

<b>Authorization .....</b>	<b>i</b>
<b>Acknowledgements .....</b>	<b>iv</b>
<b>List of Tables .....</b>	<b>viii</b>
<b>List of Figures .....</b>	<b>ix</b>
<b>List of Abbreviations .....</b>	<b>x</b>
<b>Abstracts .....</b>	<b>xi</b>
<b>CHAPTER -1: INTRODUCTION.....</b>	<b>1-3</b>
1.1 Background .....	1
1.2 Significance of the study .....	2
1.3 Specific objectives of the study .....	3
<b>CHAPTER -2: REVIEW OF LITERATURE .....</b>	<b>4-16</b>
2.1 Food processing and preservation .....	4
2.2 Jelly .....	4
2.3 Nutritional composition of pineapple .....	4
2.4 Agro climatic criteria of pineapple cultivation .....	6
2.5 Ripening stage of pineapple .....	6
2.6 Storage of pineapple .....	6
2.7 World scenario of pineapple production .....	6
2.8 Pineapple production in Bangladesh .....	7
2.9 Health benefits of pineapple .....	7
2.10 Importance uses of pineapple in prospect of industrial demand .....	8
2.11 Biological use of pineapple .....	8
2.12 Effect of heat treatment on pineapple .....	8
2.13 Pineapple Jelly.....	9
2.14 Importance of jelly making in prospect of Bangladesh .....	9
2.15 Criteria of final jelly .....	10
2.16 Raw materials for jelly making .....	10
2.16.1 Criteria of fruit juice .....	10
2.16.2 Role of Sugar in jelly making .....	10
2.16.3 Pectin in fruits .....	11
2.16.3.1 Role of pectin in pineapple jelly making .....	12

2.16.3.2 Factor affecting pectin required for jelly .....	12
2.16.3.3 Pectin and Gel Formation .....	12
2.16.3.4 Criteria of gel Formation in jelly .....	13
2.17 Function of acid in jelly making .....	13
2.18 Role of Preservatives in jelly making .....	14
2.19 Theories of gelation .....	14
2.20 Selection of Fruits for jam making .....	15
2.21 Factors affecting production control of jelly .....	15
2.21.1 Total soluble solid content of jelly .....	15
2.21.2 Sucrose -invert sugar balance of the jelly .....	16
2.21.3 pH of jelly .....	16
2.21.4 Sugar acid ratio .....	16
2.22 Changes during storage of pineapple jelly .....	16
<b>CHAPTER -3: MATERIALS AND METHODS .....</b>	<b>17-27</b>
3.1 Site and period of study .....	17
3.2 Collection of sample .....	17
3.3 Method of Preparation .....	18-21
3.3.1 Extraction of pineapple juice .....	18
3.3.2 Ingredient for pineapple jelly .....	19
3.3.3 Preparation of pineapple jelly .....	20
3.3.4 Flow chart for preparation of standard pineapple jelly.....	21
3.4 Physicochemical analysis of pineapple jelly .....	22-27
3.4.1 Determination of pH .....	22
3.4.2 Determination of total soluble solids .....	22
3.4.3 Determination of titratable acidity .....	23
3.4.4 Determination of vitamin C .....	23
3.4.5 Determination of total sugar.....	24
3.4.6 Reducing sugar .....	25
3.4.7 Non reducing sugar .....	25
3.4.8 Estimation of moisture .....	26
3.4.9 Ash .....	27
3.5 Sensory evaluation .....	27
3.6 Storage studies of pineapple jelly .....	27

<b>CHAPTER- 4: RESULTS .....</b>	<b>28-31</b>
4.1 Proximate composition of pineapple jelly .....	28
4.2 Physiochemical analysis of pineapple jelly .....	29-30
4.3 Sensory quality evaluation of pineapple jelly .....	31
<b>CHAPTER-5: DISCUSSIONS .....</b>	<b>32-37</b>
5.1 Physiological analysis .....	32
5.1.1 pH value .....	32
5.1.2 Total soluble solid .....	33
5.1.3 Titratable acidity .....	33
5.1.4 Ascorbic acid content .....	34
5.1.5 Moisture content .....	34
5.1.6 Ash content .....	35
5.1.7 Reducing sugar .....	35
5.1.8 Non reducing sugar .....	36
5.1.9 Total sugar .....	36
5.1.10 Sensory evaluation .....	37
5.1.11 Storage and shelf life of pineapple jelly.....	37
<b>CHAPTER-6: CONCLUSIONS .....</b>	<b>38</b>
<b>CHAPTER-7: RECOMMENDATIONS AND FUTURE PERSPECTIVE .....</b>	<b>39</b>
<b>References .....</b>	<b>40-46</b>
Appendix A: Photo gallery .....	47-48
Appendix B: Tasting of pineapple Jelly (Hedonic rating test) .....	49-50
Appendix C: Experimental Data .....	51
Brief Biography .....	52

## List of Tables

<b>Table No.</b>	<b>Title</b>	<b>Page No.</b>
Table: 2.1	Nutritive value of Pineapple ( <i>Ananas comosus</i> )	5
Table: 4.1	Physiochemical components of pineapple during storage	28
Table: 4.2	Statistical analysis of physiochemical constituent of pineapple jelly during storage	29
Table: 4.3	Mean rating score for sensory test of pineapple jelly during storage	31

## List of Figures

<b>Figure No.</b>	<b>Title</b>	<b>Page No.</b>
Fig: 2.1	Structure of sucrose	10
Fig: 2.2	Structure of pectin	11
Fig: 4.1	Descriptive attributes of pineapple jelly	32

## List of Abbreviations

<b>Words</b>	<b>Abbreviation</b>
%	Percent
ANOVA	Analysis of Variance
AOAC	Association of Official Analytical Chemists
BBS	Bangladesh Statistics Bureau
°C	Degree Celsius
°F	Fahrenheit
cm	Centimeter
CVASU	Chattogram Veterinary and Animal Sciences University
g	Gram
Kcal	Kilocalorie
Kg	Kilogram
ml	Milliliter
MT	Metric ton
N	Normality
PET	Polyethylene terephthalate
RH	Relative humidity
TMCT	Tukey's Multiple Comparison Test
TSS	Total Soluble Solid
WHO	World Health Organization
µg	Microgram

## Abstracts

This study was conducted to investigate the storage quality along with nutritional changes from processing to storage of pineapple jelly at ambient temperature. Fresh and mature pineapple was collected from local market of Chattogram, Bangladesh. Physiochemical constituents of the jelly were evaluated include pH, moisture content, ash, total soluble solid, titratable acidity, vitamin C, reducing sugar, non-reducing and total sugar. The jelly was studied at an interval of one month of 3 months of storage period. The proximate parameters of jelly were analyzed at room temperature (25-33°C). After analysis titratable acidity, moisture and total sugar were significantly increased with the advancement of time. On the contrary ascorbic acid and non-reducing sugar were gradually decreased. However pH, TSS, reducing sugar, ash and total sugar content were not changed significantly during storage period. In sensory evaluation, mean overall acceptability scores were satisfactory level that indicated the commercial scope of pineapple jelly. The findings of the study will be helpful for preparation and storage of pineapple jelly with satisfactory taste and nutrition.

**Key words:** Pineapple, jelly, processing, physiochemical properties, storage.