

Effect of salinity stress on nutrient uptake and chlorophyll content of tropical turfgrass species.

Abstract

Seawater of different salinity levels (0, 24, 48, and 72 dSm⁻¹) were applied to 16 turfgrass species that grown in plastic pots filled with a mixture of sand and peat (9:1v/v). Chlorophyll concentration decreased significantly with increasing salinity. *P. vaginatum* and *Z. japonica* maintained greater amount of total chlorophyll than the others turfgrass species under salt stress. Increasing salinity also decreased K, Ca, Mg content and K/Na ratio but increased Na content in the shoot tissue. The K, Ca, Mg content reduction was the lowest in the species of *Paspalum vaginatum*, *Zoysia japonica* and *Zoysia matrella* while the highest K reduction was in the species of *Digitaria didactyla* at all salinity levels followed by *Axonopus affinis*, *Cynodon dactylon* 'tifdwarf', *Cynodon dactylon* 'greenlesspark' and *Axonopus compressus* (pearl blue). Other species were the intermediate. The overall, shoot K/Na ratio was the highest in *Paspalum vaginatum* followed by *Zoysia japonica*, whilst the lowest K/Na ratio was in *Axonopus compressus* (pearl blue) followed by *C. dactylon* 'greenless park'. The results revealed that K, Ca and Mg ions uptake and their distribution to shoot tissues under salinity stress may be relevant issues for salt (Na⁺) exclusion studies and for plant nutrition as well.

Keyword: Salinity stress; Nutrien uptake; Chlorophyl; Turfgrass.