

TOPICS

1. Cell Wall Structure and Composition:

- Understanding the molecular architecture of plant cell walls.
- Characterization of cell wall components: cellulose, hemicellulose, pectin.

2. Cell Wall Biosynthesis and Metabolism:

- Enzymes and pathways involved in cell wall synthesis.
- Regulation of cell wall biosynthesis

3. Cell Biology of the Plant Cell Wall

- Exocytosis and Vesicular Trafficking of cell wall material
- Cell wall remodeling

4. Glycoproteins in the Plant Cell Wall

- Structural Roles of glycoproteins
- Their role in Cell Wall Dynamics

5. Cell Wallomics and Synthetic Biology Approaches:

- Integrating genomics, transcriptomics, proteomics, and metabolomics in cell wall studies.
- Synthetic biology for a comprehensive understanding and manipulation of plant cell walls.

6. Cell Wall Function and Plant Development:

- Role of cell walls in growth, development, and differentiation.
- Cell wall-mediated signaling and communication within the plant.

7. Cell Wall Interactions and Stresses:

- Plant-microbe interactions mediated by cell wall components.
- Role of cell walls in response to stress.

8. Mechanical Properties of Plant Cell Walls

- Tensile Strength and Flexibility
- Adhesion and Cohesion

9. Cell Walls as a Resource for Sustainability:

- Enzymatic and microbial degradation of cell wall components.
- Strategies for efficient lignocellulosic biomass utilization.

10. The cell wall of Trees and Wood Formation:

- Lignification during cell wall development.
- Impact of environmental factors on tree cell wall composition.

11. Fruit Development and Ripening:

- The role of cell wall modifications in fruit softening during ripening.
- Strategies to control fruit texture for improved shelf life.