Medical Mycology

Stage: three

Analysis Technique Department

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Mycology

Is the branch of biology concerned with the study of fungi that include (Mushroom Yeast and Mold) , including their genetic and biochemical properties, their taxonomy and their use to humans as a source for , medicine (e.g., penicillin), food (e.g. wine ,cheese , edible mushrooms) and as well as their dangers, such as poisoning or infection .

Medical Mycology

Is the branch of mycology, which specializes in studying by the medical side, where focused in the study of Medical Mycology forms under the microscope and on the culture media and methods of diagnosis.

- **Fungi bodies** consist either of unicellular (Yeasts) or filament minutes (molds) microscopic size know (Hypha) may be divided into cells or undivided and this Hypha branching and creating a fine network called a Mycelium.

Fungal Characteristics

1. Eukaryotic organisms ,non-motile , lacking chlorophyll
2. Structure Thallus (Thallus body)
3. Diverse group of heterotrophs.
4. Most are multicellular, but yeasts are unicellular.
5. Most are aerobes or facultative anaerobes.
6. Cell wall is composed of polysaccharides, polypeptides and chitin and glucan, the cell membrane contains sterol which prevent many antibacterial antibiotics being effective against fungi.

7-Most human fungal infections are nosocomial and/or occur in immunocompromised\ individuals (opportunistic infections).

Types of fungi :-

Depending on cell morphology, Fungi can be divided into:

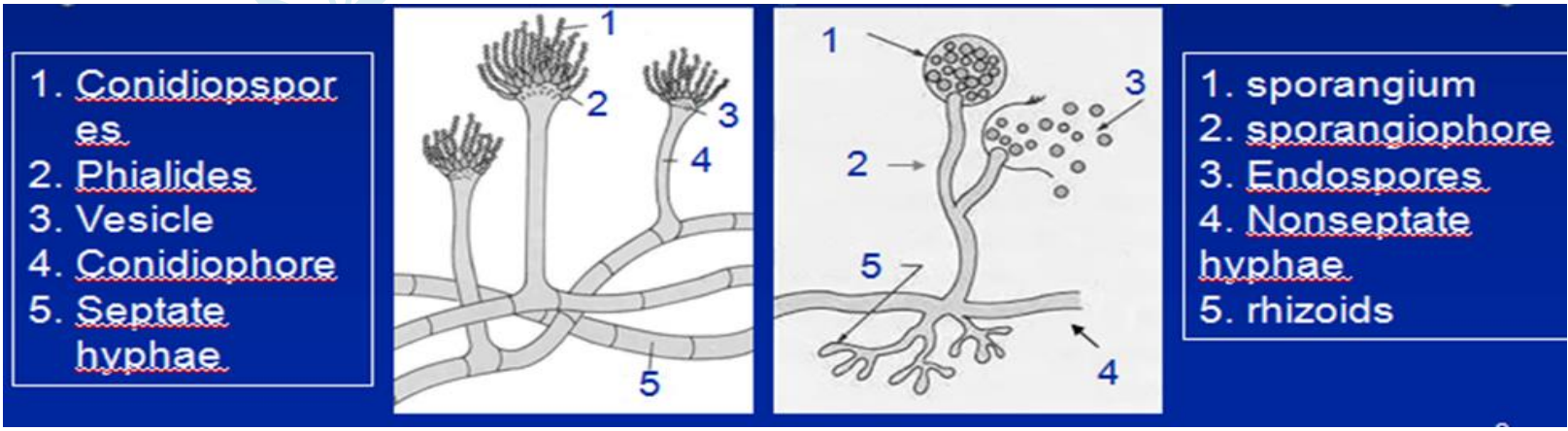
 Yeasts Molds (filamentous fungi) Dimorphic fungi

Molds

- Identification of molds based on colony morphology (pigment, texture) and morphology of reproductive structures under optical microscope
- Molds are Filamentous fungi, Multicellular and tubular structures (hyphae).
- Molds have Hyphae can be septate (regular cross walls) or non-septate depending on the species.
- There two type of hyphae are:
  - Vegetative hyphae grow on or in media (absorb nutrients); form seen in tissue, few distinguishing features
  - Aerial hyphae contain structures for production of spores, usually only seen in culture.
- **Eg Molds:** ***Aspergillus spp, Trichophyton rubrum, penicillin notatum*** **.**

Type of Molds spore:

1. Conidia - spores formed by budding
2. Sporangiospores - produced by free-cell formation within sporangium in non-septate molds.



Mold infected human nail

(*Aspergillus spp*)

The same mold colony on culture media

The same mold shows hyphae and Sporangiospores under optical microscope

Experience:-

1-See fungus forms under a magnifying optical microscope and see them under the power of 4x, 10x and 40x.

2- Draw the slides in your note book.

3-**Homework: Bring** infected sample with mold like fruit, bread, soil samples from the gardens, River water, and try to isolate fungus from this samples.

4- Report or Seminar about molds (like pathogenic molds).