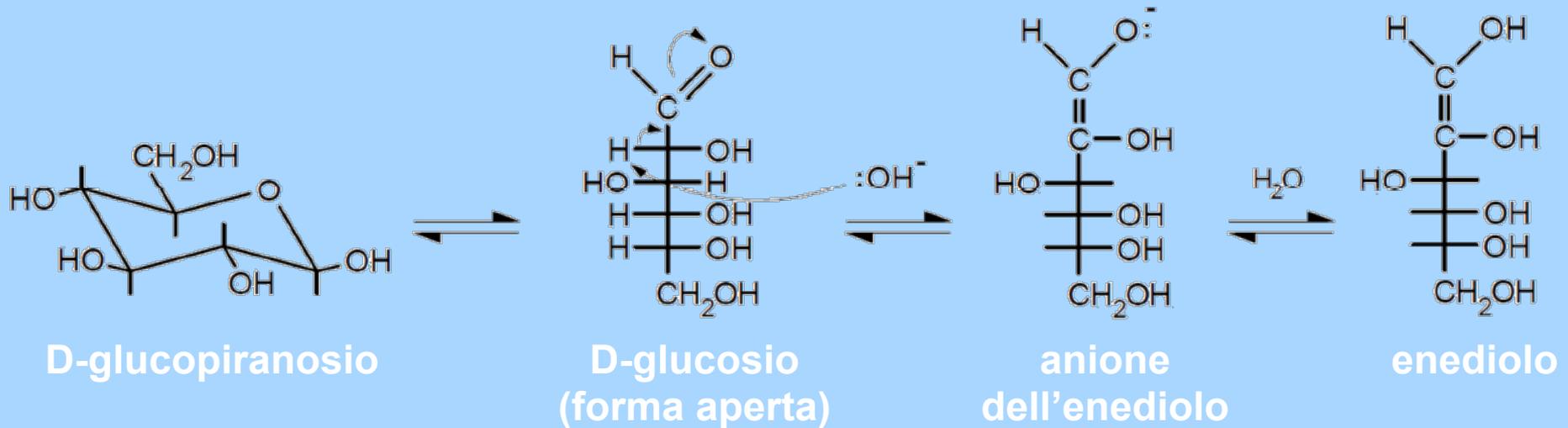
Carbinolo 3°

# Saggio di Molish

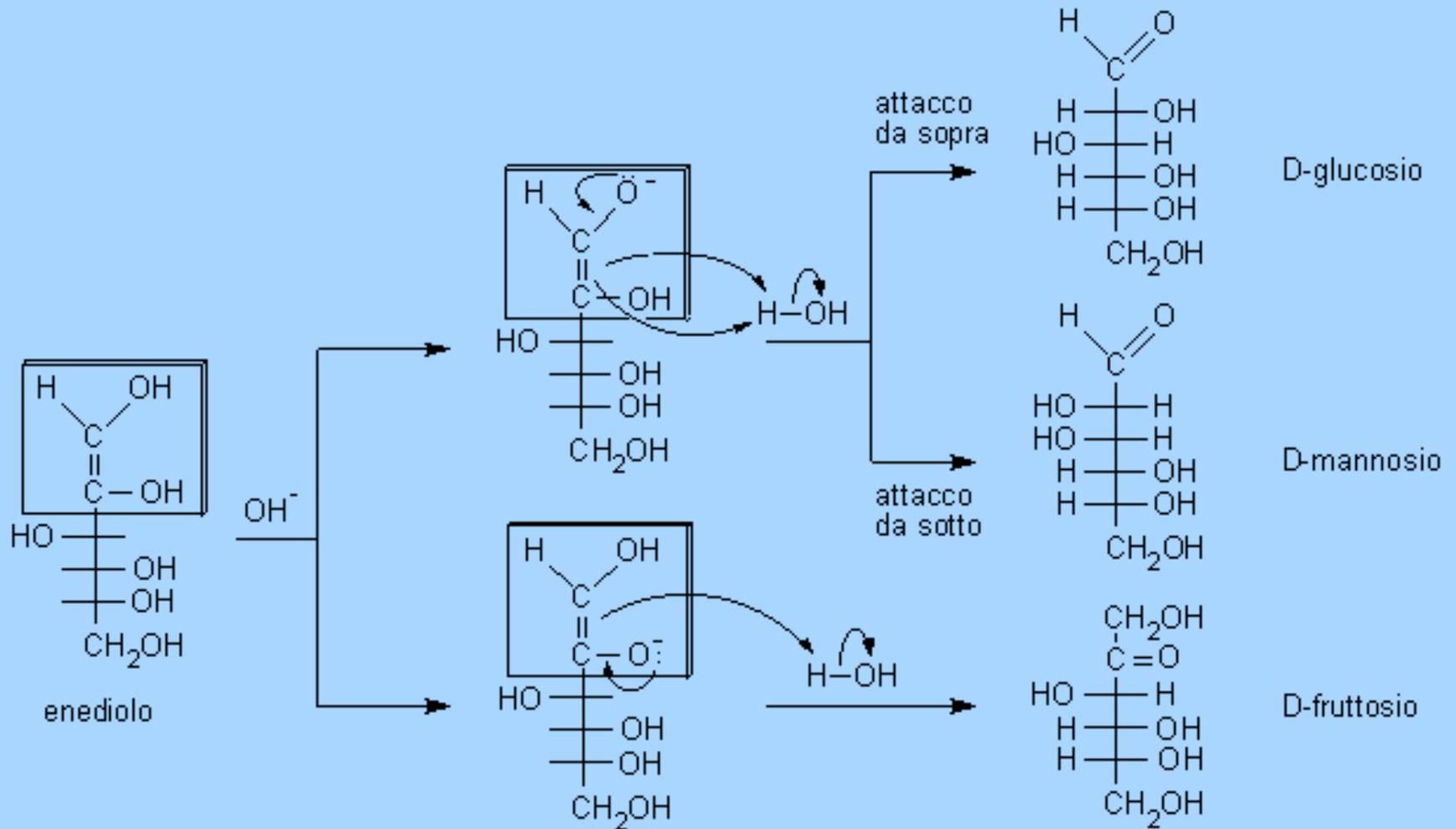


Campione	Tempo medio utile alla formazione dell'anello viola-porpora	Intensità (1-6)
Glucosio	31 s	1
Fruttosio	0 s	6
Galattosio	20 s	2
Lattosio	40 s	2
Saccarosio	0 s	6
Cellulosa	25 s	3
Amido	16 s	4
Incognito	0 s	5
Controllo	Incolore	--

