

Title Molecular cloning and expression of an expansin-like gene in ‘Navel’ orange fruit during postharvest stresses

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Abstract

In a search for differentially expressed genes in peel pitting of ‘Navel’ orange fruit (*Citrus sinensis* L. Osbeck), a cDNA subtraction library was constructed and a sequence encoding expansin-like gene was isolated and identified as pitting related gene. Based on sequence information derived from this fragment, a full-length cDNA (*CsEXP*, GenBank accession no. FJ769424) of 1,083 nucleotides encoding expansin was isolated from ‘Navel’ orange by RACE approaches. *CsEXP* encoded a protein of 254 amino acid residues with an open reading frame located in the region between 52 and 816 bp. The calculated molecular weight of the mature protein was 27.05 kDa and theoretical isoelectric point was 7.93. The deduced protein contained conserved domains of expansin: the histidine-phenylalanine-aspartate motif in central portion, cysteine residues in N-terminus, and tryptophan residues in C-terminal region. The expression of *CsEXP* was higher in pitting than the control. Exposure of fruit to stresses, including wounding, anoxia, low temperature (4°C), and treatment with ethylene, increased *CsEXP* mRNA levels in comparison with the control untreated fruit, whereas high temperature (40°C) decreased its mRNA levels. Since low temperature, low oxygen and wounding were suspected factors inducing peel pitting of citrus fruit. The present results provided us a clue that *CsEXP* may play a role in response to peel pitting related stresses.

<http://www.springerlink.com/content/7218377x7k441618/fulltext.pdf>