

Nutrition in Plants

Introduction

All living organisms need food for energy, growth, repair, and maintenance of the body. Unlike animals, **plants prepare their own food** by the process of **photosynthesis**. This chapter explains how plants obtain nutrition, different modes of nutrition, and the importance of nutrients for plant growth.

Nutrition

What is Nutrition?

Nutrition is the process by which living organisms obtain and use food for energy, growth, repair, and maintenance of life.

Plants are called **autotrophs** because they make their own food.

Photosynthesis

How Plants Make Food

Photosynthesis is the process by which green plants prepare their own food using **sunlight, carbon dioxide, water, and chlorophyll**.

Requirements for Photosynthesis:

- Sunlight
- Chlorophyll
- Carbon dioxide
- Water

Products Formed:

- Glucose (Food)
- Oxygen

Word Equation:

Carbon Dioxide + Water → Glucose + Oxygen *(in the presence of sunlight and chlorophyll)*

Mode of Nutrition in Plants

Types of Nutrition

Plants obtain nutrition in different ways.

- **Autotrophic Nutrition:** Plants prepare their own food by photosynthesis.
 - **Heterotrophic Nutrition:** Some plants depend on other organisms for food.
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Types of Heterotrophic Nutrition

Special Modes of Nutrition

Some plants cannot prepare their own food completely.

They include:

- **Parasitic Plants:** Obtain food from another living plant. (*Example: Cuscuta*)
 - **Saprotrophic Plants:** Obtain nutrients from dead and decaying matter. (*Example: Mushrooms*)
 - **Insectivorous Plants:** Trap and digest insects to obtain nutrients. (*Example: Pitcher Plant, Venus Flytrap*)
 - **Symbiotic Relationship:** Two organisms live together and help each other. (*Example: Lichen, Rhizobium in legume roots*)
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Replenishment of Nutrients in Soil

Maintaining Soil Fertility

Plants absorb minerals from the soil. Continuous farming reduces soil nutrients.

Soil fertility can be improved by:

- Adding manures and fertilizers.
- Growing leguminous plants.
- Crop rotation.

Rhizobium bacteria present in the roots of leguminous plants fix atmospheric nitrogen into the soil.

Importance of Photosynthesis

Why is Photosynthesis Important?

Photosynthesis:

- Produces food for plants.
- Releases oxygen into the atmosphere.

- Maintains the balance of oxygen and carbon dioxide.
 - Forms the basis of the food chain.
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Key Points

- Plants are autotrophs because they prepare their own food.
 - Photosynthesis requires sunlight, chlorophyll, carbon dioxide, and water.
 - Oxygen is released during photosynthesis.
 - Some plants show parasitic, saprotrophic, insectivorous, and symbiotic nutrition.
 - Rhizobium bacteria help increase soil fertility.
 - Photosynthesis is essential for all living organisms.
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Chapter Summary

Plants prepare their own food through **photosynthesis**, making them autotrophs. This process requires sunlight, chlorophyll, water, and carbon dioxide, producing glucose and oxygen. Some plants depend on other organisms for nutrition through parasitic, saprotrophic, insectivorous, or symbiotic modes. Proper soil management and nitrogen fixation help maintain soil fertility, making plants healthy and productive.