



Fungi

Chapter 22



Characteristics of Fungi

Section 22-1

What are Fungi?



Key Idea: Fungi have **threadlike** bodies, their cell walls are made of **chitin**, and they absorb **nutrients** from their **environment**.

Chitin is a tough carbohydrate that is also found in the hard outer covering of insects and other organisms.

What Are Fungi?




- Fungi are a very diverse group of organisms, but all fungi share three characteristics:
 - Fungi have threadlike bodies
 - Fungal cell walls contain chitin
 - Fungi absorb nutrients from their environment

Structure and Function

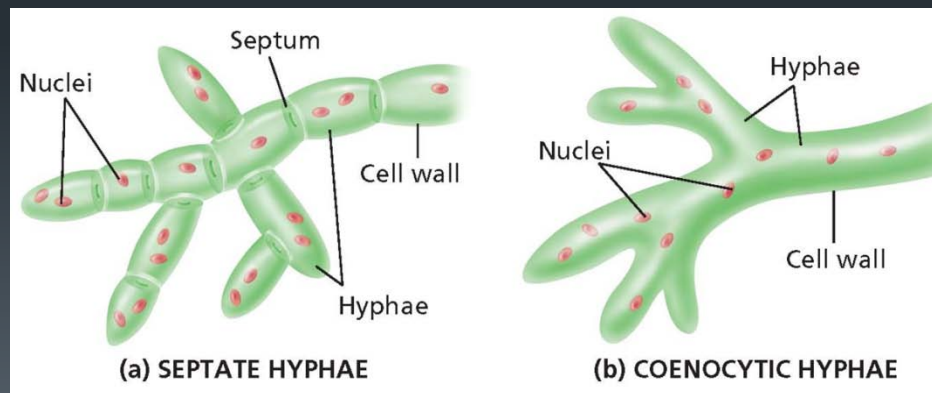


Key Idea: A typical fungal body is made of **filaments** that allow the fungus to have a **large** surface area and to absorb nutrients efficiently.

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- A **hypha** is a threadlike strands of a fungus body.
 - The **mycelium** is hyphae that form a tangled mass, often many meters long.
 - A **rhizoid** is a rootlike structures that hold the fungus in place and absorb nutrients.
 - A **saprobe** is a fungi that absorb nutrients from dead organisms.

Body Structure

- The cells of the hyphae are haploid.
- In some fungi, these cells do not have walls that separate the cells. Others fungi have partial cell walls, called *septa*.
- Gaps in the septa allow cytoplasm, nutrients, and some organelles to flow through the hyphae.



Obtaining Nutrients

- Fungi release enzymes that break down organic and inorganic matter into nutrients.
- Fungi absorb the nutrients across their cell walls.
- Saprobies recycle nutrients that otherwise would stay trapped in the bodies of dead organisms.
- Fungi that absorb nutrients from living hosts are called *parasites*.
- In humans, fungal parasites sometimes cause diseases, such as athlete's foot and ringworm.

Reproduction



Key Idea: In sexual reproduction, **spores** are produced by **meiosis**. In asexual reproduction in, **spores** are produced by **mitosis**.

Sexual Reproduction



- Sexual reproduction occurs when hyphae from one fungus fuse with hyphae from a fungus of the opposite mating type.
- Inside the structure, nuclei from the two mating types fuse.
- These diploid nuclei undergo meiosis and produce haploid spores that are released.

Asexual Reproduction

- Asexual reproduction occurs when specialized hyphae produce haploid spores by mitosis.
- The fungi that develop from these spores are genetically identical to the parent.
- Fungi that do not have an observed sexual stage are grouped together and called *imperfect fungi*.

Yeast and Mold

- The words *yeast* and *mold* refer to stages of the fungus life cycle that are shared by several types of fungi.
- Some fungi exist primarily in a unicellular state. The common name for this unicellular stage is *yeast*.
- Yeasts usually reproduce asexually by budding, a process in which part of the parent pinches off to form a new organism.
- A mold is a rapidly growing, asexually reproducing stage of some types of fungi. The term *mold* refers only to the asexual phase.