

عنوان مقاله:

Study of the presence of DREB1/ CBF gene family in *Viola tricolor*

محل انتشار:

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خلاصه مقاله:

Transcription factors are known as factors having the ability to simultaneously activate several genes in plant and animal genomes. Because of their significance in responding to environmental stresses like salinity, drought, temperature changes, etc., a group of these transcription factors known as DREB1/ CBF (Dehydration-Responsive Element Binding Protein 1/ C-repeat binding factor) gene family has been extensively studied in various plant species. In this research, considering the particular and well-established role of the genes of this family in cold stress in plants, *Viola tricolor* (wild pansy), as a cold resistant species, was chosen to identify this gene family. For this purpose, *viola* plants in the multi-leaf stage were gradually transferred to a -8°C chamber and subjected to subfreezing treatment for 18 h. Using bioinformatics analysis based on NCBI database, the initial identification of the AP2/ ERF (APETALAY/ Ethylene-Responsive Factor) conserved region in the genes of the members of this family was carried out and the consensus sequence was used for primer design. The sequencing result revealed considerable sequence similarity in this region with genes found in other plant species. Thus, as predicted, this work established the presence of the DREB1 gene family in *V. tricolor*. The closest species to *V. tricolor* was also determined by drawing the phylogenetic tree based on the identified region. The gene expression pattern analysis revealed a significant increase in expression of this gene under cold stress conditions.

کلمات کلیدی:

CBF/DREB1 gene family, *Viola tricolor*, Transcription factors, subfreezing stress, Gene expression, Phylogenetic tree

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