

PERMANENT REFERENCE

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



BY

PRIYA SUBRAMANIAM

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FACULTY OF AGRICULTURE

EASTERN UNIVERSITY

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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.

LIST OF CONTENTS

Contents	Page No
ABSTRACT	I
ACKNOWLEDGEMENTS	III
CONTENTS	V
LIST OF FIGURES	XII
LIST OF TABLES	XIII
LIST OF PLATES	XIV
1.0 INTRODUCTION	1
1.1 Rationale	1
1.2 Objectives of this study	4
2.0 LITERATURE REVIEW	5
2.1 Fruits Production in Sri Lanka	5
2.1.1 Constraints in Fruit Production	8
2.2 Papaya	9
2.2.1 Classification of Papaw	10
2.2.2 Origin and distribution	10
2.2.3 Description	11
2.2.3.1 Growth Habit	11
2.2.3.2 Foliage	11

2.2.3.3 Flowers	11
2.2.3.4 Fruit	12
2.2.3.5 Location	13
2.2.3.6 Adoptation	13
2.2.3.7 Soil	13
2.2.3.8 Slope	13
2.2.3.9 Irrigation	14
2.2.3.10 Fertilization	14
2.2.3.11 Wind	14
2.2.3.12 Pest and Diseases	15
2.2.3.13 Harvest	15
2.2.3.14 Yield	16
2.3 Biochemical changes during ripening	16
2.3.1 Ripening	16
2.3.2 Maturity Indices	18
2.3.3 Biochemical Changes	19
2.3.3.1 Water	19
2.3.3.2 CHO	19
2.3.3.3. Enzymes	20
2.3.3.4 Fruit phenolic compounds	20
2.3.3.5 Volatile compounds	21
2.3.3.6 Fruit pigment	21
2.3.3.7 Vitamin	21
2.4 Post-harvest handling of fruit	22
2.4.1 Washing	22
2.4.2 Quarantine/fungicide treatment	22
2.4.3 Grading	22
2.4.4 Packing	23

2.4.5 Transportation	23
2.5 Uses	24
2.5.1 Folk medicine	25
2.5.2 Papain from latex	25
2.5.3 Seeds	26
2.5.4 Leaves	26
2.5.5 Bark	26
2.5.6 Fruit	27
2.6 Processing of fruit	27
2.6.1 Frozen papaya	28
2.6.2 Frozen papaya juice	28
2.6.3 Papaya concentrate	28
2.6.4 Vegetable	28
2.6.5 Raita	28
2.6.6 Dehydrated papaya cubes	29
2.6.7 Papain	29
2.6.8 Pectin	29
2.6.9 Pulp	30
2.6.10 Pickle	30
2.6.11 Chutney	30
2.6.12 Sauce	31
2.6.13 Jam	31
2.6.14 Jelly	31
2.6.15 Burfi	
2.6.16 Preserve and Candy	32
2.6.17 Toffee	32
2.6.18 Fruit Bar	33
2.6.19 Canned	33
2.6.20 Papaya Nectar	33
2.7 Zero Energy Cool Chamber	34
2.7.1 Considerations During Constructions	34

2.8 Sensory Evaluation	35
2.8.1 Hedonic scale method	36
3.0 MATERIALS AND METHODS	38
3.1 Location and period of study	38
3.2 Sample source and sample size	38
3.3 Design of study	38
3.4 Experiment 01 - Study on suitable wrapping material to induce uniform ripening.	38
3.4.1 Evaluation of physical characteristics of fruit	39
3.4.1.1 Weight	39
3.4.1.2 Girth size	39
3.4.1.3 Color	40
3.4.1.4 Firmness	40
3.4.2 Chemical characteristics of fruit	40
3.5 Experiment 02 - study on effect of cushioning material during post-harvest handling of papaya fruits.	41
3.5.1 Condition of box	
3.5.2 Physiological Loss in weight (PLW) of fruits	41
3.5.3. Firmness	42
3.5.4 Total Soluble Solids (TSS)	42
3.5 5 Bruising damage	42
3.6 Experiment 03 - Study on preparation of value added products	42
3.6.1 Papaya bar	42

3.6.2 Papaya jam	43
3.6.3 Sensory, chemical and microbial analysis	44
3.6.3.1 Sensory Evaluation	44
3.6.3.2 Chemical Analysis	44
3.6.3.3 Microbial analysis	44
3.7 Experiment 04 - Storage study of papaya fruit bar and jam	45
3.7.1 Storage study of papaya fruit bar	45
3.7.2 Storage study of Papaya fruit jam	45
3.8 Sensory Evaluation	45
3.8.1 Preparation of samples for panel testing	45
3.8.2 Materials for taste panel	46
3.8.3 Questionnaire for hedonic scale	46
3.8.4 Evaluation of the products	46
3.9 Chemical Analysis	46
3.9.1 pH	46
3.9.2 Total Soluble Solids (TSS)	47
3.9.3 Ascorbic acid	47
3.9.4 Reducing sugar	48
3.9.5. Non – reducing sugar	49
3.9.6 Titrable acidity	50
3.9.7 Moisture content	50
3.10 Microbial Analysis	51
3.10.1 Potatoes Dextrose Agar (PDA) Media preparation	51
3.10.2 Nutrient Agar (NA) Media preparation	52
3.10. 3 Gram's staining	52

4.0 RESULTS AND DISCUSSION	53
4.1 Experiment 01 - Selection of suitable wrapping material to induce uniform ripening	53
4.1.1 Firmness and ripening	53
4.1.2 Color change	54
4.1.3 Physiological Loss in weight (PLW)	55
4.1.4 Fruits Girth Size	55
4.1.5 Chemical characteristics of fruits	56
4.2 Experiment 02 – Effect of cushioning material during post -harvest handling of papaya fruits	57
4.2.1 Observation of condition of box	57
4.2.2 Physiological Loss in weight (PLW) of fruits	57
4.2.3 Firmness	58
4.2.4 Total Soluble Solid (TSS)	59
4.2.5 Bruising damage	60
4.3 Experiment 03 - Preparation of value added products viz-papaya fruit bar and papaya jam	61
4.3.1 Sensory Evaluation	61
4.3.1.1 Taste	61
4.3.1.2 Color	62
4.3.1.3 Flavor	63
4.3.1.4 Texture	64
4.3.1.5 Over all acceptability	65
4.4 Experiment 04 - Storage study of papaya fruit bar and jam	66
4.4.1 Chemical analysis	66

4.4.1.1 Moisture content	68
4.4.1.2 Acidity	69
4.4.1.3 pH	70
4.4.1.4 Ascorbic acid	71
4.4.1.5 Reducing sugar	72
4.4.1.6 Sucrose percentage	73
4.4.2 Microbial analysis	74
4.5 Cost Analysis	76
4.5.1 Cost of production of 1kg of papaya fruit bar	76
4.5.2 Cost of production of 1kg of papaya fruit jam	76
5.0 CONCLUSION AND RECOMMENDATIONS	77
5.1 Conclusion	77
5.2 Recommendations for further study	78
REFERENCES	79
APPENDICES	84