

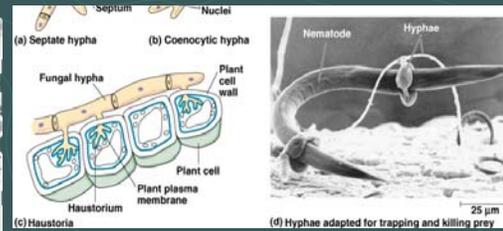
Fungi function as **decomposers**, **parasites**, or **mutualistic symbionts**.

- In their role as decomposers, fungal hyphae invade the tissues and cells of dead organic matter.
 - Exoenzymes hydrolyze polymers.
- A succession of fungi, bacteria, and even some invertebrates break down plant litter or corpses.
- Or..



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About 30% of the 100,000 known species of fungi are parasites, mostly on or in plants.



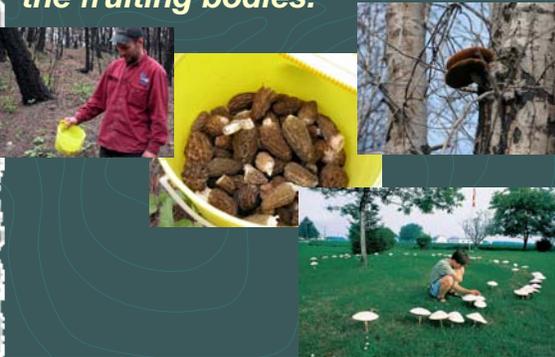
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- About 30% of the 100,000 known species of fungi are parasites, mostly on or in plants.
- The general term for a fungal infection is **mycosis**.
- Infections of ascomycetes produce the disease ringworm, known as athlete's foot when they grow on the feet.
- Inhaled infections of other species can cause tuberculosis-like symptoms.
- Candida albicans* is a normal inhabitant of the human body, but it can become an opportunistic pathogen.

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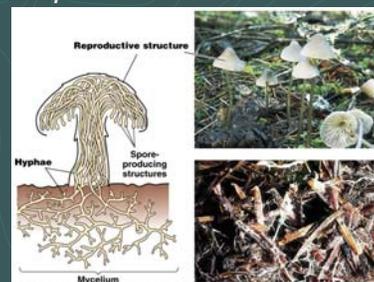


Fungi we notice are usually the **fruiting bodies**.



Fungi

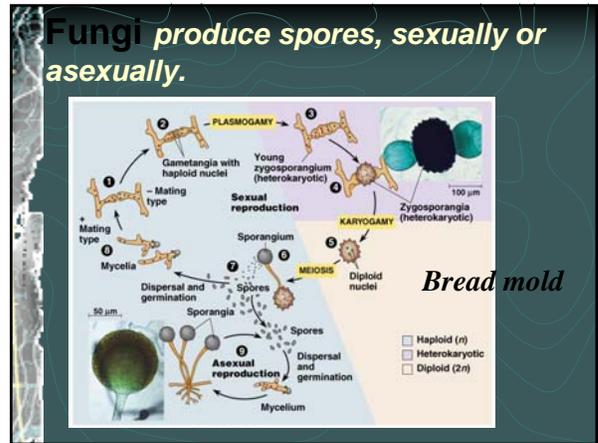
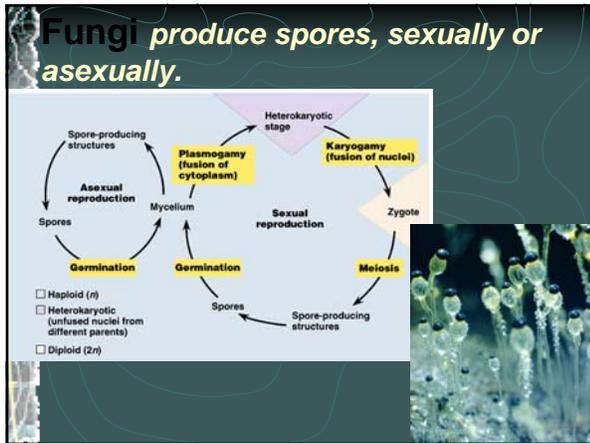
The nutritionally active parts of fungi are strings of cells called **hyphae**, woven together into a **mycelium**, which extend a great surface area for absorption.



