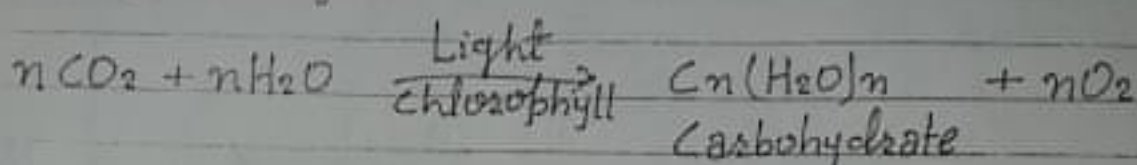


# CARBOHYDRATES

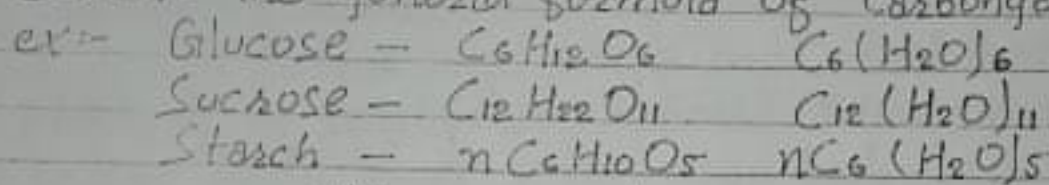
84

The carbohydrates are naturally occurring organic substances. They are present in both plants and animals. The dry mass of plant is composed to 50-80% Polymeric carbohydrate cellulose.

Carbohydrates are formed in the plants by photosynthesis from  $\text{CO}_2$  and  $\text{H}_2\text{O}$ . Photosynthesis is catalysed by the green pigment like chlorophyll in presence of sunlight.

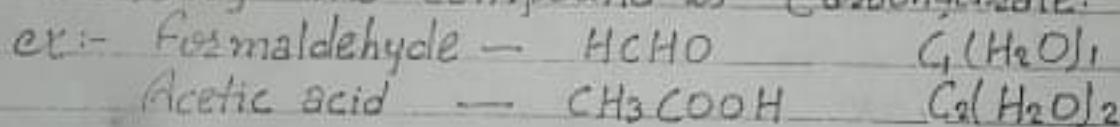


Carbohydrates are mainly compounds of C, H and O. It is also known as hydrates of carbon because the general formula of carbohydrate is  $\text{C}_x(\text{H}_2\text{O})_y$

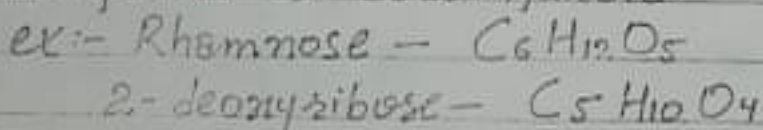


Where,  $x$  and  $y$  are same or different.

Some compounds have general formula  $\text{C}_x(\text{H}_2\text{O})_y$ , not necessary the compound is carbohydrate.

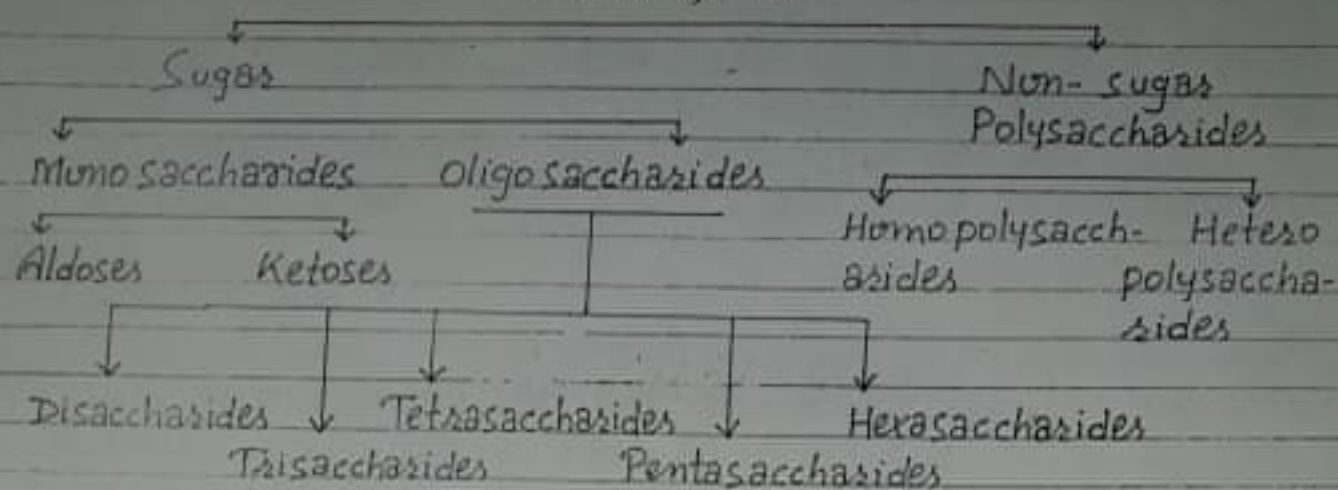


Some compounds do not show the formula  $\text{C}_x(\text{H}_2\text{O})_y$  but compound is carbohydrate.



# Classification

## Carbohydrate



### Monosaccharides:

These are single unit carbohydrate (Polyhydroxy aldehyde or polyhydroxy ketone). Monosaccharides cannot be broken into lower sugars upon hydrolysis. Glucose and fructose are the most common members of this class. Carbohydrate with 3-9 C-atoms are known as monosaccharides. If, the number of C-atoms are 3, 4, 5, 6 respectively known as triose, tetrose, pentose, hexose. If compound contains aldehydic group the name of C-atoms is compound is aldo-triose, aldo-tetrose, aldo-pentose and aldo-hexose. If compound contains carbonyl gr. the name of compound is Keto-triose, keto-tetrose, keto-pentose and keto-hexose.

### Oligosaccharides:

Such type of carbohydrates are formed by the interaction of definite number of monosaccharide unit with elimination of water molecule. They are made of 2-10 units of monosaccharide.