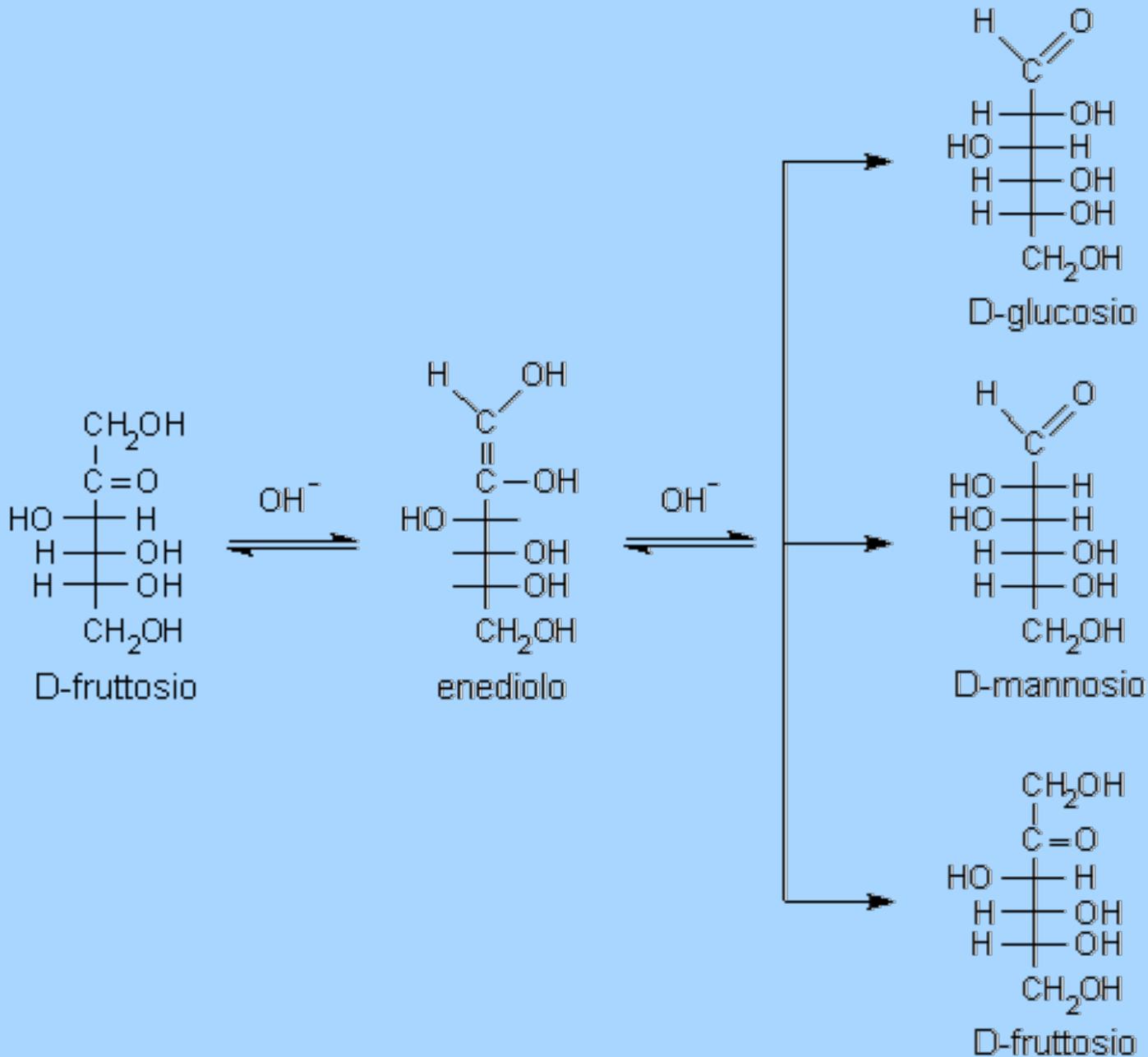
# Isomerizzazione Alcalina del Glucosio



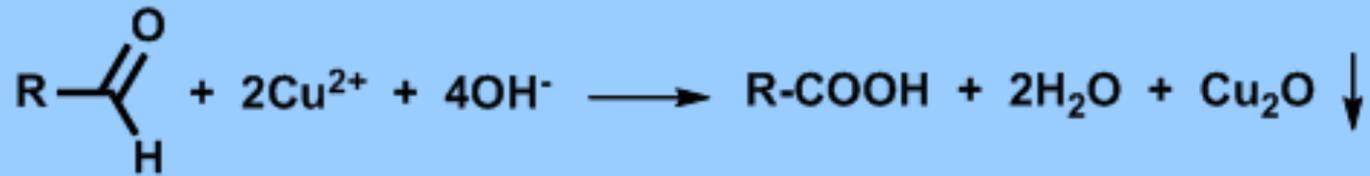
# Isomerizzazione Alcalina del Glucosio



# Isomerizzazione