

**CLASS -7**  
**SUBJECT – SCIENCE(BIOLOGY)**  
**CHAPTER - NUTRITION IN**  
**PLANTS**

**Teacher- Paramita Pal**  
**Period/ worksheet -4**

### 1.4.3 Insectivorous or Carnivorous Plants

Plants which eat animals, particularly insects are called ***insectivorous or carnivorous plants***.

In short, these are insect-eating plants.

These plants are usually green and prepare their own food. Then, why do they eat insects? This is because in some areas, the soil is deficient in nitrogen. The plants growing in such areas need to obtain nitrogen from outside sources. This is done by trapping and eating insects.

**Examples:** Pitcher plant [Fig. 1.2(a)], Venus flytrap [Fig. 1.2(b)], bladderwort and sundew plant

Insectivorous plants have developed special structures to catch insects. In a pitcher plant, the pitcher-like structure (Fig. 1.12) is the modified part of the leaf. The leaf tip is modified to form a lid which can open or close the mouth of the pitcher. Inside the pitcher, downward-pointing hair are present. Once an insect enters the pitcher, the lid closes and the insect gets trapped in the hair. Digestive juices secreted in the pitcher now digest the insect.

### 1.4.4 Symbiotic Plants

Plants which live in association with other plants and share shelter and nutrients are called ***symbiotic plants***. This association between two different plants is called ***symbiotic association or relationship***. Both the plants benefit from a symbiotic association.

#### Examples

- Certain fungi live in the roots of trees. The tree provides nutrients to the fungus. In return, the fungus provides certain nutrients from the soil to the tree.
- In lichens (Fig. 1.13) also, symbiotic relationship is seen. There is an association between a green alga and a non-green fungus. The fungus provides shelter, water and minerals to the alga. The alga, in return, provides food to the fungus. The alga, being green, prepares food by photosynthesis.

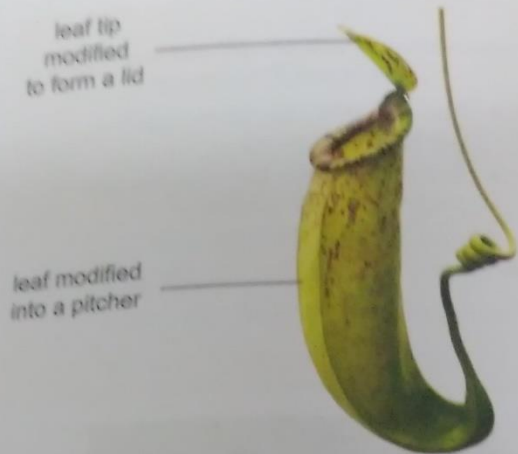


Fig. 1.12: A pitcher-like structure in a pitcher plant

#### Do you know?

Lichens are excellent indicators of air pollution. These are sensitive primarily to sulphur dioxide and other air pollutants and will not grow at places which are polluted.



Fig. 1.13: Lichens

#### Mind Scramble

Unscramble each of the following to form a word or term:

- (a) TAHUSIROA \_\_\_\_\_
- (b) HLCLORLPHOY \_\_\_\_\_

Pitcher plant trapping insect



digestive juices in pitcher plant



Green leaves of pitcher plant



# Symbiotic fungi present in roots of big plants



## Images of lichen (symbiotic plant)



Lichen is the association between algae and fungi.

### Answer Orally

1. Name the four types of heterotrophic plants.
2. Define and give examples of each of the following.
  - (a) Parasite
  - (b) Host
  - (c) Saprophytes
  - (d) Insectivorous plants
  - (e) Symbiotic plants

### DEFINITIONS

- **Life process:** The basic functions which allow living organisms to live on earth
- **Nutrition:** The process of taking in food and its utilization by the body
- **Autotrophs:** Organisms which prepare their food
- **Photosynthesis:** The process through which green plants prepare their own food
- **Heterotrophs:** Organisms that cannot manufacture their own food and derive food from plants or animals or both
- **Parasitic plants:** The non-green plants which live on other living organisms and obtain their food from them
- **Host:** The living organism from which a parasite derives its food
- **Saprophytic plants:** The plants which live and feed on dead and decaying organic matter
- **Insectivorous plants:** Plants which eat animals, particularly insects
- **Symbiotic plants:** Plants which live in association with other plants and share shelter and nutrients

### QUICK ROUNDUP

1. Food is required to perform basic life processes.
2. Nutrition may be **autotrophic** or **heterotrophic**.
3. Green plants are autotrophic, while non-green plants and animals are heterotrophic.
4. Four things are required for photosynthesis—carbon dioxide, water, sunlight and chlorophyll.
5. Food is synthesized in the form of carbohydrates and oxygen is released as a by-product during photosynthesis.
6. Heterotrophic plants include **parasitic, saprophytic, insectivorous** and **symbiotic plants**.

### EXERCISES

#### Answer in Detail

1. Describe the process of photosynthesis. Also give its equation.
2. Describe how non-green plants obtain their food.
3. How does a pitcher plant catch insects?
4. Give differences between the following:
  - (a) Parasites and saprophytes
  - (b) Autotrophs and heterotrophs

## B. Answer Briefly

1. Why do we need food?
2. Mention: (a) the role of chlorophyll in photosynthesis and (b) the part of the plant in which food is made.
3. How would you test for the presence of starch in leaves?
4. What is produced as a result of photosynthesis?
5. What will happen to life on earth in the absence of photosynthesis?

