

Plant cells and cell walls

What is the middle lamella?

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Describe the structure of a chloroplast.

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What are pits in a plant cell wall?

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Three features of plant cells that animal cells lack.

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How can an amyloplast be told from a chloroplast in an electron micrograph?

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Which glucose isomer makes up starch and which makes up cellulose?

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Why is amylopectin broken down quickly?

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How are cellulose microfibrils held together?

Double membrane envelope; thylakoids stacked into grana in the fluid stroma; stroma holds enzymes, starch grains, 70S ribosomes and circular DNA.

A layer rich in pectins (calcium pectate) between the walls of neighbouring plant cells that cements the cells together.

Cellulose cell wall, chloroplasts, large permanent vacuole with tonoplast (also starch store and fixed shape).

Regions where the wall is thin because no secondary thickening was deposited, allowing water and solutes to pass between cells.

Starch: α -glucose. Cellulose: β -glucose.

Amyloplast has starch grains and no internal thylakoid stacks (grana); a chloroplast has grana.

Many hydrogen bonds between -OH groups of adjacent parallel β -glucose chains.

It is branched, so has many ends where enzymes hydrolyse the glycosidic bonds at the same time.

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What is secondary thickening?

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Name three plant fibres used by humans.

Flax, hemp, jute (also sisal): used for rope, textiles, paper and composites.

Extra layers of cellulose and lignin laid down inside the primary wall, making cells like xylem vessels and sclerenchyma fibres rigid and waterproof.