STUDIES ON POST-HARVEST HANDLING AND VALUE ADDITION OF PAPAYA FRUIT

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ABSTRACT

This research study was carried out at Faculty of Agriculture, Eastern University of Sri Lanka to identify the suitable wrapping material to induce uniform, quick ripening in papaya (*Carica papaya)* fruits and to investigate the best cushioning material to reduce bruising damages and losses during transportation of fruits to far distance. Value added products such as bar and jam were prepared and sensory, chemical and microbial analysis were conducted to evaluate the suitability of these value added products for consumption at initial and after four weeks of storage.

Straw, paper and polyethylene were selected as wrapping materials and wrapped fruits were kept at room temperature and in cool chamber. Fruits firmness, color changes, Physiological Loss in Weight (PLW) and changes in girth size were observed every day. Results of this experiment indicated that the straw was a best wrapping material to induce uniform and quick ripening as fruits were ripened and changed to yellow color after four days at room temperature storage. Fruits wrapped in paper were ripened after five days of storage with attractive yellow color at room temperature. Shrinkages around the shoulders were visible in fruits wrapped in straw. About 80% of fruits wrapped in polyethylene were spoiled after 6 days of storage. Cool chamber environment was not suitable for ripening and ambient condition was suitable for ripening of papaya fruits. Fruits were individually wrapped with paper and placed in carton boxes for transportation in a bus to a distance of 300 kms. On arrival, the condition of box, firmness, Physiological Loss in Weight (PLW) and bruising damage of fruits were

evaluated. Wrapped fruits were exhibited lower firmness losses, PLW and bruising damages than the unwrapped fruits without damaging carton boxes.

Fruit bar and jam were prepared to extend the shelf life of fruit pulp. The results of sensory evaluation revealed that the judges mostly preferred jam for its taste, color, flavor, texture and overall acceptability but fruit bar was also accepted by them. These two products were subjected to storage study. Jam was filled in glass jar and fruit bar was packed in laminated aluminium foil. Aluminium packs were stored at refrigerated temperature and room temperature for four weeks. During this storage period, jam and bar were analyzed at three days intervals for determination of moisture content, pH, acidity, ascorbic acid, reducing sugar and sucrose percentage and microbial contamination. Jam was not spoiled at the end of three weeks periods after that moisture and acidity increased in tremendous amounts. Fruit bar stored at room temperature was spoiled after six days, but fruit bar stored at refrigerated temperature did not change of its color, flavor and texture and maintained chemical and microbial quality. The total cost of papaya jam was Rs.100.00/1kg and bar was Rs.116.00/1kg.

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