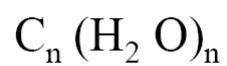
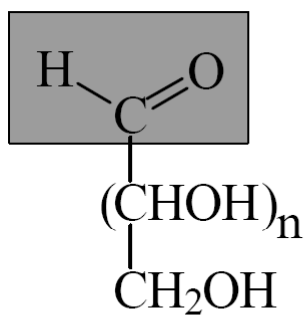


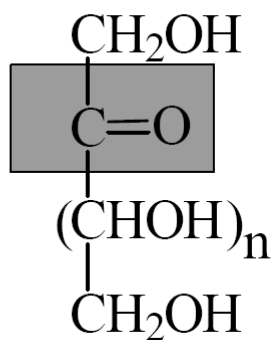
# Ogljikovi hidrati



## Polihidroksi aldehidi in ketoni



aldoze



ketoze

## Razdelitev

- monosaharidi
- oligosaharidi
- polisaharidi

### **Fizikalne lastnosti**

- brezbarvne kristalinične spojine
- dobro topne v vodi
- slabo topne v alkoholih
- netopne v nepolarnih topilih (benzen, triklorometan, dietileter,...)

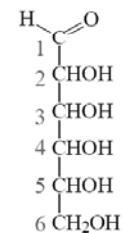
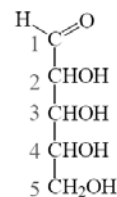
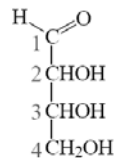
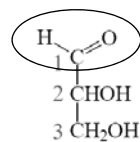
### Organizem jih uporablja kot:

- vir energije,
- oporne snovi,
- izhodne spojine za gradnjo drugih organskih spojin,
- sestavine zapleteno zgrajenih snovi, ki opravljajo bistvene življenjske funkcije (npr. DNK, ki nosi genetsko informacijo) ter snovi, ki sodelujejo, ko ena celica prepozna drugo.

## Monosaharidi

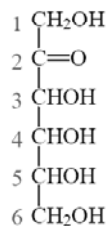
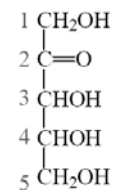
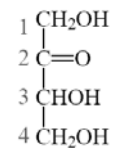
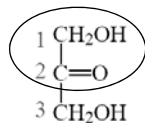
- **aldoze**

- trioze
- tetraze
- pentoze
- heksoze

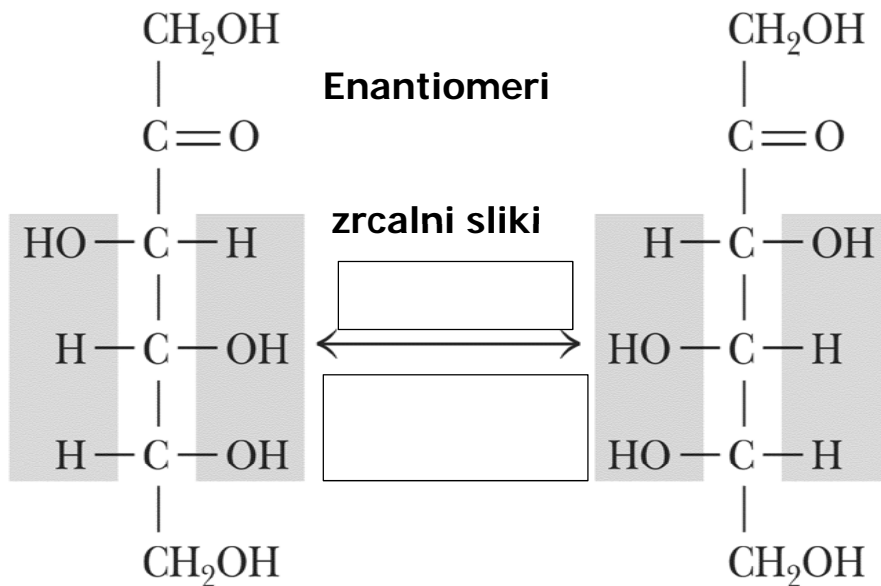
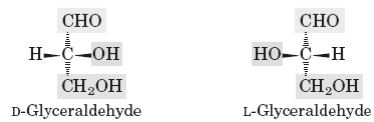
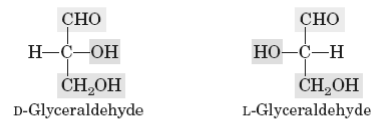
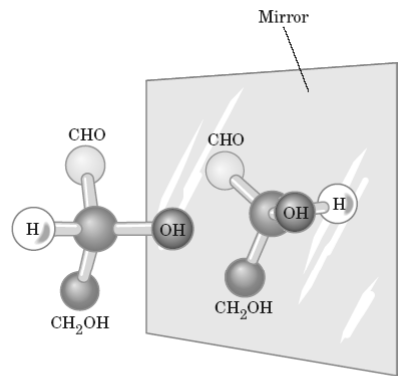


