

Chap 5 (Variety of Life) F.Sc 1st Year Biology

Chapter 5: Variety of Life

How many types of life-cycles, have been observed in Bacteriophages?

Two types of life-cycles, have been observed in Bacteriophages:

- lytic cycle
- lysogenic cycle

With which material Jenner vaccinated 8 years old boy?

In 1796, Edward Jenner first vaccinated an 8 years old boy with material removed from cowpox lesion on the hand of milkmaid

When filterable agents were first purified?

The filterable agents were first purified in 1935, when Stanley was successful in crystallizing the tobacco mosaic virus.

What is the size of viruses?

Viruses range in size from 250 nanometer (nm) of poxviruses to the 20 nm of parvovirus.

What is lysozyme?

The tail of bacteriophage releases the enzyme lysozyme to dissolve a portion of the bacterial cell wall.

What is lytic or virulent phage?

The phage which causes lysis of the host cell is known as lytic or virulent phage.

What is the scientific name for onion, amaltas and man?

Scientific name for onion is *Allium cepa*, for amaltas *Cassia fistula* and for man *Homo sapiens*.

What is the botanical name for potato and brinjal?

Botanical name for potato is *Solanum tuberosum* and for brinjal *Solanum melangena*.

What did Chamberland find?

In 1884, Charles Chamberland found that bacteria cannot pass through porcelain filters.

What are naked virions?

Non-enveloped viruses are known as naked virions.

What is the difference between kingdom plantae and fungi?

Kingdom Plantae include eukaryotic multi-cellular autotrophs while Kingdom. Fungi include eukaryotic multicellular reducers for example mushrooms.

How many times viruses are smaller than bacteria?

Viruses are 10 to 1000 times smaller than most bacteria.

Differentiate between capsid and capsomeres.

The viral genome is surrounded by a protein coat, the capsid whereas capsid is made up of protein subunits called capsomeres.

What is nucleocapsid?

The nucleic acid and capsid is collectively called nucleocapsid.

What is the shape of head of bacteriophage?

The head of bacteriophage is an elongated pyramidal, hexagonal, prism shaped structure.

What is the meaning of Pyramidal?

Pyramidal means having two triangular structures with common base.

What is induction?

Some times, however, the viral DNA is removed from the host's chromosome and lytic cycle starts. This process is called induction.

How hepatitis is transmitted?

Hepatitis C passes through blood, from mother to child during pregnancy and after ward and by sexual contact.

What is phylogenetic system of classification?

It is the system of classification that names groups of organisms according to their evolutionary history. Like Linnaean classification, phylogenetic classification produces a nested hierarchy where an organism is assigned a series of names that more and more specifically locate it within the hierarchy. However, unlike Linnaean classification, phylogenetic classification only names clades and does not assign ranks to hierarchical levels.

What are oncoviruses or retroviruses? Give examples.

These are single stranded RNA tumour viruses which are spherical in form, about 100nm in diameter and enveloped by host membrane. The most familiar of these viruses is the human immunodeficiency virus (HIV).

Write a short note on AIDS.

The AIDS was reported in early 1980's. In 1986 the virus was named as human immunodeficiency virus (HIV). The major cell infected by HIV is the helper T-lymphocyte. Symptoms include severe pneumonia, rare vascular cancer, sudden weight loss, swollen lymph nodes and general loss of immune functions. The HIV is transmitted by intimate sexual contact, blood transfusion and breast feeding. Prevention of intravenous drugs with common syringe and use of sterile needles /syringes and utensils is important.

Differentiate between Retroviruses and Bacteriophage.

Retroviruses are single stranded RNA tumour viruses which are spherical in form, about 100nm in diameter and enveloped by host membrane. On the other hand bacteriophages are viruses which infect bacteria.

How has small pox been eliminated from world?

Smallpox has been eliminated from the world by immunization and other control measures. Credit goes to Jenner who first used vaccine against this disease.

What do you know about the capsid of a virus?

The genome is surrounded by a protein coat, the capsid. Capsid gives definite shape to virion. Capsid is made up of protein subunits known as capsomeres. 162 capsomeres are present in the capsid of herpes virus and 252 in the capsid of adenovirus which cause some common colds.

Why some biologists found two kingdom system of classification unworkable?

Many unicellular organisms like Euglena have both plant like (presence of chlorophyll) and animal like (lack of cell wall) characters. This system ignores the differences between prokaryotic and eukaryotic cells.

Write down four characters of viruses.

- Virus are non-cellular infectious entities
- They contain either RNA or DNA, normally encased in the proteinaceous coat.
- They reproduce only in living cells.
- Viruses utilize the biosynthetic machinery of the host for its own synthesis.

Differentiate between virion and prions.

The complete, mature and infectious virus particle is known as virion. The virions are composed of a central core of nucleic acid, either DNA or RNA, surrounded by protein coat. Prions are composed of protein only that contains the information that codes for their own replication. Prions are responsible for mad cow infection and mysterious brain infection in man.

What is lysogenic cycle of phage?

In some cases viral DNA, instead of taking over the control of host's machinery, becomes incorporated into the bacterial chromosome. Phage in this state is called prophage and this process is known as lysogeny or lysogenic cycle. Viral DNA being the part of bacterial chromosome passes to each daughter cell in all successive generations.

Differentiate between lytic and temperate phage.

The phage which causes lysis of a bacterium is called lytic or virulent phage. The phage which causes lysogeny is called temperate (lysogenic) or avirulent phage.

What are symptoms of small pox?

In small pox, raised fluid-filled vesicles are formed on the body which become pustule (pimple or blister) later on and form pitted scars, the pocks.

Differentiate between lysogeny and induction.

In some cases viral DNA, instead of taking over the control of host's.