

Effect of sodium selenate, titanium dioxide and growth regulator on some physiological characteristics, yield and percentage of safflower oil under drought stress

Abstract

In order to study the effect of Sodium Selenate, Titanium dioxide and Growth regulator (Hamon Green[®]) on some physiological traits, yield and oil content of Goldasht cultivar of safflower under drought stress, a split plot experiment was conducted in a randomized complete block design with three replications in Agricultural Research Center of Zabol University located in Zahak city (Chah-e-Neme). The main factor included irrigation cut off levels based on the phenological stages of growth in three levels: I1 = control (complete irrigation), I2= irrigation up to stage R2 (flowering) and I3= irrigation up to stage R1 (branching) and sub-factor including Sodium selenate (2 mM), Titanium dioxide (0.03%), Growth regulator (0.1 L). Characteristics to be evaluated are: number of leaf per plant, number of leaves per plant, plant height, main stem diameter, petal yield, seed yield, biological yield, harvest index, 1000 seed weight, chlorophyll measurement by SPAD- 502, determination of RWC and proline, catalase, guaiacol peroxidase, ascorbate, oil percentage and protein content. Drought stress reduced biological yield, seed yield, petal yield, 1000 seed weight, relative humidity and chlorophyll content. The highest amount of chlorophyll b is related to the growth regulator. The highest amount of proline, catalase, ascorbate and guaiacol peroxidase was obtained from the interaction of stress + not spraying. The highest amount of soluble carbohydrates was observed in irrigation + Hamon Green[®] spraying. The treatments applied on the traits did not have a significant effect on number of sub branch and sub sub branch, stem diameter, harvest index, oil percentage and protein content of seed.

Keywords: Irrigation, Proline, Titanium dioxide, Sodium selenite, Chlorophyll, Oily plant



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Title

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