

عنوان مقاله:

Investigation of Gamma-Ray Effect on Physiological and Biochemical Traits of Triticale Plant under Salinity Stress

محل انتشار:

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خلاصه مقاله:

Salinity stress alters several physiological and biochemical traits, resulting in reduced yields in different plants. Triticale, which is a hybrid of wheat and rye, is one of the most interesting and valuable plants in the late nineteenth century. Unfortunately, in recent years, due to the problem of salinity stress in most agricultural environments in Iran, it is impossible to grow this valuable plant, and its production and cultivation in the country have stopped. The source used in this study was an iodine- 131 source with different activities in which triticale seeds have been exposed to gamma iodine- 131 radiation at intervals of 1 to 6 days. Samples were irradiated at doses of 0.23-0.50-0.63-0.80-0.95-1.10 Gy, and then cultured in the laboratory. Among the irradiated samples, 0.63 Gy sample was the best sample in terms of germination rate and was selected to apply salinity stress with a range of 0 and 150 mM NaCl. After 10 days of stress application, different physiological and biochemical traits of triticale seedlings were tested. The results of analysis of variance showed that salinity stress had a significant effect on all measured physiological and biochemical traits. In addition, the interaction of salinity and radiation on all traits except for peroxidase was significant. By radiation, enzymatic, and non-enzymatic antioxidant defense systems, increased, while oxidative stress parameters, such as hydrogen peroxidase and malondialdehyde reduced considerably. Consequently, radiation at a dose of 0.63 Gy improved the biological traits of the plant and created more resistance to salinity stress in the triticale plant.

کلمات کلیدی:

Triticale, salinity stress, Gamma Radiation, dose

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