

Title Effects of Suitable Low-temperature on Aril Breakdown and Cell Wall-degrading Enzyme Activities of Postharvest Longan Fruit

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Abstract

Longan (*Dimocarpus longan* Lour.) fruit are very susceptible to pericarp browning and aril breakdown, and postharvest aril breakdown is one of the most important factors degrading the quality and shorting storage life of longan fruit. Aril breakdown is probably associated with the degradation of the cell wall which was brought about by the action of cell wall-degrading enzyme. Low-temperature storage could inhibit aril breakdown and prolong the storage life of longans. Suitable low-temperature storage for 'Fuyan' longans was $3\pm 1^{\circ}\text{C}$. Changes in aril breakdown index, cell wall-degrading enzyme activities in aril of longan cv. Fuyan fruits using sealed polyethylene film bags (0.015 mm thick) at $3\pm 1^{\circ}\text{C}$ and $7\pm 1^{\circ}\text{C}$ were investigated. The main results were as follows: suitable low-temperature storage at $3\pm 1^{\circ}\text{C}$ for 'Fuyan' longans could markedly decrease aril breakdown index, significantly inhibit cell wall-degrading enzyme activities such as pectinesterase (PE), polygalacturonase (PG), cellulase and β -galactosidase. From the results it can be seen that storage at $3\pm 1^{\circ}\text{C}$ could inhibit aril breakdown by decreasing activities of cell wall-degrading enzymes, maintain fruit with higher quality and extend storage life of longan fruit.