

FUNGI

Deepankar Ratha
Assistant professor
CUTM, Rayagada



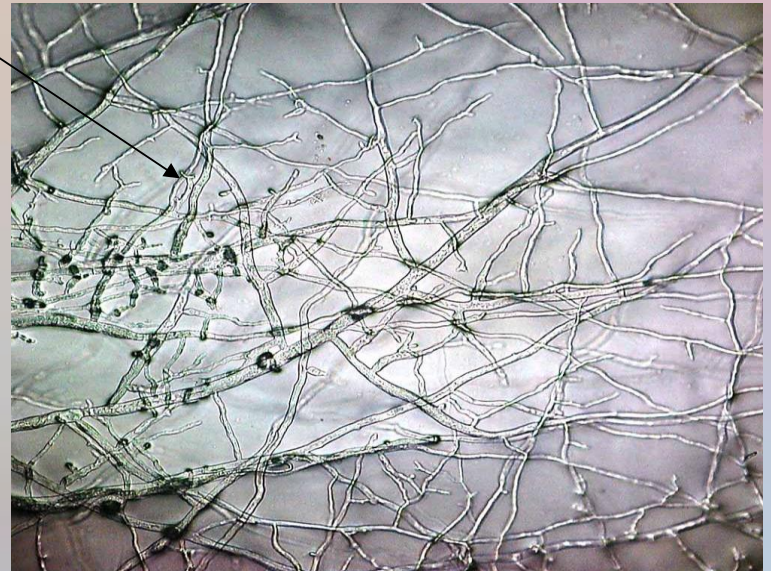
Characteristics of Fungi

- ▶ **Eukaryotic**
- ▶ **Nonphotosynthetic (heterotrophic)**
- ▶ Most are **multicellular**
- ▶ **Microscopic** (yeasts)
- ▶ Growth best in **warm, moist environments**

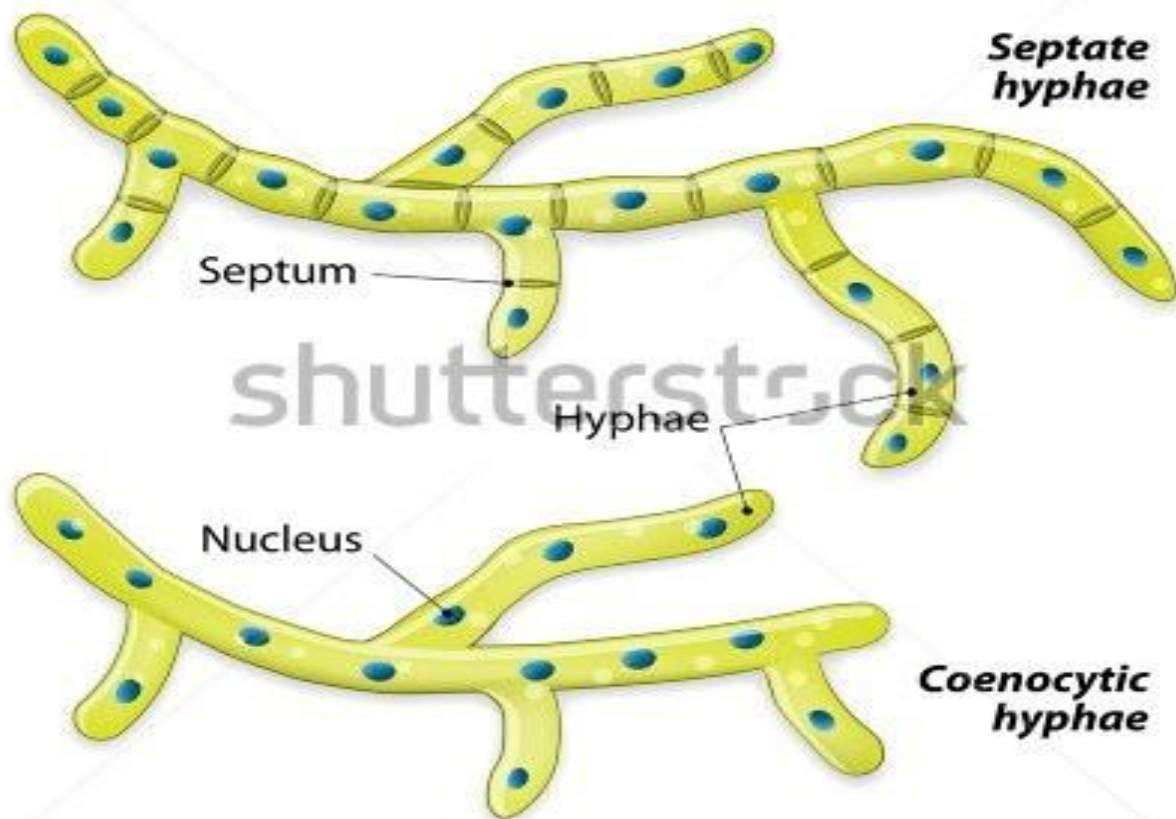
The study fungi is known as **MYCOLOGY**

