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STUDY MATERIAL SCIENCE
CLASS-VII

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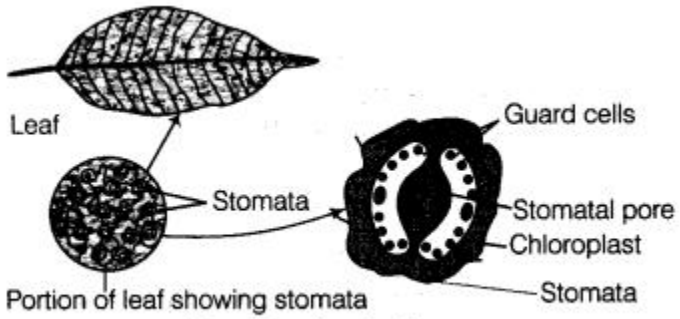
Respiration in organisms

Respiration in Leaves

The leaves of the plants have tiny pores on their surface which are called stomata. The exchange of gases, i.e. O2 and CO2 in the leaves takes place through stomata during respiration. The oxygen from air enters into a leaf through stomata and reaches inside all the cells of the leaf through diffusion while CO2 produced during respiration also diffuses from the leaf to the atmosphere through the stomata.



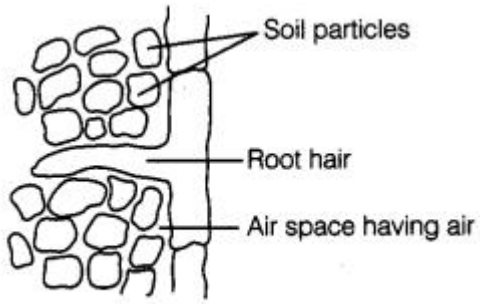
Respiration in leaves

Respiration in Roots

Root cells of the plants respire under the ground. They also need oxygen to carry out respiration and releases energy for their own use. Root cells get oxygen from the air present in the spaces between the soil particles.

Plant roots have a large number of tiny hairs on them which are called root hairs. Oxygen from the air present in soil particles diffuses into root hair

and reaches to the cells of the root where it is utilised for respiration.



Respiration in plant roots

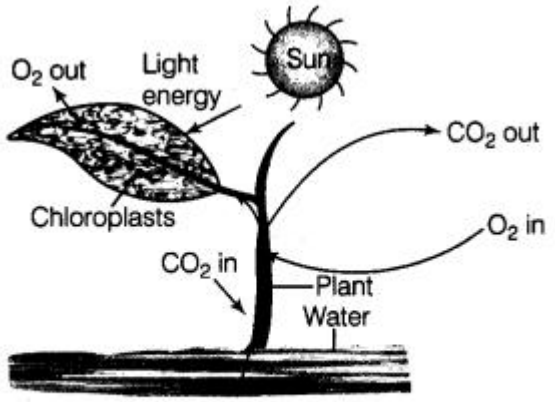
Note: If a potted plant is over watered for a long time, the plants die. This is because the water molecules fill the space between soil particles and push the air out. Due to this reason, the oxygen is not available to the roots for aerobic respiration and plants die. Due to the production of alcoholic products as a result of undergoing anaerobic respiration. It is not wise to sleep under a tree during the night because in the night, plants do not photosynthesis and plants are unable to use CO2. So, a person will suffer from suffocation and feel the excess weight on the chest.

Exchange of Gases

The exchange of gases takes place in the plants all the time, but it is increased during day time. The leaves are more actively involved in photosynthesis during the day time in the presence of sunlight. The CO2 released during respiration is utilised by the plant during photosynthesis to produce its food.

During photosynthesis, the O2 is released by plants which are taken up during respiration in plants. Therefore, a balance between CO2 and O2 is maintained by the plants.

Respiration thus provides continuous energy to plants to perform all its functions regardless of time.



Plant showing intake and release of O_2 and CO_2 during photosynthesis and respiration