



## **The potential of remediation of soils affected by salt using halophytes**

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Evaporation ponds containing saline waters may cause soil salinization in the vicinity of these ponds through seeping and leaching of pond water through the embankment. Native set tolerant vegetation like halophytes may assist in the revegetation and rehabilitation of these salt affected soils. As native vegetation for this study of brine affected land native halophytes species were selected including *Tecticornia pergranulata*, *Sclerolaena longicuspis* and *Frankenia serpyllifoli*. Soil samples from adjacent bare and vegetated areas of brine affected land were analysed to assess the physico-chemical properties associated with the vegetation cover. Salt contents of the halophytes, plant bioaccumulation, bioconcentration and translocation factors were measured to evaluate the remediation capacity of the species. The hypothesis was tested whether the halophytes are able to reduce the salt concentrations and as a consequence the salinity (and sodicity) of the soil. The examined halophytes were associated with a reduction in salinity and sodality by an average of 38.5% and 33% in the top 10 cm of the soil, respectively. *Tecticornia pergranulata* had the highest shoot Na<sup>+</sup> content (98 g kg<sup>-1</sup> dry weight) and higher factors for bioaccumulation (factor of 14) and translocation (factor of 23) for Na<sup>+</sup> and indicated the higher remediation potential of this species. Despite the potentially successful application of this species for remediation, halophytes are in general not able to reduce the salt content within the landscape to create a condition for the growth of glycophytes particularly on a short-term time scale. However, the salt affected land can be revegetated by halophytes, and halophytes probably provide a stable vegetation cover for the landscape in ecological succession. The results also showed that a greater salt leaching potential is likely linked to soil physical parameters and most likely achievable through higher soil hydraulic conductivity which is required for halophyte establishment and the success of revegetation.