- **ketoze**

- trioze
- tetraze
- pentoze
- heksoze

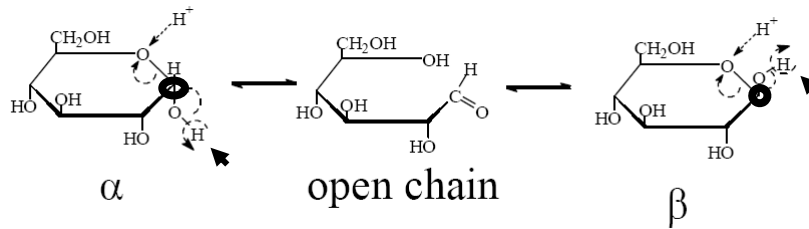
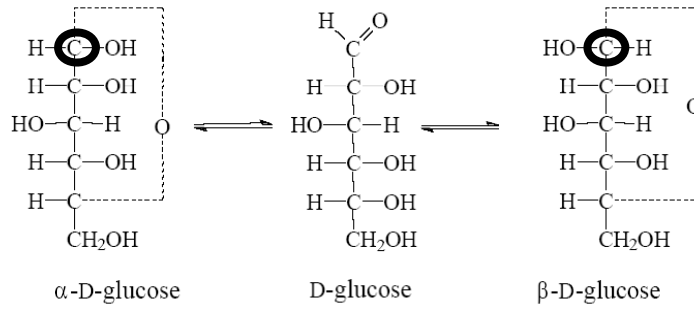


