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β-ESTRADIOL AGAINST TO SALT STRESS-INDUCED LTR RETROTRASPOSONS POLYMORPHISM IN WHEAT

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Abstract

Wheat is one of the most important cereal crops. Abiotic stresses such as salinity negatively affects retrotransposon polymorphism and disorders in Genomic Template Stability (GTS) in wheat genome. It is known that a plant growth regulator β-estradiol has a role in reducing the harmful effects of abiotic stresses on plants. The purpose of this study was to investigate the healing effect of β-estradiol against different concentrations of salinity treatments on DNA damage and Long Terminal Repeats (LTR) retrotransposons polymorphism in *Triticum aestivum* L. seedlings. Retrotransposon polymorphism and DNA damages induced by salinity stress were determined by Inter Retrotranposon Amplified Polymorphism PCR (IRAP-PCR) and Retrotransposon-Microsatellite Amplified Polymorphism (REMAP-PCR) techniques, respectively. Polymorphism percentages (%) were calculated based on GTS. Our results showed that salinity stress caused to increase of DNA damage and LTR retrotransposons polymorphism and decrease of GTS rate. However, these harmful effects of higher salinity stress decreased after treatment with different concentrations of β-estradiol. The results of this experiment have clearly shown that β-estradiol could be used effectively to protect wheat seedlings from the destructive effects of salinity stress. Moreover, IRAP and REMAP technique can be used in further studies on DNA damage and in determining retrotransposon polymorphism.

Key words: genomic template stability, mammalian sex hormones, retrotransposon polymorphism, salt stress

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