



A PROJECT REPORT  
ON  
Preparation of Multi-layer Fruits Jelly

**Submitted To:**

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**Date of Submission:**

## LETTER OF TRANSMITTAL

Date:

To

Prof. Najia kamrul

Faculty of Allied Health Sciences

Daffodil International University

**Subject: Submission of project work report.**

Dear sir,

It is a great pleasure and honor for me to have the opportunity to submit me project work report on Product Development (Multi-layer Fruits Jelly) as a part of the Nutrition and Food Engineering (NFE) program curriculum.

I have prepared this report based on the acquired taste knowledge during my Project Period.

It is great achievement to work. Without your help, this report would have been impossible to complete. This report is based on, “Studies on Product Development Multi-layer Fruits Jelly

.I have got the opportunity to work in your University on Product Development for 30 days.

This is the first times this project gave me both academic and practical exposures. Firstly of all I have gained knowledge about the organizational culture of a prominent on Product Development of our country. Secondly, the project gave me the opportunity to develop a network with the corporate environment. I therefore, would like to place this report to your judgment and suggestion. Your kind advice will encourage me to perform better planning in future.

Sincerely Yours,

-----  
**Sonjoy Kumar Biswas**

**ID:161-34-483**

Department of NFE

Daffodil International University

## LETTER OF AUTHORIZATION

Date:

To

Prof. Dr. Bellal Hossain

Head

Department of Nutrition and Food Engineering

Faculty of Allied Health Sciences

Daffodil International University

**Subject: Declaration regarding the validity of the project Report.**

Dear Sir,

This is my truthful declaration that the “**Project Report**”. I have prepared is not a copy any Thesis report previously made any other student.

I also express my honestly confirmation in support to the fact the said project report has neither been used before to fulfill my other course related not it will be submitted to any other person a authority in future.

Yours Sincerely

**Sonjoy Kumar Biswas**

**ID: 152-34-443**

Department of Nutrition and Food Engineering

Daffodil International University.

## CERTIFICATE OF APPROVAL

I am pleased to certify that the Project report on Product Development conducted by **Sonjoy Kumar Biswas** , bearing respectively ID No: **161-34-483** of the department of Nutrition and Food Engineering has been approved for presentation and defense/viva-voice.

I am pleased to hereby certify that the data and finding presented in the report are the

Authentic work of **Sonjoy Kumar Biswas**. I strongly recommended the report presented by **Sonjoy Kumar Biswas** for further academic recommendations and defense/viva-voice. **Sonjoy Kumar Biswas** bears a strong moral character and a very pleasant personality. It has indeed a great pleasure working with him.

I wish him all success in life.

.....  
Prof Dr.Bellal Hossain  
Head  
Department of Nutrition and Food Engineering  
Faculty of Allied Health Sciences  
Daffodil International University

## ACKNOWLEDGEMENT

I am deeply indebted to my Supervisor **Ms. Najia Kamrul**, Sr. Lecturer, Department of Nutrition & Food Engineering, Daffodil International University for his whole-hearted supervision during my organizational attachment period. I am also grateful to **Dr. Bellal Hossain** my departmental Head. It would have been very difficult to prepare this report up to this mark without their guidance. I would like to express my warmest thanks to NFE Faculty members for their countless inspiration and encouragement during the student life. Finally I wish to express immense gratitude & humbly convey my heart- felt respect to **Ms. Najia Kamrul**.

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# **CHAPTER 01**

## **1.1. Introduction**

Multi fruit Jelly is semi solid Products. jelly are intermediate moisture foods are prepared from fresh fruits by boiling fruit pulp or fruit extract with sucrose, pectin, Citric acid and other ingredients such as chemical preservatives, coloring and flavoring substances and it is consumed as widely in the world. These products are consumed by people of all age groups and the demand is going up by year and year .Jellies can be prepared either from an individual fruit or mixed fruits. The important constituents in the preparation of jellies are pectin, sugar and acids in correct proportion for proper gel formation. The fruits were selected for jelly preparation as fresh, healthy, matured and firmly ripped wherein the pectin and acid contents are good and provide better nutrients.

