

UNIT

18

Organisation of Tissues

Learning Objectives



After completing this lesson, students will be able:

- know the different types of tissues and their morphology.
- identify how tissues are organized in specific patterns to form organs.
- understand how tissues perform life activities in plants and animals.
- gain knowledge about the structural organisation of tissues.
- get familiarized with the process, types and significance of cell division.

Introduction

Unicellular organisms like bacteria and protozoans are made of single cells. On the other hand, multicellular organisms, like higher plants and animals, are composed of millions of different types of cells that are grouped into different levels of organization. Multicellular organisms have specialized cells, tissues, organs and organ systems that perform specific functions.

Group of cells positioned and designed to perform a particular function is called a tissue. An organ is a structure made up of a collection of tissues that carry out specialized functions. For example, in plants the root, stem and leaves are organs, whereas xylem and phloem are tissues. Similarly in animals stomach, for example, is an organ that consists of tissues made of epithelial cells, gland cells and muscle cells. In this chapter, you will learn about different types of plant and animal tissues and how they are modified to coordinate life activities.

18.1 Plant Tissues

In general, plant tissues are classified into two types namely:

- Meristems or Meristematic tissues.
- Permanent tissues

18.1.1 Meristematic Tissues (Meristems)

The term 'meristem' is derived from the greek word 'Meristos' which means divisible or having cell division activity. Meristematic tissues are group of immature cells that are capable of undergoing cell division. In plants, meristem is found in zones where growth can take place. Example: apex of stem, root, leaf primordia, vascular cambium, cork cambium, etc.,

Characteristic features:

- They are living cells.
- Cells are small, oval, polygonal or round in shape.
- They are thin walled with dense cytoplasm, large nuclei and small vacuoles.