

# Lecture 5

## Bacterial Staining / Simple staining

### Purpose of staining

#### Q: Why do we stain microorganisms ?

Bacteria are microscopic and colorless organisms

1- In order to visualize them and study their structure and shape, to make them more easily visible.

2- Staining organisms enable us to observe different microbial characteristics.

- Shape and arrangement
- Gram reactions
- Endospore production
- Capsule Production
- Pathogenic bacteria

#### Q/ What is the stain?

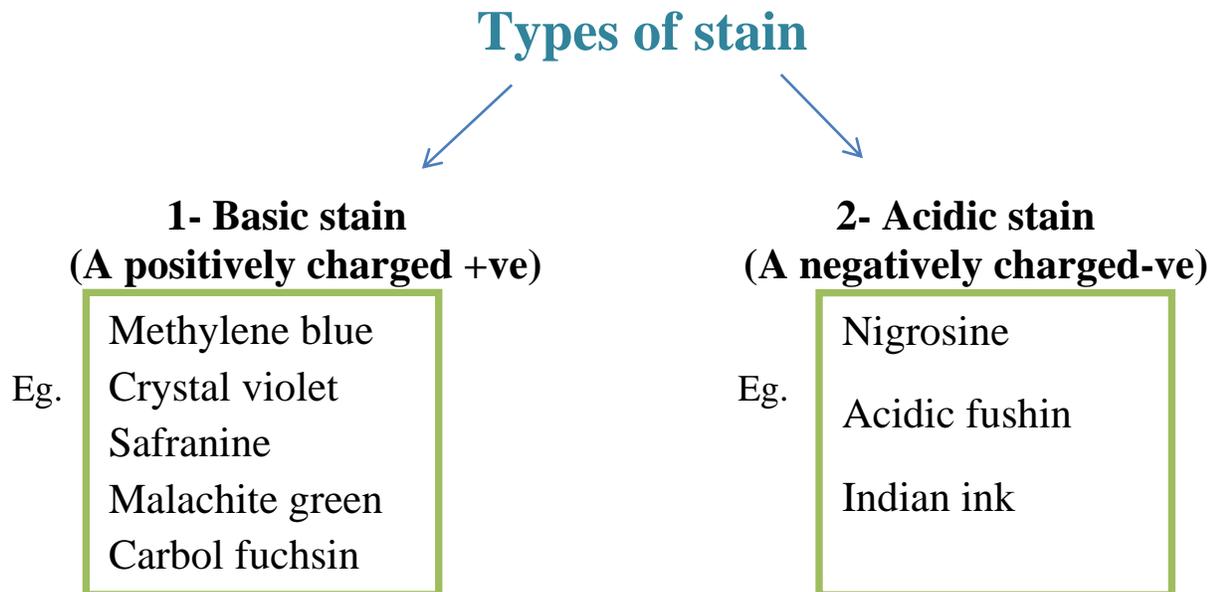
Stains or dyes are chemicals with two parts :

**1 -Chromophore:** the part that has the color .

**2 -Auxochrome:** the part that helps in the coloring properties .

The chromophore of a stain may be charged either +ve charge or -ve charge.

## - Types of stains



## Types of Staining techniques

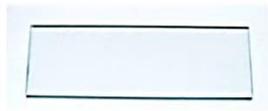
**1- Simple staining:** Use of single stain (eg. methylene blue, Crystal violet, Malachite green)

### Principle:

- All bacteria in smear takes stain and appears in color of stain.
- Basic stain more affinity towards bacterial surface & stains the bacteria.

### Uses:

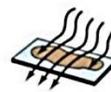
To study morphology and arrangement of bacteria.



