

Bacteria

Bacteria (singular bacterium); a type of biological cell. They constitute a prokaryotic microorganisms. Typically a few micrometres in length, bacteria have a number shapes, ranging from spherestorods and spirals.

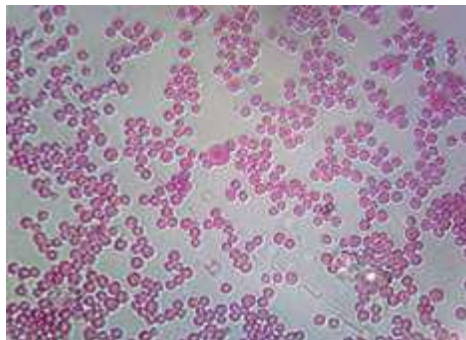
Bacterial classification

A. Wall structure

١. ١- Gram ⁺
٢. ٢- Gram ⁻
٣. ٣- Acid-fast
٤. ٤- Wall-less

B- Bacteria morphology

Cocci



rod



spiral



C- Growth characteristics

١.Oxygen requirement

- Aerobic.
- Anaerobic.
- Facultative

٢.Spore formation

Laboratory diagnosis ١.Specimen:

- Pus from abscesses, wounds, burns –Sputum
- Faeces or vomit
- Blood
- Mid-stream urine
- Anterior nasal

٢- Culturing of specimens and Microscopy:

- Blood agar and MacConkey agar
- Mannitol salt agar
- Incubation at ٣٧ .C for ٢٤-٤٨ h



٢.Biochemical Identification:

- Gram stain

Gram positive bacteria stain blue-purple and Gram negative bacteria stain red. The difference between the two groups is believed to be due to a much larger peptidoglycan (cell wall) in Gram positives. As a result the iodine and crystal violet precipitate in the thickened cell wall and are not eluted by alcohol in contrast with the Gram negatives where the crystal violet is readily eluted from the bacteria. As a result bacteria can be distinguished based on their morphology and staining properties.

–Catalase test, Coagulase test, DNase test, Oxidase test

٤.Rapid indirect identification:

- Latex Agglutination
- Quantitative (PCR)
- Antibody reactions (ELISA)