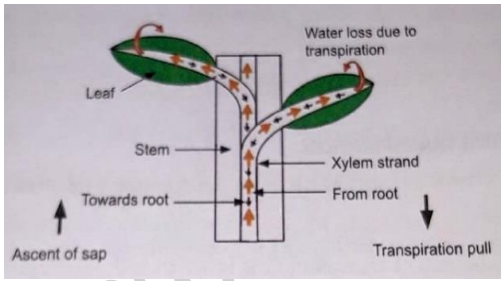
Transpiration in Plants

1. **What is Transpiration?**
   Ans. The process of loss of water by the plants in the form of water vapours is called Transpiration.

2. **What is the role of Transpiration in Xylem Transport?**
3. Ans. **Transpiration** is the main pooling force that causes the absorption of water through plants roots and transpiration through Xylem.



   - The loss of water through the process of transpiration, creates a deficiency of water in the transporting leaves.
   - As a result, their cells absorb water from the neighbouring cells by osmosis.
   - This forms a continuous chain through xylem of the stem reaching to the roots.
   - A zone of low water pressure is created in the roots while roots are surrounded by area of high-water pressure.
   - Thus, root absorb water which is then transported throughout the plant.
   - As the rate of transpiration decreases or increases, so does the rate of water absorption by the roots.

4. **In how many ways the transpiration in plants can occur?**
   Ans. Transpiration in plants can occur in three way:
   a. Stomatal Transpiration
   b. Cuticular Transpiration
   c. Lenticular Transpiration

5. **What are Stomata?**
   Ans. The surface of the leaves contains a large number of pores, called Stomata.

6. **What is Stomatal Transpiration?**
   Ans. This type of transpiration can occur through the stomata present on the surface of leaves.
   The stomata are more abundant on the lower surface than the upper surface. Most of the excess water present in the plants is released outside through these pores. Under optimum condition about 80- 90% of transpiration in a plant can occurs through Stomata.

7. **What is Cuticle?**
   Ans. The Cuticle is a wax-like layer that covers the stems and leaves.

8. **What is Cuticular Transpiration?**
   Ans. These types of transpiration can occur through the surface of leaves and stem. The Cuticle is a wax-like layer that covers the stems and leaves. This layer prevents the loss of water from the plants and protects it from dehydration. However, plants can lose a small amount of water through cuticle too.

9. **What are Lenticels?**
   Ans. Lenticels are small opening in the old stems and twigs.

10. **What is Lenticular Transpiration?**
    Ans. This type of transpiration can occur through the lenticels present on the surface of stems. Lenticels are small opening in the old stems and twigs. These are always open and plants can lose water vapour through these openings.

11. **Which factors are affected Transpiration?**
    Ans. Various environmental factors affect transpiration by plants.
    They are:
    a. Sunlight
    b. Temperature
    c. Humidity
    d. Wind
    e. Soil Water

12. **How transpiration depends on the Sunlight?**
    Ans. During day time the rate of transpiration is faster than during night. This is because during the day the stomata of a plant are opened completely for taking Carbon Di Oxide in the photosynthesis. It allows transpiration continuously. At night the stomata are closed and the transpiration almost stops.

13. **How Transpiration depends on Temperature?**
    Ans. The rate of transpiration is faster on hot days than on cold days. With an increase in temperature the stomata open at a faster rate and the rate of transpiration increases. The increase in temperature also increase the rate of water evaporation from the leaves. This raises the rate of transpiration.

14. How Rate of Transpiration depends on Humidity in Atmosphere?

Ans. The rate of transpiration increase of the external atmosphere is dry as it can hold water molecules. If the external atmosphere is humid, it cannot hold more water molecules and thus the rate of transpiration decreases.

15. How Rate of Transpiration depends on Movement of Wind?

Ans. The movement of wind at a faster speed evaporates the water vapours from leaves quickly. As a result, the rate of transpiration increase. On the other hand, in still air, the transpiration rate decreases because of the saturated air.

16. How transpiration depends on soil?

Ans. When the soil contains water in ample amount the roots absorb a large amount of water and the transpiration increase. If the soil contains less amount of water, plants do not have much excess water and the rate of transpiration decreases.

17. What is the signification of transpiration of Plant?

Ans. The process of transpiration helps the plant in many ways.

a. Absorption of Water and Nutrients.
b. Prevents Rolling of Plant
c. Cooling Effect
d. Cools the Atmosphere

18. How transpiration helps to absorb water and Nutrients?

Ans. Transpiration is the main pulling force that cause the absorption of water through plant roots. Along with water, plants also absorb minerals and salts dissolved in water.

The absorbed water and minerals help in photosynthesis, nutrition and their survival.

19. How Transpiration can help to cool the plant?

Ans. The evaporation of water during transpiration requires energy and latent heat. The utilisation of energy and heat from the plant lower down the temperature and cools the plant. It is especially helpful during hot water.

20. How Transpiration prevents rotting of plants?

Ans. The presence of excess water in the can cause rolling of their parts. Transpiration prevents the rotting in plants.

21. How transpiration cools the atmosphere?

Ans. The release of moisture by transpiration lowers down the temperature of the surrounding atmosphere.