

Lec (1) Dr.Shatha Ali Shafiq

The last classification of living organisms in to seven kingdoms by Cavalier-Smith revised their classification in 2015 and his collaborators

-Kingdom Bacteria

Kingdom Archaea

Kingdom Protozoa

Kingdom Chromista

Kingdom Plantae

Kingdom Fungi

Kingdom Animalia

Eukaryotic living organisms : - have nuclear membrane surrounding nucleus

Prokaryotic living organisms :-nucleus lack nuclear membrane

A fungus ,plural: fungi , is a member of a large group of eukaryotic living organisms that includes microorganisms such as yeasts and molds as well as naked eyes living organisms such as mushrooms. These organisms are classified as a kingdom, Fungi, which is separate from plants, animals, protistae and bacteria. One major difference is that fungal cells have cell walls that contain chitin, unlike the cell walls of plants and some protistae, which contain cellulose, and unlike the cell walls of bacteria

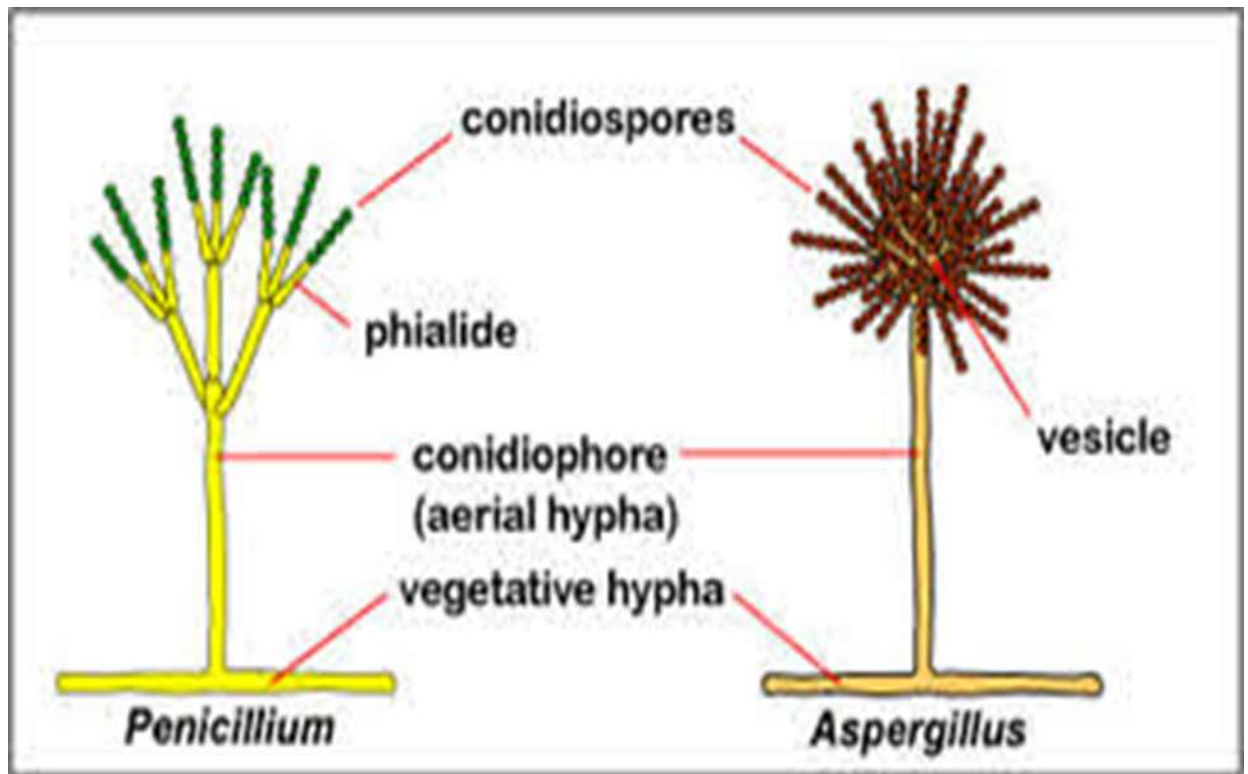
Both Plantae and fungi kingdoms have some common characteristics. First, they are both eukaryotic, meaning they belong to the Eukarya domain and that their cells contain a nucleus and membrane-bound organelles. Both of them also have cell walls, are stationary, and are typically multicellular, which means they are made of multiple cells. Plants and fungi used to be grouped together but are no longer because of distinctive differences between these two groups

