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Phosphorus nutrition in two cultivars of *Lotus glaber* Mill.

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The genus *Lotus* plays an important role as a forage legume in the Argentinean wetlands. It has been recognized that in soils of Salado River Basin, deficiency of phosphorus (P) availability acts as one of the major constrain for plant productivity. There are contradictory reports of the effect of P-availability on plant growth and development of *Lotus glaber* in saline-sodic soils. It is suggested that *L. glaber* is specie adapted to low P availabilty with litle response of plant growth when increasing added P in soil (Ayala Torales et al., 2000). However, it was also reported significant differences in P-utilization between *L. glaber* populations (Kade et al., 2003; Mendoza et al., 2000). In this work, we attempted to evaluate the effect of P-nutrition on the overall performance of *L. glaber*, as well as the existente of genotypic differences in response to P-nutrition. For this goal, *L. glaber* cv. Tresur Chajá and cv. Esmeralda were grown in pots at two levels of P addition (0-100 ppm P) on a Typic Natraquol soil (pH: 9.4; EC: 9.3 dS/m; P-Bray I: 7.3 ppm P; N total: 0.12%, Exchangeable Na: 77.4%), where *L. glaber* currently grow at field conditions. At high P-addition, we found a positive response of total biomass accumulation and the allocation of carbon resources to the shoot. Biomass accumulation was similar for both genotypes, but the allocation of biomass to shoots was higher for cv. Esmeralda with respect to cv. Chajá. Besides, genotypic differences were found in the time required to set flowering, which was 114 and 120 days at low P, and 98 and 110 days at high P for Esmeralda and Tresur Chajá, respectively. At both levels of P, P-utilization efficiency as well as P absorbed by plants were similar for both genotypes. These results illustrate that P-nutrition is one of the major factors determining *Lotus glaber* productivity in saline-sodic wetlands, and suggest the existence of differences between genotypes in the pattern of growth and development at high levels of P addition.

References

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