

## Investigation of Drought Resistance in Iranian Sesamum Germplasm

**Authors :** Fatemeh Najafi

**Abstract :** The major stress factor limiting crop growth and development of sesame (*Sesamum indicum* L.) is drought stress in arid and semiarid regions of the world. For this study the effects of water stress on some qualitative and quantitative traits in sesame germplasm was conducted in the Research Farm of Seed and Plant Improvement Institute, Karaj, in the crop year. Genotypes in a randomized complete block design with three replications in two environments (moisture stress and normal) were studied in regard of the seed weight, capsule weight, grain yield, biomass, plant height, number of capsules per plant, etc. The characteristics were evaluated based on the combined analysis. Irrigation was based on first class evaporation basin. After flowering stage drought stress was applied. The water deficit reduced growth period. Days to reach full ripening decreased so that the reduction was significant at the five percent level. Drought stress reduces yield and plant biomass. Genotypes based on combined analysis of these two traits were significant at the one percent level. Genotypes differ in terms of yield stress in terms of density plots, grain yield, days to first flowering and days to the half of the cap on the confidence level of five percent and traits of days to emergence of the first capsule and days to reach full ripening at the one percent level were significant. Other traits were not significant. The correlation of traits in circumstances of stress the number of seeds per capsule has the greatest impact on performance. The sensitivity and stress tolerance index was calculated. Based on the indicators, (Fars variety) and variety Karaj were identified as the most tolerant genotypes among the studied genotypes to drought stress. The highest sensitivity indicator of stress was related to genotype (FARS).

**Keywords :** sesame, drought, stress, germplasm, resistance

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