

# 19-2 Fungi in Nature

# **I. Ecological Significance**

**A. The principle role fungi play in the environment: *to decompose and recycle living material***

**B. If living material did not undergo decay, the energy and materials it contains would be lost**

## C. Where Are Fungi Found?

1. Fungal spores are found...*in almost every environment*
2. Large mycelia occupy a permanent place and last for many years
3. Mushrooms develop from mycelia just below the ground

4. As the mycelium grows, the nutrients near the center become depleted

5. This causes new mushrooms to sprout only ...*at the edges of the mycelium*

6. This produces a ring of mushrooms called a fairy ring



## D. Spore Dispersal

1. Spores are dry and almost weightless making them easily scattered by wind

2. Puffballs = spore warehouses; being hit by a raindrop releases thousands

3. Stinkhorns are covered with a fluid that smells like rotting flesh and attracts flies that land and eat spores along with the fluid. The spores pass out of the fly digestive system a great distance away



## II. Symbiotic Relationships

**A. Lichen: (def'n) *symbiotic partnerships between a fungus and a photosynthetic organism***

- 1. Resistant to drought and cold, can grow on dry, bare rock, and harsh environments**
- 2. The alga carries out photosynthesis, providing the fungus with food**
- 3. The fungus provides the alga with water & minerals**
- 4. Lichens are often the first organisms to enter barren environments**
- 5. Help with soil formation by breaking down the rocks they grow on**



## **B. Mycorrhizae:**

- 1. Name means fungus root in Greek**
- 2. Fungal hyphae produce a network that covers the plant's *roots* and increase the effective surface area**
- 3. This helps the plant in absorbing water, minerals, and nutrients**
- 4. The plants provide the fungi with food from photosynthesis; an e.g.: orchids**

# III. Fungi and Human Life

A. Humans use fungi in 5 ways:

1. Yeasts used to make bread
2. Yeasts used to make alcohol as beverage or fuel
3. Yeasts used in genetic engineering
4. Mushrooms as food
5. Mushrooms as poisons (accidentally or deliberately)



## IV. Diseases Caused by Fungi

Disease	Name of Fungus	Phylum of Fungus	Effects of Host	Historical
Potato Blight	Phytophthora infectans	Oomycota	Ruins potatoes	Massive emigrations from Ireland
Wheat Rust	N/A	Basidiomycota	Killed plants before grain could be harvested	Worsened the Great Depression
Athlete's Foot	N/A	Deuteromycota	Grows on skin; red patches are infectious	N/A
Yeast Infection	Candida albicans	Ascomycota	Thrust or Urinary Tract Infection	N/A
Killing Ant Fungus	Cordyceps lloydii	N/A	Digests insects from inside out	N/A