Structure of Fungi

- ▶ Filaments of fungi are called **hyphae**
- ▶ The cell walls contain **chitin**
- ▶ The **MYCELIUM** is a mat of hyphae
- ▶ Store food energy as **glycogen**



FUNGI

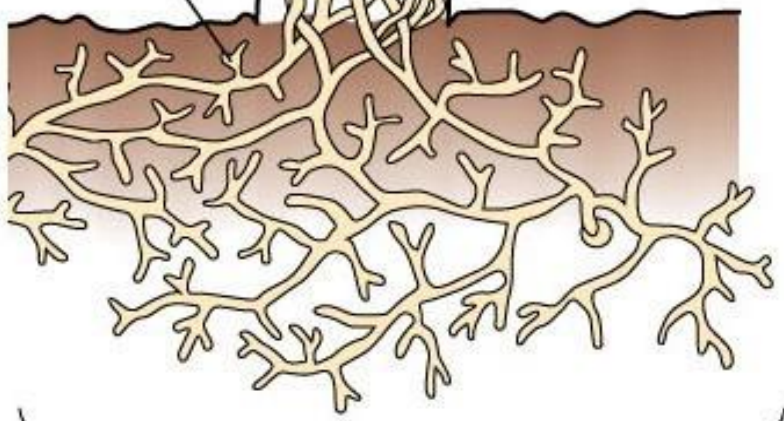


Reproductive structure



Spore-producing structures

Hyphae

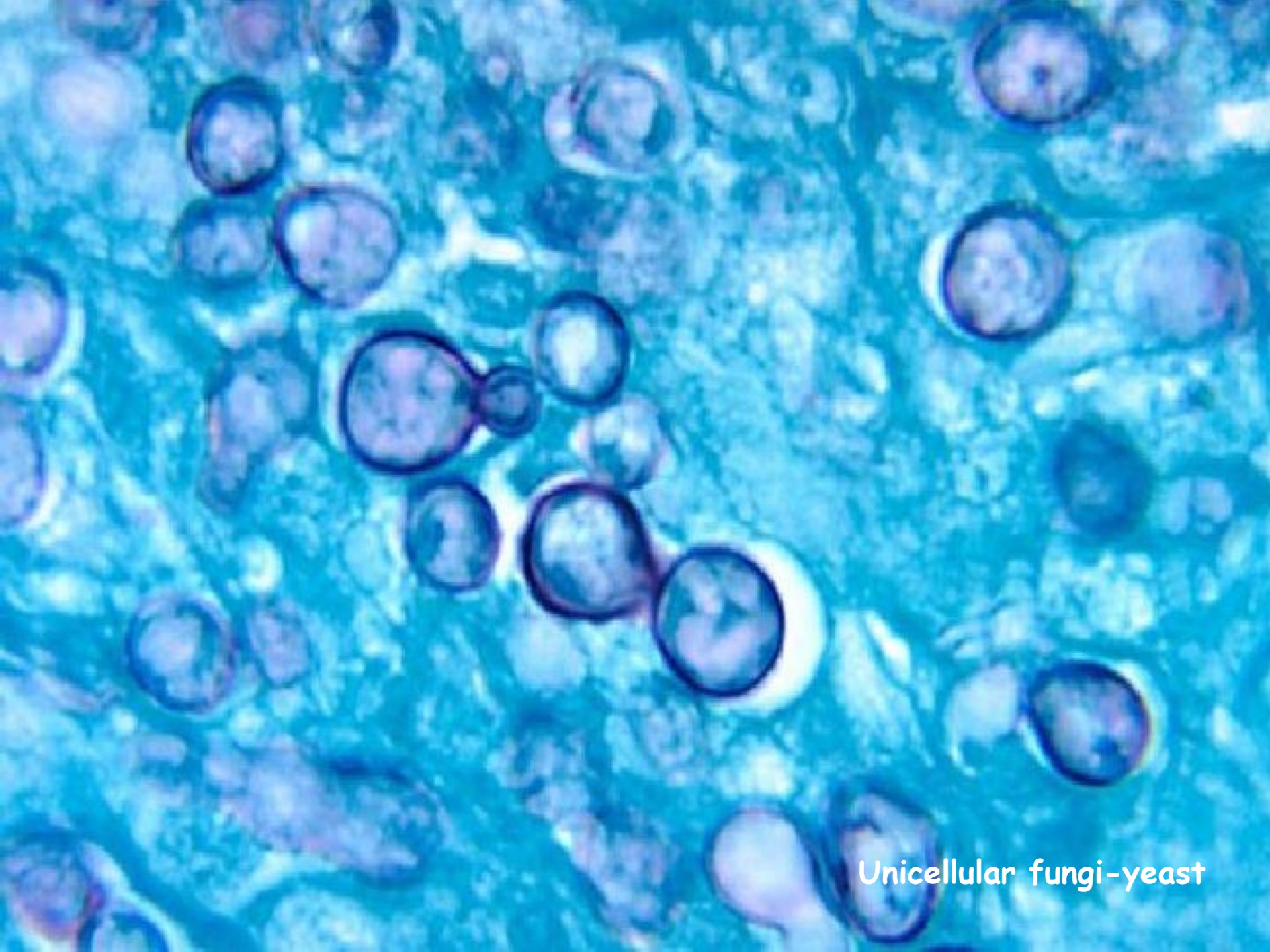


Mycelium





**Multicellular fungi
-mushroom**



Unicellular fungi-yeast

Feeding

- λ **Heterotrophy** - 'other food'
- λ **Saprophytes** or **saprobies** - feed on dead tissues or organic waste (decomposers)