Alcalina del Fruttosio



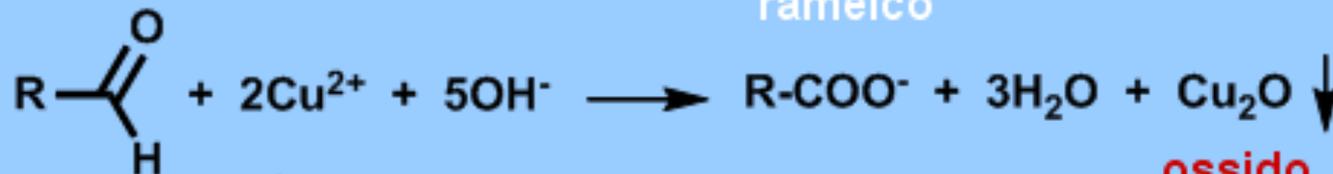
# Reazione di Fehling



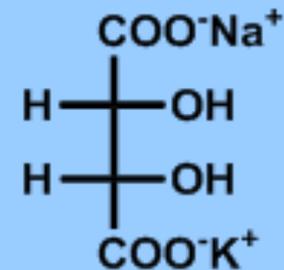
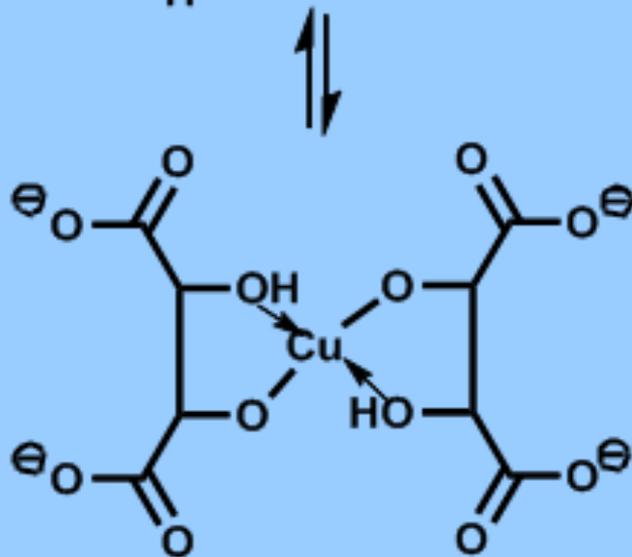
ossido rameoso



