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 ℃	92±2 .5A	94 .7±1 .2A	95 .3±1 .6A	88±3AB	94±2 .2A	75 .3±2 .6B
20 ℃	96 .7±1 .6A	92±2 .2A	92 .7±3 .4A	95 .3±1 .6A	88 .7±1 .2A	87 .3±2 .1A
25 ℃	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 ℃	96 .7±1 .6AB	99 .3±0 .6A	98±1 .0AB	90±2 .0BC	84±2 .2C	84 .7±2 .8C
25/15 ℃	94 .7±2 .2AB	93 .3±1 .2AB	95 .3±1 .2AB	98±1 .0A	92±1 .0AB	89 .3±2 .6B
30/20 ℃	94 .7±1 .6A	95 .3±1 .6A	96 .7±1 .2A	95 .3±2 .4A	97 .3±1 .6A	92±1 .1A

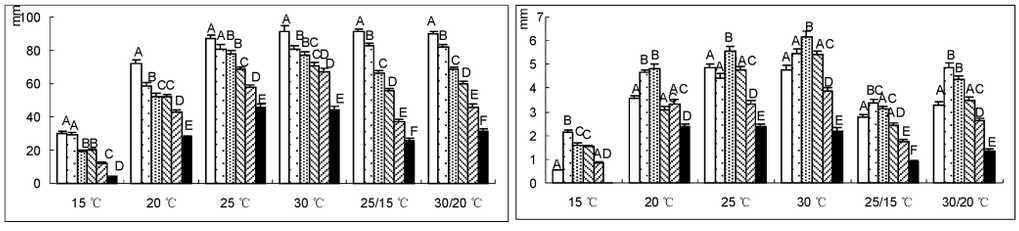

Figure 1 *Effects of salinity and temperature on radical (a) and hypocotyls (b) length of* C . virgata . *Data shown are means ± standard error of thirty replications .*

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 .