Abstract

To evaluate the effect of foliar application of abscisic acid hormone on some quantitative and qualitative characteristics *silybum marianum* in Drought stress conditions, an experiment in 2013 in Split - factorial based on randomized complete block design with three replications in Zabol University was performed. Main plots consisted of full irrigation (control) and stress (cessation of irrigation at flowering plant) and subplots consisted of spraying the plant with two levels of abscisic acid (zero and 3ppm) and 6 milk thistle genotype was. Statistical analysis included analysis of variance to assess the phenotypic traits, mean, phenotypic correlation between traits, principal component analysis, cluster analysis was performed and the bi-plot. Analysis of variance showed a significant effect of drought stress on all attributes except potassium ($P \leq 0.01$), genotypes and ABA effect was significant for some traits. Given the significant interaction between stress×genotype and ABA×genotype, genotype at each level of stress and ABA had different trends. Significant increase in the stress hormone spray some of the traits, and also tripartite interactions between treatments for most of the measured parameters was significant. According to the results of the average compared, the highest grain yield and biological yield of genotype Hungary under full irrigation and spraying and most percent silymarin in the treatment of genotype Ahvaz and stress were sprayed with ABA and the most performance silymarin the same genotype full irrigation and nonspraying respectively. Simple correlation was positive and significant correlation with grain yield of silymarin and grain yield showed a negative correlation with the percent silymarin. The principal components analysis, the first three components of a total of 80.52% of the variation explained. Genotypes using cluster analysis in the 2 groups. According to the classification of genotypes based on the first and second components, Ahvaz genotypes were identified as genotypes. Biplot analysis of genotype in Ahvaz, and therefore to all the components of the was superior characteristics of the components. The results of the study suggests that the genotype Ahwaz as the best genotypes and spray ABA has led to an increase in the performance of the performance of the plant and components of the state of tension milk thistle land by the increase in tension and reducing the effects of the drought.

Key words: abscisic acid, bi-plot, cluster, drought stress, genotypes, milk thistle

University of Zabol
Graduate School
Faculty of Agriculture
Department of Horticulture and Landscape

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Supervisors:
Dr. B. Fakheri
Dr. M. solouki

Advisor:
M. Rahimi

By:
F. Taati

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