

Identification, Cloning and Characterization of a Thioredoxin *h* (*VvTrxh10*) Gene Isolated from Grape (*Vitis vinifera* L.) cv. Yaquti Berry Tissue

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Abstract

Total RNA was extracted from grape (*Vitis vinifera* L.) cv. Yaquti berry tissue to characterize a thioredoxin *h* gene (*VvTrxh10*). A cDNA library was synthesized using reverse transcription polymerase chain reaction (RT-PCR). Then, the *VvTrxh10* gene was amplified, isolated and cloned in a pUC19 vector plasmid. Nucleotide sequence analysis revealed that the cloned cDNA expressed thioredoxin and contained a single open reading frame of 345 bp encoding a protein of 114 amino acid residues. Predicted protein sequence analysis showed that this gene contains a nongeneral catalytic site RCGLC, characteristic tryptophan (W) and potential structural motif involving cell-to-cell transfer (MAEE) in N-terminal. Phylogenetic and alignment studies revealed that such isoform belongs to the subgroup I from *h* thioredoxins group. Moreover, relevant predicted protein exhibited a high similarity with the other plant thioredoxins *h* gene in the NCBI gene bank.

Keywords: Grapevine, Thioredoxin *h*, Cloning, Sequence analysis, Yaquti cultivar

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