- λ **Symbionts** - mutually beneficial relationship between a fungus and another organism
- λ **Parasites** - feeding on living tissue of a host
- λ Parasites that cause disease are called pathogens

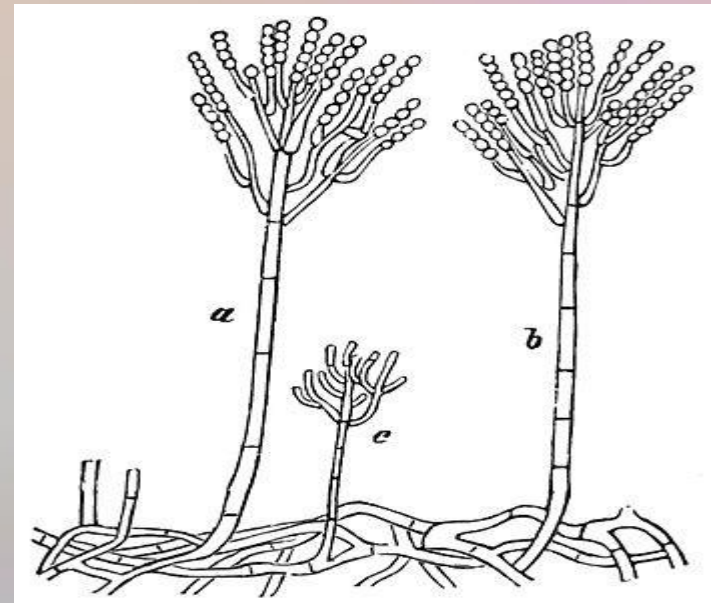
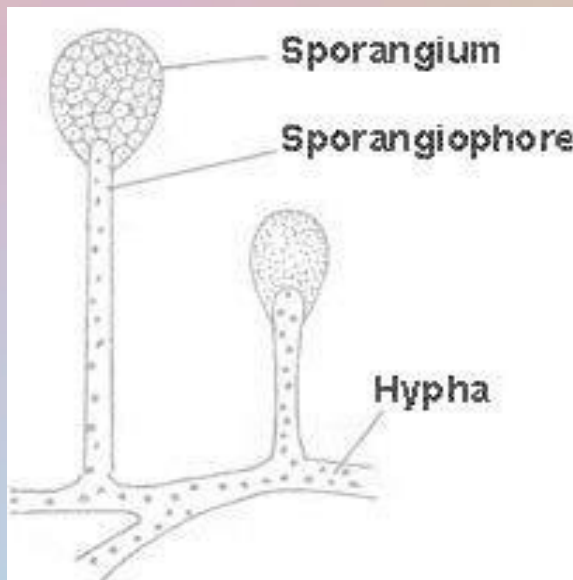


Reproduction

► Most fungi reproduce both **sexually** and **asexually**

Asexual reproduction – production of various types of spores (When environmental conditions are favorable)

- ♣ **Sporangiophores**- upright stalk with an enclosed sac
- ♣ **Conidia** - upright stalk with no enclosed sac (penicillin)

