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Class : Deg II (Hons.)
Paper : IVth (Anatomy)
Topic : Mechanical Tissues (Contd.)

Lecture No. - 12
Date : 14/10/2020

• Kinds of Mechanical Tissues:

(2). Sclerenchyma:

• Sclerenchyma represents another form of mechanical tissue.
All the individual cells are strictly thick-walled, each having a very small lumen or cell-cavity. The cell-wall is highly lignified. This type of tissue broadly bears two kinds of cells, namely:

(i) Sclerenchymatous fibres, and
(ii) Sclereids or sclerotic cells.

• (1). Sclerenchymatous fibres:

Individual cell is T.S. may be either polygonal or rectangular, while in L.S., they are much longer and pointed at both the ends.
Fibres are either isolated singly or interlocked in a group of 2 or more.
The sclerenchymatous cells are completely dead as they do not have cytoplasmic contents in their lumen.

- sometimes, the cells undergo extensive secondary thickening owing to heavy deposition of lignin.

The secondary wall may even be stratified into three distinct layers.

The chemical composition of the secondary wall is strictly of lignin, primary wall of cellulose plus a fraction of lignin and the middle ~~lamella~~ lamella of co-pectate.

- Based on the origin, fibres are of 3-types:
  - (a) Surface fibres,
  - (b) Wood fibres or xylem fibres,
  - (c) Bast fibres.

- Function of Sclerenchymatous fibres:
- Being a specific kind of mechanical tissue, the sclerenchymatous tissue constitutes the flage of the I-shaped girder and as such, its distribution and position are evidently helpful in safeguarding the plant from various stresses and strains by the fast-blowing wind.
- Its presence in the leaf-blades supplies requisite strength or rigidity to them in order to check laceration.

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