Types of Microorganisms

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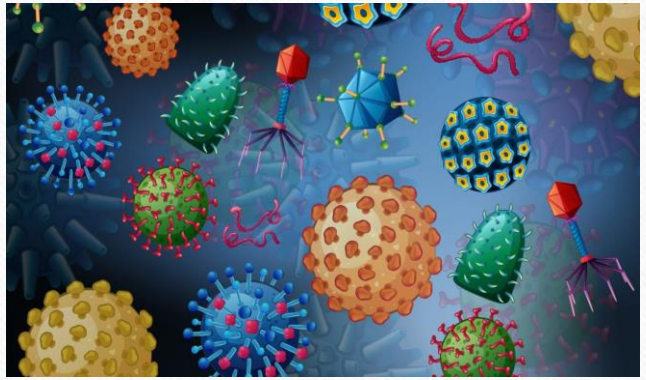
Subject : Microbiology

Introduction

- Microorganisms (microbes) = tiny living things, mostly invisible to naked eye.
- Found everywhere on Earth.
- Play crucial roles in biological processes.
- Important in both health and disease.
- Main types: Bacteria, Viruses, Fungi, Protozoa.

viruses

- **Characteristics**
- Viruses are in gray area between living and non living.
- Viruses are not classified as living organisms.
- They cannot reproduce or perform metabolic processes independently.
- They require a host cell for replication and reproduction.



Structure of a Virus

- **Capsid:**

A protective protein shell that encases the viral genetic material.

- **Genetic Material**

Can be either DNA or RNA.

Carries the necessary instructions for creating new virus particles.

Structure of a virus

Envelope:

- Some viruses possess an additional layer called an envelope(Lipid membrane).
- This envelope is derived from the host cell.
- Example viruses include HIV and influenza.

Structure of a virus

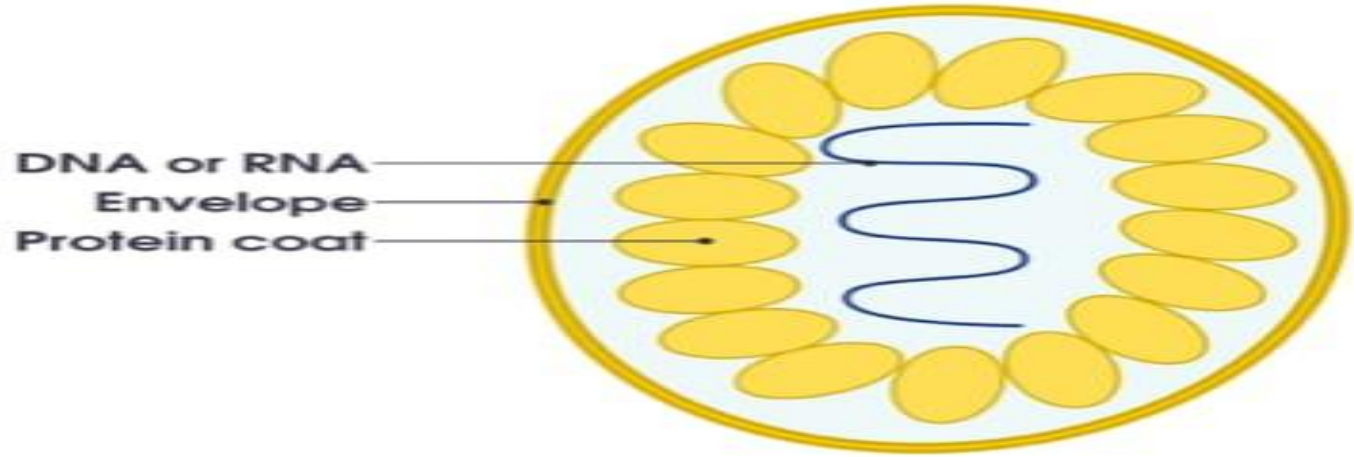


Fig 1. Structure of a Virus.

Types of viruses

DNA Viruses

- Contain DNA as their genetic material.
- Examples include Herpesviruses and Papillomaviruses.

