

Effect of Salinity and Temperature on *Salicornia Brachiata* (Roxb) Seed Germination

Madhurangika, W. M. C.^{1*}, Perera, D.¹

¹Department of Bioprocess Technology, Faculty of Technology, Rajarata University of Sri Lanka.

*bst1718042@tec.rjt.ac.lk

Salicornia brachiata Roxb, also known as "samphire" or "glasswort," is a halophyte plant found in Puttalam. This study investigated how salinity treatments change with temperature for *Salicornia brachiata* seed germination. The current study conducted the impact of salinity and temperature on the germination percentage, mean germination time, and recovery percentage of *S. brachiata*. Seeds were extracted, stored at 6°C, and surface sterilized with a 30% commercial bleach solution. To overcome seed dormancy, seeds were soaked in 500 ppm gibberellic acid for 24 hours. Seeds were placed in petri dishes with 4 replicates with different salinity levels (0, 150, 250, 350, and 500 mM) and temperatures (25, 30, and 35 °C) in incubators. All the data were analysed using two-way ANOVA. The highest germination percentage (93.9%) was shown at 0 mM and the lowest (78.21%) at 500 mM. In the temperature range, the highest germination percentage (92.1%) was shown at 25 °C and the lowest (82.67%) at 35 °C. The highest mean germination time (4 days) was shown at 500 mM (1 day) and the lowest (2 days) at 0 mM, and regarding temperature, the highest (4 days) was shown at 25 °C and the lowest at 30 °C. At 500 mM, it showed the highest recovery percentage (97.1%) and the lowest (67.3%) at 250 mM. The highest recovery percentage (97.7%) is shown at 35 °C, and the lowest (77.4%) at 25 °C. Salinity and temperature did not have a significant difference in effect on *S. brachiata* seed germination interactively, but they affected it independently. *S. brachiata* seeds prefer fresh water for germination, and cooler temperatures are preferred over high temperatures.

Keywords: Salinity; halophytes; *Salicornia brachiata* Roxb; Effect on temperature; Germination percentage