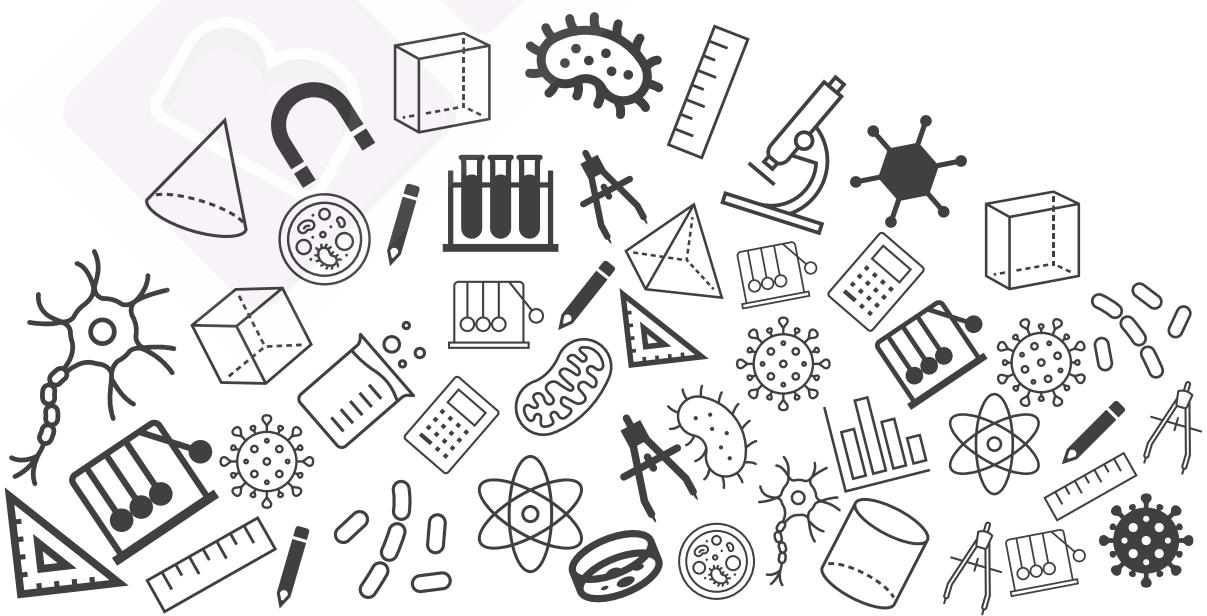




The logo for BYJU'S, featuring a stylized white 'B' inside a purple square followed by the word 'BYJU'S in a large, bold, purple sans-serif font.

Grade 07

Chapter Notes



B I O L O G Y



Nutrition in Plants



Topics to be covered



1 -

Nutrition and its Types
1.1 Autotrophic
1.2 Heterotrophic

2 -

Autotrophic Nutrition
2.1 Photosynthesis
2.2 Requirements
2.3 Equation of Photosynthesis
2.4 Variegated Leaves

3 -

Heterotrophic Nutrition
3.1 Parasitic
3.2 Insectivorous
3.3 Saprotrophic

4 -

Symbiosis
4.1 Lichen
4.2 Rhizobium and leguminous plants



1. Modes of Nutrition

Definition

- Nutrition is the mode of taking food by an organism and its utilisation by the body.
- There are two types of nutrition.

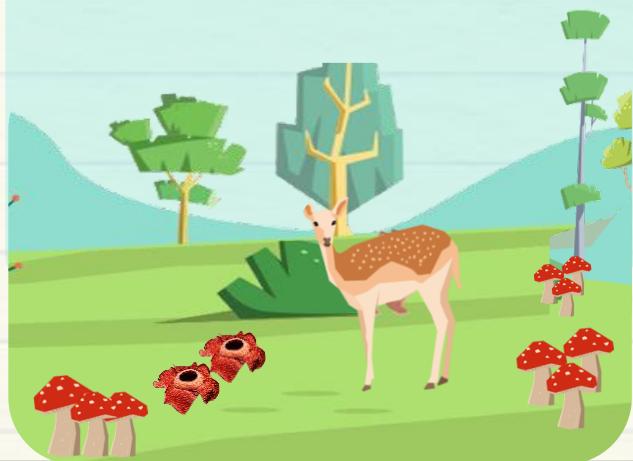
1.1 Autotrophic

- The mode of nutrition in which organisms can prepare their own food
- Example: Plants, algae



