

Chapter 6

LIFE PROCESSES

Chlorophyll are the green pigments present in the leaves.

Stomata are tiny pores present in the leaves through which exchange of gases takes place.

Each stoma has a pair of guard cells which controls the opening and closing of the stomatal pore.

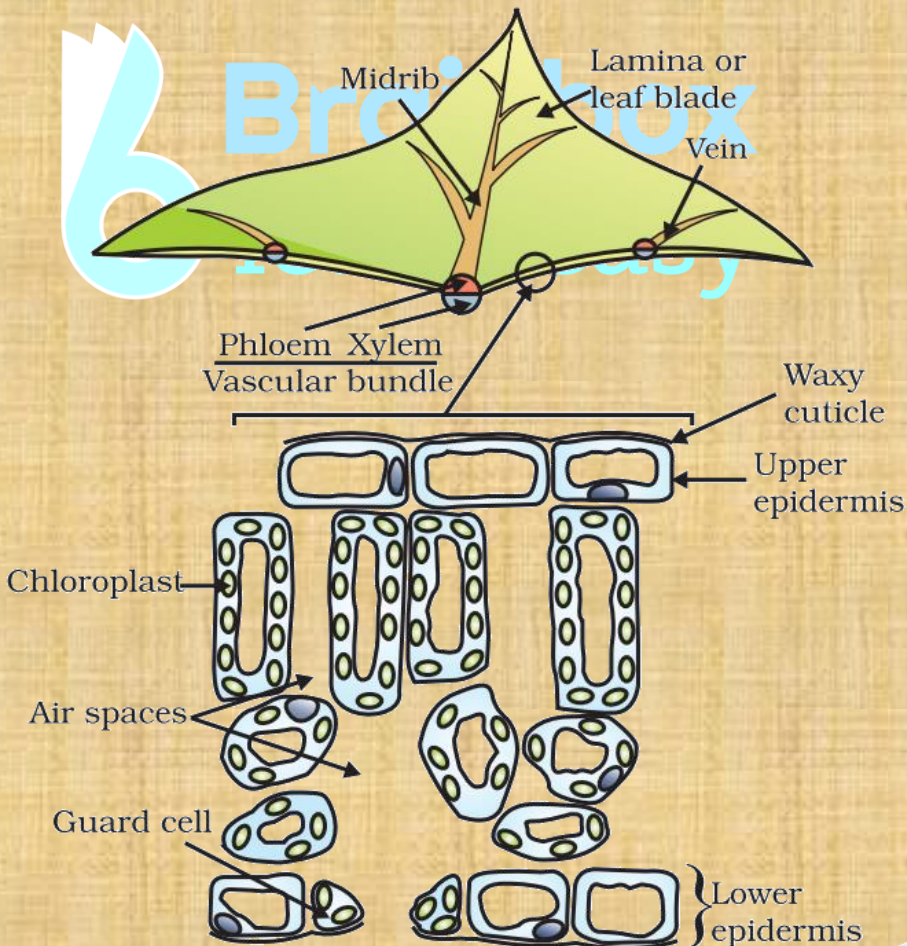


Fig. Cross-section of a leaf

Activity to show that chlorophyll is necessary for photosynthesis:

1. Take a potted plant having variegated leaves (croton plant).
2. Keep it in a dark room for three days so that all the starch is used up.
3. Then keep it in sunlight for 6 hours.
4. Then take a leaf from the plant and mark the green areas of the leaf on a sheet of paper.
5. Then dip the leaf in boiling water to make it soft.
6. Then dip the leaf in alcohol and heat it in a water bath to decolourise it and remove the chlorophyll.
7. Then wash the leaf in water and dip it in dilute iodine solution.
8. This shows that chlorophyll is necessary for photosynthesis.

Observation: It will be seen that only the green parts of the leaf turns blue black.



Fig. Variegated leaf (a) before and (b) after starch test

Activity to show that carbon dioxide is necessary for photosynthesis:

1. Take two potted plants of the same size and keep them in a dark room for three days so that all the starch is used up.
2. Then keep the plants on separate glass plates.
3. Keep a watch glass containing some potassium hydroxide near one plant to absorb carbon dioxide.
4. Cover both the plants with bell jars and seal the bottom of the jars with vaseline to make it air tight.

5. Keep the plants in sunlight for three hours.
6. Then take a leaf from each plant and test for starch.
7. The leaf of the plant kept in the jar containing potassium hydroxide does not show the presence of starch.

This shows that carbon dioxide is necessary for photosynthesis.

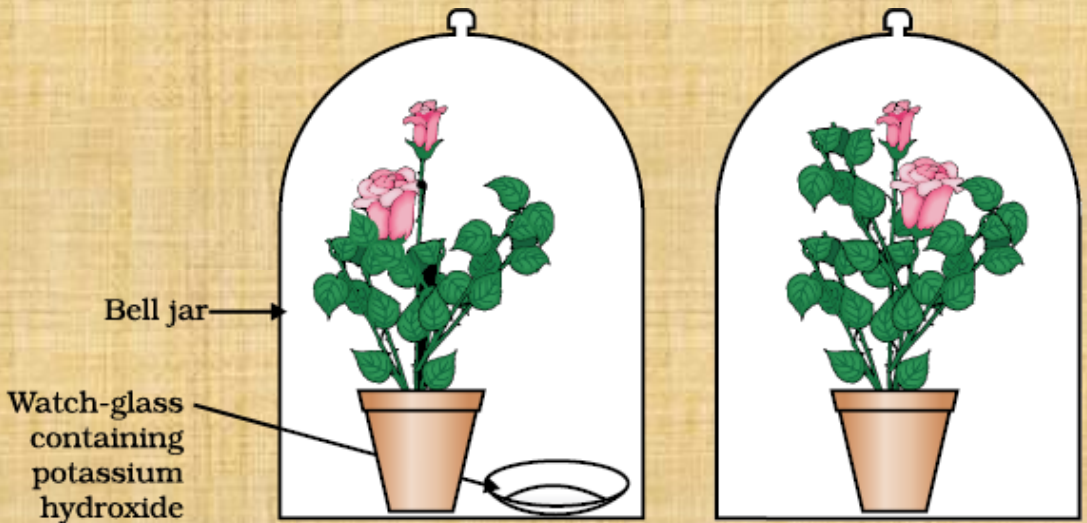


Fig. Experimental set-up (a) with potassium hydroxide
(b) without potassium hydroxide

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