

Title Comparative proteomics analysis of differentially accumulated proteins in juice sacs of ponkan (*Citrus reticulata*) fruit during postharvest cold storage

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Abstract

Comparative proteomics analysis was carried out in 'Egan No.1' ponkan (*Citrus reticulata* cv. Egan No.1) fruit during low temperature storage. Commercially mature fruit were harvested, stored at 4 °C, and sampled four times at one month intervals. Two-dimensional gel electrophoresis and MALDI-TOF-TOF MS were performed to examine the protein changes during the postharvest storage period. Results showed that 74 proteins were differentially regulated, from which 56 proteins were identified by blasting against NCBI nr (green plant) and EST_viridiplantae databases. All identified proteins were then classified into functional classes according to known biosynthetic pathways, including C-compound and carbohydrate metabolism, amino acid metabolism and response to storage environmental stimuli. In addition, subcellular location and time-dependent accumulation trends of differentially accumulated proteins associated with fruit quality were analyzed. To understand the relationships between these differentially accumulated proteins and fruit quality changes, composition of organic acids (malic acid, citric acid and quinic acid) and soluble sugars (fructose, glucose and sucrose) were investigated. Possible mechanisms responsible for fruit quality change in ponkan fruit during storage are discussed.