

Introduction to Fungi

1. Define:

Mycology – Mycology is the science or study of fungi or Myceteae. Microscopic fungi include molds (filamentous forms), and yeasts (single-celled forms), but in this course some fleshy fungi (mushrooms), will also be discussed.

Hyphae – Hyphae (singular = hypha), are microscopic, thread-like filaments that form the body or thallus of a mold-type or fleshy fungus. Multiple hyphae typically come together to form a mat (mycelium), that can be more or less visible to the naked eye depending on the fungus type.

Karyogamy – Karyogamy is the second stage in the sexual reproductive processes of fungi (Karyon = nucleus, gamous = union or marriage). During karyogamy, two haploid nuclei (each with one set of chromosomes), join or fuse to form a diploid nucleus (with two sets of chromosomes).

Dermatophytes – The term dermatophyte applies to a group of fungi that cause superficial mycoses (fungal infections of the skin, hair and nail beds). Three important genera within this group are *Microsporum*, *Trichophyton*, and *Epidermophyton*.

Aflatoxin – Aflatoxins are a type of mycotoxin produced by fungi identified as *Aspergillus flavus* (A = *Aspergillus*, fla = *flavus*, toxin = toxic substance), and *Aspergillus parasiticus*. Aflatoxins are potent carcinogens that can cause liver cancer when ingested in high doses. Because *Aspergillus* are soil fungi, contamination of hay, grains and peanuts can occur when conditions favor fungus growth.

2. Mycology
3. Achlorophyllous/ chemoheterotrophic
4. Eukaryotic
5. Hyphae/ haustoria
6. Mycelium/ syncytium
7. Mycorrhizae
8. Budding or the formation of blastospores
9. Aerial mycelium/ vegetative mycelium
10. Sporangiospores
11. Plasmogamy/ meiosis
12. Karyogamy/ meiosis

13. Fungi are beneficial in a number of ways, they are saprotrophs that break down or decompose dead organic material, they form mycorrhizae that are beneficial to forest trees, they may be used as a food source, they are used in food processing/preparation (bread, cheese, wine, etc.), they are a source of antibiotics, they are used as research tools, and are used industrially to produce enzymes, organic acids and solvents. Yeast cells can also be genetically modified and used to produce human proteins.
14. Organic acids and solvents/ enzymes (as well as other proteins)
15. Mycoses/ antibiotics
16. Mycoses/ systemic/ respiratory tract
17. There are three factors known to have caused increases in mycoses, including: 1) an increase in the widespread use of antimicrobial drugs (these tend to kill normal bacterial flora that help to keep fungus populations in check), 2) increased use of chemotherapeutic agents that damage the immune system (cancer chemotherapy and immunosuppression in association with organ transplants), and 3) increases in HIV infection and the incidence of AIDS (acquired immune deficiency syndrome).
18. The condition of their immune system, i.e., if or not their immune system is functioning properly. People with compromised immune systems are much more susceptible to fungal infection than are normal, healthy individuals.
19. *Coccidioides*, *Histoplasma*, *Cryptococcus*, *Aspergillus*, *Rhizopus* and *Candida* are common opportunistic pathogens; however, multiple other types of fungi can cause systemic mycoses in immunocompromised individuals.
20. Dermatophytes/ tinea pedis (athletes foot) - tinea corporis/ tinea capitis (ringworm of body/ head or scalp)
21. *Histoplasma*, *Coccidioides*, *Aspergillus*, or *Rhizopus*/ respiratory tract
22. Aflatoxin
23. *Amanita* and *Aspergillus*
24. *Rhizopus*
25. Matching letter sequence is - H, F, G, A, C, B, D, and E