Unit 20: The Kingdom Fungi

Introduction:

-Fungi are Eukaryotes

-Heterotrophs and decomposers (may parasite on other organisms)

-Fungi = mycota

-Their cell wall is made of **Chitin.**

-Fungi reproduce both sexually and asexually. (in both ways they produce spores or conidia).

-**Spores** are produced in **Sporangium** (in asexual only)

-**Conidia** are produced in **Conidiophore** (in asexual only)

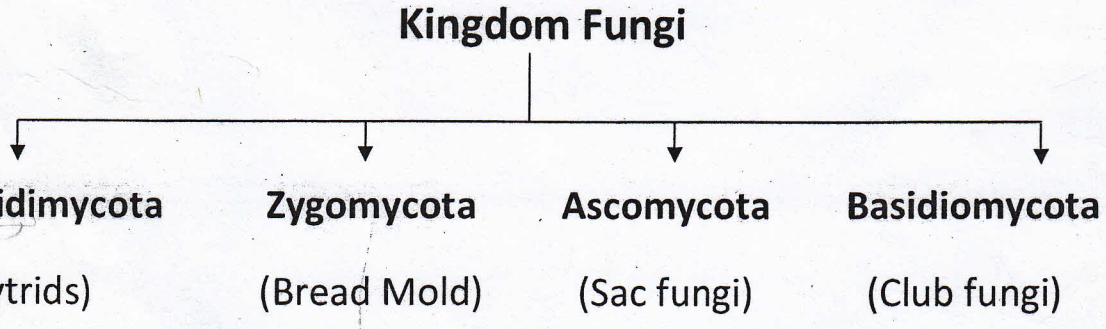
-**Basidiospores** are produced in **Basidium** (in sexual only)

Note! Yeast cells usually multiply by **budding** (asexually)

Plasmogamy: fusion of the **cytoplasms** of 2 haploid gametes

Karyogamy: fusion of the **nuclei** of haploid gametes to form diploid nucleus.

Note! Multicellular Fungi = Mold
Unicellular Fungi = Yeast



*Phylum Zygomycota *(Bread mold)*

-*Characterized by:* the production of zygospore.
-They produce **zygospore** (thick-walled spore).
-Zygospores develop within **Zygosporangium.**
- Zygosporangium forms after the fusion of **gametangia** "gametes" during Sexual reproduction.

Ex: Mucor, Rhizopus (p.301)

Note! Review the life cycle of Rhizopus. (p.302)

*Phylum Ascomycota *(Sac fungi)*

-*Characterized by:* the production of **ascocarp** "Apothecia".
-Its forms are: -Yeast(unicellular) ⟶ ***Saccharomyces***
-Filaments(multicellular) ⟶ ***Penicillium***

**(See p.303)

*Phylum Basidiomycota *(Club fungi)*

-*Characterized by:* Basidiospores (sexual spores)
-This phylum includes both useful (i.e. edible) and harmful (i.e. toxic) species.
-Ex: Wheat Rust fungi (= **Puccina graminis**)

Please refer to the figures in the manual in order to get the whole picture! ☺

Unit 18: The Prokaryotes

- **Prokaryota:** lack a nucleus or other membrane-bounded organelles.
- **Plasmid:** extra chromosomal DNA.

Cyanobacteria

Photosynthetic. Contain bacterial chlorophyll. (no chloroplasts).

Bacteria

Bacterial Growth: - in pairs: (diplobacilli , diplococci)
- in chains: (streptobacilli , streptococci)

Bacteria Classification: depends on: - **Gram Stain**
- **Colony Morphology**

Classifying bacteria according to their **metabolic requirements:**

- aerobic
- anaerobic
- photosynthetic
- acidophilic (ex: Lactobacillus)
- nitrogen-fixing bacteria
- thermophilic

*Bacterial Reproduction = Binary Fission.

Remember! Basic shapes of bacteria are: coccus, bacillus, spiral.

Bacterial Colony Morphology: (18-1)

-Bacteria are grown in **Petri Dishes.**

-Inoculation: placing bacteria onto the medium in a petri dish.

-**Colony:** a group of bacteria grown from the SAME parent cell.

Gram Stain

- Gram +ve bacteria: -appears **Purple**
  -**Thick** cell wall "peptidoglycan"

- Gram –ve bacteria: -appears **red-pink**
  -**Thin** cell wall "peptidoglycan"

Controlling Bacterial Growth: (18-4)

Antimicrobial Agent: any compound capable of killing or inhibiting the growth of microorganism.

Antimicrobial Agent

Antiseptics	Disinfectants	Antibiotics
-Applied to the skin	-Kills microbes on inanimate objects*	-Chemicals produced by microorganisms that kill other microorganisms.

*inanimate objects = floor, table, sink.

Important Note! Many Antibiotics are selective, having their effect only on certain species.

Disk Diffusion Method (Kirby- Bauer):

- **It Involves:** -**Isolating** the Bacteria "from Bacterial infection"
  -Then, **Inoculating** it in a series of disks "each one contains a different antibiotic"
  -Finally, **Examining** the presence of "clear zone of inhibition" around the disks.

- **Note!** The larger the diameter of clear zone, the more effective is the antibiotic.
- **Note!!** The Diameter of clear zone helps designate the organism to be **susceptible**, **intermediate**, or **resistant**.

Please refer to the figures in the manual in order to get the whole picture! ☺