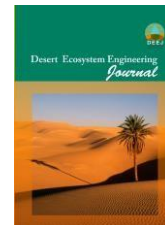




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Survival and growth responses of *Populus euphratica* olive seedlings to flooding-salinity stress

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Abstract

Populus euphratica tree is a species naturally growing in riparian zones of rivers in arid and semiarid region where seasonal flooding and soil waterlogging provides the conditions for this species. The aim of current study was to assess survival, growth characteristics and biomass allocation of *Populus euphratica* seedlings exposed to combined flooding- salinity stress at four levels including control (no flooding- salinity stress), flooding (4 cm above soil surface) with salinity concentrations 0, 50, 100, and 150 Mm NaCl in a completely randomized design for 120 days at greenhouse conditions. At the end of experiment period, survival percentage of flooded seedlings with 0, and 50, 100, 150 Mm NaCl was 100, 88.8, 11.1, and 0 percent, respectively. Flooding with different levels of salinity led to decreased survival, growth characteristics, and biomass of *Populus euphratica* seedlings compared to control treatment. This decrease was higher at flooding levels of 100 and 150 Mm NaCl than other levels. Also, total biomass and number of adventitious roots at levels of 0 and 50 Mm NaCl were higher than 100 and 150 Mm NaCl. Based on the results it could be suggested that this species can survive and grow and or restore coastal and plain areas, riparian zones in arid and semiarid regions where flooded with fresh and saline water of 50 Mm NaCl concentration. Thus, this species can be used to restore these areas.

Keywords: flooding - salinity stress, survival, root biomass, adventitious root, growth diameter.

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