

MICROORGANISMS



Learning Objectives

After the completion of this lesson, students will be able to:

- ◆ understand different types of microorganisms.
- ◆ differentiate various microorganisms based on their shape and occurrence.
- ◆ know the role of microbes in various fields such as medicine, agriculture, industry and daily life.
- ◆ know the effects of harmful microorganisms.
- ◆ understand the relationship between man and microbes.
- ◆ know the effects of prions and virions on human health.



Introduction

Microorganisms are very small in size that they cannot be seen through naked eye. These organisms can be seen only with the help of a microscope. Therefore, they are also known as microbes. The science that deals with the study of microorganisms is known as **microbiology**. Microorganisms are found everywhere. They are found in air, water (ponds, lakes, rivers and oceans), soil and even inside our bodies. They remain inactive under unfavourable conditions and become active during favourable conditions. Microorganisms can be studied under five categories. They are: virus, bacteria, fungi, algae and protozoa. Let us study about them in detail.

16.1 Virus

A virus is a tiny particle made up of genetic material and protein. They are intermediate between living and non living things. Virus means 'poison' in Latin. Viruses are intracellular obligatory parasites. The study of virus is called **virology**. Viruses are 10,000 times smaller than bacteria. Viruses have different shapes. They can be rod shaped, spherical or of other shapes.

16.1.1 Structure of Virus

A virus contains a core DNA or RNA. Surrounding that core is a protein coat. In some viruses, the protein coat is covered by an envelope made of proteins, lipids, and carbohydrates. These envelopes have spikes that help the virus particles attach to the host cells. Viruses cause many diseases to plants, animals and human beings.

16.1.2 Characteristics of Virus

Viruses show both living and non living characters.

Living characters

- They respond to heat, chemicals and radiations.
- They reproduce inside the host cells and produce copies of themselves.

Non-living characters

- They are inactive when present freely in the environment.
- They can be crystallized and stored for a very long time, like other non-living things.

