

## Chapter 6

# TISSUES

### Phloem:

- These are made up of five types of cells.
- Sieve cells, sieve tubes, companion cells, phloem fibres, phloem parenchyma.
- Main functions of phloem to transport food from leaves to other parts.

### In Angiosperm:

Sieve tube, companion cells, phloem fibres, phloem parenchyma.

### In Gymnosperm:

Albuminous and sieve cells, lack of sieve tubes etc.

#### 1 Sieve tube elements:

- Long tube like structure.
- Longitudinal with companion cells.
- They form sieve plates.
- Large vacuole present in periphery cytoplasm.
- No nucleus.

**Function** – Control the nucleus of companion cells

#### 2 Companion cell:

- These are associated with sieve tubes.
- It maintaining the pressure gradient in sieve tube.

#### 3 Phloem parenchyma:

- Elongated, tapering cylindrical cells with dense cytoplasm and nucleus.
- Cell wall composed with cellulose.
- Function: It store food material and other substance like resin, latex, mucilage.

It is absent in cotyledons

#### 4 **Phloem fibres:**

- Made with sclerenchymatic cells.
- Elongated, unbranched, pointed, needle like apices.
- Cell wall is thick when it mature lost their protoplasm and become dead.

#### **Primary phloem:**

Consist narrow sieve tubes

Initially – Proto-phloem

Later – Metaphloem

#### **Secondary phloem:**

Consist sclerenchymatic cells.

- Secondary growth, which helps in growth in Girth in plants.

