

Solutions

2.1 A Compare the complete water potentials of the two sides rather than solute concentrations alone. A turgid cell can have the same total water potential as its surroundings despite unequal solute potential. At equilibrium there is no net transfer, but water molecules can continue moving in both directions.

2.2 Total potential=solute+pressure= $-0.7+0.4=-0.3$ MPa.

2.3 False. More negative is lower, not higher. The additive cell model has stated boundaries and does not require pretending that every real tissue has one uniform value. Loss of turgor and cell-wall support differ from a rigid wall directly controlling solute concentration.

2.4 water potential. water potential means A pressure-equivalent measure of the tendency of water to move relative to a reference.

3.1 Cell total -0.7 MPa; water enters from higher -0.4 . At balance pressure= $-0.4-(-0.9)=+0.5$ MPa. The fixed-solute assumption is a simplification.