## **Chemical Composition of Multi-layer Fruit jelly**

vitamin A, vitamin C, calcium, potassium, iron, sodium, among many other nutrients.

Physical and functional properties:

Multi layer fruit jelly is a clear, smooth, good visible product. It is mainly jell formation, viscosity and texture are closely related properties. Multi layer fruit Jelly determined mainly by the structure, molecular size, and temperature of the gelatin. Its taste is very good.

## **Benefits of Multi-layer jelly:**

### **1. Easily buy the jelly**

Easily consumer buy the jelly combo pack from the market because the jelly jar includes orange, apple and grape fruit together.

### **2. Facilitates digestion:**

Jelly facilitates digestion and intestinal transit due to its high water content. Gelatin increases peristaltic movements in the intestinal muscles, and this helps to improve the digestive process and absorption of vitamins and minerals as well as excretion.

### **3. Strengthens bones**

The proteins found in gelatin, as well as the lithium, phosphorous, and copper, keep the bones strong and increase the mineral density of the skeleton. Gelatin can also be an important defense mechanism against osteoporosis, while the amino acids help fight arthritis.

### **4. Helps weight control**

Gelatin stimulates metabolism through its nutrients and amino acids. Gelatin replaces calorie desserts and avoids excessive weight gain.

### **5. Promotes immune response**



Amino acid found in significant amounts in gelatin, improves immune system function and strengthens the fight against infections, as it is essential to the structure of most proteins in the human body.

## **6. Prevent skin damages**

Gelatin is rich in collagen, a key protein in the constitution of the extracellular matrix of connective tissue, accounting for most of its physical properties. It is one of the most important elements of our skin. Collagen fibers are responsible for maintaining the youthful appearance of the skin.

## **7. Promotes hormonal regulation**

The essential proteins found in gelatin, all metabolic activities of the body are improved by the ingestion of gelatin, including the creation of new cells, absorption of nutrients and strengthening of muscles.

## **8. Lowers cholesterol**

Jelly control cholesterol in our body. It is not present fat in the products. The product free from fat

# CHAPTER 02

# Instruments and Materials

## Instruments:

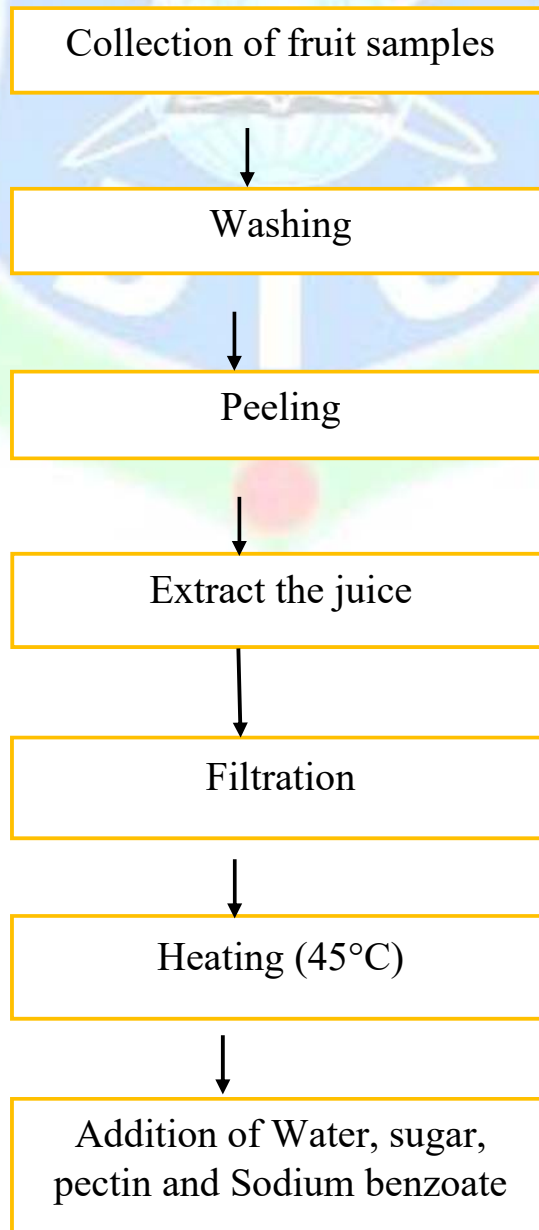
1. Vassal
2. Spone
3. Knife
4. Weight Balance
5. Gas Stove
6. Refactor Metter