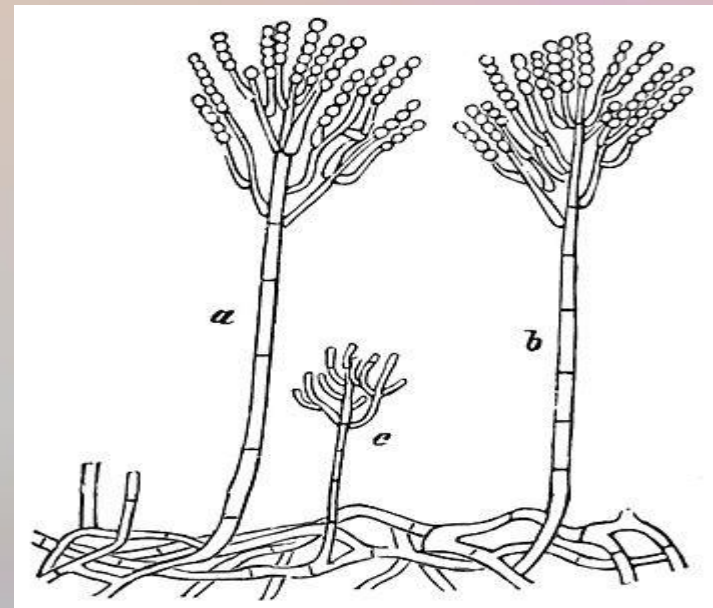
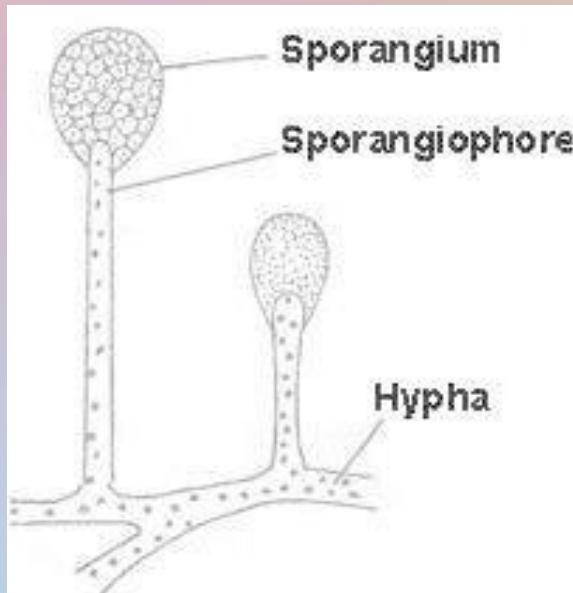