1.2 Heterotrophic

- The mode of nutrition in which organisms cannot prepare their own food
- Example: Deers, humans, birds, etc.



2. Autotrophic Nutrition

2.1 Photosynthesis

It is the process in which solar energy is trapped by chlorophyll to convert the carbon dioxide and water to produce food in the form of glucose.

2.2 Requirements

Water and Minerals :
Absorbed by the roots and transported to the leaves

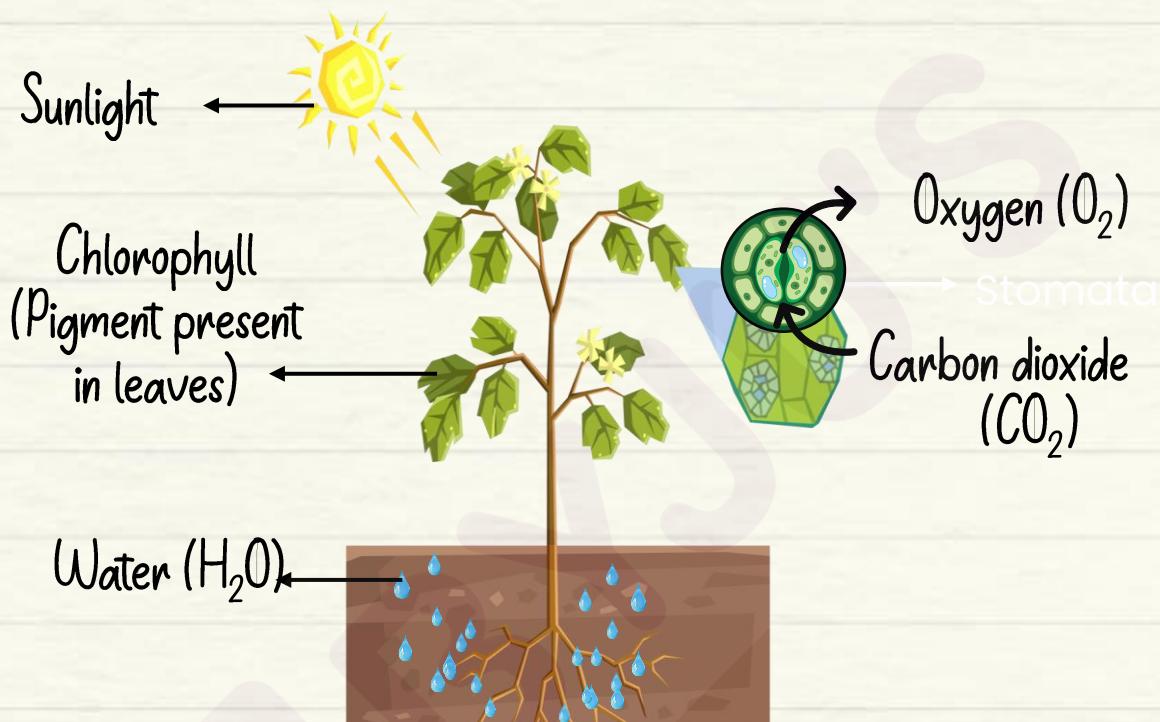
Carbon Dioxide :
Taken from air through the stomata present on leaves

