

Plant Products :-

☐ *Fibres:-*

The fibres are elongated thick walled cells with pointed cells.



The cell wall consists of cellulose & are obtained from both natural & artificial sources.



The natural fibres are obtained from plants , minerals , or from animals.



The natural fibres are long chain carbohydrate or protein molecules while the artificial fibres are prepared from long chain polymer molecule.

Fibres obtained from various source:-

<u>Fibre</u>	<u>Example</u>
<ul style="list-style-type: none">▪ Plant fibres	Jute , Flax , Banana, Cotton
<ul style="list-style-type: none">▪ Animal fibres	Silk , Wool
<ul style="list-style-type: none">▪ Synthetics fibres	Nylon , Terylene
<ul style="list-style-type: none">▪ Mineral fibres	Glass

➤ Pharmaceutical Aids:-

• Classification:-

1. *Binders:- e.g. Acacia , Tragacanth*
2. *Disintegrating agents :- e.g. Starch*
3. *Colouring agents :- e.g. turmeric , carmine*
4. *Preservatives*
5. *Sweeteners , etc.*

❖ Primary Metabolite:-

- ✓ *They are directly synthesized on plants which are widely distributed in nature .*
- ✓ *They are involved in growth is development.*

Example:-

- *Carbohydrate.*
- *Protiens & Enzymes.*
- *Lipids.*

➤ Carbohydrate

- ***Carbohydrates are the organic compounds made up of C, H & O, found in living organisms.***
- ***They are produced by photosynthesis in plants.***
- ***It is a source of energy, carrying out normal functions such as growth, movement & metabolism.***

■ **Tests for carbohydrate:-**

- ***Molish test***
- ***Fehlings test***
- ***Benedict test***
- ***Iodine test***

❖ Classification of carbohydrate:-

- **Sugars :- (a) Monosaccharides**
(b) Oligosaccharides :-
 - (i) Disaccharides**
 - (ii) Trisaccharides**
 - (iii) Tetrasaccharides**
- **Non-sugars:- Polysaccharides**

➤ Protien & Enzyme:-

- **Protein**:- These are the complex organic compound which have a long chain of amino acid & consists of C , H , O , N , S , P , & many essential compounds.

- **Classification Of Protein :-**

(a) Simple proteins

e.g. – Albumin

-Globulin

(b) Conjugated proteins

e.g. Nucleoproteins

Glycoproteins

Mucoproteins

➤ **Identification test for protein:-**

- *Ninhydrin test*
- *Biuret test*
- *Xanthoproteic test*
- *Millon's test*
- *Sodium nitropruside test*

■ **Role of protein in plants:-**

- *In growth & development .*
- *Catalysing reaction.*
- *Forms cellular structure of plant cells.*

➤ Enzymes:-

- *These are the macromolecular which is made up of protein that can accelerate chemical reaction .*
- *To carry out the biological processes of a cell , enzymes are required.*

■ ***Classification of enzymes:-***

1) On the basis of site of activity on cell :-

(a) Intracellular enzymes- In this, the enzymes function within the cell.

e.g. enzymes involved in TCA cycle.

(b) Extracellular enzymes:- In this, enzymes function outside the cell.

e.g. Digestive enzymes like- pepsin , amylase , etc.

(2) On the basis of function:-

e.g. Transferase

Oxidoreductase

Hydrolase

Lyase

ligase

Isomerase

- **Application of enzymes:-**

1. **Alpha-amylase:-** Used in food industry to convert starch into glucose.
2. **Streptokinase:-** Removes blood clot.
3. **Asparaginase:-** Used in cancer therapy.
4. **Renin:-** Used in cheese preparation.

➤ Protolytic enzymes:-

- These are the enzymes that breakdown the protein molecules into amino acids.
- They are found in plants , animals , & in micro-organisms (bacteria, algae, viruses, etc.)

➤ Lipids:-

- The lipids are the organic compound which are made up of heterogenous compound like-fats,oil,waxes, etc.
- These are soluble in oils ,fats , alcohols.
- Function:- It provides energy to cell
acting as a structure component of a cell membrane & protects it from external environment.

- **Classification of lipids:-**

(a) Simple lipid :-

e.g. Fats , Wax.

(b) Compound lipid:-

e.g. Phospholipid

Glycolipid

Lipoprotein

• Evaluation of lipid:-

1. Salkowski test:-

Sample dissolved in chloroform



add equal volume of conc. H₂SO₄



Cherry red colour produced

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