

**TYPES  
OF  
MICROORGANISMS**

# Types of microorganisms

- Bacteria
- Fungi
  - includes yeasts and molds
- Algae
  - microscopic photosynthetic plants
- Protozoa

- The best optical microscopes have the maximum distinguish capability about  $0.2\ \mu\text{m}$ . It is so possible to study shapes, size and arrangement of microbes.
- Electron microscopes have the distinguish capability about  $1\ \text{nm}$ . It is so possible to study shapes and inner structures of microbes. The electron microscopes is also used for study of viruses.

# Basic shape and arrangement of bacteria

- The shape of microbes is constant under standard conditions and it is an important differentiating marker.
  - cocci
  - rods
  - spiral bacteria

# Basic shape and arrangement

- Cocci

- They have spherical or ovoid shape.
- Cocci occur separately, in couples (so called diplococci, e.g. *Streptococcus pneumoniae*, *Neisseria gonorrhoeae*), in chains (so called streptococci, enterococci), in tetrads, packets or in irregular clusters (for example staphylococci).

# Basic shape and arrangement

## ● Rods

- They have much more varieties.
- Coccobacilli are close to cocci.
- Usually rods are much longer.
- As to their arrangements, they occur separately, in couples (as diplobacilli), in chains (as streptobacilli) or in parallel clusters.

# Basis size

- Cocci measure from 0.5 to 1.5  $\mu\text{m}$   
(approximately 1  $\mu\text{m}$ )
- Rods measure from 0.5 to 1  $\mu\text{m}$  and from  
2 to 10  $\mu\text{m}$  respectively
- Yeasts have about 2-10  $\mu\text{m}$  in a diameter
- Rickettsiae - from 0.25-1  $\mu\text{m}$
- Viruses - from 20-300 nm