idrossido  
rameico

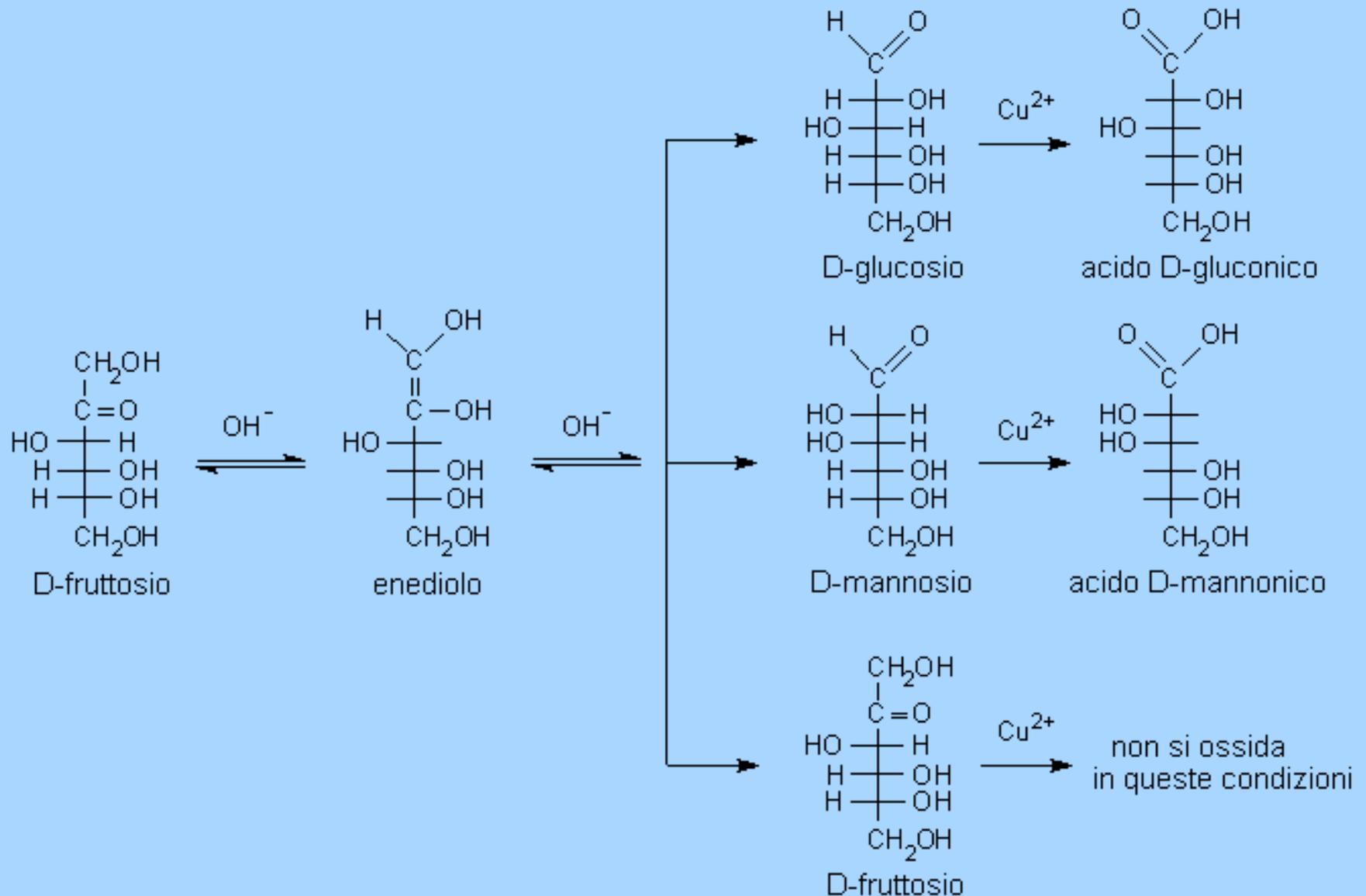


ossido  
rameoso



tartrato sodico potassico

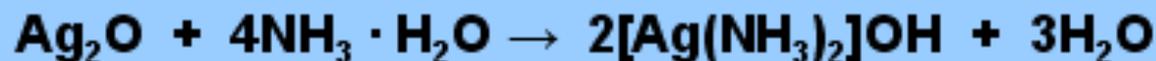
# Reazione di Fehling



# Reazione di Tollens



ossido  
d'argento



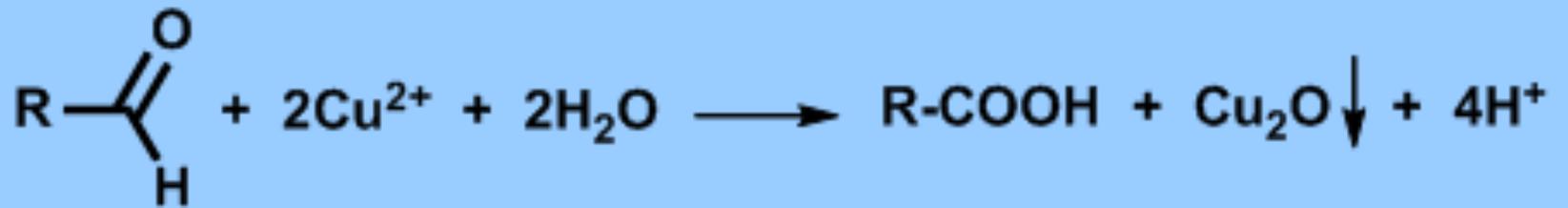
argento  
ammoniacale



argento  
ammoniacale

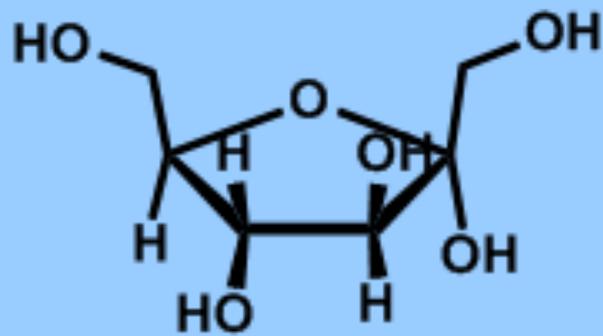
specchio  
metallico

# Saggio di Barfoed

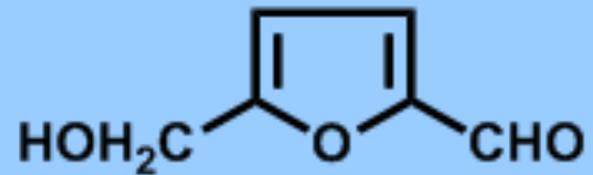
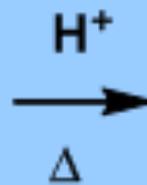


