

CHAPTER – 8
Transport in Plants

1. The primary function of the xylem is to:
 - a) Transport water and minerals
 - b) Transport sugars
 - c) Store nutrients
 - d) Provide mechanical support

2. Phloem is responsible for transporting:
 - a) Water
 - b) Nutrients
 - c) Sugars
 - d) Hormones

3. Which of the following processes is responsible for water movement in plants?
 - a) Active transport
 - b) Diffusion
 - c) Osmosis
 - d) Facilitated diffusion

4. The movement of water through the xylem is driven primarily by:
 - a) Root pressure
 - b) Capillary action
 - c) Transpiration pull
 - d) Osmotic pressure

5. In which part of the plant does transpiration primarily occur?
 - a) Roots
 - b) Stems
 - c) Leaves
 - d) Flowers

6. The loss of water vapor from the aerial parts of the plant is known as:
- a) Respiration
 - b) Transpiration
 - c) Evaporation
 - d) Condensation
7. Which of the following structures regulates the loss of water in leaves?
- a) Stomata
 - b) Guard cells
 - c) Epidermis
 - d) Xylem vessels
8. The process by which mineral ions move into plant roots is called:
- a) Diffusion
 - b) Active transport
 - c) Osmosis
 - d) Facilitated diffusion
9. Which of the following is NOT a type of xylem tissue?
- a) Tracheids
 - b) Vessel elements
 - c) Sieve tubes
 - d) Fibers
10. The pathway that involves the movement of water through the cell walls and intercellular spaces is known as the:
- a) Symplastic pathway
 - b) Apoplastic pathway
 - c) Transmembrane pathway
 - d) Phloem pathway
11. In which type of plant tissue does translocation of organic nutrients mainly occur?

- a) Xylem
- b) Phloem
- c) Epidermis
- d) Parenchyma

12. The primary mechanism for nutrient uptake in plant roots is:

- a) Passive transport
- b) Active transport
- c) Bulk flow
- d) Facilitated diffusion

13. The term "hydraulic conductivity" refers to:

- a) The rate of water movement through plant tissues
- b) The rate of nutrient uptake
- c) The pressure exerted by water in plant cells
- d) The loss of water through transpiration

14. Which type of plant cells are specialized for water storage?

- a) Parenchyma
- b) Collenchyma
- c) Sclerenchyma
- d) Xylem vessels

15. The process of "guttation" refers to:

- a) Loss of water through stomata
- b) Loss of water through hydathodes
- c) Absorption of water by roots
- d) Release of water through transpiration

16. Which of the following is a method by which plants can adapt to water scarcity?

- a) Increase in stomatal density

- b) Decrease in root depth
- c) Formation of a thicker cuticle
- d) Reduction in xylem tissue

17. The term "apoplast" refers to:

- a) The pathway of water movement through living cells
- b) The pathway of water movement through cell walls
- c) The cell membrane of root cells
- d) The space between cells in the leaf

18. The "root pressure" is primarily generated by:

- a) Water absorption by roots
- b) Transpiration pull
- c) Active transport of minerals
- d) Capillary action

19. The process by which plants lose water through small openings in their stems is known as:

- a) Guttation
- b) Transpiration
- c) Respiration
- d) Evaporation

20. The "Cohesion-Tension Theory" of water transport in plants emphasizes the role of:

- a) Root pressure
- b) Water potential
- c) Cohesion between water molecules
- d) Active transport

21. Which of the following structures helps to prevent excessive water loss from the plant?

- a) Guard cells
- b) Sieve tubes
- c) Vessel elements
- d) Tracheids

22. Which of the following ions is essential for maintaining turgor pressure in plant cells?

- a) Calcium
- b) Potassium
- c) Magnesium
- d) Sodium

23. In plants, the primary site of water absorption is:

- a) Stems
- b) Leaves
- c) Roots
- d) Flowers

24. Which of the following is NOT a factor affecting the rate of transpiration?

- a) Temperature
- b) Light intensity
- c) Soil moisture
- d) Age of plant

25. The movement of water from the soil into the root cells is mainly driven by:

- a) Osmotic pressure
- b) Root pressure
- c) Capillary action
- d) Transpiration pull

26. Which of the following processes involves the uptake of nutrients against their concentration gradient?

- a) Passive transport
- b) Osmosis
- c) Active transport
- d) Facilitated diffusion

27. The "Stomatal Theory" of transpiration suggests that:

- a) Transpiration occurs mainly through hydathodes
- b) The rate of transpiration is regulated by stomata
- c) Transpiration is driven by root pressure
- d) Water is lost through cell walls

