

Abstract

It is important to study various aspects of *Allyssum hamalocarpum* growth in rangeland ecosystem with different abiotic stresses due to limited habitat size of this species in native rangeland. This study aimed to investigate the effect of two abiotic stresses including salt and drought on seed germination characteristics of *A. hamalocarpum* in laboratory conditions. The experiment was designed as factorial completely randomized with four replications. Treatments included five levels of drought i.e. 0, -0.19, -0.25, -0.41 and -0.99 Mpa and five levels of salt including 0, 50, 100, 150 and 200 mmol/L NaCl. Polyethylene glycol and NaCl were used to create various levels of drought and salt stresses, respectively. Data were analyzed with One-way ANOVA and means with significant difference were separated with Duncan test at 95% confidence level. Seed germination characteristics of *A. hamalocarpum* were affected ($P<0.05$) by various levels of drought and salt stresses. Germination percentage and rate, radicle length, plumule length, radicle and plumule dry matter mass were decreased ($P<0.05$) as stresses increased. *A. hamalocarpum* seeds tolerated drought level up to -0.25 Mpa. However, germination percentage and rate reduced at drought level greater than -0.25 Mpa. This study concluded that seed germination characteristics of *A. hamalocarpum* can be more affected by salt stress than drought stress because its seeds germinated many more under salt stress than drought stress. This indicates that *A. hamalocarpum* is more sensitive to salt stress than drought stress.

Keywords: *Allyssum hamalocarpum*, Medicinal plant, seed germination, salt stress, drought stress.