

## PASSIVE ABSORPTION OF WATER

MBOTCC-7 (Short Answer Type)

M. Sc. Sem-II  
2018-20

Unit-I

### Key Points:

- (i) Absorption of water in plants occurs by the root hairs. They increase the absorptive surface of the roots.
- (ii) Outer pectic wall layer of the root hairs possesses great water imbibing property. - Calcium pectate is sticky which brings closer contact between the soil water and root hairs.
- (iii) Mechanism of water absorption may be passive or active (Kramer, 1940).
- (iv) Passive absorption does not require metabolic energy while active phenomena always involves expenditure of metabolic energy.
- (v) Water absorption in plants is predominantly passive operating in rapidly transpiring plants.
- (vi) Forces responsible for this kind of absorption of water operate at the transpirational surface (leaves) and the root system simply provides an absorptive surface and a conduit of water entry into the plant system.
- (vii) Active transpiration creates a suction force in the mesophyll cells of leaves. As a result, a tension (transpiration pull) is developed in the water column of the xylem elements which is ultimately transmitted downwards to the root xylem.
- (viii) Thus a gradient of DPD causes movement of water from the root hairs to the inner parenchyma cells and ultimately to the root xylem.
- (ix) This movement of water across the root cortex is thus regarded as mass flow of water rather than diffusion.

— X —