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Flagella

Bacteria can be motile or non-motile. Thus, motile bacteria possess one or more thread-like appendages extending from their cell wall called flagella (sing, flagellum). Bacteria are also classified according to the number and arrangement of flagellum in them.

Each flagellum is about 1-7 μm long covered by a protein coat.

The bacterial flagellum is differentiated into the following three parts

(i) Filament, the longest portion, extending from the cell surface to the-outside. It is made up of protein called flagellin.

(ii) Hook, a curved and tubular structure made up of protein subunits.

Pili Fimbriae

They occur only in Gram negative bacteria. They occur in both Gram positive and Gram negative bacteria.

They are longer and broader. They are shorter and narrower.

They are responsible for sex ducton (conjugation) in bacteria. They are specialised for attachment of bacteria to its host (e.g., Bacteria, Salmonella typhimurium, Neisseria gonorrhoea, etc).

They are tubular structures. They are bristle-like solid structures.

(iii) Basal body, the most complex part of flagellum.

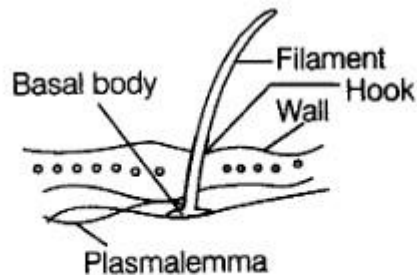


Fig. 8.4 Bacterial flagellum showing different parts

They help in locomotion i.e., movement from one place to another.

Pili and Fimbriae

These are also surface structures, but does not play any role in locomotion of bacteria. The pili are the elongated, tubular structures made of a special protein called pilin and fimbriae are the small bristle-like fibres coming out of the cell.

The pili helps in forming conjugation tube during transfer of genetic material between donor and recipient cell. While, the fimbriae help the bacteria to attach to solid surfaces.

Differences between Pili and Fimbriae

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