Title Cloning and characterization of a DCEIN2 gene responsive to ethylene and sucrose in cut flower carnation

Author Zhaodi Fu, Huinan Wang, Juan Liu, Juanxu Liu, Jing Wang, Zhaoqi Zhang and Yixun Yu

Citation Plant Cell, Tissue and Organ Culture, 105, Number 3, 447-455, 2011

Keywords *Dianthus caryophyllus*; EIN2; Ethylene signaling; Gene expression; Gene cloning

Abstract

Carnation (*Dianthus caryophyllus* L.) is an important ornamental crop and serves as a model system for investigating ethylene-sensitive flower senescence. EIN2 (ethylene insensitive 2) is a central component of the ethylene signal transduction pathway in plants, but the transcriptional regulation of the EIN2 gene in response to ethylene has not yet been elucidated. We identified a cDNA clone encoding a putative EIN2-like protein (DCEIN2) from total RNA isolated from senescing carnation petals using reverse transcription-PCR and rapid amplification of cDNA ends procedures. The cDNA contained an open reading frame of 3828 bp corresponding to 1275 amino acids. The northern blot results indicated that *DCEIN2* expression in both the petals and ovaries was enhanced by treatment with exogenous ethylene and sugar, respectively, and was inhibited by silver thiosulfate. In the carnation vegetative tissues, mRNAs for *DCEIN2* were present in the leaves and stems, but they were not detected in the roots.