

Plant Tissues

a. Simple Tissues - composed of only one cell type.

Epidermis - the thin layer (the cuticle) on its outer surface. Epidermal cells protect the underlying tissues.

Parenchyma - the most common and least specialized of all tissues; occurring throughout the plant. The cells are typically large, isodiametric and possess only a thin wall, and a living protoplast containing a large vacuole. Intercellular spaces occur between the cells. Parenchyma cells are the "packing" between organs in the plant body. They also act as storage containers for substances like starch.

Chlorenchyma - parenchyma tissue in which the cells contain chloroplasts. These cells photosynthesise to produce food for the plant.

Collenchyma - situated in the outer part of a stem to provide flexible support in the young plant. The cells are brick- shaped and are thickened in the corners.

Sclerenchyma - supportive tissue. A hard substance called LIGNIN is laid down inside the cell wall, often killing the cell. The most common type of sclerenchyma cells are FIBRES. Fibres are most often found as caps of tissue on the outside of vascular bundles.

b. Complex Tissues - composed of more than one cell type, these tissues are found in the vascular bundles.

Xylem - the water-conducting tissues of the plant. They have thickened walls made of lignin. The most common cell in xylem tissue in flowering plants is the VESSEL. These are short cells with perforations in the end walls, and arranged so as to form a continuous cylinder. Other cells that occur in xylem are TRACHEIDS, FIBRES, and PARENCHYMA.

Phloem - these tissues conduct soluble carbohydrates (made by the photosynthetic, food-producing, regions of the plant) to the non- photosynthetic parts of the plant. The main cell type is the SIEVE TUBE. Associated with these are COMPANION CELLS. Other types are fibres and parenchyma.