

LIFE SCIENCE

CLASS - IX

Theme: Physiological Processes of Life

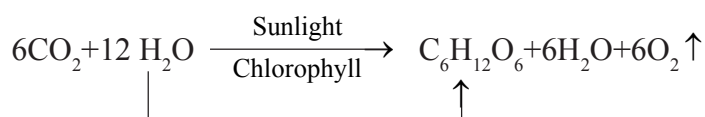
Sub-theme: Plant Physiology

Topic: Photosynthesis

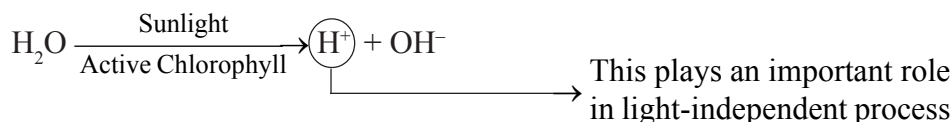
1. Discuss the role of water in the process of photosynthesis.

Ans. Plants absorb water from the environment that they live in. Water is very important because –

- i. The source of the hydrogen present in glucose is water. So naturally without water, glucose which is a hydrocarbon, can never be formed.



- ii. Photolysis of water occurs during light-dependent phase of photosynthesis and as a result H^+ is formed. This H^+ plays a significant role in reduction of carbon of carbon dioxide during the light-independent phase.



- iii. The hydroxyl radicals, on the other hand, react with each other to form water and oxygen as by-product. This oxygen is released into the environment which in turn helps to maintain the O_2 - CO_2 balance of air.

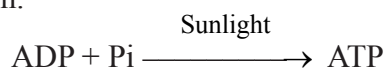


- iv. The electron that gets separated from water later returns to chlorophyll.

2. Explain the process of photophosphorylation.

Ans. Adenosine diphosphate (ADP) is present in the protoplasm of plant cells that have chlorophyll. During the light-dependent phase of photosynthesis, inorganic phosphorous combines with ADP with the help of a high-energy bond to form adenosine triphosphate (ATP).

This process of formation of ATP in the presence of sunlight with the help of solar energy is called photophosphorylation.



ATP is termed as energy currency and plays an important role in various metabolic processes.