

## **CLASS-V**

Lesson 6    Function System Of Plant

Lesson 7    Process Of Our Body

Lesson 8    Various Organs Of Our Body

Lesson 9    Healthy Life And Cleanliness

Lesson 10    Our Old Indian Scientists





## 6

## FUNCTION SYSTEM OF PLANT

You have already read about the body. We will learn about plants, its various parts, structure and functions. Now we will learn about some of the special activities of the plants in detail in this lesson. All the organisms of the world are a kind dependent on photosynthesis. Plants can make their food directly and other organisms eat these plants directly or indirectly to get energy. Besides, oxygen is given out during the process of photosynthesis which is used by all organisms for breathing.

Plants also breathe. They also take out waste material or elements for themselves. The most important objective of plants is to spread or expand its species and therefore it reproduces. We will also learn how plants reproduce in this lesson.



### OBJECTIVES

After learning this chapter, you will be able to:

- Explain the process of respiration in plants
- Describe the importance of excretion in plants



- Tell the process of absorbing water and minerals in plants and
- Explain the reproduction system in plants

## 6.1 WHAT IS NUTRITION

Nutrition is the process in which an organism (even if it is a plant or organism) intakes food and makes it to be used by the body and then use it.

Why should living organisms take food?

1. To make new body element for development and growth
2. To maintain the wear and tear of damaged cells
3. To make the power to fight diseases
4. To provide energy for the body
5. To make many types of enzymes and hormones for the body

## 6.2 PHOTOSYNTHESIS (FOOD PRODUCTION IN PLANTS)

Photosynthesis or the process of making food in presence of sunlight is only found in green plants. These plants make their food with the help of chlorophyll, sunlight and carbon dioxide present in air. They also prepare glucose by absorbing water from the soil. Sunlight or light can be used from many sources as well. But mostly in open nature, farming or forest, the light of the sun is present is sunlight which is used in photosynthesis.

You must be thinking that can there be photosynthesis is moon

light? No, it is very slow light and there is no sufficient energy available.

Two main products- glucose is formed from food and oxygen - life giving gas are produced in photosynthesis. These are the dual benefits. Plants get food for themselves and plants also make food for other organisms and secondly oxygen which is essential for all organisms is also produced.

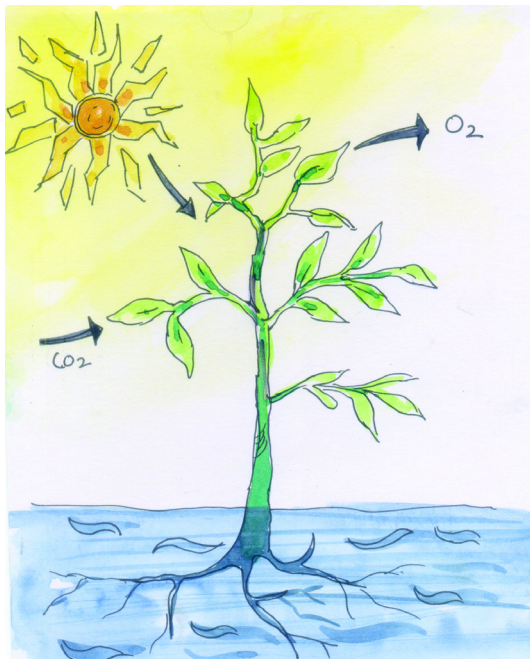


Fig. 6.2 Oxygen is given out during photosynthesis

### **Food is made by leaves but how does it reaches to other parts of the plants?**

You have seen that leaves have veins which reach their small branches and every cell. These veins absorb water through stem and to leaves. Glucose made in the cell of leaves reach stem and other parts of plant through these veins. It spreads to whole plant from top to bottom.



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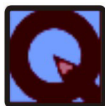
## INTEXT QUESTIONS 6.1

1. Fill in the blanks with appropriate word:

- i. Green plants make their own food with the process of \_\_\_\_\_.
- ii. \_\_\_\_\_ gas is produced in atmosphere in the process of photosynthesis.
- iii. Green plants use \_\_\_\_\_ gas to make their food.

## 6.3 RESPIRATION

Plants do breathe in the same way as other organisms. They get energy to do many activities in their body, for example - energy is required to make starch out of glucose. Micro holes (stomata) present in leaves take oxygen inside and give carbon dioxide outside; this oxygen is used for respiration in the day. The oxygen is given out the process of photosynthesis; breathing is a chemical process which uses cells, leaves, stem, roots etc in every plant. These micro holes take oxygen inside one cell to another and take it to all the sides.