# Stereoizomerija

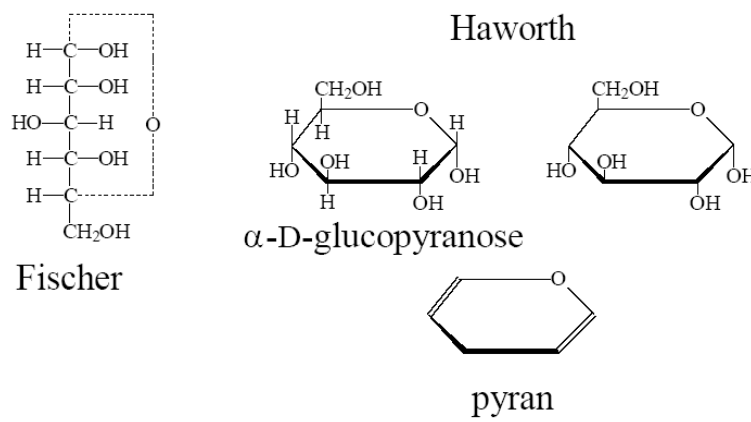


<http://www.beechtreecommon.org/biochemistry/monosaccharide/>

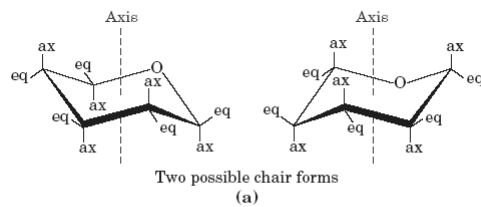
# Anomere



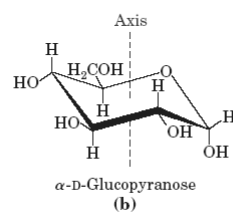
# Glukoza



## Konformacija stola

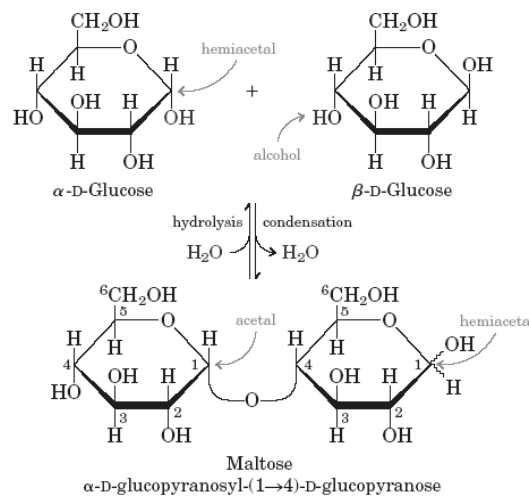


aksialni in  
ekvatorialni položaji  
substituent



konformacija /konfiguracija

## Glikozidna vez



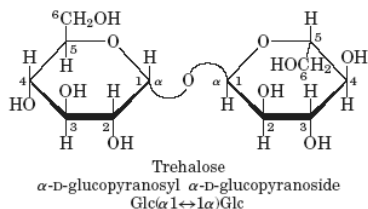
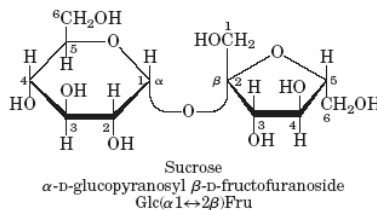
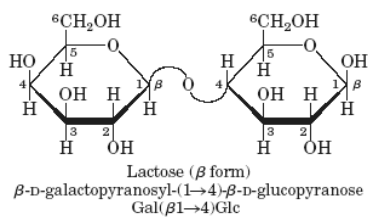
## Disaharidi

Pri hidrolizi dajejo dve molekuli monosaharidov:

Maltoza (glukoza, glukoza)

Saharoza (glukoza, fruktoza)

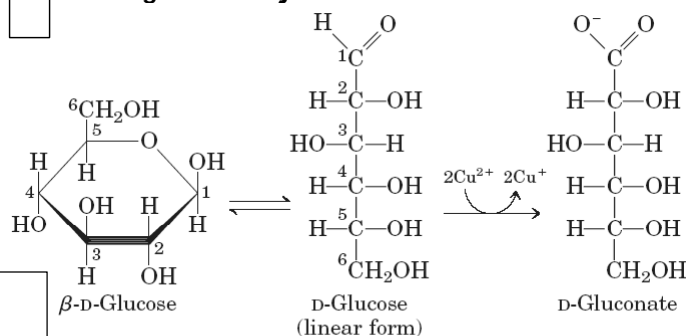
Laktoza (glukoza, galaktoza)



## Reducirajoče lastnosti sladkorjev



Fehlingova reakcija:  $\text{Cu}^{2+} \rightarrow \text{Cu}^{1+}$

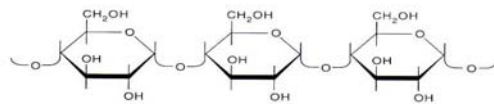


Tollensova reakcija:  $\text{Ag}^{+} \rightarrow \text{Ag}^0$

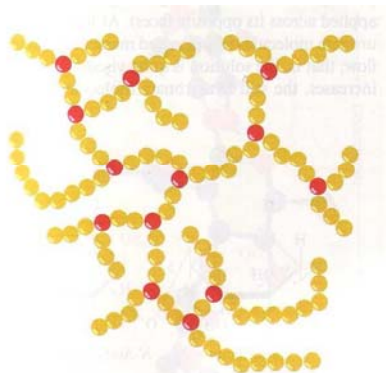


## Polisaharidi

- Škrob (amiloza – linearna zgradba, amilopektin – razvejena)
- Celuloza
- Glikogen
- Hitin
- Heparin



amiloza



amilopektin



- Proizvodnja sladkorja
- Sladkorna bolezen  
(zvišana raven glukoze v  
krvi, insulin – hormon)
- Umetna sladila

