Decomposition Encyclopedia Article

Decomposition

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Decomposition

Decomposition is the process by which dead organisms and their wastes are broken down into an inorganic form usable by plants and other autotrophic organisms. Decomposition is decay and rotting. The organisms that carry out decomposition are called decomposers, and they are primarily bacteria and fungi.

Because decomposers are not able to make their own food, they are considered heterotrophs. They must obtain all of their nutrients and energy from the food they consume.

Decomposition plays a major role in the cycling of nutrients through the food web. Organic nutrients are bound up in a living organism or within an organism's waste. Through the process of decomposition, they are released in an inorganic form that is usable by plants and other autotrophs. In effect, decomposition is responsible for recycling nutrients so that they can be reused. Some of the major nutrients that are recycled include nitrogen, phosphorus, carbon and oxygen. In addition, nutrients that are needed in smaller amounts, such as calcium, sulfur, iron and potassium, are also recycled through the process of decomposition. Without decomposition, an ecosystem would not be self-sustaining; it would be required to obtain the nutrients necessary for food production from outside the ecosystem.

In addition to cycling nutrients through the food web, decomposers are an important source of food for other consumers. For example, some deposit-feeding organisms living in the muddy ocean bottom will feed by ingesting sediments. While the sediments themselves are later expelled, the bacteria of decay that live on the sediment particles are digested. In addition, other decomposers, such as fungi (e.g., mushrooms), are an important part of the diet of many organisms. Thus, decomposers have more than one role in an ecosystem's food web; they cycle nutrients and are a source of food for other organisms.