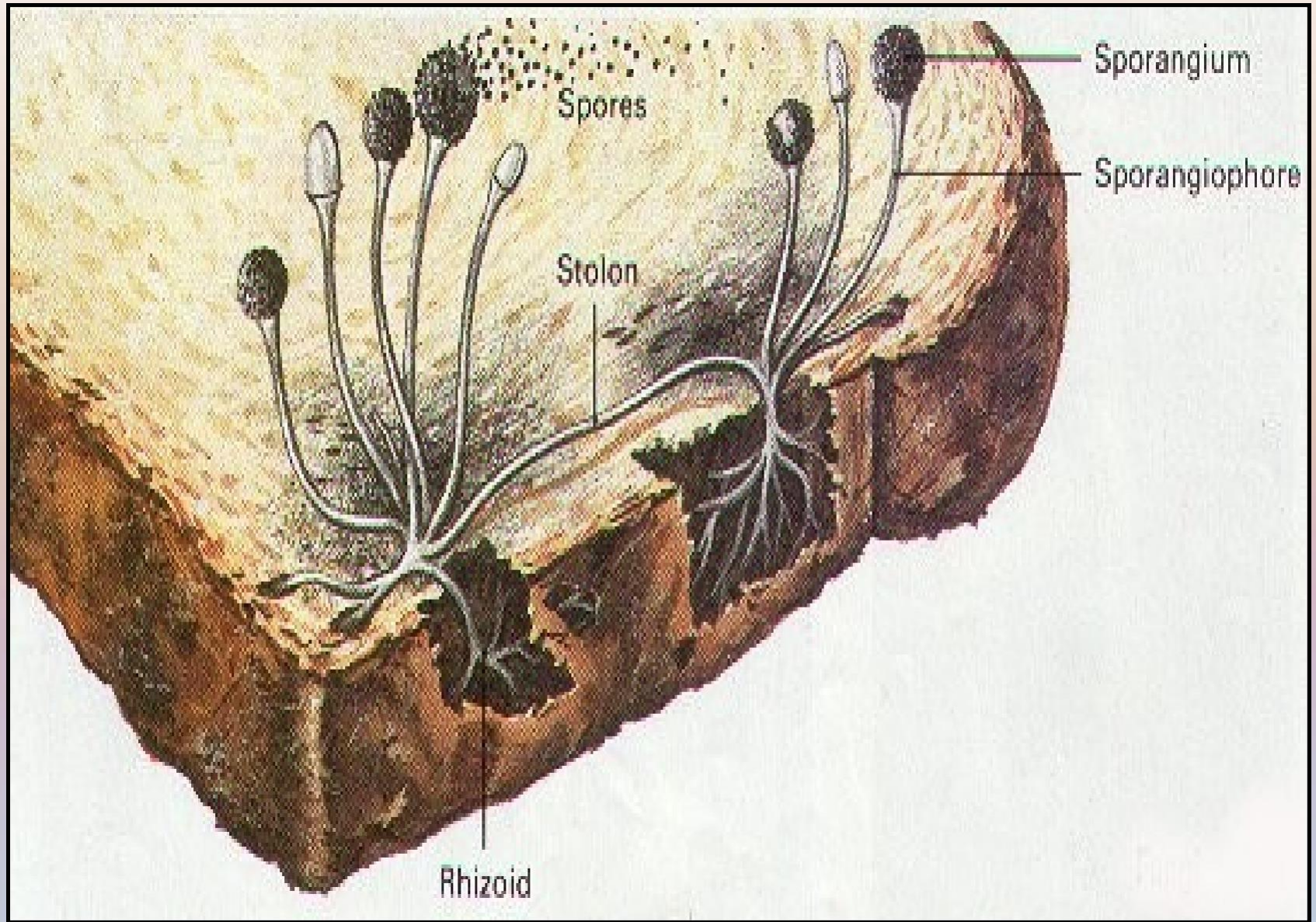
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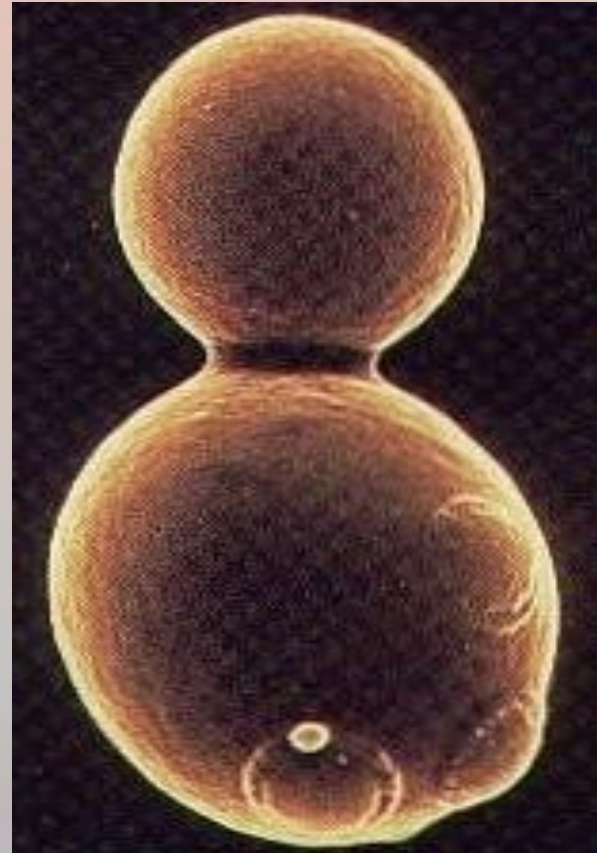
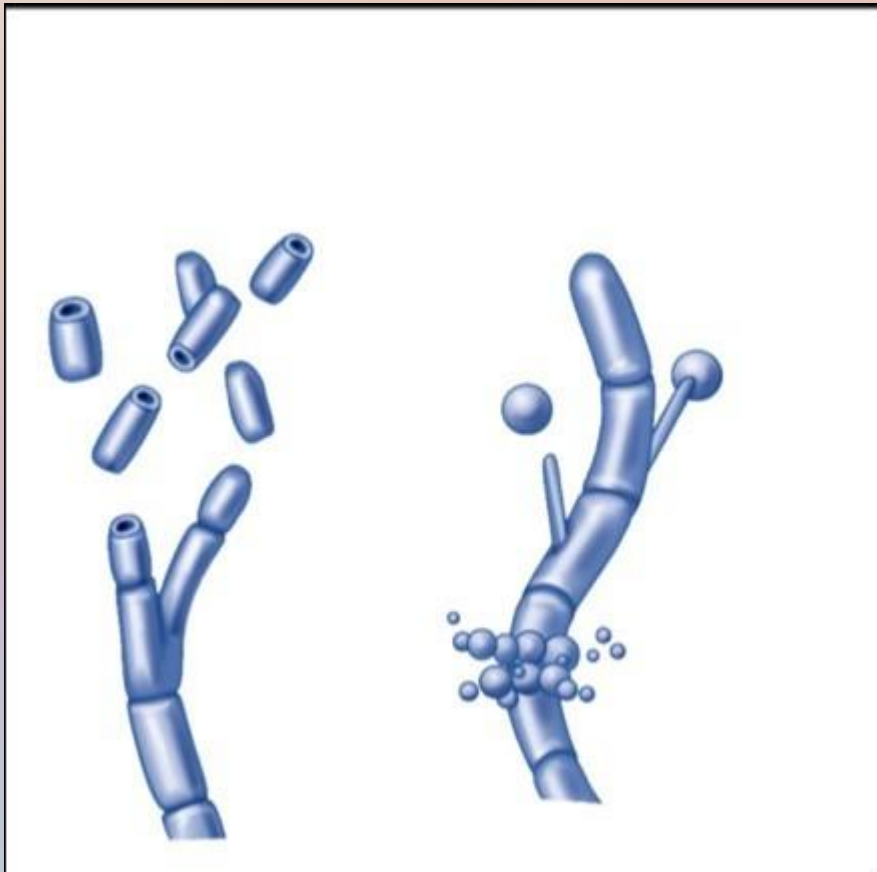
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