Autotrophic Bacteria Encyclopedia Article

Autotrophic Bacteria

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Autotrophic Bacteria

An autotroph is an organism able to make its own food. Autotrophic organisms take inorganic substances into their bodies and transform them into organic nourishment. Autotrophs are essential to all life because they are the primary producers at the base of all food chains. There are two categories of autotrophs, distinguished by the energy each uses to synthesize food. Photoautotrophs use light energy; chemoautotrophs use chemical energy.

Photoautotrophic organisms (e.g., green plants) have the capacity to utilize solar radiation and obtain their energy directly from sunlight.

Until recently, scientists held there existed only a few kinds of **bacteria** that used chemical energy to create their own food. Some of these bacteria were found living near vents and active volcanoes on the lightless ocean floor. The bacteria create their food using inorganic sulfur compounds gushing out of the vents from the hot interior of the planet.

In 1993, scientists found many new species of **chemoautotrophic bacteria** living in fissured rock far below the ocean floor. These bacteria take in carbon dioxide and water and convert the chemical energy in sulfur compounds to run metabolic processes that create carbohydrates and sugars. A unique characteristic of these chemoautotrophic bacteria is that they thrive at temperatures high enough to kill other organisms. Some scientists assert that these unique bacteria should be classified in their own new taxonomic kingdom.