

Provenance matters: Variability under saline stress in young plants of four populations of a prosopis (mesquite) species from dry forests of argentina

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Resumen

The planting of native perennial woody species tolerant to variable salt concentrations can facilitate the recovery of degraded dry forests. The objective of this study was to evaluate and compare, under experimentally controlled conditions, the response to saline of young plants from four provenances of *Prosopis alba*, a mesquite species useful for restoration plans. The seeds of *P. alba* were from different localities of the Chaco region of Argentina (Santiago del Estero, Chaco, Formosa, and Salta). The plants were evaluated for 45 days under greenhouse-controlled growth conditions in the presence of 0, 100, and 300 mmol·L⁻¹ NaCl. We measured variables associated with growth, photosynthesis, and redox state. The imposed salt stress condition did not cause plant death in any provenance. However, salinity produced a strong effect on growth and physiological variables of all provenances. Salta provenance was associated with higher

net values of biomass and stem diameter. Chaco registered the greatest relative values of height and stem diameter, indicating a higher salinity tolerance than the other provenances. Chaco also produced more antioxidants to cope with the oxidative stress associated with saline stress. Chaco and Salta provenances may be the most promising for use in restoration plans of dry forests in areas with saline soils in the Chaco region. We emphasize the importance of using different provenances in forest restoration for a more successful system recovery.

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