

Mushrooms: A Fungus Among Us!

Background

Mushrooms like to live in dark, damp places. They feed off the decaying matter around them. As the mushroom grows, it develops spores. New mushrooms grow from these spores. The spores are so tiny you can't see them without a microscope. Millions of spores together look like fine powder. A mature mushroom will form as many as 16 billion spores.

When the spores are ripe they shoot out of the mushroom and drift away in the wind. If they land in a dark, damp place with a food source, they will grow into new mushrooms. First, they develop a threadlike structure called a hyphae. A large number of hyphae grow together and form the mycelium. The hyphae and mycelium grow under the surface where you can't see them. The fruiting body is the part of the mushroom that appears above ground. When it first appears, it looks like a little button.

Because the mycelium of many kinds of mushrooms tend to grow in a circular pattern, the mushrooms often grow in a circle or ring. People long ago called them "fairy rings" because they thought they were made by fairies dancing through the night. Some believed mushrooms were created by thunderbolts because wild mushrooms appear after storms.

The fruiting part of the mushroom that we see is only a small part of the mushroom. The entire body of a mushroom is usually spread out over a large area. In nature some species of mushrooms may have a body that spreads over hundreds of square miles. A population of honey mushrooms in the Blue Mountains of eastern Oregon was found to be the largest single organism in the world, spanning 2200 acres.

Mushrooms are a kind of Fungi, a major kingdom of living things. They do not have chlorophyll like plants, so they can't photosynthesize their own food. Instead, they rely on other plants for their nutrients. Parasitic mushrooms colonize living plants while saprophytic mushrooms live off decaying organic matter. They occur in all environments on the planet.

All fungi have a vegetative body called a thallus or soma, composed of hyphae. The hyphae typically form a microscopic network within the mycelium, through which food is absorbed. Usually the most conspicuous part of any fungus are its fruiting bodies—reproductive structures that produce spores. Mushrooms are the fruiting bodies of certain fungi.

There are 38,000 different varieties of mushrooms, with 3,000 in North America. Not all mushrooms are edible. In fact, some mushrooms are poisonous, so you should NEVER EAT MUSHROOMS GROWING IN THE WILD.

Mushrooms were first cultivated in Southeast Asia. Mushroom farming first started in the US in 1896 in Kennett Square, PA. Two florists, William Swayne and Harry Hicks, wanted to make use of empty space under the shelves where they grew their flowers. Flowers need sunlight, but it was very dark and damp under the shelves. They couldn't grow flowers there, but they could grow mushrooms, since mushrooms don't need sunlight to grow.

Mushroom farms today are climate-controlled buildings with airflow, temperature and light all constantly monitored. The most common mushroom raised for eating is the white button mushroom. Shitake, enoke and oyster mushrooms are some other varieties raised for eating. Most grocery stores in the western world sell button mushrooms canned and fresh. In Miami, Oklahoma, J-M Farms, Inc., produces button mushrooms that are sold in Oklahoma, Texas, Arkansas, Mississippi, New Mexico, Kansas, Missouri and Iowa.

The Portobello mushroom is a large brown strain of the same fungus as the button mushroom, left to mature and take on a broader, more open shape before picking. Portobello mushrooms are distinguished by their large size, thick cap and stem. Portobello mushrooms serve as a substitute for meat in some recipes because they have a similar texture.

The shiitake (she-TAH-kee) mushroom is large and brownish to very dark brown and has a fleshy cap from about 1 to 2 inches across. Shiitake are easily dried, convenient to use and inexpensive to store and transport. The shiitake mushroom is native to Japan and China and grows naturally on fallen oak logs in the spring and autumn. Shiitake is from the Japanese *shii* for oak and *take* for mushroom. In China it is also called the *hsaing ku*, meaning fragrant mushroom. Shiitakes are the second most-consumed mushrooms in the world, after the button mushroom. In Asia it is number one. Shiitake mushrooms are Japan's number one agricultural export. Shiitake can be grown either on hardwood logs like oak or on a special combination of oak sawdust, bran, millet and other additives. In Oklahoma, Lost Creek Farms in Perkins produces shiitake mushrooms and shiitake mushroom log kits for people who want to grow their own. Logs usually average 4-6 inches in diameter and 40 inches in length. Spawn, or mycelium, is placed in pre-drilled holes. Wax is melted and dripped over the hole to form a seal.

A mushroom is not a true vegetable, since it has no leaves, roots or seeds and does not need light to grow. However, the National Agricultural Statistics Service (NASS) includes mushrooms in the vegetable category for statistics purposes. Mushrooms are a good source of potassium. The US is the second largest producer of mushrooms, following China.

Sources: American Mushroom Institute, "Mushroom Education Packet," "Natural Sciences: Ecosystems and the Environmental Balance," Rice University, <http://archive.cnx.org/contents/63ee4777-cb0c-486d-93c8-eda47f2ff5cb@1/to-study-the-important-role-of-plants-in-the-ecosystem>

Vocabulary

acquire— to come to have

betrays— tells in violation of a trust

bland-mannered— having soft and soothing qualities

category— one of the divisions or groupings used in a system of classification

chlorophyll— the green coloring matter of plants that is found in chloroplasts and is necessary for photosynthesis

climate-controlled— having the temperature and humidity regulated by a heating and cooling system

colonize— to establish a mass of microorganisms in or on a solid medium

conspicuous— easily seen

crannies— small breaks or slits

decay— to go through or cause to go through the breakdown of plant or animal matter (decomposition)

discretely— capable of preserving prudent silence

edible— fit or safe to be eaten

filament— a single thread or a thin flexible threadlike object

fungi— any of a kingdom of living things (as molds, rusts, mildews, smuts, and mushrooms) that lack chlorophyll, are parasitic or live on dead or decaying organic matter

heaving— raising

hyphae— one of the threads that make up the mycelium of a fungus

inherit— to have handed on to one by someone else

kingdom— a major category in the scientific classification of living things that ranks above the phylum and below the domain

loam— a soil consisting of a loose easily crumbled mixture of varying amounts of clay, silt, and sand

meek— putting up with wrongs patiently and without complaint

mycelium— the part of the body of a fungus that does not reproduce and usually consists of a mass of hyphae that are often growing in something else (as soil, organic matter, or the tissue of a plant or animal host)

nutrient— a substance or ingredient that furnishes nourishment

organism— an individual living thing that carries on the activities of life by means of organs which have separate functions but are dependent on each other

parasitic— of or relating to a parasite (a living thing which lives in or on another living thing)

photosynthesize— the act of forming carbohydrates from carbon dioxide and a source of hydrogen (as water) in the chlorophyll-containing cells (as of green plants) exposed to light

population— a group of one or more species of organisms living in a particular area or habitat

ram— a heavy metal bar with handles used (as by firefighters) to batter down doors and walls

reproductive— of, relating to, or capable of producing new individuals of the same kind

ripe— fully grown and developed

saprophytic— a living thing (as a fungus) that lives on the dead or decaying material of plants and animals

soma— the body of an organism

span— an extent, stretch, reach, or spread between two limits

species— a category of living things that ranks below a genus, is made up of related individuals able to produce fertile offspring, and is identified by a two-part scientific name

spore— a reproductive body that is produced by fungi and by some plants and microorganisms (as ferns and bacteria) and that usually consists of a single cell and is able to produce a new individual either by developing by itself or after fusion with another spore

statistics— a branch of mathematics dealing with the collection and study of numerical data

thallus— a plantlike vegetative body (as of algae, fungi, or mosses) that lacks differentiation into distinct parts (such as stem, leaves, and roots) and does not grow from an apical point

vegetative— growing or having the power of growing