## INTEXT QUESTIONS 6.2

1. Fill in the blanks with appropriate words:

- i. Energy is produced in body like plants, \_\_\_\_\_ and human beings.
- ii. Leaves in plants take oxygen inside by \_\_\_\_\_.
- iii. Breathing is a \_\_\_\_\_ reactions give us glucose, \_\_\_\_\_, water and energy.

## 6.4 EVAPORATION (WATER FROM PLANTS IN FORM OF VAPORS)

Roots of plants take a lot of water inside them. This water moves to the top to bottom of the leaves being used as water and source of mineral salts for photosynthesis. This water stream moves in a regular way, therefore, most of the water becomes vapour which goes out through leaves. This process called evaporation. Around 2% of the absorbed water in root is used in the process of photosynthesis.

Importance of photosynthesis

1. Making environment cool - conversion of water into vapors gives coolness. Plants evaporate more in heat and summer. Therefore, more water is required in the plants in summer otherwise plants get dried out.
2. Distribution of water - leaves are the end point of plant. Therefore water is required to reach every part of plants. In this way water is used as water when required by plant and its parts.
3. Distribution of minerals - when we move roots to the top level of plants then minerals are absorbed by them. When leaves do evaporation then the element inside them becomes thick and pulls more minerals from bottom. Therefore, all the nutrients reach from one cell to another from top to bottom.
4. Removing excess of water - the process of evaporation vapourise the extra water present inside the plant.

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## 6.5 ABSORPTION OF WATER AND MINERAL SALTS BY PLANTS

Plants which are grown in soil, absorb water and mineral salts from soil and roots, plants need water due to many reasons. For example -

1. Every part of plant has some portion of water,
2. Leaves get out of stem straight die to required amount of water otherwise they will become loose and fall down.
3. Water serves as a raw material in the process of food making or photosynthesis.
4. Evaporation of water in summer keeps plants cool in hot weather,

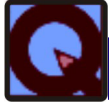
### **Need of mineral salts in plants**

Plants require mineral salts in the same way as they require water. Some of the important minerals required by plants are calcium, potassium, nitrate, phosphate etc. These are used in the structure of the plants. Various minerals are also absorbed by the soil.

### **Absorbing water**

Plants absorb water through roots. Mineral salts absorb roots and plant which move towards upper part of plant with water. These minerals with water reach the central part of stem called xylem and is transported to upper branches and leaves, minerals salts and absorbs water moving up is called rasrohan (sucking).





## INTEXT QUESTIONS '8.5



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1. Choose the correct option to fill in the blanks:

- i. Evaporation in plants is done by \_\_\_\_\_. (roots/leaves)
- ii. Vaporization of \_\_\_\_\_ is called evaporation. (water/salts)
- iii. Vaporization helps in the distribution of \_\_\_\_\_ in plants. (water/food)

## 6.5 HOW NEW PLANTS ARE FORMED?

Every organism whether plant or organisms reproduces his species and gives birth to new ones. Giving birth to a child of its own type is called reproduction. Plants reproduce in two ways - through seeds or by stem or leaves.

### a. reproducing through seeds and scattering of seeds

Most of the plants reproduce through seeds but this process is not an easy one. Example - If all the seeds of the plant falls at the same place and gets sprouted, then all new born plants don't get proper sunlight and nutrients. Nature has given us a system where seeds scatter from far off place. This kind of spreading of seed is called scattering. There are many methods of seed scattering. For example - air, water or by seeds themselves in their own manner.



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### 1. Scattering of seeds by air -

some seeds have feathers or net, fiber comes out from them. These seeds fly away to distance place. Some seeds have a feather like shape whereas some seeds have hair like structure, due to this factor, seeds fly from one place to another,

Fruits of gulmehndi ( after ripening) throws itself to a far off place and get sprouted. In the same way peas, beans, fruits of ladyfinger also move from one place and seeds get scattered.

### 2. seed expansion in organisms -

there is a story that squirrels made a jungle. Squirrels hide seeds in soil while wanting to eat it but forgets it. This way she hides seeds in the whole mountain which came into jungle. This is not a story. Birds and animals eat fruits and throw seeds at various place, for example - mango, apple, jamun etc. In the same way birds, squirrels, jackal, elephant etc also throw seeds after eating fruits from one place to another.

### 3. Scattering of seeds by water

The best example of seed expansion in water is coconut. Its fiber cover and closed in tight copra coconut falls from trees and is transported by water from one place to another.

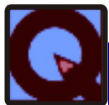
## 6.6 SEEDLINGS OF SEEDS

Reproduction is a plant gets complete when a seed makes a new plant after getting seedling, seeds have a small plant and also stores food. This food is in the form of two seed parts.

Example - gram, peas or in form if a single seed piece like wheat of maize.

