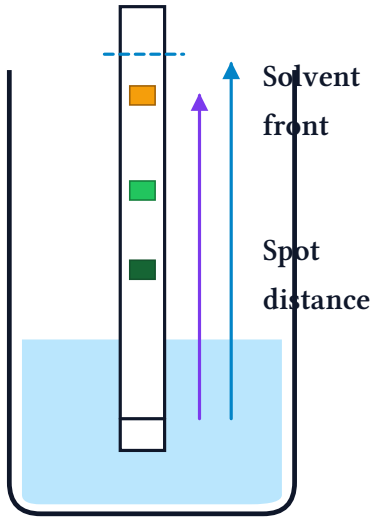
Biology 20

Unit C: Photosynthesis and cellular respiration

Carbon fixation in the stroma

The yellow band travelled farthest

- The paper strip shows a yellow carotene band above two green bands.
- The caption says Rf is the spot distance divided by the solvent distance.



Rf = spot distance / solvent distance

The stroma uses NADPH and ATP

- NADPH and ATP move from the thylakoid into the stroma.
- Carbon dioxide enters that same fluid.
- Glucose is the sugar that leaves the reactions.

Key terms

stroma

The fluid in a chloroplast, around the thylakoids, where glucose is assembled.

Rf value

How far a pigment spot travels, divided by how far the solvent travels.

carbon fixation

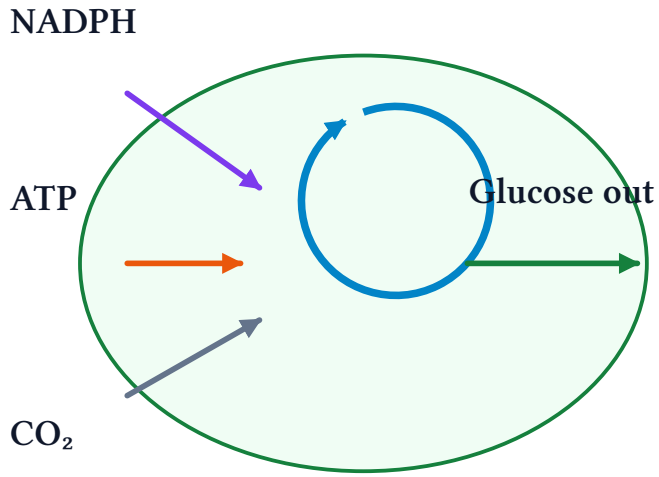
The set of reactions that attaches carbon dioxide into a sugar.

iodine test

A stain that turns blue-black where starch is present in a leaf.

The Calvin cycle in the stroma

- NADPH, ATP, and carbon dioxide point into the cycle.
- The cycle sits in the stroma.
- Glucose leaves along the green arrow.



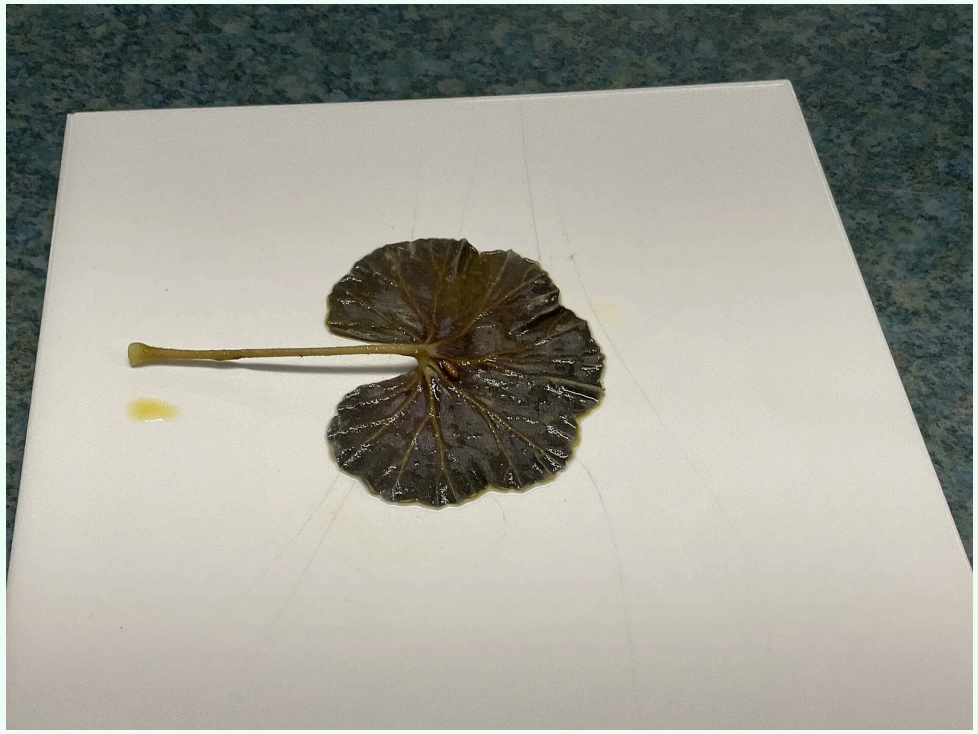
The cycle turns in the stroma

Divide the two distances

- Measure from the start line to the middle of the spot.
- Measure from the start line to the solvent front, then divide.

Stains and light

- The lit half of the leaf goes dark with iodine where starch formed.
- The covered half stays pale on the same leaf.



Stroma and strip

- Place glucose-building in the chloroplast.
- Show one Rf value with both distances.

Fields store and use this sugar

- Crops store the glucose this stroma path builds.
- The next lesson follows that sugar into farming and water loss.

Image credits

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