Mycology

Mycology: Is a discipline that studies the group of living organisms; fungi, mycetes and yeasts

- **General Mycology:** Botanik ile ilgili mantarların morfolojisini, biyolojisini, biyokimyasını ve filojenik özelliklerini inceler.

- **Industrial Mycology:** Gıda ve ilaç endüstrisinde kullanılan mantarlara ait bir bilim dalıdır. Gıda endüstrisinde özellikle şarap, bira, ekmek gibi mayalı besinlerin hazırlanmasında etkilidir. İlaç endüstrisinde ise antibiyotik elde edilen mantarlarla ilgilidir.

- **Medical Mycology:** Patojen mantarları inceleyen bir bilim dalıdır.

Mikotik Hastalıklar Memelilerde 4 farklı Şekilde Kendini Göstermektedir

1. **Hypersensitivity-** Mantarlara ve sporlarına karşı aşırı duyarlılık ve allerjik reaksiyonlar. Kapalı alan hava kirliliği.
2. **Mycotoxicosis-** İnsan ve hayvanların toksin üreten mantarlarla kontamine gıda ve yem ürünlerini tüketmesi sonucu şekillenen zehirlenmeler.
3. **Mycetismus (Fungi intoxication)-** Daha önceden oluşturulan toksinin ağız yoluyla alınması (zehirli mantar tüketilmesi)
4. **Infection-** Patojenik mantarlar tarafından oluşturulur. Yaygın görülen patojenik mantarların çoğu toksin oluşturmaz.

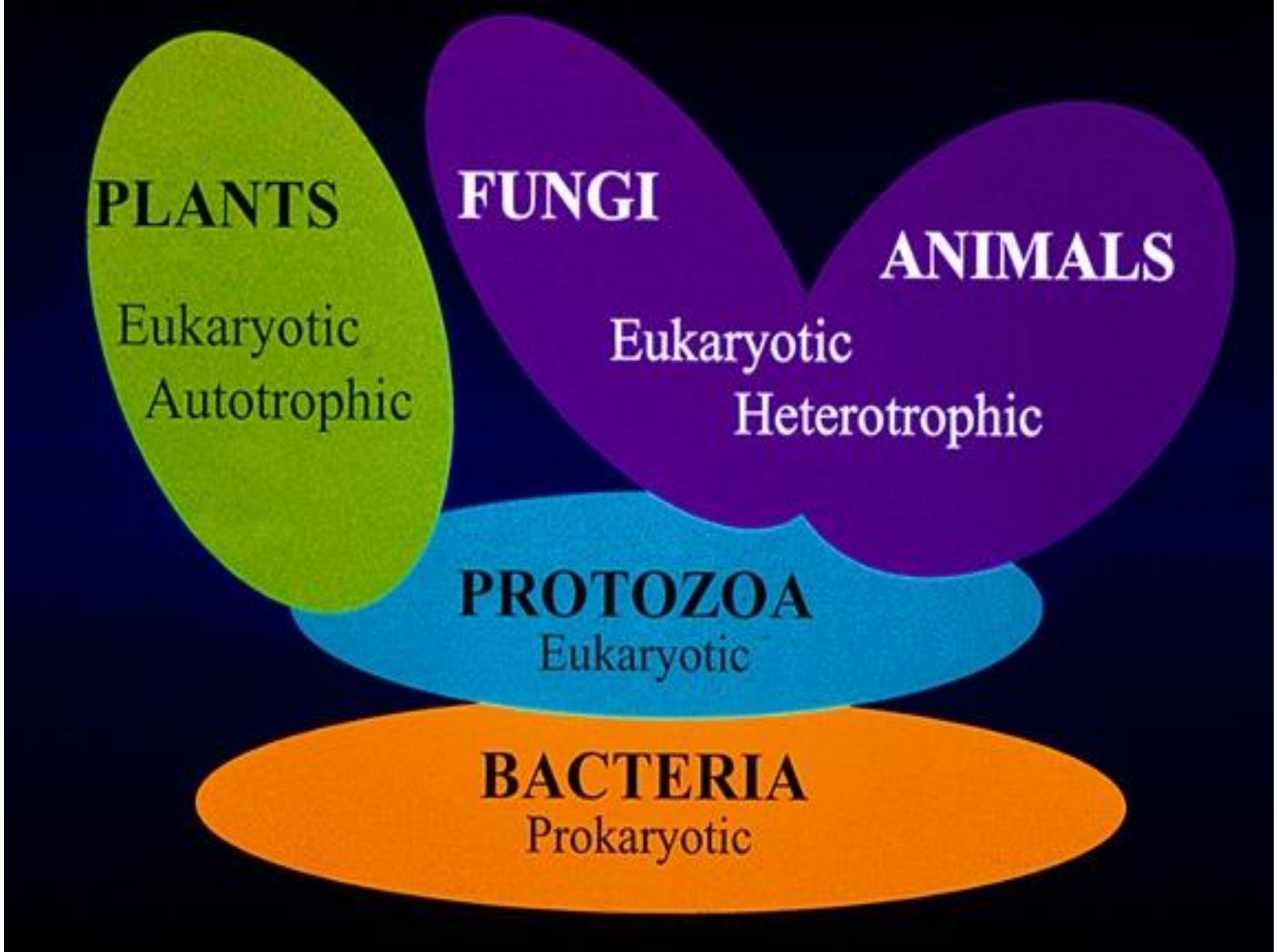
Fungi;

