

**Argwan Majeed Mohammed**

## **Introduction**

Mykes (Greek word) : Mushroom

•Differ from bacteria and other prokaryotes:

- .1. Cell walls containing chitin (rigidity & support), mannan & other polysaccharides
- .2. Cytoplasmic membrane contains Ergosterols
- .3. Possess true nuclei with nuclear membrane & paired chromosomes
4. Divide asexually, sexually or by both
5. Unicellular or multicellular

## **Characteristics of Fungi**

- Diverse group of chemo heterotrophs
- Over 100,000 fungal species identified
- Only about 100 are human or animal pathogens
- Most human fungal infections are nosocomial and/or occur in immunocompromised individuals (opportunistic infections)
- Saprophytic fungus
- Parasitic fungus
- Most are aerobes or facultative anaerobes

## **Understanding the Terms in Mycology**

Simplest fungus Unicellular budding

yeast

Hyphae

Mycelium

Aerial Mycelium

Vegetative mycelium

## **Understanding the Terms in Mycology**

Reproduction in fungi

A. Sexual

B. Asexual reproduction

C. Asexual spores

## **Fungi Classification**

•Eukaryotes

Nucleus and Cell walls composed of chitin

Molds & mushrooms are multicellular

Yeasts are unicellular

•Eumycetes (True fungi)

•Classified by method of reproduction

- .1- Zygomycetes
- 2 .Basidiomycetes
- 3 .Ascomycetes
- 4 .Chytridiomycetes
5. Deuteromycetes

## **Fungi Classification**

- Depending on Morphology
  - A. Yeasts
  - B. Yeast like fungi
  - C. Molds
  - D. Dimorphic fungi
  - E. Fleshy fungi

### **A-Yeast**

- Unicellular, Nucleated rounded fungi
- Reproduce by budding
- Colony on solid media are usually white to beige and appear much like bacterial colonies
- Some genera produce mucoid colonies
- Yeast are used in the preparation in the variety of foods

## **B. Yeast like Fungi**

- Grow partly as yeasts and partly as elongated cells resembling hyphae which are called pseudo hyphae
- *Candida albicans*

## **C. Moulds**

- Multicellular, Filamentous with hyphae
- Produce conidia [spores]
- Colonies on solid agar are downy, fluffy, cottony
- Most mold colonies are pigmented which aid in identification hyphae spores
- *Penicillium* and *Cephalosporium*

## **D. Dimorphic fungi**

- Occur in 2 forms:
  - Molds (Filaments) 25 °C (soil)
  - Yeasts 37 °C (in host tissue)
- Most fungi causing systemic infections are dimorphic:
  - Histoplasma capsulatum*
  - Blastomyces dermatidis*

## **E. Fleshy fungi**

- Mushrooms

*Agaricus* is a genus of mushrooms containing both edible and poisonous species, edible mushrooms are eaten for their flavor as well as their health benefits, and major source of biologically active compounds with therapeutic potential, also they are The mushroom *A. bisporus* is rich in many essential amino acids,

vitamins (B<sub>2</sub>, niacin, and folates) a good source of nutrients. as well as minerals (potassium, phosphorus, zinc, and copper). *Agaricus* is a genus that includes several important mushroom crop species are cultivated. The genus *A. bisporus* was classified by the following :

Kingdom . Fungi

Phylum . Basidiomycota

Class . *Agaricomycetes*

Order . *Agaricales*

Family . *Agaricaceae*

Genus . *Agaricus*

Species. *Agaricus bisporus*.

*Agaricus* members are distinguished by a fleshy cap or pileus. Number of radiating plates or gill grow from the underside of which the naked spores are produced. They stand out from their family members. Chocolate brown spores distinguish the *Agaricaceae* family. *Agaricus* members also have a stem that elevates the mushroom above the object on which it grows, or substrate, and a partial veil that protects the mushroom the stalk develops gills and then forms a ring as show in figure

