Photosynthesis: Food Making Process in Plants

Introduction to Photosynthesis

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

Green plants are known as producers as they produce their own food.

The process takes place mainly in the leaves, which are called the food factories of a plant.

Steps of Photosynthesis

The word "photosynthesis" comes from:

- Photo = light
- Synthesis = to combine

Absorption of Carbon Dioxide

Tiny pores called stomata (plural) or stoma (singular) are present mostly on the underside of leaves.

Each stoma is surrounded by two guard cells.

Stomata absorb carbon dioxide from the air.

Water and Mineral Absorption:

Roots absorb water and minerals from the soil.

These nutrients are transported to the leaves through the plant's vessel system.

Role of Chlorophyll:

Chlorophyll, the green pigment in plants, captures energy from sunlight.

This energy is used to convert carbon dioxide and water into glucose.

Conversion Process:

Light energy is converted into chemical energy.

The equation summarizing photosynthesis: $6CO_2 + 6H_2O \rightarrow C_6H_{12}O_6$ (glucose) + $6O_2$

Oxygen, a by-product, is released through stomata during the daytime.

The glucose produced is stored in the plant and used for energy through respiration.

Importance of Photosynthesis

Produces food for plants and all living organisms.

Generates oxygen essential for respiration.

Without photosynthesis, life on Earth would not be possible.