

## Staining Bacteria

Staining bacterial cells for microscopic examination makes it possible to study unique characteristics, including cell size, shape, arrangement, chemical properties and structure.

### Type of dyes

1-Acid dyes: ex (acid fuchsin, nigrosin) ---color related to anion.

2-Basic dyes: ex (methylene blue, crystal violet, safranin)--- color related cat ion.

### Type of stains

1-morphological stains ( a-simple stain b- negative stain)

2-differential stains

3-special stains

Simple stain: using a single basic stain to color bacterial cell so that their size, shape, arrangement can be observe----we must prepare bacterial smear before staining.

### Method:

#### Smear preparation:

1-used clean glass slide and marked the side of it\*.

2-transferred bacterial growth to the center of the glass slide from agar media or broth media---a)from agar plate the cells must be mixed with a small drop of water\* on the slide to create suspension, b) from broth just transferred 2-3 loop full on the slide.(don't take large amount )\*

3-spread\* the smear over a dime – size\* (2 cm).

4-dried this suspension at room temperature .

5-adhered this smear\* to the slide by passing the slide several times over the flame\* (heat – fixing).

**Simple staining: after preparing smear**

- 1-covered the entire smear with stain for 1/2 to 1 min.
- 2-washed the stain off completely with tap water\*.
- 3- dried the slide at room temperature .
- 4- examined under microscope using oil emersion\* .

**Negative stain:** using a single acidic stain color to the background around cells, so that we can observe their size, shape and arrangement . because this procedure does not require heat – fixing or staining the cells , which can cause some cell shrinkage, it provides a more accurate determination of the size and shape of cells. It also allows the microscopic observation of cell that do not readily stain, such as spirilli and spirochetes.

**method :**

- 1-put drop of acidic stain on clean glass slide .
- 2-transferred bacterial growth (solid media\*)and mixed together .
- 3 –a second slide\* is used to spread the drop into a thin film.
- 4-air – dry before microscopic examination.

Le; Rawaa Mohammed Obaid Al-hraishawi

Re; microbiology : a photographic atlas for the laboratory

By; Steven K. Alexander & Dennis Strete.