Quality and Shelf Life of Minimally-processed Litchi Fruit

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ABSTRACT

Quality and shelf life of sanitized peeled litchi arils of three cultivars, 'Honghuay', 'Gimjeng' and 'Jugkapat', were studied. The peeled and deseeded litchi arils were sanitized with 50 mg/L of peroxyacetic acid (PAA) solutions for 1 min. Subsequently, they were drained, packed in a polystyrene clamshell box and analyzed during storage at 4±1°C for 12 days. Firmness and lightness (L*) values of the arils decreased and juice leakage increased during storage. The pH, total soluble solids and total titratable acidity during storage changed slightly. Ascorbic acid contents decreased after sanitation and during storage. Sanitation with PAA delayed growth of all bacteria, yeast and molds within the specified microbial criteria. The appearance of the litchi arils was not translucent, however, with the texture softening around the cut area of the stem-end. Based on organoleptic evaluation, the shelf life of peeled litchi arils was 5 days at 4±1°C. In addition, the 'Jugkapat' cultivar was the most appropriate candidate for minimally-processed produce, because of its larger fruit size, ease of deseeding, the absence of brown color on the internal surface of the arils and the high ascorbic acid content.

Keywords: Shelf life, Peroxyacetic acid, Minimally-processed litchi fruit

INTRODUCTION

Litchi (*Litchi chinensis* Sonn.) is a subtropical fruit originated from Southeast Asia. The fruit has a natural bright red peel color, sweet acidic taste and strong aroma (Jiang et al., 2003). Postharvest losses of litchi are due to microbial decay and pericarp browning within 2-3 days of harvest at 20°C (Holcroft and Mitcham, 1996). Browning is caused by the oxidation of phenolic substrates catalyzed by polyphenol oxidase (PPO) and dehydration (Zhang et al., 2001; Jieng et al., 2004). Although the litchi fruit becomes unmarketable due to browning, but the internal arils are still in good condition and edible (Shah and Nart, 2006). Therefore, min-