



## The Improvement of Texture and Quality of Minimally Processed Litchi Fruit Using Various Calcium Salts

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### Abstract

The efficacies of three calcium salts at different concentrations (0.5–3%) and temperatures (4, 25 and 50C) were studied to improve texture and quality of litchi arils cv. “Jugkapat.” A peroxyacetic acid was used as sanitizer in pre- (100 mg/L, 3 min) and post-deseeding steps (50 mg/L, 1 min). The arils were immersed in 1% calcium chloride, 2% calcium propionate at 25C and 2% calcium lactate at 50C had the best firmness. All calcium salts decreased the respiration rate by 1.5 to 2 folds, reduced juice leakage and delayed microbial growth during 12-day storage at  $2 \pm 1$ C. A pink color was developed in calcium lactate treatment. For microstructure study, calcium chloride reinforced the cell wall and maintained the cell turgor better than other two salts. Hence, calcium chloride could be the best salts to maintain texture, quality and extended the shelf-life of litchi arils to 9 days.

### Practical Applications

Minimal process is one of the simple and convenient methods that preserve nutritional value and appearance of which was treated fresh agricultural produce. The minimally processed litchi fruit which was treated with calcium salts in combination with peroxyacetic acid, a sanitizer, had the potential to improve the firmness, prolong quality and shelf-life along with minimum physical damage. One of the major problems is that the whole litchi fruit has a short shelf-life due to the fact that pericarp turns brown within 2–3 days after harvest, resulting in a rejection by the market even though the edible arils still remain in excellent condition. This study presents the alternative method to preserve the litchi arils by minimal processing technology.

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