- Eucaryotic organisms
- Do not contain chlorophyll
- Do have cell wall
- Do have filamentous structures
- Develop spores
- They reproduce as saprohytes and decompose dead organic substances
- Aproximatelly 100.000-200.000 species
- 300 of them are human and mammalian pathogen

- Living organisms can be studied in 5 kingdoms. Fungi are studied in the kingdom of Fungi

- In past the taxonomix classification of fungi were evaluated by macroscobic (growth on the agar) and microscobic (light microscope morphology) morphology
- Currently the taxonomy is based on the ultra-structural and biochemical analyses
- Particularly the molecular techniques improved the taxonomic classification

00


PLANTS
Eukaryotic
Autotrophic
FUNGI
ANIMALS
Eukaryotic
Heterotrophic
PROTOZOA
Eukaryotic
BACTERIA
Prokaryotic

Taxonomy

Kingdom	Characteristics	Sample
Monera **Protista**	**Procaryotes** **Eucaryotes***	**Bacteria** **Actinomycoses** **Protozoa**
Fungi	Eucaryotes*	**Fungus**
Plants	**Eucaryotes***	**Plant** **Algae**
Animals	**Eucaryotes***	**Arthropods** **Mammalians** **Human**

**This common characteristic complicates the antimycotic therapy*

Kingdom of living organisms

Kingdom	**Characteristic**	**Example**
Monera	Procaryotes	Bacteria, Archaea Actinomycetes
Protista	Eucaryotes	Protozoa
Fungi	Eucaryotes	Fungus
Plantae	Eucaryotes	Plant, Algae
Animalia	Eucaryotes	Arthropod, Mammalian animal, human

- In eucaryotes the genetic material is surrounded by membrane and located in one (or several) nucleus
    - Ancient Greeks it is dervied from *eu*, **real** and c*aryon*, **nucleus**

- Bacteria and Archae do not have nucleus and together they are named as **procaryotes**
    - Ancient Greeks it is dervied from *pro-*, **former** ve *caryon* **nucleus**

- Beside the nucleus eucaryotes also have organells which are surrended by membrane; mitochondria or chloroplast

- Procaryotes do not have this kind of complicated structures

Differences between Eucaryotes and Procaryotes

Characteristic	Procaryotes	Eucaryotes
Kromozom sayısı	tek	birden fazla
Nukleer membran	yok	var
Nukleolus	yok	var
Mitozis	yok	var
Mitokondria	yok	var
Sentromer	yok	var
Ribozom	70 S	80 S
Mezozom	var	yok
Golgi	yok	var
Endoplazmik retikulum	yok	var
Peptidoglikan	var	yok

	VIRUS	BACTERIUM	FUNGI	PROTOZOA
CELL	-	Monocellular	Monocellular or Multicellular	Monocellular
SIZE	0.02-0.2 nanometer(10^{-9} meter)	Mikrometer (10^{-6} meter)	3-10 micrometer	15-25 micrometer
NUCLEIC ACID	DNA or RNA	DNA+RNA	DNA+RNA	DNA+RNA
NUCLEUS	-	PROCARYOTIC	EUCARYOTIC	EUCARYOTIC
RIBOSOME	-	70S	80S	80S
MITOCONDRIA	-	-	+	+
STRUCTURE OF OUTER MEMBRANE	PROTEIN CAPSID AND LIPOPROTEIN COVER	PEPTIDOGLYCAN	CHITIN	ELASTIC MEMBRANE
MOTION	-	-/+	-	+
PROLIFERATION	Replication	Binary fission	SEXUAL or ASEXUAL	SEXUAL or ASEXUAL