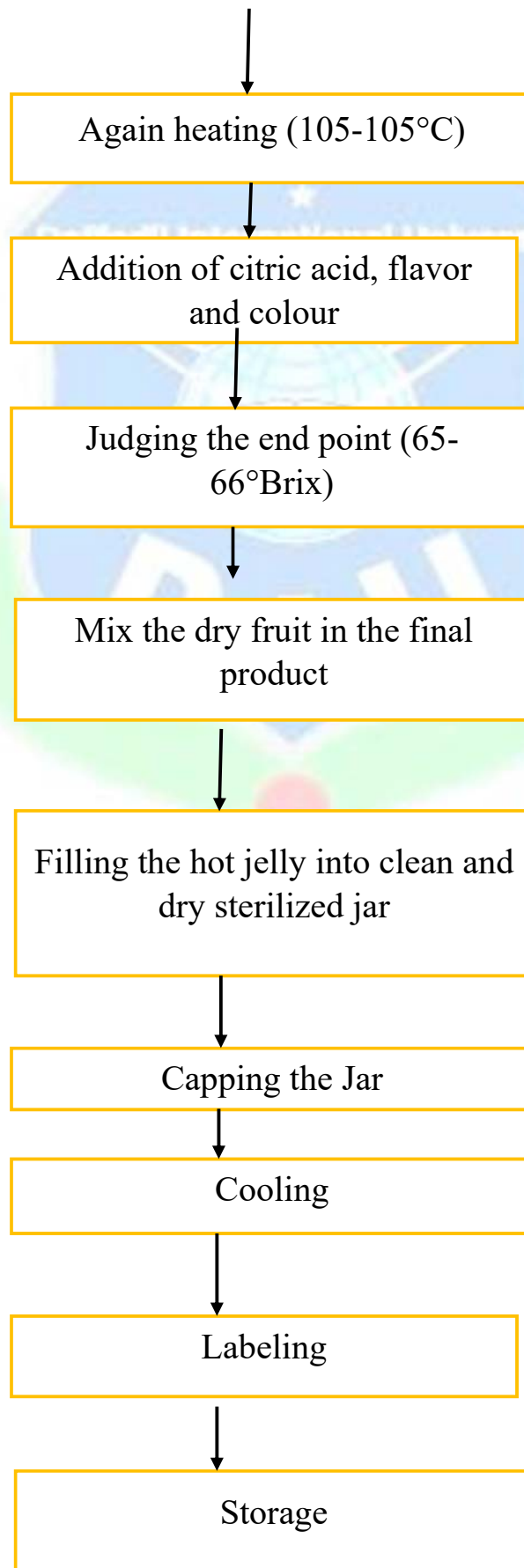
## Materials:

1. Orange Juice
2. Apply Juice
3. Grape juice
4. Pectin
5. Water
6. Sugar
7. Citric Acid
8. Flavor
9. Colour

# **CHAPTER 03**

## **3.1 Process flow chart of Multi-layer Fruit jelly**





### **3.2 Process description:**

1. At first ripe and fresh orange, apply grape collect from the market.
2. Then wash by clean water to remove dirt.
3. Then cut the orange, apply, grape into slice by knife.
4. Some fruit dry by solar dryer and some fruit made the juice.
5. Then collect orange, apply, grape juice through machine.
6. Then step by step making jelly

### **3<sup>rd</sup> Step Orange Fruit Layer jelly Process**

#### **Description :**

1. At first collect all ingredients and measure by weight balance.
2. Orange juice heated up to 30 minutes at 60-70°C and filter with muslin cloth.
3. Then add water, sugar heat it to 100- 105°C and add with orange juice.
4. Then add some dry sugar and pectin powder stirred to get no solidification of pectin.
5. After then add citric acid, Sodium benzoate, Flavor and Color.
6. Then stop the heat up to the Brix 65° and add some dry orange cell in to syrup.
7. The jelly then poured into previously sterilized glass bottles, allow it to cool and set.
8. Then 2<sup>rd</sup> layer fill the jar.