Plants, such as trees, shrubs , and ferns, are eukaryotic, non-motile organisms that use photosynthesis to get energy. Remember that photosynthesis is a process that converts sunlight and carbon dioxide into oxygen and sugar it means autotrophic . Fungus, such as mushrooms, yeast, and mold, are eukaryotic, non-motile organisms that are heterotrophic, which means that they must take in nutrients for energy

Mycology is the branch of biology concerned with the study of fungi which includes yeast and molds and mushroom Myco= derived from Greek word mykes is mean fungi and -logy= study

fungi singular fungus a group of eukaryotic , no phototrophic organisms with rigid cell walls , that includes molds , yeast and mushroom

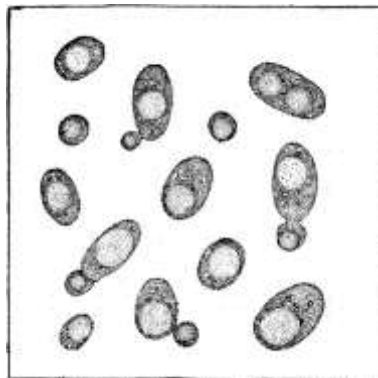
1-Molds are multinucleated, filamentous fungi composed of hyphae. A hypha is a branching, tubular structure from 2-10 μm in diameter The total mass of hyphae is termed a mycelium. The portion of the mycelium that anchors the mold and absorbs nutrients is called the vegetative mycelium ; the portion that produces asexual reproductive spores is termed the aerial mycelium



2-Mushrooms :- is the reproductive structure produced by some fungi. generally consist of a stalk with a large cap on top.. Many species of mushrooms are edible and delicious, but others can be very toxic poisonous mushrooms It is somewhat like the fruit of a plant, except that the "seeds" it produces are in fact millions of microscopic spores that form in the gills or pores underneath the mushroom's cap. are probably the best known fungi multinucleated , Usually found springing up on dead wood after cool, wet weather,



3-Yeasts :- are eukaryotic, single-celled microorganisms classified as members of the fungus kingdom. are non-filamentous, unicellular fungi ,oval or spherical in shape.To a microbiologist, yeasts are the most important fungi, The cell is larger than a bacterial cell and contains a nucleus and other organelles. Yeasts reproduce by budding for example baker's yeast



Major characteristics of fungi

- (1) are eukaryotic,
- (2) have no plastids or photosynthetic pigments,
- (3) heterotrophic (unable to make their own food from inorganic components),
- (4) Absorptive nutrition (digest food first then absorb by Releasing digestive enzymes to break down organic material or their host).
- (5) Almost live as molds , mushroom (multicellular) or unicellular like yeasts
- (6) Almost all reproduce by sexual and asexual spores,
- (7) Generally have haploid contains a single set of chromosomes
- (8) having cell wall in general chemical structure is chitin (

The Importance of Fungi

Fungi are one of the most important groups of organisms on the planet. This is easy to overlook, given their largely hidden, unseen actions and growth.

A- Beneficial Effects of Fungi:

1. Important **decomposers & recyclers** of nutrients in the environment
2. industrial production of alcohols, fats, citric, oxalic and gluconic acids.
3. Important sources of antibiotics, such as Penicillin.
4. Model organisms for biochemical and genetic studies.
5. Yeasts are used to make beer & bread
6. Mushrooms eaten as food
7. Help form blue cheeses

B- Harmful Effects of Fungi:

1. Destruction of food, lumber, paper, and cloth.
2. Animal and human diseases, such as dermatophytes and Aspergillosis diseases
3. Toxins produced by poisonous mushrooms or within food
4. Plant diseases.
- 5- Damage medical products such as magnetic tapes and disks, glass lenses, bones and wax.