Chlorophyll:
The green pigment present in leaves which traps sunlight

Sunlight:
Solar energy is captured by the leaves to synthesise food

2. Autotrophic Nutrition

2.3 Equation of Photosynthesis



2.4 Variegated Leaves

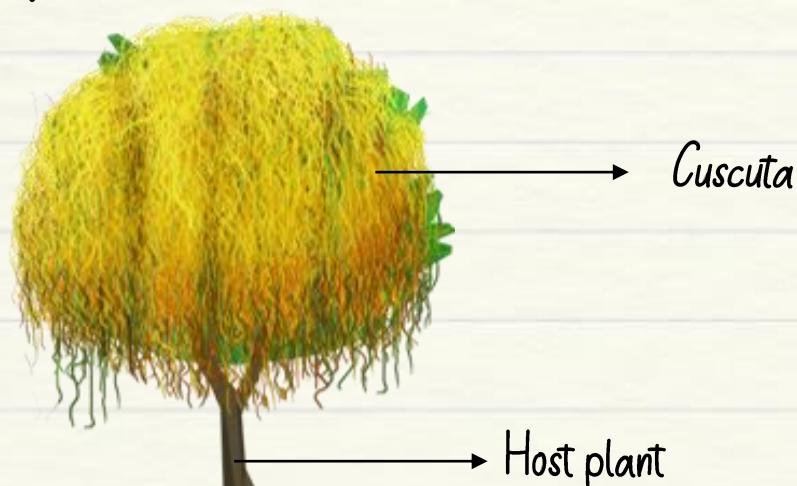
- Leaves which contain pigments of different colours along with chlorophyll.
- Since the red or brown pigments mask the green pigment of the leaves, they appear reddish in colour.
- They can perform photosynthesis since they contain chlorophyll.

3. Heterotrophic Nutrition

- Organisms like fungi and some plants do not have chlorophyll and hence cannot synthesize their own food.
- Like animals, they depend on other organisms for their food.
- They use heterotrophic mode of nutrition.

3.1 Parasitic

- Cuscuta* is a plant that does not have chlorophyll.
- It derives its nutrition from the host plant.
- Since it deprives the host of valuable nutrients, *Cuscuta* is a parasite.



3. Heterotrophic Nutrition

3.2 Insectivorous

- Pitcher-plant is an insectivorous plant.
- A part of its leaf is modified into a pitcher-shaped structure, and the apex forms a lid.
- When an insect lands in the pitcher, the lid closes, and the trapped insect gets entangled into the hair-like structures present inside the pitcher.
- The insect is then digested with the help of the digestive juices secreted in the pitcher and the plant derives its nutrients from it.



3.3 Saprotrrophic

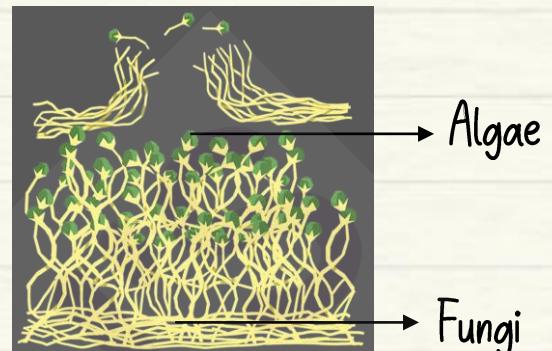
- The mode of nutrition in which organisms take in their nutrients from dead and decaying matter
- Such organisms are called saprotrophs.
- Fungi are saprotrophs. Example: Mushrooms



4. Symbiosis

4.1 Lichens

- Some organisms live together and share both shelter and nutrients. This relationship is called symbiosis.
- In lichens, algae and fungi live together.
- The fungi provide shelter, water and minerals to the algae and the algae prepare and provide food to the fungi.



4.2 Rhizobium and Leguminous Plants

- Plants cannot utilise atmospheric nitrogen and require it in soluble form.
- This nitrogen requirement is fulfilled by the bacteria, *Rhizobium* which live in the root nodules of gram, peas, moong, beans and other legumes.
- Rhizobium* can convert atmospheric nitrogen into its soluble form which plants can utilise. In turn, plants provide food and shelter to the bacteria.

