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The XXI International Grassland Congress / VIII International Rangeland Congress took place in Hohhot, China from June 29 through July 5, 2008.

Proceedings edited by Organizing Committee of 2008 IGC/IRC Conference

Published by Guangdong People's Publishing House

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Influence of salinity and temperature on the germination and seedling growth of *Chloris virgata* Swartz

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Key words: *Chloris virgata*, Halophyte, germination, salinity, temperature, seedling growth

Introduction *C. virgata* is a vanguard species of degenerated grassland in the study area during restoration, and represents a good grass species to develop. Better understanding of the germination processes of the two species would facilitate utilization of *C. virgata*.

Materials and methods Seeds of *C. virgata* were germinated in six salinity concentrations (0, 50, 100, 150, 200 and 250 mM NaCl) at constant temperature regimes of 15, 20, 25, 30°C and alternating temperature regimes of (dark/light) 15/25 and 20/30°C with 12-h photoperiod.

Results The results showed that the germination percentage was less influenced by salinity, but the radicle length decreased with increasing in salinity. 30°C is the optimum temperature for this species.

Table 1 Germination percentage of *C. virgata* under NaCl stress and temperature regimes ($P < 0.01$).

T \ C	0 mM	50 mM	100 mM	150 mM	200 mM	250 mM
15 °C	92±2.5A	94.7±1.2A	95.3±1.6A	88±3AB	94±2.2A	75.3±2.6B
20 °C	96.7±1.6A	92±2.2A	92.7±3.4A	95.3±1.6A	88.7±1.2A	87.3±2.1A
25 °C	94.7±2.8A	96.7±1.2A	97.3±1.2A	89.3±1.6A	95.3±2.6A	97.3±0.6A
30 °C	96.7±1.6AB	99.3±0.6A	98±1.0AB	90±2.0BC	84±2.2C	84.7±2.8C
25/15 °C	94.7±2.2AB	93.3±1.2AB	95.3±1.2AB	98±1.0A	92±1.0AB	89.3±2.6B
30/20 °C	94.7±1.6A	95.3±1.6A	96.7±1.2A	95.3±2.4A	97.3±1.6A	92±1.1A

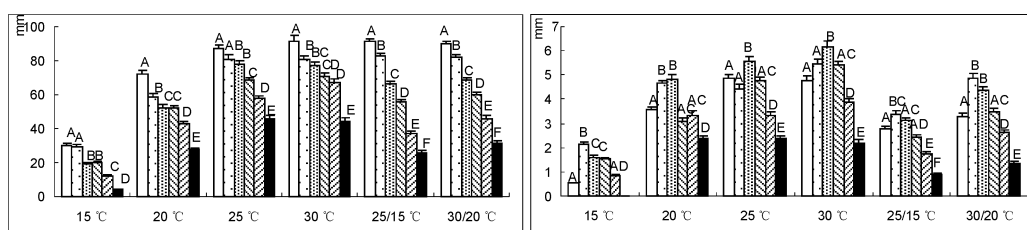


Figure 1 Effects of salinity and temperature on radical (a) and hypocotyls (b) length of *C. virgata*. Data shown are means \pm standard error of thirty replications.

Conclusion *C. virgata* appears to have a wide ecological amplitude for a variety of environmental factors and is a promising species to be developed in Songnen region.

Reference

Khan M. A., Gul B. & Weber D. J. (2000). Germination responses of *Salicornia rubra* to temperature and salinity. *Journal of Arid Environments* 45, 207-214.