Take a clean grease free slide



prepare a smear on it

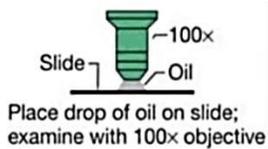


air dry and heat fix

### Procedure of Simple staining



Flood the slide with stain



Place drop of oil on slide; examine with 100x objective

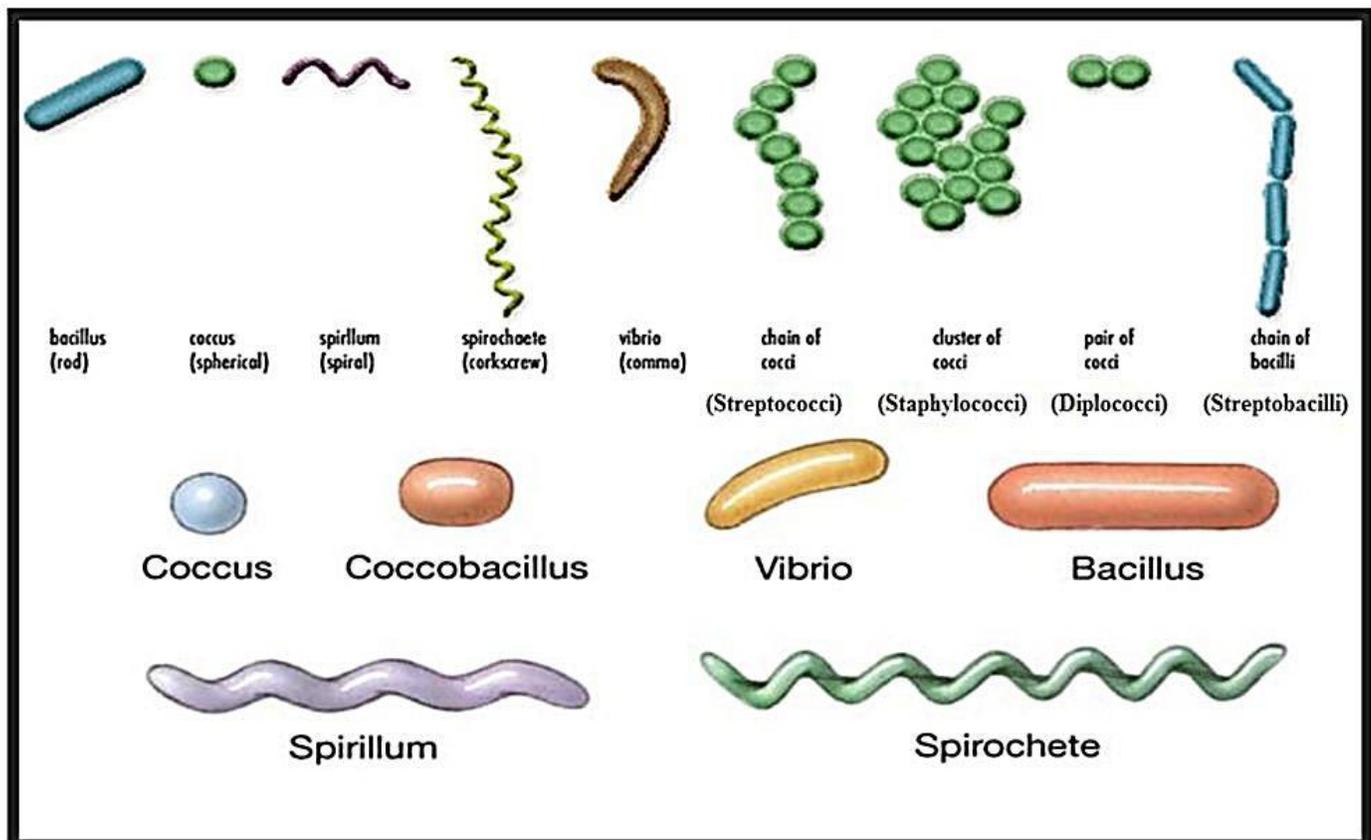


Wash the slide with water



Allow stain to react for 2 min

## Common shapes and arrangement of bacterial cells



2. **Differential staining**- more than one dye is used-

Differentiation among bacteria is possible

Eg. { **Gram's staining,**  
**Acid-fast staining.**

3. **Special staining** more than one dye used- Special

structures are seen.

Eg. { **Capsule staining**  
**Spore staining**

**المصادر:**

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