

Title Expression of *sHSP* genes as affected by heat shock and cold acclimation in relation to chilling tolerance in plum fruit

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Abstract

Three full-length cytosol small heat shock protein (sHSP) genes, including two class I sHSP (CI sHSP) and one class II sHSP (CII sHSP) cDNAs, termed *Ps-CI sHSP1*, *Ps-CI sHSP2* and *Ps-CII sHSP1* respectively, were isolated and characterized from plum fruit at harvest. Their expression in relation to heat shock and cold acclimation-induced chilling tolerance were investigated. Heat shock treatment by dipping the fruit in water at 55 °C hot for 2 min and cold acclimation by conditioning the fruit at 8 °C for 5 d prior to storage at 2 °C could effectively reduce malondialdehyde (MDA) content and alleviate chilling injury. Furthermore, accumulation of *Ps-CII sHSP1* mRNA transcripts in the fruit during the subsequent storage at 2 °C was remarkably enhanced by heat shock and cold acclimation treatments. These data suggest that heat shock and cold acclimation treatments induced the expression of *Ps-CII sHSP1*, which may be involved in chilling tolerance of the fruit caused by these treatments.