Table of Contents

PHOTOSYNTHESIS

- Process of photosynthesis

Photosynthesis is a process wherein plants, algae, and some bacteria convert sunlight into chemical energy. This process involves capturing light energy, water, and carbon dioxide to produce glucose and release oxygen as a byproduct. Within plant cells, photosynthesis occurs in chloroplasts, using chlorophyll to absorb sunlight and initiate the chemical reactions.

  - Definition

Photosynthesis is the process by which green plants, algae, and some bacteria convert light energy, usually from the sun, into chemical energy stored in glucose. This process involves capturing sunlight through chlorophyll, water absorption, and carbon dioxide intake. Photosynthesis is essential for the survival of plants and the production of oxygen in the atmosphere.

  - Stages of photosynthesis

Photosynthesis consists of two main stages: light-dependent reactions and light-independent reactions (Calvin Cycle). The light-dependent reactions occur in the thylakoid membranes and involve the conversion of light energy into chemical energy (ATP and NADPH). The light-independent reactions take place in the stroma and involve the use of ATP and NADPH to convert carbon dioxide into glucose.

- Importance of photosynthesis

Photosynthesis is crucial as it is the process by which green plants, algae, and some bacteria convert sunlight into energy-rich organic compounds. This process produces oxygen as a byproduct, which is essential for the survival of most living organisms. Without photosynthesis, there would be no source of energy for plants and ultimately for other life forms in the food chain.

  - Oxygen production

During photosynthesis, plants and other photosynthetic organisms release oxygen as a byproduct. This process involves capturing sunlight to convert carbon dioxide and water into glucose, releasing oxygen into the atmosphere. Oxygen plays a crucial role in supporting life on Earth by being produced through the photosynthesis process.

  - Energy conversion

During photosynthesis, plants and other organisms convert light energy from the sun into chemical energy in the form of glucose. This process involves the absorption of sunlight by chlorophyll in plant cells, which then triggers a series of chemical reactions that produce oxygen as a byproduct. The stored energy in glucose is then used by the plant for growth, development, and reproduction.