

Topic: Various forms of microorganisms

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* Classification of Bacteria on the Basis of shape:

⇒ In the year 1872 Scientist Cohn classified Bacteria into 4 major types depending on their shapes are as follows:-

i) Cocci: - These types of bacteria are unicellular, spherical shape.



⇒ They may remain as a single cell or may aggregate together for various configurations.



⇒ They are as follows:-

i) Micrococcus: - They are also called micro-coccus and represented by single discrete round.

Ex:- Micrococcus flavus.



ii) Diplococcus: - The cell of the diplococcus divides once in a particular plane and after division, the cells remain attached to each other.

Ex:- Diplococcus pneumonia



iii) Streptococcus: - The cells divide repeatedly in one plane to form chain of cells.

Ex:- Streptococcus pyogenes.



iv) Tetrads: - This consists of 4 round cells which divide in 2 planes at a right-angles to one another.

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Ex: Citrobacter tetragenus.

✓ Staphylococcus: - The cells divided into 3 planes forming a structured like bunches of grapes giving and irregular configuration.

Ex: Staphylococcus aureus.

* Sarcina: - In this case, the cells divide in 3 planes but they form a cube like configuration consisting of 8 to 16 cells but they have a regular shape.

Ex: Sarcina lutea.

1. (B) Bacilli: - These are rod shaped or cylindrical bacteria which either remain singly or in pairs. Ex: Bacillus cereus.

(C) Vibrio: - The vibrio are the curved, comma shaped bacteria and represented by a single genus. Ex: Vibrio cholerae.

(D) Spirilla: - These type of bacteria are spiral or spring like with multiple curvature and terminal flagella.

Ex: Spirillum volutans.

Others:-

Mycoplasma:- Mycoplasma are Bacteria that are cell wall deficient and hence do not possess a stable morphology.

⇒ They occur as round or oval bodies and as interlacing filaments.

Classification of Bacteria on the basis of mode of nutrition:-

Phototrophs:- These Bacteria which use energy from light.

⇒ Phototrophs are further divided into 2 groups on the basis of source of electron.

i) Photoheterotrophs:- These bacteria gain energy from light and use reduced inorganic compounds such as H_2S as electron source.

Ex:- Chromatium okenii.

ii) Photoorganotrophs:- These Bacteria gain energy from light and use organic compounds such as succinate as electron source.

Chemotrophs:- These bacteria gain energy from chemical compounds.

⇒ They cannot carry out photosynthesis.

⇒ Chemotrophs are further divided into 2

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groups On the basis of source of electron -

(1) Chemolithotrophs: - They gain energy from oxidation of chemical compound and reduces inorganic compounds such as NH_3 as electron-source.

Ex: - Nitrosomonas.



(2) Chemo-organotrophs: - They gain energy from chemical compounds and uses organic-compound such as glucose and amino-acids as source of electron.



Ex: - Pseudomonas, Pseudoflava.