

Effect of salinity stress on germination and heterotrophic growth of wild okra (*Corchorus olitorius* L.) seeds

Authors:

Madeh Ahmadi¹
Sahar Zamani¹
Hadi Salehpoor² and
Zahra Rahmati Motlagh³

Institution:

1. M.Sc student in medicinal plant, Department of horticulture, Gorgan University of Agricultural Science and Natural Resources, Gorgan, Iran

2. M.Sc. Student of Medicinal Plants, Academic member, Birjand University

3. Young Researchers and Elite Club, Boroujed Branch, Islamic Azad University, Boroujerd, Iran

Corresponding author:
Zahra Rahmati Motlagh

ABSTRACT:

An experiment was laid out in order to evaluate the effect of salinity stress on seed germination, seedling growth and heterotrophic growth of wild okra at the laboratory of horticulture faculty of Gorgan Agricultural and Natural Resources University, Iran, March 2015. In this experiment treatments were different salinity stress levels of NaCl (0, -2, -4, -6, -8 and -10 bar). 25 seeds of each lot evenly placed on Whatman filter paper No.1 in sterilized 9-cm petri dishes separately and 10 ml of each solution were added to the related treatment. Seed germination parameters, seedling growth and heterotrophic growth components were determined. The results showed that, the effect of salinity stress was significant on germination percentage, germination rate, hypocotyl and radicle dry weight, seedling length, seed vigor index, seed reserves utilization, conversion efficiency of mobilized seed reserve and ratio of utilized seed reserve. Mean comparison data showed that maximum germination percentage, germination rate, radicle dry weight, seedling length, seed vigor index and seed reserves utilization were recorded for -2bar water potential and the lowest of them was recorded for the -10 bar water potential (severe salinity stress) for all traits. Maximum hypocotyl dry weight were recorded at -2bar saline stress treatment. Moreover, maximum conversion efficiency of mobilized seed reserve and ratio of utilized seed reserve was founded at -8 bar saline stress treatment and minimum of them was recorded for -10bar water potential. The results of the study showed that increasing of saline stress in wild okra decreased seed germination parameters, seedling growth and heterotrophic growth components.

Keywords:

Heterotrophic growth, salinity and seed germination