



Al Maaref University Pharmacy Collage



Introduction and Classification of bacteria

Second stage / First Lecture

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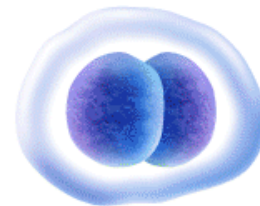
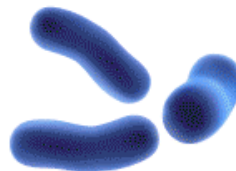
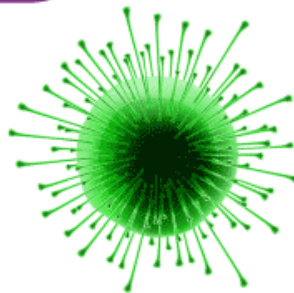
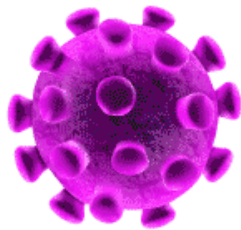
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Microbiology

Microbiology is a part of biology that deals with living things, ordinarily too small to be seen without magnification (Or cannot see by naked eyes) (See By Microscope)

MICROORGANISMS

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The Learning App



Microorganisms = Microbes

- Are organisms that require a microscope to be readily observed.
- It be found in every ecosystem and in class association with every type of multicellular organisms .
- Microorganisms are the oldest organisms, having evolved over the 4 billion years of earth's history to the modern varieties we now observe.
- Microbes are classified into groups according to evolutionary relationships, provided with standard scientific names, and identified by specific characteristics.

Classification of Microorganisms

- These Microorganisms consist of **bacteria, viruses, fungi, protozoa, algae, and helminthes**, which caused infection and spread of human diseases.
- Few species of Microorganisms that **harmful** to human either by production toxic compounds and enzymes or **direct infection** by their virulence factors are characterized as **pathogens** .
- Many of bacteria aren't harmful such as normal flora

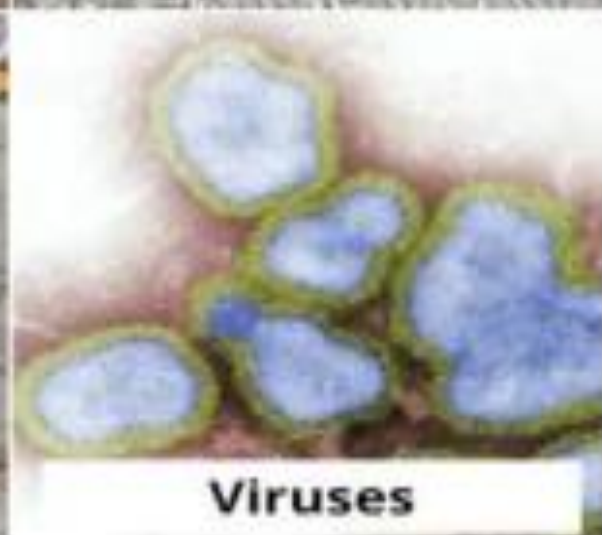
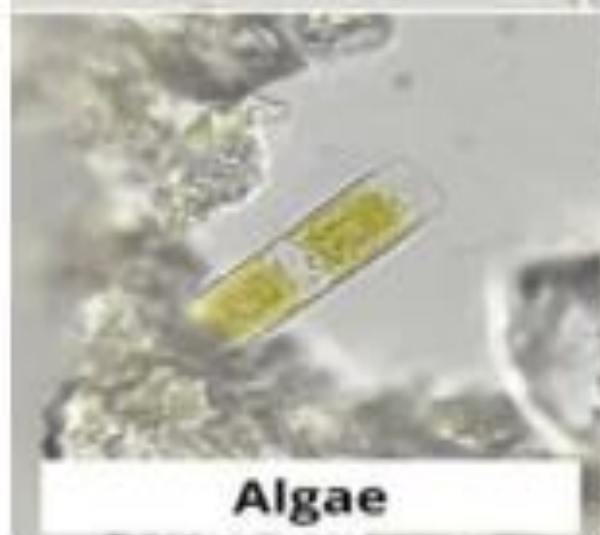
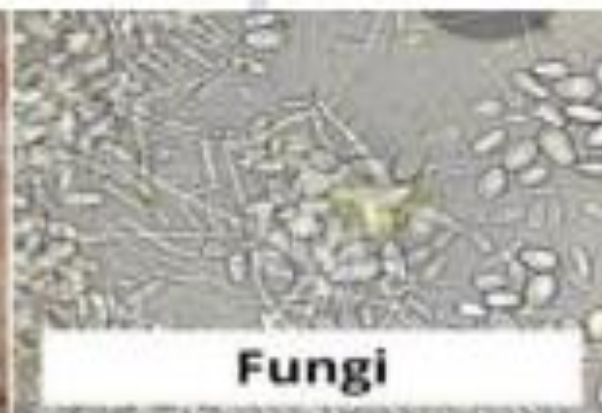
- The agents of human infectious diseases belong to five major groups of organisms: bacteria, fungi, protozoa, helminths, and viruses.
- The bacteria belong to the prokaryote kingdom, the fungi (yeasts and molds) and protozoa are members of the kingdom of protists, and the helminths (worms) are classified in the animal kingdom (Table 1–1).

The protists are distinguished from animals and plants by being either unicellular or relatively simple multicellular organisms.

- In contrast, helminths are complex multicellular organisms. Taken together, the helminths and the protozoa are commonly called parasites. Viruses are quite distinct from other organisms—they are not cells but can replicate only within cells.