- **RNA Viruses**

- Contain RNA as their genetic material.
- Examples include HIV and Influenza virus

Shapes of Viruses

Shapes:

- Icosahedral(Round symmetrical)

Example:Rhinovirus

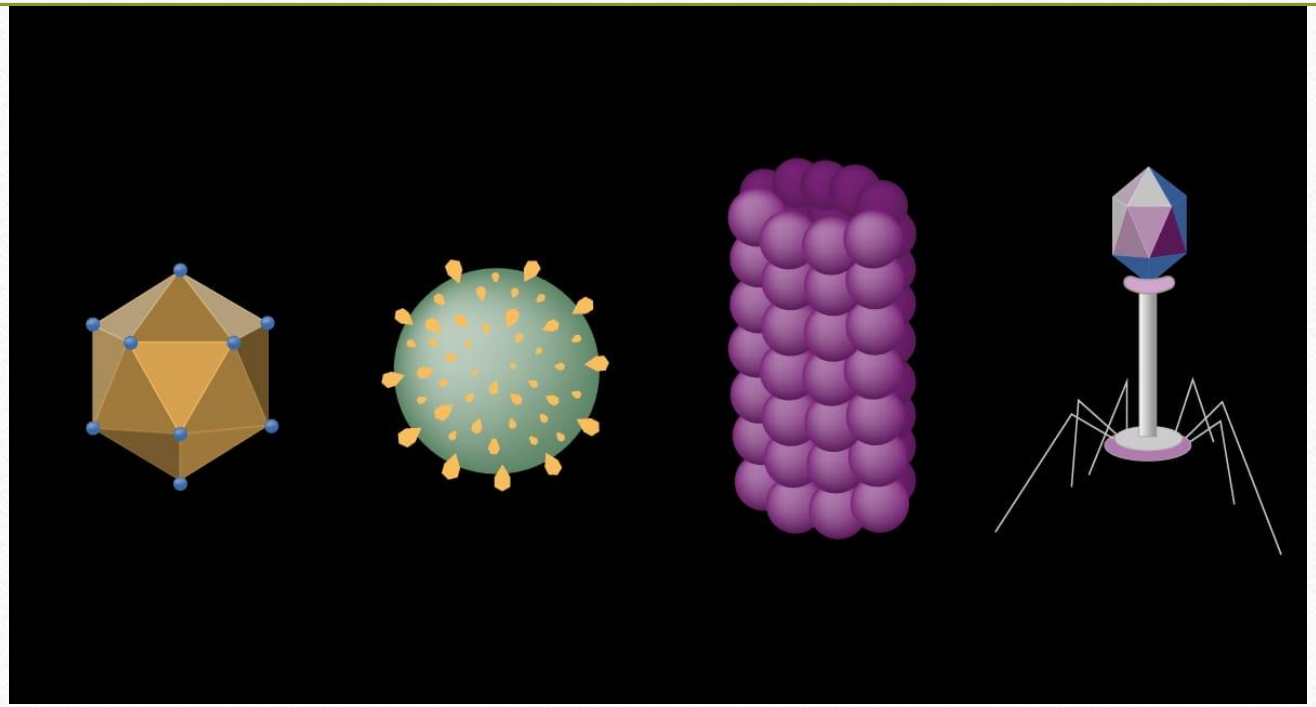
- Helical(Long cylindrical)

Example:Tobacco Mosaic Virus

- Complex(Irregular)

Example:Bacteriophage

Shapes of Viruses



Role Of Viruses

- **Beneficial Roles:**
- In Gene therapy
- **Pathogenic roles:**
- Responsible for wide range of diseases such as hepatitis ,AIDS and COVID 19.

Summary

- Viruses are unique entities that require a host for survival and replication.
- Their structure includes a protective capsid, genetic material, and sometimes an envelope.
- Understanding viruses is crucial for developing treatments and preventive measures against viral infections.

So what will be next.....

- In the Next Lecture we will Discuss
- **FUNGI**

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THANKYOU.....