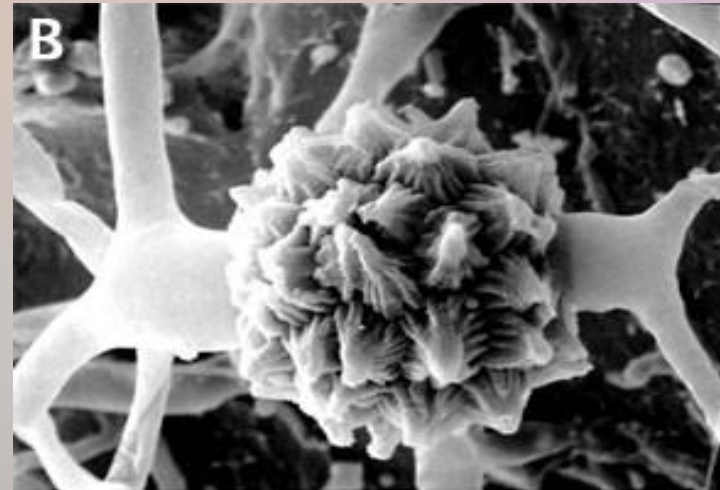
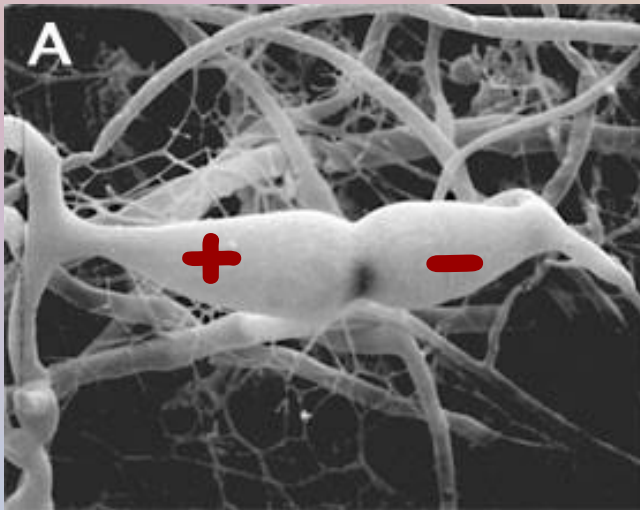
λ **Fragmentation** – hyphae dry out and shatter releasing individual cells that act like spores (athlete's foot)