Let us know about the process of seedling:

1. Seed gets transformed into seedling by water, air (oxygen) and at optimum temperature.
2. The first characteristic of swelling is the swelling of seeds.
3. The cover of seed gets softened.
4. The white portion of seed is called basic seedling which gets sprouted and goes into soil in a long and slanted form. This forms the primary root.
5. Soon after plant forms stem comes out and stands erect at the top. This keeps increasing and becomes a small plant.



### **INTEXT QUESTIONS 6.6**

1. What do you mean by reproduction?
2. What is the difference between fruits and seed?
3. Give an example of the following:
  - i. Scattering of seeds by organisms
  - ii. Scattering of seeds by air
4. How are blossoms seed scattered?



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## 6.7 REPRODUCTION BY STEM OR LEAVES

Reproduction of new plants from any other part of plant (not flower) is called asexual reproduction. This can be root, stem, leaves etc, in different plants, let us see some examples-

1. Leaves - for example cells situated near the corners of leaves in byrofilm leaves
2. Stem like potato (tuber) and onions bulb(shalaj)
3. Grafting (cutting parts of stem) of some plants like rose or sugarcane and placing them in soil.
4. New plants are grown from pieces of ginger



### INTEXT QUESTIONS 8.7

1. State whether the following statements are true or false:
  - i. Asexual reproduction is done in brofilin. ( )
  - ii. If ginger knots are kept in soil, new plants are grown. ( )
  - ii. Sugarcane cannot be grown from the cut pieces of the stem. ( )



### WHAT HAVE YOU LEARNT

- Basic life processes in organisms are nutrition, breathing, excretion, growth reproduction etc.
- Every green plant makes their own food.
- The process by which green plants make their own food is called photosynthesis. oxygen gas comes out from this process,



- During breathing glucose is made from carbon dioxide, water and energy in presence of oxygen.
- Food prepared by leaves is sent to stem.
- The process of vaporizing of water from water present in plants is called evaporation.
- Roots of the plants take absorbed water and minerals to upper part of the plant.
- Reproduction is the process by which organism gives birth to a new species of same like.
- There are two types of reproduction - by seeds and by stems or leaves.
- Seeds are scatters in many ways - air. Water, organisms and self plant's special seedling method,
- The process by which small plants inside the seed gets active and makes new plant is called sprouting and seedling.



### TERMINAL QUESTIONS

A. Choose the correct option from the options given below:

1. Which is essential for the growth of body and maintenance of wear and tear to be fit and fine:
  - a. Nutrition
  - b. Reproduction
  - c. Breathing
  - d. Pollination



2. Which of the following is not required for the process of photosynthesis?
  - a. Sunlight
  - b. Chlorophyll
  - c. Carbon dioxide
  - d. Nitrogen
3. What is the process of making food from oxygen and giving us energy called?
  - a. Breathing
  - b. Secretion
  - c. Excretion
  - d. Photosynthesis
4. What are the products of photosynthesis?
  - a. Water and carbon dioxide
  - b. Chlorophyll and sunlight
  - c. Starch and oxygen
  - d. Glucose and oxygen
5. What is the process of keeping plants cool in summer season called?
  - a. Breathing
  - b. Evaporation



- c. Photosynthesis
  - d. Water absorption
6. What is the most important part of flower for plant?
- a. Sepal and buds
  - b. Pollen and petals
  - c. Pollen and part of seed
  - d. Petals
- B. Fill in the blanks:
- 1. \_\_\_\_\_ and \_\_\_\_\_ are formed in the process of photosynthesis.
  - 2. Water from plants come out in form of water vapours is called \_\_\_\_\_.
  - 3. Evaporation and gases moving inside -outside of leaves is through \_\_\_\_\_ found on leaves.
  - 4. Making new plants by grafting plants is called \_\_\_\_\_ reproduction.
  - 5. Seeds are scattered by air, \_\_\_\_\_ and \_\_\_\_\_.
3. Answer the following questions briefly:
- 1. What is nutrition?
  - 2. What are the raw materials used in photosynthesis?
  - 3. What is breathing? Why do plants need breathing?



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4. Which process can reverse the products of photosynthesis?
5. Give any two benefits of evaporation from plants?
6. Write three methods for seed scatter in plants?



## ANSWERS TO INTEXT QUESTIONS

- 6.1 1 (i) Photo synthesis  
(ii) Oxygen  
(iii) Carbon Di Oxide
- 6.2 1 (i) Animal  
(ii) Stomata  
(iii) Chemical, Air
- 6.3 1 (i) Leaves  
(ii) Water  
(iii) Food
- 6.4
1. Giving birth to a child of its own type is called reproduction.
  2. Seeds are found inside the fruit.
  3. (i) Mango (ii) Sehijan
  4. Seeds are scattered by air, organism and water
- 6.5 1. (i) True (ii) True (iii) True



