

An Over View On Structure and Functions of Carbohydrates

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Letter

These Carbohydrates are a group of naturally occurring carbonyl composites (aldehydes or ketones) that also contain several hydroxyl groups. It may also include their derivations which produce similar composites on hydrolysis. They're the most abundant organic molecules in nature and are also referred to as "saccharides" [1]. The carbohydrates which are soluble in water and sweet in taste are called "sugars".

Carbohydrates correspond of carbon, hydrogen, and oxygen. The general empirical structure for carbohydrates is $(CH_2O)_n$. They're organic composites organized in the form of aldehydes or ketones with multiple hydroxyl groups coming off the carbon chain. The structure blocks of all carbohydrates are simple sugars called mono saccharides [2]. A monosaccharide can be a polyhydroxy aldehyde (aldose) or a polyhydroxy ketone (ketose). The carbohydrates can be fundamentally represented in any of the three shapes-Open chain structure, Hemi-acetal structure, and Haworth structure

Open chain structure – It's the long straight- chain form of carbohydrates. Hemi-acetyl structure – Then the 1st carbon of the glucose condenses with the-OH group of the 5th carbon to form a ring structure. Haworth structure – It's the presence of the pyranose ring structure [3].

Functions of carbohydrates in our body-Carbohydrates are an essential part of our diet. Most importantly, they give the energy for the most egregious functions of our body, similar as moving or allowing, but also for the 'background' functions that most of the time we don't even notice. During digestion, carbohydrates that consist of further than one sugar get broken down into their mono saccharides by stomach related chemicals, conjointly get directly retained causing a glycaemic reaction (see underneath) [4]. The body employments glucose directly as vitality source in muscle, brain and other cells. Some of the carbohydrates cannot be broken down and they get either fermented by our gut bacteria or they transit through the gut without being changed. Interestingly, carbohydrates also play an important part in the structure and function of our cells, tissues and organs.

Conformation of the structural frame of RNA and DNA (ribonucleic acid and deoxyribonucleic acid). They're linked to numerous proteins and lipids. Similar linked carbohydrates are important in cell- cell communication and in relations between cells and other elements in the cellular environment.

In creatures, they're an important element of connective apkins. Carbohydrates that is rich in fibre content help to help constipation. Also, they help in the modulation of the vulnerable system. Chemical Properties of Carbohydrates. Osazone formation Osazone are carbohydrate derivations when sugars are reacted with an excess of phenylhydrazine. e.g. Glucosazone. Benedict's test reducing sugars when hotted in the presence of an alkali gets converted to important reducing species known as enediols. When Benedict's reagent result and reducing sugars are heated together, the result changes its color to orange- red/ brick red [5].

Oxidation Monosaccharide's are reducing sugars if their carbonyl groups oxidize to give carboxylic acids. In Benedict's test, D-glucose is oxidized to D-gluconic acid therefore; glucose is considered a reducing sugar.

Reduction to alcohols The $C=O$ groups in open- chain forms of carbohydrates can be reduced to alcohols by sodium borohydride, $NaBH_4$, or catalytic hydrogenation (H_2 , Ni, EtOH/ H_2O). The products are known as "alditols".

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