**ossido di rame**

# Saggio di Seliwanoff

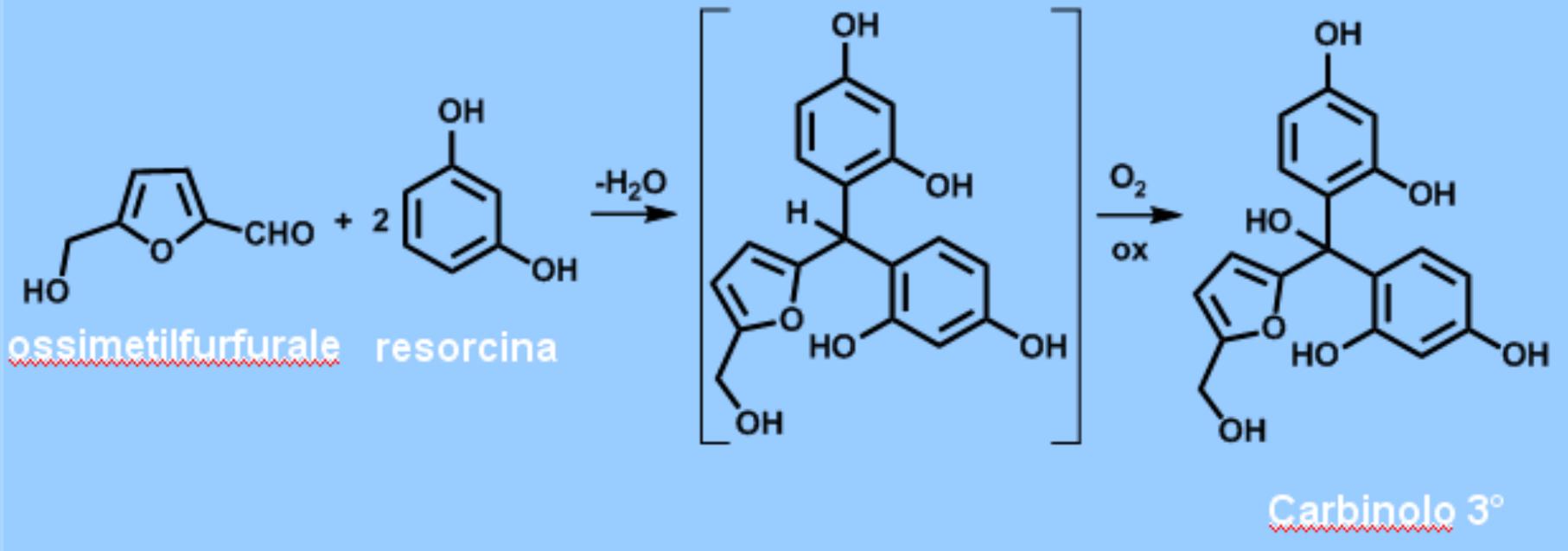


fruttosio

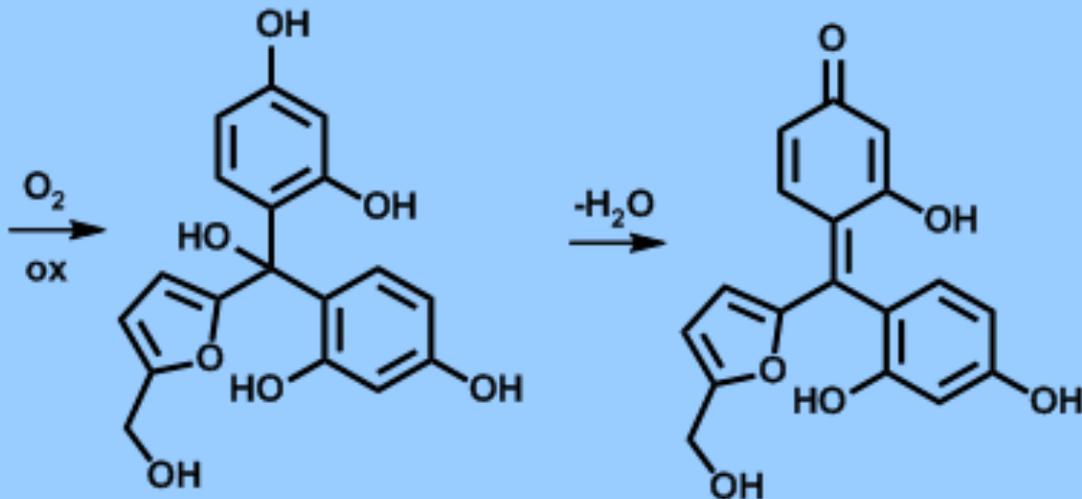


5-(idrossimetil)-furfurale

# Saggio di Seliwanoff

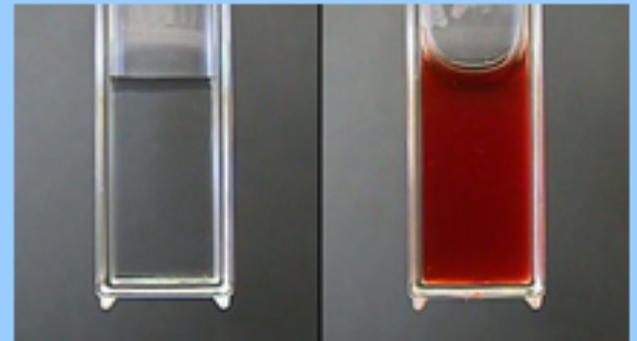


