**Transpiration**

Transpiration is the process of water movement through a plant and its evaporation from aerial parts such as leaves, stems and flowers. So, it is a loss of water in the form of water vapour from aerial parts of plant (especially leaves). Transpiration may occur through automata, cuticles and lenticels of plants.

**Types of Transpiration**

Depending on the organ that performs transpiration, the different types are:

1. **Stomatal transpiration**: It is the loss of water in the form of water vapour from through stomata. They account for around 90% of the total [water](https://www.toppr.com/guides/essays/importance-of-water-essay/) loss from the plants.

**Stomata** are specialized pores in the leaves that allow gas exchange where water vapour leaves the plant and carbon dioxide enters, special cells called guard cells control each pore’s opening and closing. When stomata are open transpitation rates increase; when they are closed, transpiration rates decrease.

1. **Cuticular transpiration**: loss of water in the form of water vapour from cuticles, which involves 5-10% transpiration.

Cuticle is an impermeable covering (waxy layer) present on all above ground tissue of plant and serve as water movement out of a leaf. The thicker the cuticle layer on leaf surface, the slower the transpiration rate. Cuticle thickness varies widely among plant species. Cuticular transpiration is lesser in xerophytes because they have thicker cuticles.

1. **Lenticular Transpiration**: It is the loss of water in the form of water vapour from lenticels, which involve 1 – 5 % transpiration.

Lenticels are the tiny openings present on the woody bark. They acts as a pores which involves mainly in gas exchange of plants between internal cell of stem and the environment. They lack chlorophyll and are always open and cannot be closed whenever needed.

**Function:**

Transpiration is important in plant for mainly three major reasons:

1. **Cooling of the plant**: The loss of water vapour from the plant cools down the plant when the weather is very hot.
2. **Plant structure** : ypung plant or plant without woody stems require water for structureal support. Transpiration helps maintain the turgidity in plants.
3. **The transpiration pull**: When the plant loses water through transpiration from leaves; water and minerals from the stem amd roots moved, or is pulled, upwards onto the leaves. Water is therefore taken up from the soil by osmosis and finally exits the plants through the stomata.

**Factors affecting Transpiration**

Transpiration rate depends on various factors such as

1. Environmental factors like

* Temperature,
* relative humidity,
* wind speed etc.

1. Plant factors like

* the number and distribution of stomata.
* Percentage of open stomata.
* Water status of the plant.
* The structure of canopy of the tree.