

Quantitative Interactions Between Phloem-Xylem Sap Flows, Root Pressure and Predawn Water Potentials.

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Abstract

For many years, mechanistic studies of root pressure and xylem exudation in decapitated plants have focused on the uptake of mineral nutrients from the soil and the resulting osmotic potential and influx of water into the xylem. Theoretical considerations and published evidence of downward water flow through the phloem into the apoplast of root tips in intact (non-decapitated) plants support an old concept that phloem sap flow may contribute significantly to root pressure and upward xylem flow (i.e. a “push-pull” effect). Phloem loading and osmotic influx of water into leaf sieve tubes at night may contribute to negative predawn water potentials.

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Phloem_Root_Pressure.docx available at <https://authorea.com/users/512698/articles/589117-quantitative-interactions-between-phloem-xylem-sap-flows-root-pressure-and-predawn-water-potentials>