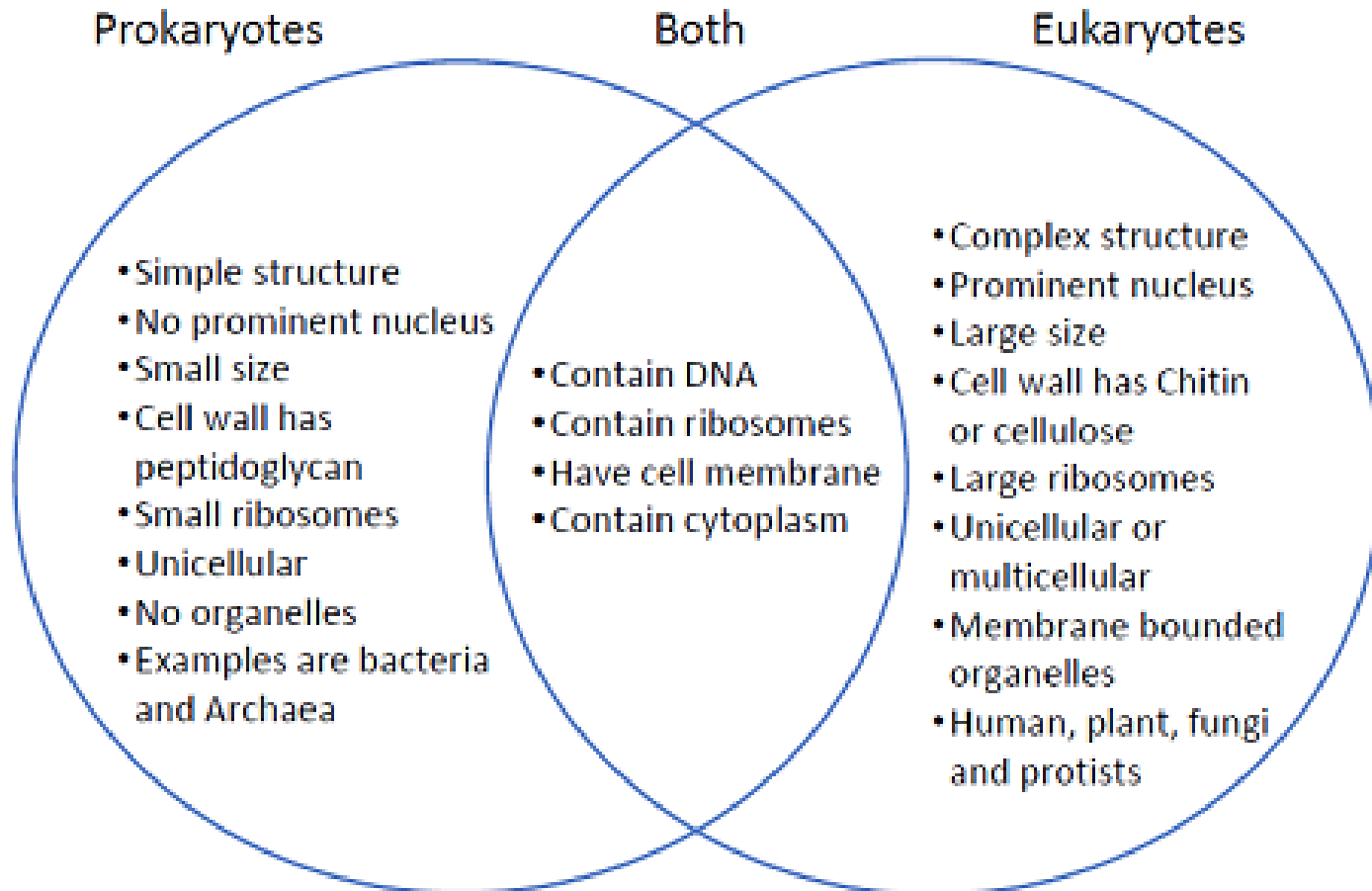
TABLE 1–1 Biologic Relationships of Pathogenic Microorganisms

Kingdom	Pathogenic Microorganisms	Type of Cells
Animal	Helminths	Eukaryotic
Plant	None	Eukaryotic
Protist	Protozoa	Eukaryotic
	Fungi	Eukaryotic
Prokaryote	Bacteria	Prokaryotic
	Viruses	Noncellular



- **Bacteria:** is an unicellular M.O which have a rigid cell wall surrounding the cell membrane that determine the shape of bacteria
- **Viruses** :are obligate intracellular parasite that don't have a cellular structure .
- **Fungi** :are non photosynthetic, generally saprophytic eukaryotic M.O some fungi are multicellular filaments called molds where as other unicellular called yeast .
- **Protozoa** are single called non photosynthetic Eukaryotes. organism that found in different sizes and shapes many protozoa are among the most clinically important parasite of human .
- **Helminthes** are groups of worms that live as parasites they are multicellular eukaryotic organisms with complex body organization .

What is the differences between Prokaryotic and Eukaryotic



Classification of bacteria

- Classification is a method for organizing microorganisms into groups or taxa based on similar morphologic, physiologic, and genetic traits. The hierarchical classification system consists of the following taxa designations:
 - **Domains** (Bacteria, Archaea, and Eukarya)
 - **Kingdom** (contains similar divisions or phyla; most inclusive taxa)
 - **Phylum** (contains similar classes; equivalent to the Division taxa in botany)
 - **Class** (contains similar orders)
 - **Order** (contains similar families)
 - **Family** (contains similar genera)
 - **Genus** (contains similar species)
 - **Species** (specific epithet; lowercase Latin adjective or noun; most exclusive taxa)

Classify Microorganisms into prokaryotic and Eukaryotic ?

- Answer here