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VARIATION OF SOME MORPHOLOGICAL TRAITS OF SAFFLOWER (*CARTHAMUS TINCTORIUS* L.) GROWN DIFFERENT SOIL SALINITY LEVELS IN THE FIRST DEVELOPMENT STAGE

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ABSTRACT

The study aimed to determine the effects of various levels of soil salinity (0.8, 2.5, 5.1, 8.7, 13.0, 15.2 and 23.0 dS m^{-1}) on the development and growth of seedlings of variety 5-154 (spiny) using three sampling intervals (7, 14 and 21 days) after emergence. Different root zone soil salinity levels were constituted by applying water containing various NaCl concentrations. Emergence proportion, root and shoot length, root and shoot dry weight, root/shoot dry weight ratio and daily root and shoot growth rate were investigated. The results showed that the investigated traits diminished with increasing soil salinity in three sampling intervals. On the average, root dry weight reduced from 22.27 to 4.86 mg/plant and shoot dry weight declined from 43.32 to 21.53 mg/plant with increasing salinity levels. Moreover, daily growth rate of root and shoot had range of 0.8 dSm^{-1} and 23 dSm^{-1} showing reduction of 85.13% and 64.39%, respectively.

Results indicated that the root growth was more adversely affected than shoot growth by soil salinity. At higher salinity levels extended growth period, the seedling growth slowed down with increased the resistance and stable growth to salinity.

Keywords: Safflower (*Carthamus tinctorius* L.), soil salinity, sampling interval, first development stage