

## Abstract

Management use of organic fertilizers and soil debris in terms of environmental impact and performance of plants, especially medicinal plants in dry and semi dry regions like Iran is important, Therefore, In order to evaluate different sources of fertilizer on yield and quality of medicinal plant chicory (*Chicorium intybus* L) under drought stress, a factorial experiment in a randomized complete block design with three replications during 1393-1392 in the field of Agricultural Research Institute, University of Zabol located in the city Zehak (chah nimeh) was conducted. Treatments consisted of three levels of drought stress on D1: 60 mm Evaporation (control), D2: 90 mm Evaporation (average), D3 120 mm evaporation (severe) as the main factor and four levels of fertilizer include: (1) control (without fertilizer), 2-manure (30 tons per hectare), 3-poultry manure (30 tons per hectare), 4-nano potassium 27% (10 kg per hectare), 5 - Potassium sulfate (150 kg) were considered as sub factor. Evaluations consisted of Quantitative Characteristics (plant height, number of branches and sub, diameter and number of flowers, yield dry flowers and yield Growth) and Quality includes (chlorophyll a and b, total chlorophyll, carotenoids, phenol, proline, carbohydrates, protein percent, nitrogen percent, potassium percent, phosphorus and zinc, peroxidase, Polyphenol oxidase ). Analysis of variance showed that the effects of drought stress on the parameters were significant at different levels. With the escalation of all Quantitative Characteristics, photosynthetic pigments, nitrogen and protein, inulin and phosphorus decreased compared to the control. The average comparison showed that the antioxidant enzyme activities and proline, phenol, Carbohydrates solution, carotenoids, Essential oil percent and oil yield, chicoric acid, zinc and potassium By intensifying drought stress increased that this increase is due to the plant's internal mechanism for resistance in the level of tension. According to the results, various fertilizers were increased all the quantitative and qualitative characteristics chicory. Organic fertilizers and nano potassium had the greatest impact on most of the traits chicory. Potassium sulfate fertilizers in more parameters weaker acted than other. Average comparison showed that the highest rate of morphological and physiological parameters, such as carotenoids, nitrogen, protein, phosphorus and Catalase enzyme were obtained from poultry manure and non-stress. Maximum inulin was obtained from manure treatment in non-stress that shown 13/45 percent increase compared to the control. The highest amount of soluble carbohydrates, phenol, proline, essential oil content and oil yield, chicoric acid, zinc, potassium and the amount of peroxidase and polyphenol oxidase was obtained from nano potassium treatment. In general, the use of organic fertilizers and nano under drought stress improved Most of the parameters chicory Including its medicinal parameters, Therefore, their use is recommended in order to organic and sustainable agriculture.

**Key words:** chicory, drought, organic fertilizer, nano potassium, chicoric acid, inulin



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**Effects of different fertilizer sources and  
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yield of chicory (*Chicory intybus* L.)**

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