

Practical Microbiology - Lecture 4

Identification of common bacterial pathogens(Steps in Isolation and Identification)

Bacterial identification performed through several methods:

- 1) Sample of body fluid or swabs is collected and Streaked(**Growth on Solid Media**)
- 2) colony morphology
- 3) Gram stain
- 4) Other stains (acid fast, capsule, flagella)
- 5) Biochemical technique

Other Methods of Identification

- 1) PCR
- 2) Direct microscopic observation in body fluids
- 4) Antibody/Antigen detection
- 5) Agglutination (immediate)
- 6) Serological (not immediate)

(Growth on Solid Media)

1- **Colony Morphology(Describing Bacterial Colonies) :**Some of the criteria frequently used to characterize bacterial growth on agar media include:

1-**Form** – The form refers to the shape of the colony.

(CIRCULAR ,IRREGULAR ,FILAMENTOUS, CURLD and RHIZOID)

2-Size – The size of the colony can be a useful characteristic for identification.

(Punctiform, ,Small Moderate and Large)

3-*Colony Margin*(Entire ,irregular , filamentous)

4-Elevation – This describes the “side view” of a colony. These are the most common.

FLAT ,RAISED, UMBONATE, CONVEX

5-(colony surface)Bacterial colonies are frequently shiny and smooth in appearance.

Other surface descriptions might be: rough, dull, wrinkled, glistening.

6-Texture – Several terms that may be appropriate for describing the texture or consistency of bacterial growth are: dry, moist, mucoid, brittle.

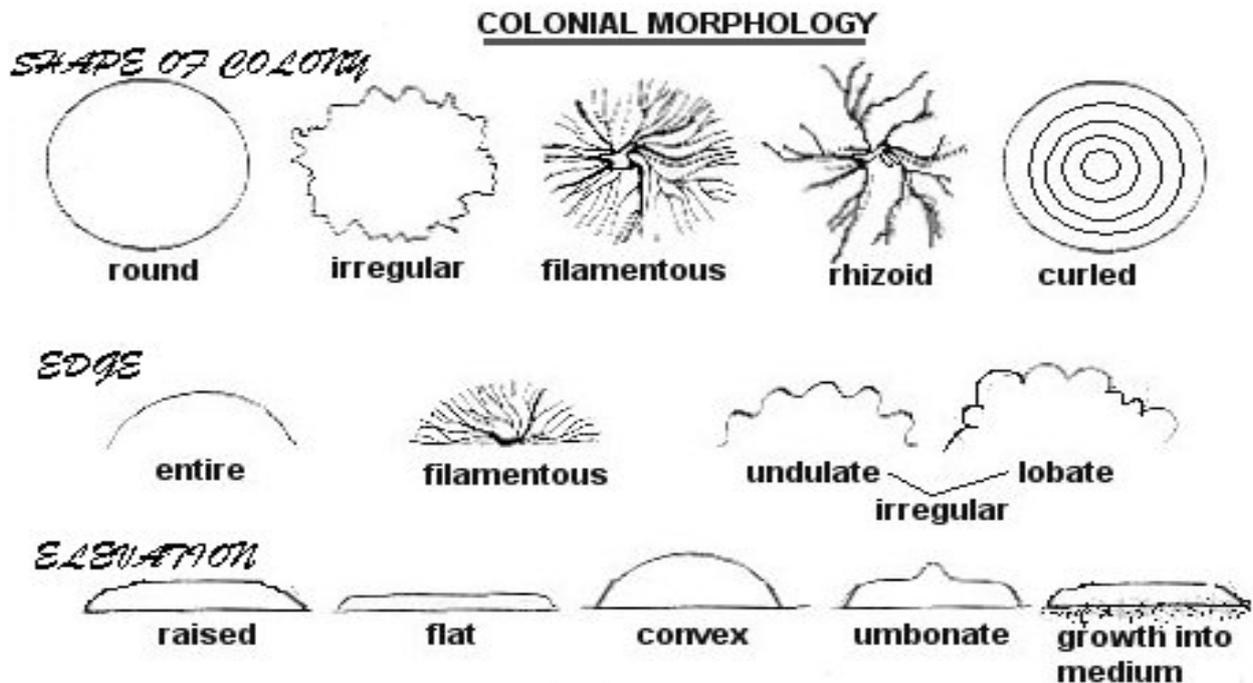
7-Changes in agar media resulting from growth (e.g. 1-hemolytic pattern on blood agar: bacteria are categorize according to the type of hemolysis:

A-Alpha-hemolysis: partial hemolysis

B-Beta-hemolysis: to complete hemolysis.

C-Gamma hemolysis: No detectable hemolysis-

8-changes in media or colony color due to a change in pH indicators, pitting of agar surface)



9-Odor (certain bacteria produce distinct odors)

10-Pigmentations: (chromogenesis): pigmentation of bacterial colony is often used as distinguishing characteristics because certain bacteria produce either insoluble pigments (impart definite colors of colony or water soluble pigments which diffused in media then change media color.

Growth Patterns in Broth

1. ring or pellicle growth on surface
2. flocculent (clumps)
3. uniform turbidity
4. sediment