Fungal mycelia can be huge, but they usually escape notice because they are subterranean.

- One giant individual of *Armillaria ostoyae* in Oregon is 3.4 miles in diameter and covers 2,200 acres of forest...
- It is at least 2,400 years old, and weighs hundreds of tons.

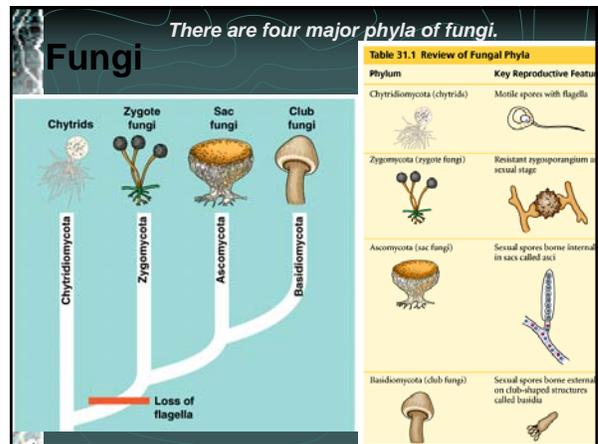
- The filamentous structure of the mycelium provides an extensive surface area that suits the absorptive nutrition of fungi.
- Ten cubic centimeters of rich organic soil may have fungal hyphae with a surface area of over 300 cm².
- The fungal mycelium grows rapidly, adding as much as a kilometer of hyphae each day.



Fungi
 More than 100,000 species of fungi are known, likely a small fraction of the actual number.

A mold is a rapidly growing, asexually reproducing fungus.

Yeasts are unicellular fungi that inhabit liquid or moist habitats, including plant sap and animal tissues.



Fungi

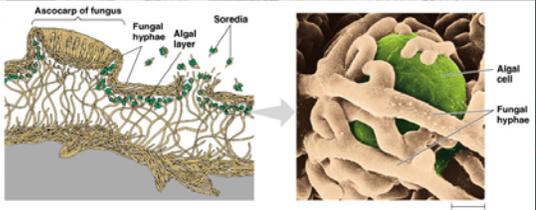
There are four major phyla of fungi.

- The fossil record indicates that terrestrial communities have always been dependent on fungi as decomposers and symbionts.
- The oldest undisputed fossil fungi date back 460 million years, about the time plants began to colonize land.
- Fossils of the first vascular plants from the late Silurian period have petrified mycorrhizae.
- Plants probably moved onto land in the company of fungi.




Lichens and mycorrhizae are cool and important.

Fungi

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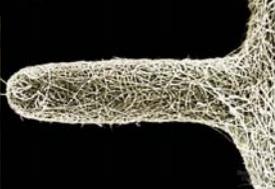
Fungi



Lichens help make soil.

Lichens and mycorrhizae are cool and important.

Fungi

Fungi have major ecological and economic effects.

- Fungi and bacteria are the principle decomposers that keep ecosystems stocked with the inorganic nutrients essential for plant growth.
- Without decomposers, carbon, nitrogen, and other elements would become tied up in organic matter.

Fungi have major ecological and economic effects.

- Aggressive decomposition by fungi can be a problem.
- Between 10% and 50% of the world's fruit harvest is lost each year to fungal attack.
- Ethylene, a plant hormone that causes fruit to ripen, also stimulates fungal spores on the fruit surface to germinate.
- Fungi do not distinguish between wood debris and human structures built of wood..

Fungi have major ecological and economic effects.

- ❑ Mushrooms, the fruiting bodies (basidiocarps) of subterranean fungi.
- ❑ Truffles, fruiting bodies of certain mycorrhizal ascomycetes, are prized by gourmets for their complex flavors.
- ❑ Cheeses get distinctive flavors from the fungi used to ripen them.
- ❑ Citric acid for colas comes from the ascomycete mold *Aspergillus*.

Fungi have major ecological and economic effects.

- ❑ Yeasts are used in baking, brewing, and winemaking.
- ❑ Some fungi produce antibiotics used to treat bacterial diseases.

