

## **Abstract**

In order to evaluate the effect of nitrogen (N) and arsenic (As) on quantitative and qualitative characteristics of safflower (Cv. Godasht) a pot experiment was conducted as factorial randomized complete block design with three replications in 2011 at the University of Zabol. Treatments consisted of three levels of N fertilizer; 75, 150 and 225 kg N ha<sup>-1</sup> as first factor and four As addition: 0, 30, 60 and 90 mg As kg<sup>-1</sup> of soil as second factor. Results showed that As addition had significant and descending effect on plant height, boll number per plant, single plant seed weight and biological yield. Activity of CAT and GPX antioxidant enzyme and soluble carbohydrates in the leaves of safflower increased with increasing As addition. Arsenic, however, had no significant influence on nutrient concentration, seed numbers per boll, chlorophyll a, chlorophyll b, carotenoid, chlorophyll fluorescence and activity of APX enzyme. Nitrogen fertilizer had no significant effect on APX enzyme, plant height, chlorophyll fluorescence and absorption of nutrients in seeds and shoot, but increases the number of bolls per plant, biological yield, single plant seed weight, chlorophyll b, carotenoids, total chlorophyll, soluble carbohydrates and activities of CAT and GPX enzyme.

**Key words:** Safflower, Nitrogen, Arsenic.



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**Title**

**Different levels of nitrogen and arsenic effects on the  
quantitative and qualitative characteristics of  
safflower (*Carthamus tinctorius*)**

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