THE ROLE OF CONDUCTIVE SYSTEM IN NUTRIENT SUPPLY AND COORDINATION OF PLANT PROCESSES

Summary

The review presents actual knowledge of the role of conductive system (phloem and xylem) in plants. Conductive system transfer organic and inorganic products of absorbed nutrients and photoassimilates. Far distance transport of water and ions as well as various metabolites and phytohormones also take plays in the phloem in interaction with the xylem. Phloem functions as superhighway of information by transporting signalling molecules (hormones, proteins, mRNAs and not coded RNAs) to different plant organs. The movement of these macromolecules from companion cells into sieve tubes occurs *via* plasmodesmata and involves selectively regulated mechanisms. Some proteins and RNAs in the sieve tubes are non-cell autonomous molecules. Therefore it may be concluded that phloem takes part in long distance communication between different plant organs. It allows plant to respond efficiently to ontogenetic changes and external conditions as well as to coordinate transport and distribution of resources required in various proportion for growth and development. It is stressed, that understanding of function of conductive systems may be relevant for modelling of carbon partitioning between competing sinks and finally of plant growth.