

## Abstract

to evaluate the effect of foliar application of salicylic acid under conditions of water stress on morphological and physiological characteristics of three varieties of anise (Hamedan, Nahavand and Isfahan), for trial in Zray93-92 split plot factorial randomized complete block design with three replications Zabol in Sistan dam was a research University. Drought included three irrigation levels to 30% of field capacity (severe stress), irrigation 60% of field capacity (mild stress), irrigation 90% of field capacity (normalized) as original and different levels of different varieties were sprayed and figures including Isfahan, Hamedan, Nahavand and sprayed with three rates (zero, 5.2 and 5 mM) as a sub agent. Features discussed include: plant height, number of umbrella per plant, umbelets the umbrella, seed, root length, number of lateral branches, stem diameter, fresh weight of the plant, economic performance, biological yield, grain weight, chlorophyll a, b, total chlorophyll, carotenoids, carbohydrates, proline and were anthocyanins. The results showed that drought stress decreased all the parameters (especially economic yield components) other than the carbohydrates and proline. Foliar application of salicylic acid increases the number of parameters including height, umbels, number of seed, root length, shoot fresh weight, economic performance, biological yield and was proline. In some cultivars, significant differences were observed in terms of some morphological and physiological characteristics. The interaction between stress, the best figure in terms of economic performance and salicylic acid was sprayed with foliar application of 5 mM was under full irrigation. Statistical analysis included analysis of variance, mean and correlation between traits and component analysis was performed using SAS software.

**Key words:** stress, genotype, fennel, salicylic acid



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**Effect of salicylic acid on morphological and physiological  
traits of fennel (*Foeniculum vulgare Mill*) under drought  
stress**

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