## C. Answer in One Word or a Few Words

### C1. Name the following.

1. Type of nutrition found in fungi, lichen, amarbel and pitcher plant
2. A parasite plant with long, yellow and slender stem
3. The pores in leaves through which exchange of gases takes place
4. A plant with both autotrophic and heterotrophic mode of nutrition
5. The gas released during photosynthesis

### C2. Fill in the blanks.

1. The food prepared by the plants is stored as \_\_\_\_\_.
2. Presence of starch is tested with the help of \_\_\_\_\_.
3. Heterotrophs derive their food from \_\_\_\_\_.
4. \_\_\_\_\_ is a parasitic plant.
5. In photosynthesis, the sun's energy is captured by the pigment called \_\_\_\_\_.
6. Plants which obtain their food from dead and decaying matter are called \_\_\_\_\_.
7. During photosynthesis, \_\_\_\_\_ is taken in and \_\_\_\_\_ is given out.

### C3. Match the two columns.

#### Column A

1. Fungi
2. Amarbel
3. Pitcher plant
4. Animals
5. Plant's food factory

#### Column B

- (i) Leaf
- (ii) Heterotrophs
- (iii) Parasite
- (iv) Saprophyte
- (v) Insects

### C4. Multiple Choice Questions (MCQs): Choose the correct answer for each of the following.

1. Carbon dioxide is taken in from the atmosphere by the plants through  
(a) roots. (b) stem. (c) leaves. (d) all of these.
2. Which of the following is a saprophyte?  
(a) Amarbel (b) Lichen (c) Mushroom (d) None of these
3. Which of the following is/are raw material(s) for photosynthesis?  
(a) Water (b) Water and carbon dioxide  
(c) Sunlight, water and carbon dioxide  
(d) Sunlight, chlorophyll, water and carbon dioxide

4. Which of the following is a symbiotic plant?

(a) Amarbel

(b) Lichen

(c) Yeast

(d) Pitcher plant

5. Stomatal opening is surrounded by

(a) guard cells.

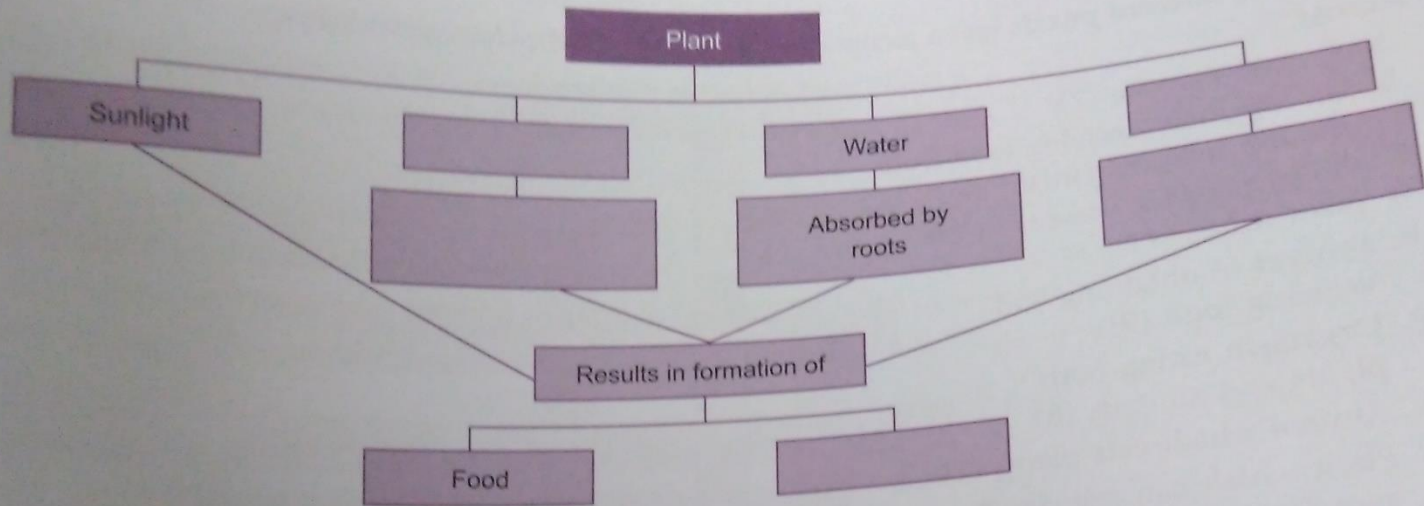
(b) stomata.

(c) epidermal cells.

(d) chloroplast.

### DO AND LEARN

Complete the Web Chart



### Field Trip

1. Visit a nursery located in or near your locality. Ask the gardener to show you the green house. A greenhouse is a place where plants are grown by providing proper conditions of light, water and temperature. Find out how in the greenhouse proper conditions have been provided to grow plants. Make a report and present in your class.
2. In the nursery locate cactus plant and money plant. Note down how are these two plants different from each other.
3. Visit a garden, an agricultural field, and a greenhouse. Answer the following questions in 'no':



(a) Garden



(b) Greenhouse



(c) Agricultural field

(a) An agricultural field is usually smaller than a greenhouse.

(b) There are trees in a garden and a greenhouse, but not in an agricultural field.