

Difference Between Saprophytic and Symbiotic Plants

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Key Difference - Saprophytic vs Symbiotic Plants

[Plants](#) possess different modes of nutrition which are achieved through many different inter-relationships that they have with other plants, [bacteria](#), [fungi](#), and [animals](#). Based upon these types of relationships, plants can be classified mainly as [saprotrophs](#) and symbionts. Saprotrophs or saprophytic plants are the plants that depend on dead [organic matter](#) for their nutrition. These plants grow on the dead organic matter such as dead wood or wrack. Symbionts or symbiotic plants are plants which possess inter-relations with other plants. A symbiotic relationship is a close association between two plants or between a plant and a microbe or a plant and an animal. A symbiotic plant shows three main types of nutrition patterns including [mutualism](#), [commensalism](#), and [parasitism](#). The **key difference** between saprophytic and symbiotic plants is that **saprophytic plants depend on dead organic matter for their nutrition while symbiotic plants depend on another organism for their nutrition.**

What are Saprophytic plants?

Saprophytic plants are the plants that are capable of growing on the dead matter such as dead wood etc. The dead organic matter including dead or decomposed leaves and wrack also act as sources of nutrition for saprophytic plants. These plants are mainly capable of extracellular [digestion](#). They are also referred to as non – green plants.



Figure 01: Saprophytic Plant

In early days, [mushrooms](#) which are fungi and which grow on the dead organic matter were considered to be saprophytic plants. Although soon after its categorization as a fungal species, it was no longer considered as a saprophytic plant. At present, saprophytes are regarded as symbionts that live on saprotrophic fungi which includes the shinleaf family and the Indian pipe family. These two plants are associated with mycorrhizae. Their saprophytes have haustoria with fungi and obtain its nutrition requirements.

What are Symbiotic Plants?

A symbiotic relationship refers to a close association between two organisms which can be either beneficial or harmful to either of the species. In plants, these symbiotic relationships are classified into three main categories; mutualism, commensalism, and parasitism.

Mutualism refers to a relationship where both organisms are benefitted. Therefore, plants that are symbionts and follow mutualism are referred to as mutualistic plants. Interactions between plants and fungal species, interactions between flowering plants and pollinator animals are examples of mutualistic plant relationships.

Commensalism is when two organisms associate closely, and one organism is benefitted and the other has no effect; neither benefitted nor harmed. Commensal plants are also included in symbiotic plant category. An example of a commensal plant relationship is the nurse plant. The nurse plants which are larger plants offer protection from seedlings from the weather and [herbivores](#), thereby, giving them an opportunity to grow.



Figure 02: Symbiotic Plant

Parasitism refers to a relationship where one organism is benefitted and the other is harmed. Thus, the plant which is benefitted and is capable of causing harm to the other is known as the parasitic plant, whereas the other is referred to as the host. A classic example of a parasitic plant is Rafflesia or the Corpse Flower. Rafflesia belongs to the category of an extremely parasitic plant. Rafflesia resides inside another plant and obtains food from that plant. The only part that is visible is the flower of the plant.

What are the Similarities Between Saprophytic and Symbiotic Plants?

- Both are based upon relationships between one plant and another plant, fungal species, bacterial species or an animal.
- Both types of plants use these relationships to fulfill their nutritional requirements.
- Both these plants are dependent plants which are exceptional in comparison with the autotrophic plants.
- Both these plant types perform extracellular digestion and secrete digestive enzymes to the external environment.

What is the Difference Between Saprophytic and Symbiotic Plants?

Saprophytic vs Symbiotic Plants	
Saprotrophs or saprophytic plants are the plants that depend on dead organic matter for their nutrition.	Symbionts or symbiotic plants are plants which possess inter-relations with other plants and stay in a close association.
Type of Nutrition Source	
Dead organic matter or decaying organic matter is the source of nutrition of saprophytes.	Symbionts obtain nutrition from the host.
Types	
None	Three main types; Mutualism, Parasitism, Commensalism can be seen in symbiotic plants.
Examples	
Plants of the shinleaf family and Indian pipe family are examples of saprophytic plants.	Mutualistic plant - Interactions between plants and fungal species, interactions between flowering

	plants and pollinator animals Commensal plants - The nurse plants Parasitic plants – Rafflesia plant
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Summary - Saprophytic vs Symbiotic Plants

Plants are generally autotrophic and independent producers of their food. But interesting exceptions exist in which they follow unique methods to fulfill their nutrition requirements. Extracellular digestion is one such scenario observed in some plants, where they are capable of digesting chemicals and compound released by other organisms or organic matter to fulfill their nutrition requirement. Saprophytes are plants which are dependent on dead organic matter and often mistaken for fungal mushrooms which reside on dead wood or barks. Symbiotic plants are plants which live in close association with another species to fulfill its nutrition requirement. They are mainly categorized as mutualistic, commensalistic and parasitic plants. This is the difference between saprophytic and symbiotic plants.

Reference:

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- 2.Landry, Carol L. “Mighty Mutualisms: The Nature of Plant-Pollinator Interactions.” Nature News, Nature Publishing Group. [Available here](#)
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- 2.'2046695' via [pixabay](#)

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