

Heterotrophic Nutrition In Plants LR

Heterotrophic nutrition in plants. Objective, to learn about various types of heterotrophic nutrition in plants. All green plants have chlorophyll, which they use to prepare their food by a process known as photosynthesis.

However, there are certain plants, like the daughter plant, called heterotrophic plants, which do not have chlorophyll, and hence are not able to synthesize food. Let's study about these plants. Parasitic plants.

The daughter is a heterotrophic plant, which wraps itself around another plant in order to get food. The plant from which the daughter gets its food is called the host plant. The daughter produces roots called Astoria, that insert themselves into the body of the host plant and keep absorbing nutrition from it.

Since these plants derive their nourishment from the host, they are called parasitic plants. Insectivorous plants. Observe this pitcher plant.

Its leaf is shaped like a pitcher with a lid. As an insect enters the pitcher, the lid closes, and the insect gets entangled in the hair of the pitcher and is unable to escape. Then the plant secretes digestive juices, which drown the insect and gradually dissolves its body, from which the plant obtains its mineral nutrition.

This kind of nutrition is called insectivorous nutrition. Saprotrophs. Mushrooms generally grow in dirt and on dead and decaying plants.

Observe the underside of a mushroom. You will notice that it has small structures known as hypha. The hypha secrete digestive enzymes, which are released through their tips into the food source on which the mushroom grows.

These enzymes dissolve the solid matter of the food and turn it into liquid. The nutrients from the liquid flow into the hypha, which feed the mushroom. This type of nutrition is known as saprophytic nutrition.

Symbiotic plants. Sometimes fungi and algae grow together and are then called lichens. Fungi do not have chlorophyll and are not able to manufacture their own food, but are able to store water.

On the other hand, algae have chlorophyll but are not able to retain water, which is needed for making food. This makes both fungi and algae dependent on each other for survival. The algae use their chloroplasts to trap sunlight and the fungi retain stored water and transport it to the algae.

Then the algae start preparing their food with the help of sunlight, carbon dioxide, and water, which they use and also transport some of the food to the fungi. In this way, both benefit from each other. This type of nutrition is known as symbiotic nutrition.

To summarize, non-green plants, which cannot prepare their food and depend on other organisms for food, are called heterotrophic plants. Some examples of heterotrophs are the dodder, the pitcher plant, lichens, and mushrooms.

Summary: Heterotrophic Nutrition in Plants

While **green plants** produce their food using **photosynthesis**, some plants lack **chlorophyll** and cannot synthesize food. These plants are called **heterotrophic plants**, and they obtain their nutrition from **other organisms**.

Types of Heterotrophic Nutrition in Plants

1. **Parasitic Plants – Cuscuta (Dodder)** wraps around a **host plant** and absorbs its **nutrients** through **specialized roots (haustoria)**.
2. **Insectivorous Plants – Pitcher plants** trap **insects** inside a **pitcher-shaped leaf**, where digestive juices dissolve the insect to extract nutrients.
3. **Saprotrophic Plants – Mushrooms** grow on **dead and decaying matter**. Their **hyphae** release **digestive enzymes**, breaking down organic matter into **liquid nutrients** for absorption.
4. **Symbiotic Plants – Lichens** are a combination of **fungi and algae**. **Fungi** store **water**, while **algae** produce **food** through photosynthesis. They **help each other survive**.

Quiz: Heterotrophic Nutrition in Plants

1. Which plant is an example of a parasitic plant?

- ☒ a) Cuscuta (Dodder)
- ☐ b) Mango tree
- ☐ c) Sunflower
- ☐ d) Rose

2. What do insectivorous plants like the pitcher plant eat?

- ☒ a) Insects
- ☐ b) Soil
- ☐ c) Sunlight
- ☐ d) Other plants

3. How do saprotrophic plants like mushrooms get their food?

- ☒ a) By decomposing dead and decaying matter
- ☐ b) By eating insects
- ☐ c) By absorbing water from the air
- ☐ d) By making their own food

4. Which of the following is an example of a symbiotic relationship in plants?

- ☒ a) Lichens (fungi and algae helping each other)
- ☐ b) Pitcher plant trapping an insect
- ☐ c) Cuscuta absorbing nutrients from a host plant
- ☐ d) A tree growing in sunlight