

**GENETIC DIVERSITY OF SUNFLOWER (*HELIANTHUS ANNUS* L.) LINES UNDER
NORMAL AND SALT STRESS CONDITIONS USING MULTIVARIATE STATISTICAL
ANALYSIS**

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ABSTRACT

To study genetic diversity of several agronomic and physiologic traits and the effect of salt stress on these characters in 100 inbred lines of sunflower, an experiment was conducted as a split-plot based on randomized complete block design with three replications outside the greenhouse in an open air area under natural environmental conditions with 2 salinity stress levels (0 and 8 dS/m) in Research Station of University of Urmia in 2014. Analysis of variance revealed significant differences among genotypes for all studied traits, indicating the existence of genetic variation among population. The highest coefficient of genetic variation was observed for head dry weight, plant grain yield and the lowest for date of flowering time in both stressed and non-stressed conditions. The results of correlation analysis showed that there is significant and positive correlation between seed yield per plant with most of the studied traits in both stress conditions. Stepwise regression analysis revealed that under salt stress condition 40.3 percent of seed yield per plant variation was determined by head diameter, one hundred seed weight, bottom leaf length, leaf number, bottom petiole length, upper leaf width, chlorophyll concentration and in normal condition 30.3 yield grain per plant variation explained by head diameter, one hundred seed weight and plant height. Cluster analysis grouped lines into 3 clusters in each one of normal and salt stress conditions but the disruption of lines within groups were different depending to stress environment that present the genetic variability for salt tolerance in sunflower lines.

Key Words : Cluster Analysis, Genetic Correlation, Phenotype Correlation, Salt Stress, Split-Plot, Sunflower