28. Which structure is responsible for the upward movement of water from roots to leaves in a plant?

- a) Phloem
- b) Xylem
- c) Epidermis
- d) Ground tissue

29. The process of moving solutes from areas of low concentration to areas of high concentration using energy is known as:

- a) Facilitated diffusion
- b) Passive transport
- c) Active transport
- d) Bulk flow

30. The "Pressure Flow Hypothesis" explains the movement of:

- a) Water in the xylem
- b) Nutrients in the phloem
- c) Sugars in the xylem
- d) Water in the soil

31. Which of the following is NOT a type of transport tissue in plants?

- a) Xylem
- b) Phloem
- c) Parenchyma
- d) Collenchyma

32. The primary role of root hairs in plants is to:

- a) Increase surface area for water absorption
- b) Provide structural support
- c) Store nutrients
- d) Protect the root tip

33. Which of the following factors can increase the rate of transpiration?

- a) High humidity
- b) Low temperature
- c) High light intensity
- d) High soil moisture

34. Which of the following elements is crucial for the formation of the xylem vessels?

- a) Potassium
- b) Calcium
- c) Iron
- d) Magnesium

35. Which type of cell in the xylem is responsible for water transport in angiosperms?

- a) Tracheids
- b) Vessel elements
- c) Sieve tubes
- d) Collenchyma

36. The primary function of phloem is to:

- a) Transport water
- b) Store nutrients
- c) Transport sugars and nutrients
- d) Provide mechanical support

37. Which structure in plant leaves helps in reducing water loss?

- a) Epidermal cells
- b) Cuticle
- c) Stomata
- d) Vascular bundles

38. The term "transpiration stream" refers to:

- a) The movement of nutrients through the phloem
- b) The loss of water through hydathodes
- c) The continuous movement of water from roots to leaves
- d) The process of water absorption by roots

39. Which of the following is a consequence of stomatal closure?

- a) Increased transpiration
- b) Decreased water loss
- c) Increased nutrient uptake
- d) Decreased root pressure

40. Which of the following is a plant adaptation to reduce transpiration?

- a) Large leaf surface area
- b) Thin cuticle
- c) Small leaf surface area
- d) High stomatal density

41. In which part of the plant does the majority of nutrient uptake occur?

- a) Leaves

- b) Stems
- c) Roots
- d) Flowers

42. Which of the following processes assists in the upward movement of water in the plant?

- a) Active transport
- b) Transpiration pull
- c) Osmosis
- d) Bulk flow

43. Which of the following structures is involved in the transport of sugars in plants?

- a) Xylem

vessels

- b) Tracheids
- c) Sieve tubes
- d) Collenchyma

44. The "root pressure" is primarily responsible for:

- a) Water movement in the phloem
- b) Water movement in the xylem
- c) Nutrient uptake by roots
- d) Transpiration pull

45. Which type of tissue is responsible for the transport of organic nutrients in plants?

- a) Xylem
- b) Phloem
- c) Epidermis
- d) Parenchyma

46. Which of the following processes involves the loss of water through leaf surfaces other

than

stomata?

- a) Transpiration
- b) Guttation
- c) Evaporation
- d) Respiration

47. The "transpirational pull" is mainly caused by:

- a) Evaporation of water from leaves
- b) Root pressure
- c) Active transport of ions
- d) Water absorption by roots

48. Which of the following helps maintain water balance in plant cells?

- a) Stomata
- b) Cuticle
- c) Vacuoles
- d) Guard cells

49. Which factor is NOT likely to influence the rate of water uptake by roots?

- a) Soil temperature
- b) Soil pH
- c) Soil oxygen levels
- d) Soil salinity

50. The "cohesion" property of water is crucial for:

- a) Water transport in the phloem
- b) Water transport in the xylem
- c) Water absorption by roots
- d) Water loss through transpiration

Answer Key for Chapter 8 (Transport in Plants)

1	2	3	4	5	
A	C	C	C	C	
6	7	8	9	10	
B	B	B	C	B	
11	12	13	14	15	
B	B	A	A	B	
16	17	18	19	20	
C	B	A	B	C	
21	22	23	24	25	
A	B	C	D	A	
26	27	28	29	30	
C	B	B	C	B	
31	32	33	34	35	
C	A	C	B	B	
36	37	38	39	40	
C	B	C	B	C	
41	42	43	44	45	
C	B	C	B	B	
46	47	48	49	50	
B	A	C	A	B	

1. Which of the following is a primary macronutrient for plants?

- a) Iron
- b) Calcium
- c) Nitrogen
- d) Zinc

2. The role of potassium in plants includes:

- a) Protein synthesis
- b) Photosynthesis
- c) Water regulation
- d) Nucleic acid formation