

## Starch

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- Polysaccharides contain a large number of monosaccharide units joined together by **glycosidic linkages**.
- These are the **most commonly** encountered carbohydrates in nature.
- They mainly act as the food storage or structural materials.
- **Starch is the main storage polysaccharide of plants.**
- It is the most **important dietary source** for human beings.
- High content of starch is found in cereals, roots, tubers & some vegetables.
- It is a **polymer of  $\alpha$ -glucose** & consists of two components — **Amylose & Amylopectin**.
- **Amylose is water soluble** polysaccharide which constitutes about 15-20% of starch.
- **Amylopectin is water insoluble** polysaccharide which constitutes about 80- 85% of starch.

## Cellulose

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- Cellulose occurs **exclusively in plants** & it is the most abundant organic substance in plant kingdom.
- It is a predominant constituent of **cell wall** of plant cells.
- Cellulose is a straight chain polysaccharide **composed only of  $\beta$ -D-glucose units**.

## Glycogen

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- **The carbohydrates are stored in animal body as glycogen.**
- It is also known as **animal starch** because its structure is similar to amylopectin & is rather more highly branched.
- It is present in **liver, muscles & brain**.
- Glycogen is also found in **yeast & fungi**.
- **When the body needs glucose, enzymes break the glycogen down to glucose.**

## Importance of Carbohydrates

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- Carbohydrates are essential for life in both plants & animals.
- They form a major portion of our food. Honey has been used for a long time as an instant source of energy in ayurvedic system of medicine.
- Carbohydrates are used as storage molecules as **starch in plants & glycogen in animals**.
- Cell wall of bacteria & plants is made up of cellulose which is a carbohydrate.
- We build furniture, etc. from cellulose in the form of wood & clothe ourselves with cellulose in the form of **cotton fibre**.