

Transport in plants

CHAPTER-11

EXERCISES

- * 1. What are the factors affecting the rate of diffusion?
- * 2. What are porins? What role do they play in diffusion?
3. Describe the role played by protein pumps during active transport in plants.
4. Explain why pure water has the maximum water potential.
- * 5. Differentiate between the following:
 - (a) Diffusion and Osmosis
 - (b) Transpiration and Evaporation
 - (c) Osmotic Pressure and Osmotic Potential
 - (d) Imbibition and Diffusion
 - (e) Apoplast and Symplast pathways of movement of water in plants.
 - (f) Guttation and Transpiration.
- * 6. Briefly describe water potential. What are the factors affecting it?
7. What happens when a pressure greater than the atmospheric pressure is applied to pure water or a solution?
- * 8. (a) With the help of well-labelled diagrams, describe the process of plasmolysis in plants, giving appropriate examples.
(b) Explain what will happen to a plant cell if it is kept in a solution having higher water potential.
9. How is the mycorrhizal association helpful in absorption of water and minerals in plants?
- * 10. What role does root pressure play in water movement in plants?
- * 11. Describe transpiration pull model of water transport in plants. What are the factors influencing transpiration? How is it useful to plants?
12. Discuss the factors responsible for ascent of xylem sap in plants.
- * 13. What essential role does the root endodermis play during mineral absorption in plants?
14. Explain why xylem transport is unidirectional and phloem transport bi-directional.
15. Explain pressure flow hypothesis of translocation of sugars in plants.
16. What causes the opening and closing of guard cells of stomata during transpiration?