

Preservation of fresh coconut (*Cocos nucifera* L.) gratings by using combination preservation technique

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Studies were conducted to preserve fresh coconut gratings by applying a combination preservation technique. A preliminary experiment was carried out to identify suitable humectant (to reduce water activity to 0.94) and acidulant (to reduce pH to 4.5). The main study consisted of simple mixing of blanched scraped coconut with a combination of additives comprising of sodium chloride (as humectant), citric acid (as acidulant), tri sodium citrate (as buffer), sodium benzoate 0.05% (as anti microbials) and BHA 0.02% on fat basis (as antioxidant), equilibrating for two hours, packing in LDPE/Nylon flexible pouches. The packed samples were stored at ambient (30 ± 2 °C) and refrigerated (5 ± 2 °C) temperatures for period of three months and were analyzed for physico-chemical and sensory properties.

It was found that use of sodium chloride at 3% and citric acid at 0.3% was effective as humectant and acidulant respectively. During storage it was found that coconut in ambient storage showed significant ($p < 0.05$) increase in free fatty acids and Thiobarbituric values after first month, this was due to photo oxidation of fat in the transparent pouches. Lower values of free fatty acids and TBA values observed in refrigerated conditions in the whole studied period. Colour measurements ("L" and "b" values) showed significant ($p < 0.05$) difference after first month of storage at ambient temperature and it remained unchanged within studied period at refrigerated conditions. The storage data revealed that the total plate count in coconut is not significant in both storage within three months time and thereby indicating hurdles were effective against microorganisms. Sensory evaluation showed that the product remained acceptable up to one month at ambient temperature and minimum of three months at refrigerated temperature. The results indicated that application of combination preservation technique on fresh coconut gratings would extend the shelf life by one month at ambient (30 ± 2 °C) conditions and by minimum of three months at refrigerated (5 ± 2 °C) conditions.