λ **Budding** – small offspring

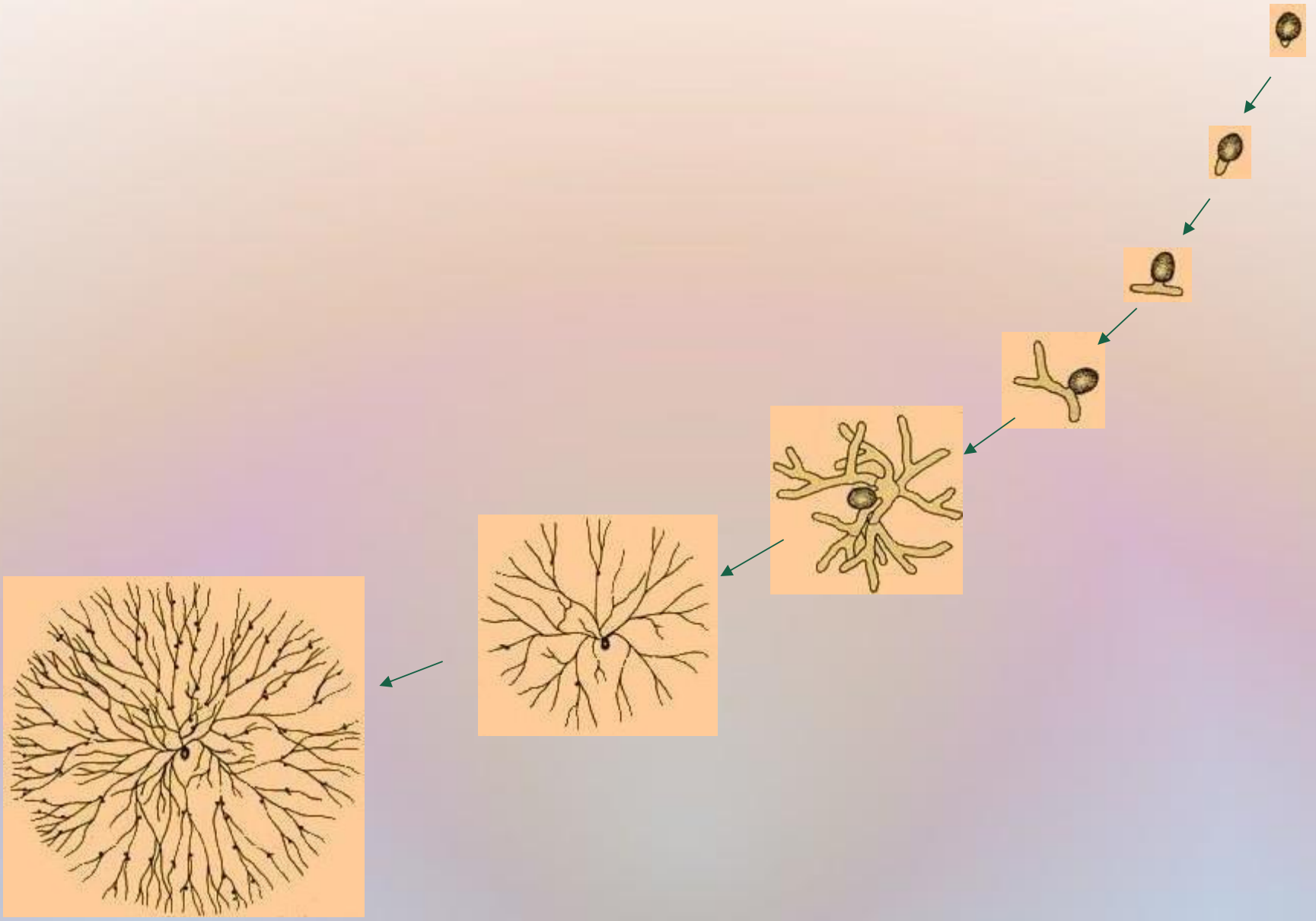


► Sexual reproduction

- ♣ Used when environment conditions are poor (lack of nutrients)
- ♣ No male or female fungi
- ♣ “plus and minus” mating types
- ♣ Haploid **1n hyphae** from **2 mating types (+ and -)** **FUSE** (Fertilization)
- ♣ Forms a hyphae with **2 nuclei** that becomes a **ZYGOTE**

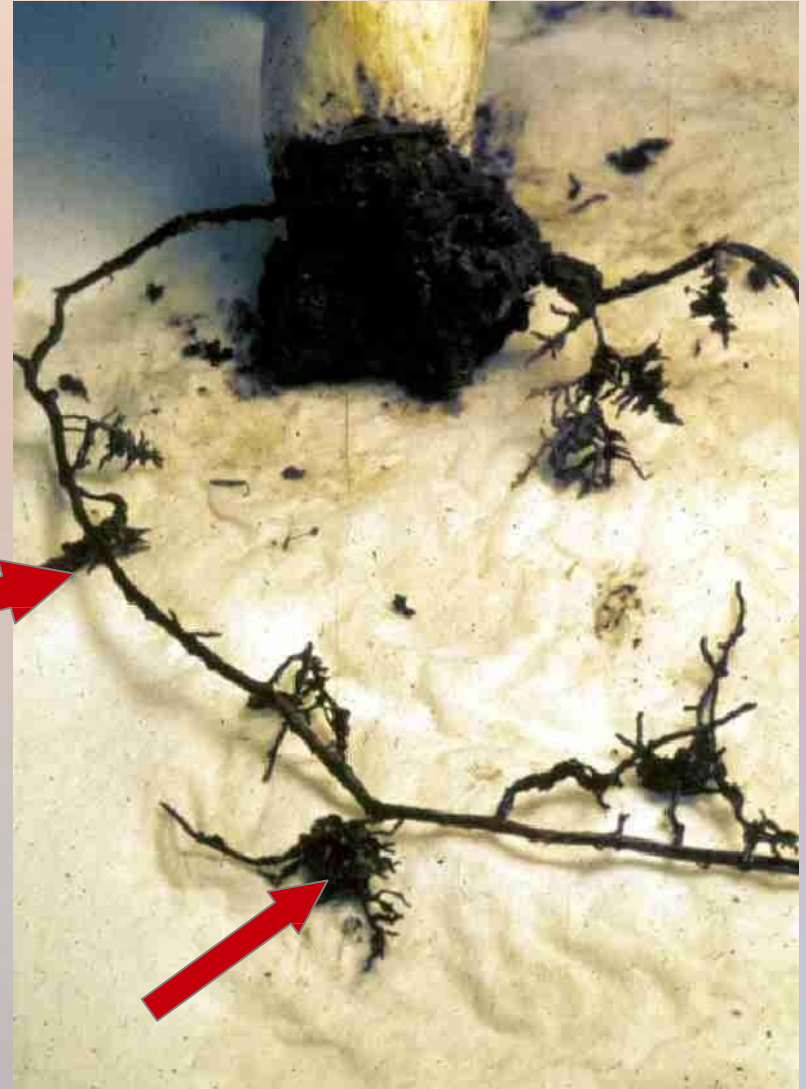


The zygote divides to make a **SPORE**



Mycorrhizae

- λ “Fungus roots”
- λ Mutualism between:
 - Fungus** (nutrient & water uptake for plant)
 - Plant** (carbohydrate for fungus)



