Abstract

In order to investigate the effect of the formation and cultivation of safflower on quantitative and qualitative yield under drought stress, an experiment was conducted at the Agricultural Research Institute of University of Zabol in Zahak (Chah-e-Nimeh) during the growing season of 1395-96. This experiment was conducted as a factorial in the form of randomized complete block design with three replications. First factor: Isfahan local cultivar, Goldasht cultivar, Gol-Mehr cultivar. Second factor: normal irrigation, irrigation to pollination stage, irrigation to seed stage. Third factor: Rectangular planting arrangement, square planting arrangement. Fourth factor: planting north south, planting east west. The results of data analysis showed that stem height, leaf area index, number of sub branch, biological yield, harvest index, anthocyanin, chlorophyll a, carotenoid and protein content decreased by changing the crop arrangement from rectangle to square but the amount of economic yield and seed oil increased. By changing the direction of cultivation from north south to east west: stem height, ----------, chlorophyll b, seed protein and seed oil decreased but the amount of economic yield, harvest index, thousand-seed weight and carotenoid increased. Increasing drought stress levels, normal irrigation, irrigation to pollination and irrigation to seed stage, reduced stem height, ----------, number of branches, number of sub-branches, respectively. However, economic yield, biological yield, harvest index, anthocyanin and seed oil in the irrigation stress level up to seedling stage were the highest. And also, the amount of seed protein and chlorophyll a and b from the irrigation stress stage to the stage of pollination gradually increased. Elevation, leaf area index, ----------, economic performance, carotenoid, seed protein and seed oil increased in Isfahan local cultivar. In the Goldasht cultivar, the number of sub-sub-branches and thousand-weight were the highest. In Gol-Mehr cultivar, biological yield, harvest index and chlorophyll b were more than other traits.

Keywords: leaf area index, seed oil, seed protein, anthocyanin, carotenoid.

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The Thesis Submitted for the Degree of Master of Science
In the field of Agronomy

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2017