

## Kingdom Fungi

### 1. General

- a. Although originally classified as plants because they share some characteristics, fungi have several characteristics that make them different:
  - i. They lack chlorophyll so they are not photosynthetic.
  - ii. The cell wall is made of **chitin** rather than cellulose.
  - iii. Fungi are heterotrophs and absorb food after secretion of enzymes and extracellular digestion while plants are photosynthetic.
  - iv. Fungi reproduce by spores rather than seeds.
  - v. Fungi are composed of filaments called **hyphae**. Hyphae may be branched. A dense mass of hyphae is called a **mycelium**. Cytoplasmic movement within the hypha provides a means to transport materials throughout the hyphae.
- b. Humans use fungi in a variety of ways:
  - i. Many are harmful and cause decay, rot and spoilage.
  - ii. Some cause serious plant and animal diseases.
  - iii. Many are beneficial.
    - (1) Yeasts are used in the manufacture of bread, wine and beer.
    - (2) Production of penicillin.
    - (3) Many mushrooms are eaten as food.

### 2. Nutrition

- a. Fungi are major decomposers in every ecosystem. They break down matter into simple nutrients that can be used by other organisms.
- b. All are heterotrophic. Fungi excrete enzymes into their environment to digest food. They then absorb the nutrients.
- c. Most species of fungi decompose dead matter. Many are parasitic and obtain nutrients from living organisms.

### 3. Reproduction

- a. Most fungi reproduce sexually although there are a few examples of those that reproduce asexually. Yeast are a notable exception as they show mostly asexual reproduction.
- b. The hyphae of two individuals meet and fuse. The resulting fungus then contains DNA from each of the two partners.
- c. The above ground structure that we call a mushroom is actually the reproductive structures of the fungus. Spores produced in the mushroom are dispersed and grow into new individuals. Spores are non-motile, unlike the gametes of plants and animals.
- d. Spores are dispersed over great distances by wind, insects, and animals.