Fungi decompose dead plant and animal matter

- ▶ Called **saprophytes**, they act as recyclers of dead organic matter, obtaining food from this material
- ▶ Hyphal tips **release enzymes** that eventually decompose and release organic materials into the surrounding environment



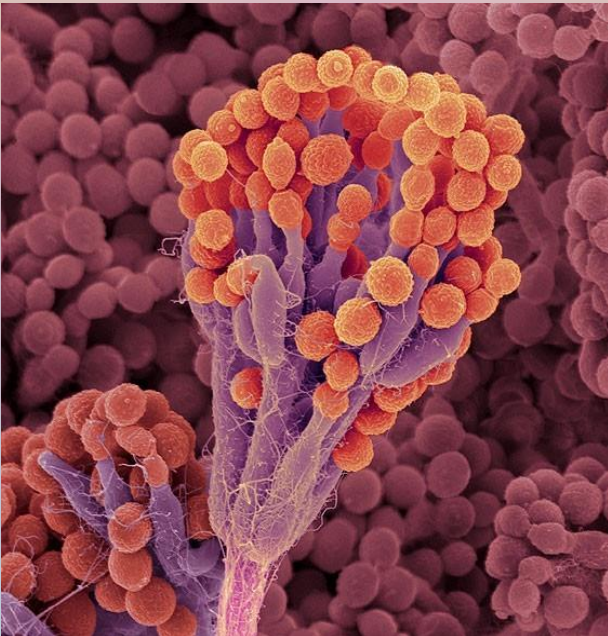
Fungi and Humans

- ▶ Many people have **allergies** triggered by mold
- ▶ Fungal **skin infections** – skin, nails and hair
 - ♣ Athlete's foot



Fungi in Industry

- ▶ Fungi produce many products used in the **medical field** such as **penicillin**, **cephalosporin antibiotics**, **cortisone**
- ▶ **Yeast** are known for making breads rise



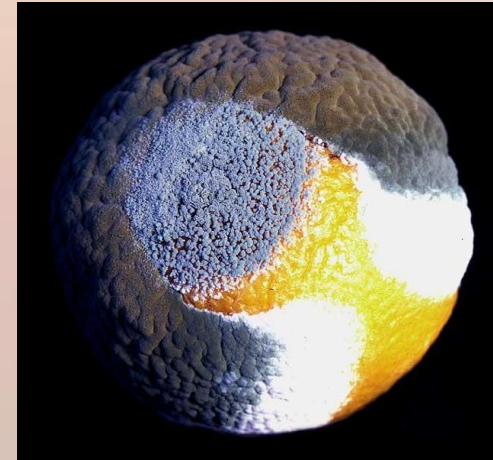
Fungi in the Food Industry

Mushrooms are widely consumed by humans

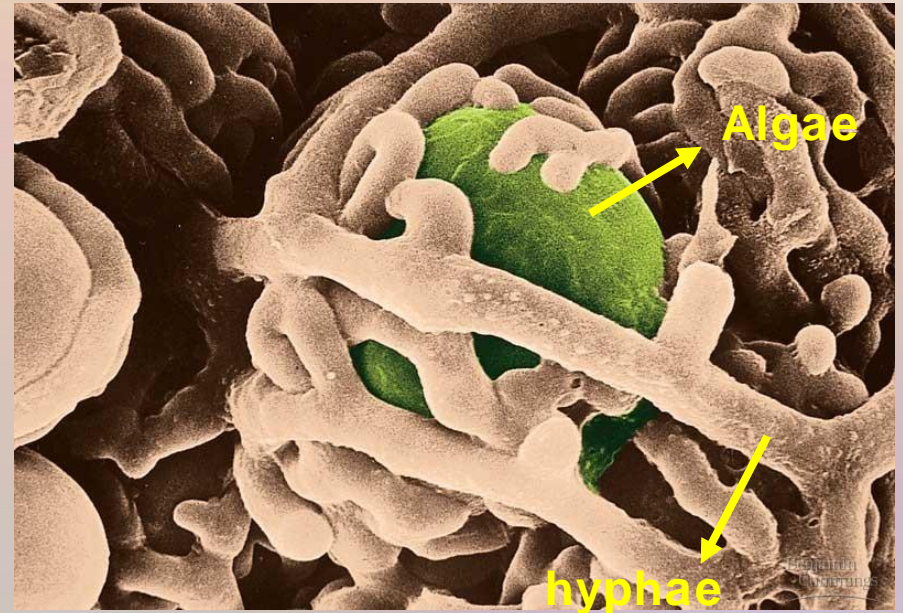


Fungi are Plant Pathogens

- ▶ Many fungi attack grain or fruit



Fungi form beneficial partnerships (symbiosis) with other organisms



Lichen – symbiotic relationship between algae and fungi