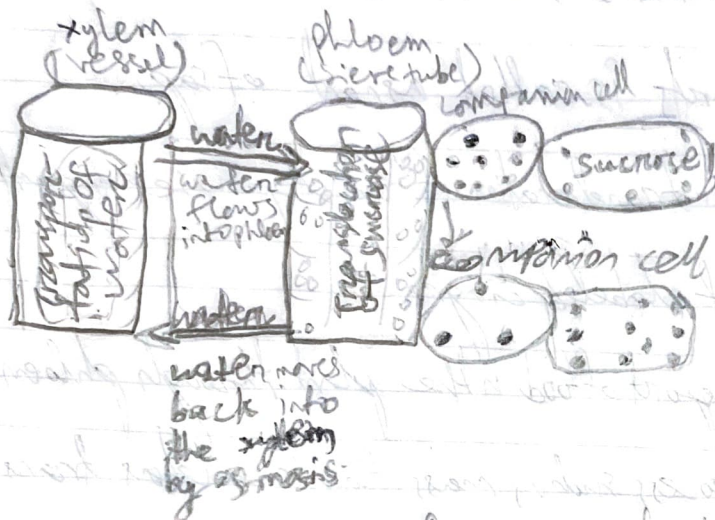


Q1) What do you mean by ascent of sap?

Ans) Ascent of sap - The upward movement of water and minerals from roots to different plant parts is called ascent of sap.

Q2) Explain translocation of food step wise along with a neat labeled diagram.

Ans) • Transport of food in the plant through phloem is a process, such as mass flow is called as translocation.
• Photosynthates i.e. sugars and organic molecules such as amino acids, organic acids, proteins and inorganic solutes like potassium, magnesium, nitrate, calcium, sulphur and iron from source tissues (mature leaves) to



Translocation through phloem

~~At~~ the sink cells (areas of growth and storage) are transported through the phloem.

- Material like sucrose is loaded from leaves to phloem using the energy of ATP.

- Such a transfer increases the osmotic pressure causing movement of water from nearby cells into phloem tissue and the material gets transported through the phloem.

- The same pressure is also responsible for the transfer of substances from phloem to tissues where food is required.

- Thus the bulk flow of material through phloem takes place in response to an osmotically generated pressure difference.

Q3) Why water cannot be transported through out the body of tall plants by root pressure theory?

Ans) Root pressure is caused by accumulation of water in the xylem pushing on the rigid cells. Root pressure provides a force, which pushes water up the stem, but it is not enough to ~~send~~ for the movement of water to leaves at the top of the tallest trees.

Q4) Translocation of food through is unidirectional or bidirectional? Give reason in support of your answer.

Ans) Once the food molecules enter into the phloem they are transported upward, downward or lateral direction so transportation of food through phloem is bidirectional.