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## Water transport properties of root cells contribute to salt tolerance in halophytic grasses *Poa juncifolia* and *Puccinellia nuttalliana*

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### Highlights

- Growth, physiological responses to NaCl and water transport properties of root cells were examined in two halophytic grasses, *Puccinellia nuttalliana* and *Poa juncifolia*, and compared with the glycophytic grass *Poa pratensis*.
- NaCl reduced plant dry weights, net photosynthesis in *P. pratensis*, but not in *P. nuttalliana* and *P. juncifolia*.
- Root cell hydraulic conductivity was inhibited by NaCl in *P. pratensis*, but little affected in *P. juncifolia* and enhanced in *P. nuttalliana*.
- Contrary to *P. pratensis*, root K concentration were maintained high in NaCl-treated halophytic grasses, likely preventing cytoplasm acidification that is known to inhibit the aquaporin-mediated water transport and, consequently, root hydraulic conductivity.
- Maintenance of high K levels in roots of halophytes may contribute an important mechanism that helps preserve water balance in saline environments..

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