

Respiration in Plants



Plants are also living organisms, their food they too respire to take in oxygen and give out carbon dioxide like most of the animals.

But they do not have any special respiratory system as in animals.

In plants the exchange of gases (oxygen and carbon dioxide also called respiratory gases) takes place through:

1. Stomata
2. Lenticels
3. Root hair cells

Exchange of respiratory gases in leafy land plants.

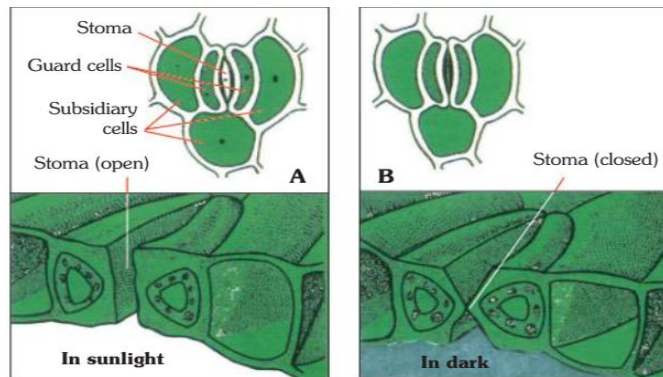


Exchange your respiratory gases takes place by simple diffusion process by these structures:

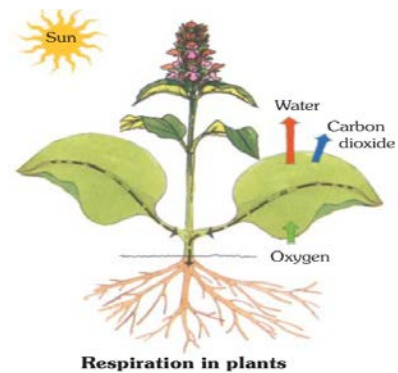
1. Stomata: stomata are tiny openings (Singular- stoma). These are present in leaves and other aerial parts of plants.

Stomata are found in large numbers in leaves (Lower epidermis of leaf has more stomata than upper epidermis in flat leaves)

Stomatal apparatus is formed of:



Stomatal apparatus (A) open and (B) closed, stoma
(Belowside shows enlarged sectional view)



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- A tiny opening calls stoma.
- Two guard cells (These are kidney/ bean/ dumb-bell shaped).
- Many surrounding cells are called subsidiary cells.
- Stomatal apparatus helps in exchange of gases by opening and closing.
- Opening and closing of stomata is observed during the day. This is possible because of expanding or shrinking of the guard cells.
- The cells expand and bulge when water flows into them from surrounding subsidiary cells. It results in open stomata.

2. Lenticels: Woody stems, branches of plants and trees have small openings in the bark, and these are called **lenticels**.

3. Root hair cells: Root has a thin layer of epidermal cells. This is called **epiblema**.

During the day, both respiration and photosynthesis occur in the plants. At night, only respiration takes place so the plants take in oxygen and give out carbon dioxide at night.



Exchange of gases in aquatic plants

Plants living in water are called **aquatic plants**. Water has oxygen and carbon dioxide gases dissolved in it. The aquatic plants absorb the dissolved oxygen gas from the surrounding water through their general body surface.



Utilisation of oxygen: Oxygen absorbed by all the above structures is passed to the living cells of the plant body where it is used for the breakdown of food to release energy.