

## **Abstract**

Today, for having a system of sustainable agriculture, that improving ecological aspects of the system and reducing the environmental hazards, seems necessary. To compare the effects of organic and chemical fertilizers (nitrogen and phosphorus) on some agronomic characteristics, yield components and seed yield of safflower in Sistan, a split plot experiment in randomized complete block design with three replications in Zabol university research and education was performed in 90 crop year. The main types of fertilizers: 1 - no fertilizer (control), 2 - Manure (30 tons per hectare), 3 - Phosphate Fertilizer fertilized 2 of the recommended amount, 4 - Compost (20 tons per hectare), 5 - fertilizers (nitrogen and phosphorus, respectively. 150 and 80 kg ha) and sub plots, safflower cultivars include: KWH39, LRv1 and Goldasht. Effect of fertilizer on plant height, number of leaves per plant, leaf area index, number of seeds per head, seed weight, biological yield, grain yield and protein content was significant. averages comparison suggests significant advantages among chemical fertilizers and organic fertilizers on investigated characteristics, except the number of branches, seed weight and oil percentage. Manure treatment showed also Significant increase compared to all the quantitative traits except number of seeds per head and showed its effectiveness through significantly grain weight on increased performance. Bio-fertilizer phosphate fertilize 2 could account the highest harvest index. studied Characteristics except number of branches and protein percentage was affected by cultivar. There were significant differences among cultivars of percentage of oil seed, However, this difference was not observed in terms of protein percentage. In the cultivars the highest seed yield belonged to number L.R.v1. protein percentage of this cultivar with no significant difference with the average 82/13 percent was the highest ranked. The interaction of fertilizer and cultivar on grain number per head, grain weight and grain yield were significant. The effect of this interaction the most function of grain yield and protein percentage of LRv1 cultivate was affected by fertilizer.

**key words:** Bio-fertilizer, nitrogen, seed weight, leaf area index



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**Effects of application of chemical and organic  
fertilizers on yield, yield components and seed oil  
percentage of cultivars of safflower (*Cartamus  
thinctorius* L.) in delayed planting in Sistan**

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