

Abstract

Regard to Iran is located in arid and semiarid region of the world therefore, producing of crops depends to irrigation in different areas of Iran. Castor bean plant is known one of the resistant plants to different weather conditions because of its unique features. In order to investigate the effect different dozes of gamma radiation and drought stress on qualitative characteristics of castor, an experiment was taken in Chahnimeh Agricultural Research Farm of Zabol University in 1390-91 in which split plot in randomized complete block design form with three replication in a crop year. Drought stress treatment at 3 levels (5, 8 and 11 days) as the main factor and gamma radiation treatment at 6 levels were considered as the subsidiary factor. The sampling accomplished during growth stages and after deletion margin and measured following characteristics during growth stages and at the end of growth period. Quantitative characteristics consisted: plant height, stem height, leaf number, inflorescence height, leaf area, weight of thousand seeds; qualitative characteristics consisted: ricinoleic acid percent, ricin amount and oil percent. The results showed that, the drought stress has significant effects on morphological and physiological characteristics of plants. Also the effect of gamma radiation showed significant difference on upon characteristics. Increase of irrigation period decreased studied characteristics. Mean comparison of characteristics about effect of gamma radiation was in this way that, the doze of gamma radiation decreased all of these characteristics except plant height and leaf area. The doze of gamma radiation didn't influence plant height and leaf area in the primary stages but by increasing the doze of gamma radiation these characteristics decreased in the next stages too. The results of variance analysis of qualitative characteristics showed significant difference about oil percent and seed oil yield as treatment interaction bring significant on oil percent but amount of ricin protein did not influence on none of treatment. In this study genetically variations concern ricinoleic acid gene showed that gamma radiation has not influence in amount of variations of interfering genes in producing fatty acids but regard to variation in other agronomy parameters, mutation genius occurred in other place.

Key words: Gamma, Drought stress, Ricinoleic acid, Castor bean



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under drought stress condition.**

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