# Saggio di Seliwanoff

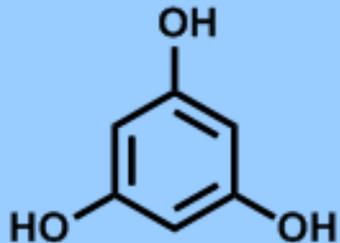


Carbinolo 3°

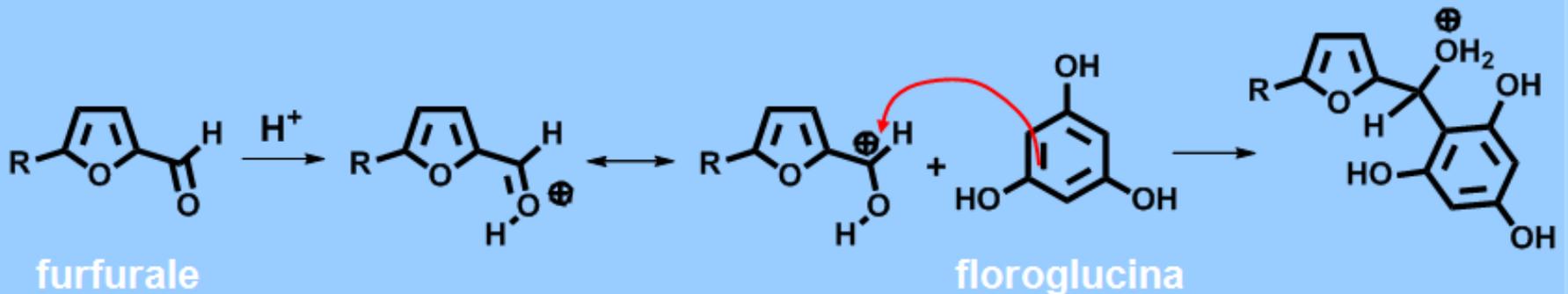
rosso



# Saggio con Floroglucina

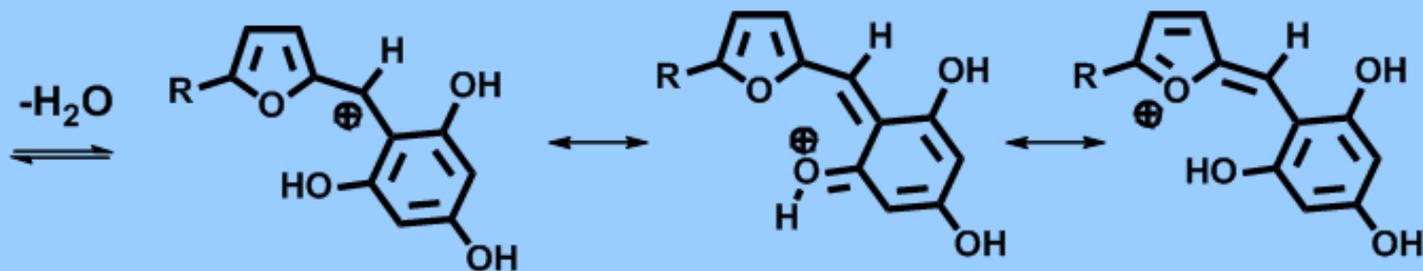


floroglucina



furfurale

floroglucina



rosso-viola

