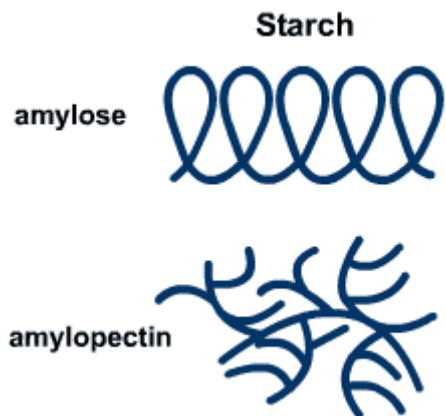


Starch is a polysaccharide. Found in many parts of plants (**chloroplasts**). The **major energy source** in most **diets**.

Made up of chains of a-glucose monosaccharides linked by glycosidic bonds formed by condensation reactions. The chain may be **branched or unbranched**.

Amylose: unbranched chains (very compact) or 1-4 glycosidic bonds between a-glucose molecules (chain coils like a spiral staircase into a helical structure).

Amylopectin: branched chains with 1-6 glycosidic bonds between a-glucose molecules.



Test for Starch: Iodine changes from **orange** to **blue-black**.

Starch is NEVER found in animal cells.

Main role is **energy store**, it's suitable because:

It's insoluble

Doesn't diffuse out of cells

compact

Forms a glucose when hydrolysed (easily transported)

Starch/Glycogen/Cellulose

Glycogen is found in animal and bacteria cells, NEVER in plants.

Similar to amylopectin structure but has **shorter chains** and **more highly branched**.

Major carbohydrate storage product of animals. Suitable for storage because:

Insoluble

Doesn't diffuse out of cells

Compact

More rapidly broken down than starch

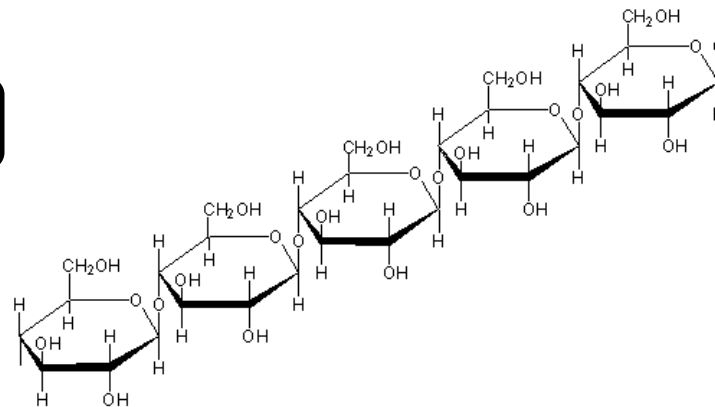
Cellulose is made up of b-glucose molecules.

Cellulose has **straight unbranched chains**. These run parallel to each other = **allows hydrogen bonds to form cross-linkages between adjacent chains**.

Cellulose molecules grouped together form **microfibrils** = **high tensile strength**.

The sheer number of hydrogen bonds contributes to its strength.

Major component in **plant cell walls** / **prevents cell from busting as water enters by osmosis** = it exerts an inward pressure, stopping the influx of water.



Made up of a-glucose molecules.

