iii. Bacteriophage ... bacteria.

Structure of Bacteriophage

Bacteriophage is the combination of two words, Bacterio means bacterium, Phage means eater Bacteriophage are bacteria eating viruses simply known as phages

Basic structure features of Bacteriophage

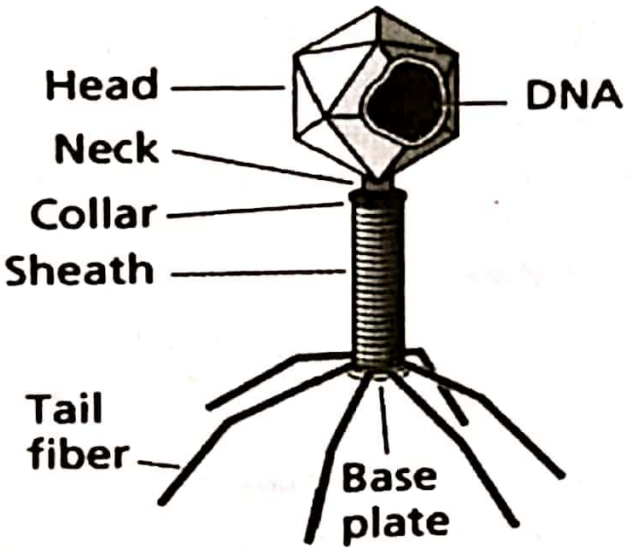
- **Shape:** Various shapes. One example is Tadpole shaped (T4 phage)
- **Size:** Bacteriophage is 24 – 200nm in length.

Bacteriophage is composed of 2 parts:

1. Head 2. Tail

1. Head or Capsid

It is composed of protein units known as capsomere.



Structure of Bacteriophage (T_4 Phage)

The capsid encloses the genetic material i.e. DNA or RNA

It may be hexagonal (6 sides) or icosahedral (20 faces).

Collar provides support to the capsid.

2. Tail

Most but not all phages contain the tail. Tail is composed of hollow tubular structure, used for injecting genetic material to host. Some phages lack the tail. Some have base plate and tail fiber (six) for attachment with host (T4 phage) but some phages lack base plate and tail fibres they use other structure (proteins) for attachment to the host.

Role of Bacteriophage in Genetic Engineering

Definition: The transfer of genetic material form one organism into another organism is called ... engineering.

Bacteriophage acts as **cloning vector** in genetic engineering.

Here it is bacteriopahge but mostly bacterial plasmid is also used as cloning vector.

Steps

i. A desired gene is taken and added to test tube. Bacteriophage is also added to test tube. ... test tube containing restriction enzyme and ligase etc.

ii. Inside the test tube a fragment is cut from phage DNA by restriction enzyme and desired gene ... integrated into viral DNA.

iii. The phage DNA containing desired gene is called recombinant DNA and phage contain... recombinant DNA is called recombinant phage. Therefore, this process is also known a... recombinant DNA technology.

iv. Now the recombinant phage is allowed to attack on bacteria which enters its DNA int... bacterium.

v. Synthesis of proteins and DNA occur.

vi. Now the proteins are assembled and DNA is enclosed in capsid forming a mature phage.

vii. When its number increases enough, then they exert pressure on bacterial wall and lysis o... bacterial cell occurs and phages are released.