# Saggi Carboidrati

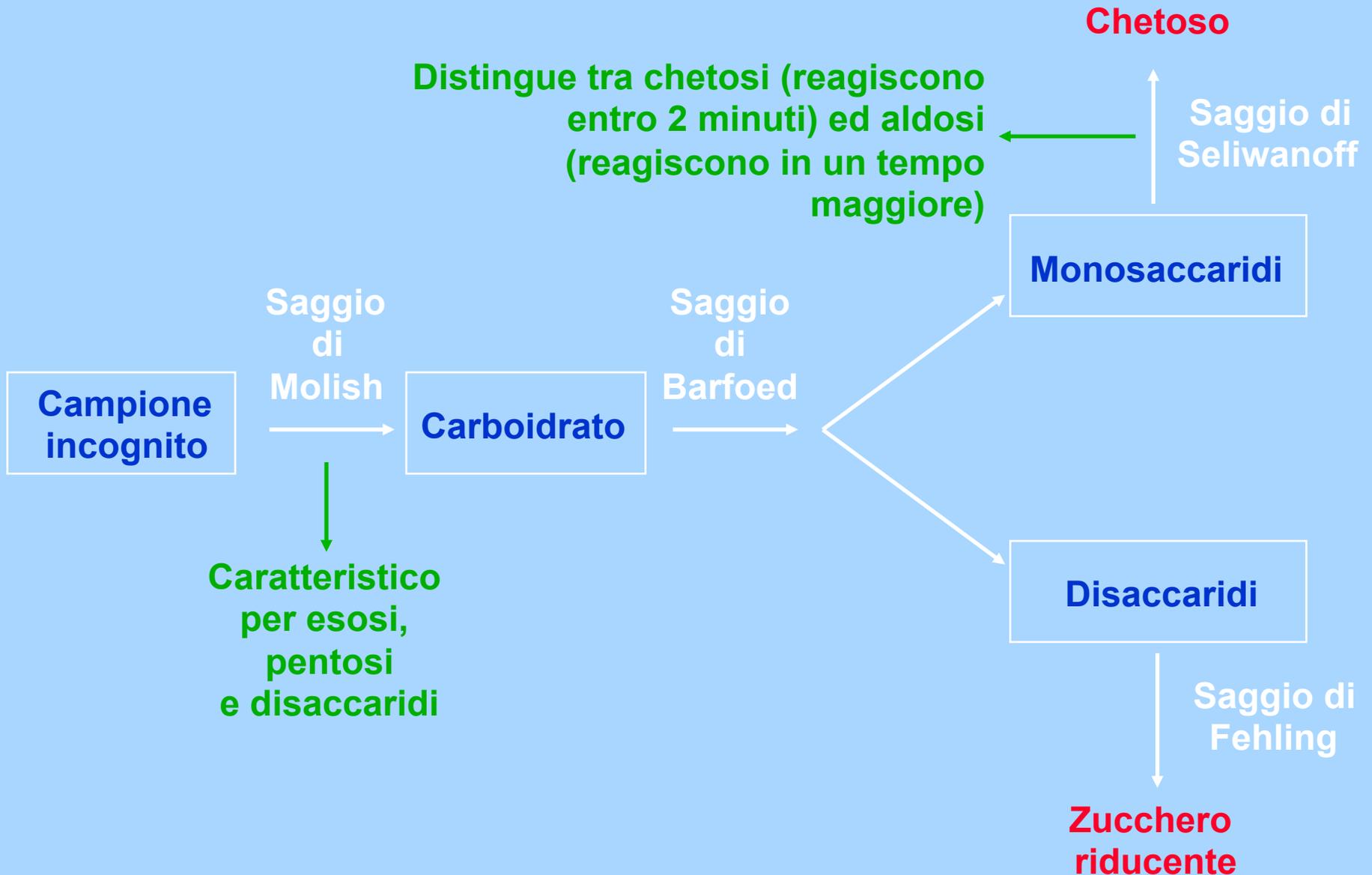
**Molish Barfoed Seliwanoff Fehling**

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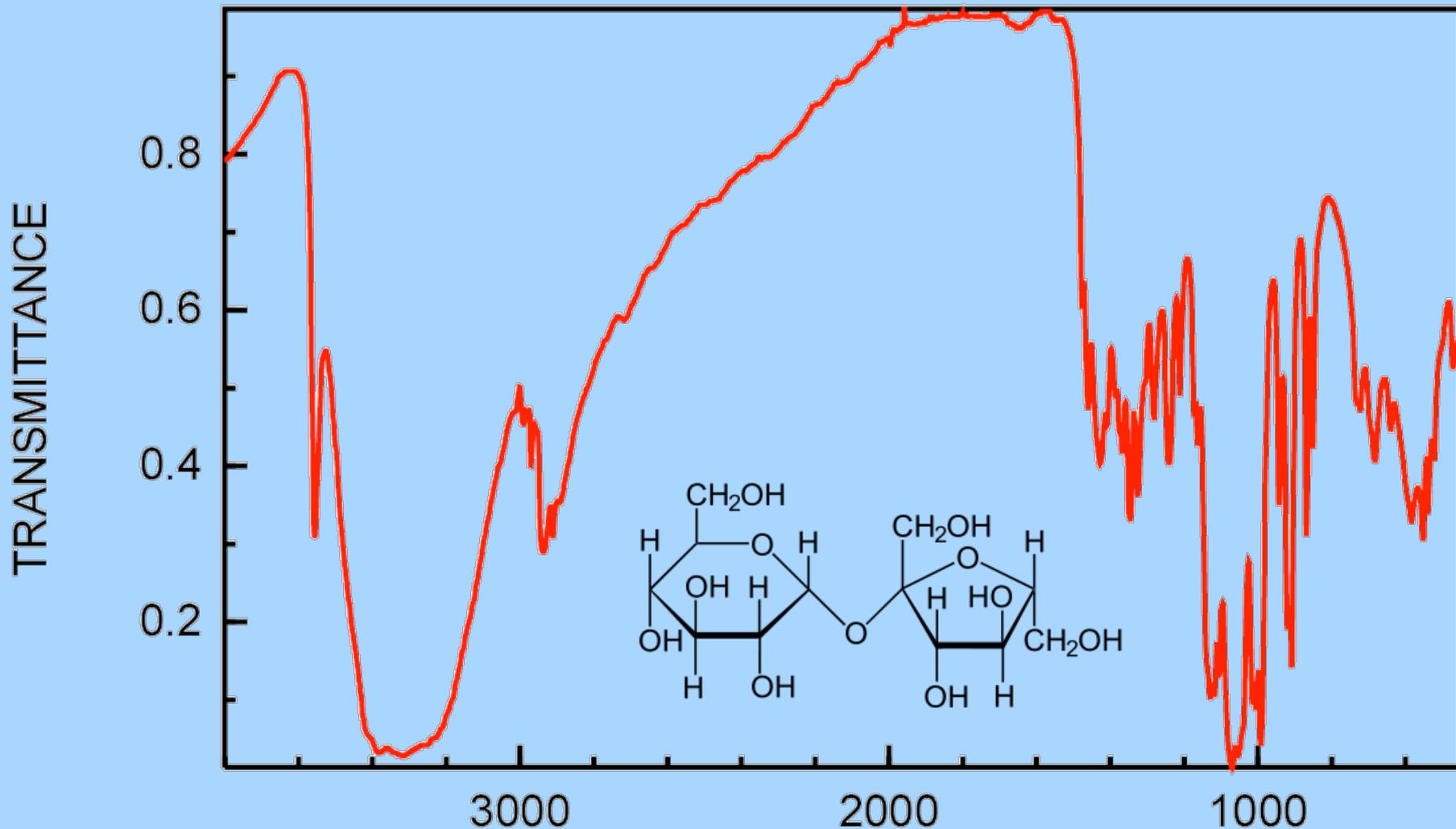
<b>Fruttosio</b>	<b>+</b>	<b>+</b>	<b>+</b>	<b>+</b>
<b>Glucosio</b>	<b>+</b>	<b>+</b>	<b>-</b>	<b>+</b>
<b>Lattosio</b>	<b>+</b>	<b>-</b>	<b>-</b>	<b>+</b>
<b>Saccarosio</b>	<b>+</b>	<b>-</b>	<b>-</b>	<b>-</b>

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# Saggi Carboidrati



# Spettro IR del Saccarosio



# Spettro IR del $\beta$ -D-Fruuttosio

