Difference Between Epiphytes and Parasites

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Key Difference - Epiphytes vs Parasites

Interactions between organisms are important for the continuance of an ecosystem and enrichment of ecosystem biodiversity. Various types of interactions can be seen in an ecosystem. Symbiotic interactions and parasitic interactions are significant among them. Some interactions are beneficial for both members involved in the interaction while some interactions are driven at the expense of one member. Epiphytes and parasites are two groups which show two such interactions. Epiphytes are defined as plants that grow on other plants; they depend on other plants for physical support, without obtaining nutrients or without causing any harm. Parasites are defined as organisms that live on or in other organisms; they obtain nutrients and other requirements while causing loss or harm to the host organism. The key difference between epiphytes and parasites is that **epiphytes only depend on other plants for physical support** whereas **parasites obtain nutrients and other requirements from their hosts.**

What are Epiphytes?

Epiphytes are the plants that grow on other plants. The word 'epiphyte' is derived from the two Greek words 'epi' meaning *upon* and 'phyton' meaning *plant*. Epiphytes are also known as **air plants** because they never touch the ground and do not need soil to grow. Epiphytes can be seen on the branches, trunks, and leaves of trees. Though epiphytes grow on a host plant, they do not cause any damage or harm to the host. They depend on the host for physical support but do not obtain nutrients from the host plant. Instead, they rely on the nutrients in the air, falling rain, and the compost on the tree branches. Epiphytes do not also interfere with the metabolic functions of the host plant and or cause damages to any organs.

Epiphytes are found commonly throughout rainforests. They are seen mostly in the canopy of the forest due to factors such as easy access to direct sunlight, availability of an adequate number of canopy animal pollinators, and the possibility of dispersing their seeds by wind. Epiphytes contribute largely to the extremely rich biodiversity of rainforests that make them the most complex ecosystems on Earth.

Epiphytes belong to many plant families. The most common and known epiphytes belong to families Bromeliaceae and Orchidaceae. Some of the better-known epiphytes include ferns, lichens, mosses, cacti, bromeliads, and orchids.

Epiphytes are well adapted to harsh environments like the canopy of the forest where there is a serious shortage of water, nutrients, and minerals. They bear amazing adaptations to capture water and nutrients from the air, rain and tree debris, to attach to tree trunks, and to absorb moisture etc. Some species have also developed structures to conserve water. For example, orchids can conserve water by their thick stems. Epiphytes produce more seeds bearing wings, gliding apparatuses, or parachutes compared to other plants. In addition, they produce seeds with sticky coats and fleshy fruits.

Figure 01: An Epiphytic Orchid

What are Parasites?

Parasitism is a non-mutual relationship between species, where one species benefits at the expense of the other. The party benefitted by the parasitism is known as parasites. Parasites are the organisms which live in or on another organism and derive nutrients from hosts. The host organism is often affected by the parasite since parasites cause damages to host organisms and interfere with the

metabolic functions. The parasite is always dependent on the host for its survival. It cannot survive independently.

There are two main types of parasites namely **endoparasites** and **ectoparasites**. Ectoparasites live outside of the host body while endoparasites live inside the host body. Parasites cause diseases in humans. There are three main classes of human parasites named protozoa, helminths, and ectoparasites. *Entamoeba, Giardia, Leishmania Plasmodium* and *Cryptosporidium* are several protozoans which are parasitic to humans. Flatworms and roundworms are two helminthes parasites.

There are also parasitic plants which grow on another plant and obtain all or part of nutritions from the host plant. Parasitic plants develop special structures called haustoria to penetrate the host tissues and obtain nutrients. Cuscuta is one common parasitic plant.

Figure 02: Dodder plant – Parasitic plant

What is the difference between Epiphytes and Parasites?

Epiphytes vs Parasites	
Epiphytes are plants that grow on other plants for physical support, without obtaining benefits or causing harm to the host plant.	Parasites are organisms which live on or in other organisms and obtain nutrients from the host organisms.
Specificity	
Epiphytes depend on the host for physical support.	Parasites depend on the host for nutrients, shelter, and protection.
Dependency	
Epiphytes are not metabolically dependent on the host plant.	Parasites are metabolically dependent on host organisms.
Harm to Host	
Epiphytes do not harm the host plant.	Parasites usually cause harm to the host organism.
Examples	
Mosses, Orchids, lichens, ferns, and bromeliads are examples of epiphytes.	Rafflesia, Cuscuta and *Plasmodium vivax* are examples of parasites.

Summary - Epiphytes and Parasites

Epiphytes grow on another plant. They depend on the host plant for physical support. They do not cause harm to host plant; neither do they obtain nutrients from the host. Epiphytic interaction is a non-parasitic plant to plant interaction. Parasites are different from epiphytes. Parasites live in or on another organism and obtain all or part of nutrients from the host organism. Hence, the host organism is negatively affected by the parasitic interaction. The host is never benefitted by parasitism. This is the difference between epiphytes and parasites.

References:

1. Mongabay. "Rainforest Epiphytes." Mongabay.com. N.p., 09 June 1999. Web. Available here. 09 June 2017.
2. "What are Epiphytes?" Air Plant Supply Co. N.p., n.d. Web. Available here. 09 June 2017.

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2. "Dodder (Cuscuta sp.)" by Scot Nelson (CC BY 2.0) via Flickr

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