## **2<sup>rd</sup> Step Grape Fruit Layer jelly Process**

### **Description:**

1. At first collect all ingredients and measure by weight balance.
2. Grape juice heated up to 30 minutes at 60-70°C and filter with muslin cloth.
3. Then add water, sugar heat it to 100- 105°C and add with orange juice.
4. Then add some dry sugar and pectin powder stirred to get no solidification of pectin.
5. After then add citric acid, Sodium benzoate, Flavor and Color.
6. Then stop the heat up to the Brix 65° and add some dry grape cell in to syrup.
7. The jelly then poured into previously sterilized glass bottles, allow it to cool and set.
8. Then 3rd layer fill the jar.

## **2<sup>rd</sup> Step Apple Fruit Layer jelly Process**

### **Description:**

1. At first collect all ingredients and measure by weight balance.
2. Apple juicer heated up to 30 minutes at 60-70°C and filter with muslin cloth.
3. Then add water, sugar heat it to 100- 105°C and add with orange juice.
4. Then add some dry sugar and pectin powder stirred to get no solidification of pectin.
5. After then add citric acid, Sodium benzoate, Flavor and Color.

6. Then stop the heat up to the Brix 65° and add some dry apple cell in to syrup.
7. The jelly then poured into previously sterilized glass bottles, allow it to cool and set.
8. Then 3rd layer fill the jar. Allow it to cool and set.
9. Pour a thin layer of melted paraffin wax on the surface of the multi fruit layer jelly and sealed the jar air tight.
10. Again wash the jar with hot water clearly.
11. After drying the jar attached label with it.
12. Then store the jar in a cool and dry place.

### **3.3 Photo Multi-layer fruit jelly:**



**Multi-layer fruit jelly**





# **CHAPTER 04**

## **(PACKAGING)**

### **4.0. Objective of Packaging:**

- To protect air for damage
- Ensure product quality
- Protect from air
- For long time preserved
- To protect microbial or other contamination

### **4.1. Packaging Materials:**

- Glass Jar
- Tin Lid

I instantly use for packaging is glass jar and tin lid preserved. Primarily observation for shelf life.

# **CHAPTER 05**

## **(QUALITY EVALUATION)**

### **Quality Evaluation:**

#### **5.0 Physical and chemical analysis**

For physical and chemical attribute evaluation several experiment are conducted our department LAB. Here moisture, Protein, Fat, Carbohydrate, Vitamin C test is conducted.

#### **Physical analysis:**

Color, texture and Shape test by visually.

#### **Organoleptic test**

Organoleptic test is a sensory based analysis. For such type of analysis we need to conduct a field survey or collection data from consumers directly. For organoleptic evaluation of newly developed multi-layer fruit jelly, I conducted a survey among 50 staff of Daffodil International University. The format of the survey paper is present at Sensory evaluation.

# CHAPTER 06

## (RESULT & DISCUSSION)

### 6.0. Test Parameter:

#### Orange layer test parameter:

SL No	Testing Parameter	Result
1	°Brix	64%
2	Acidity %	0.78
3	pH	3.1
4	Color	Orange
5	Flavor	orange
6	Appearance	Acceptable
7	Taste	good

**Grape layer test parameter:**

SL No	Testing Parameter	Result
1	°Brix	66%
2	Acidity %	0.74
3	pH	3.2
4	Color	Grape
5	Flavor	Grape
6	Appearance	Acceptable
7	Taste	good

**Apple layer test parameter:**

SL No	Testing Parameter	Result
1	°Brix	65%
2	Acidity %	0.70
3	pH	3.3
4	Color	Apple
5	Flavor	Apple
6	Appearance	Acceptable
7	Taste	good

## **Combined test parameter of multi-layer fruit jelly:**

SL No	Testing Parameter	Result
1	°Brix	65%
2	Acidity %	0.72
3	pH	3.1
4	Color	Apple/Grape/Orange
5	Flavor	Apple/Grape/Orange
6	Appearance	Acceptable
7	Taste	good

### **6.1 Nutritional value of Multi-layer fruit jelly:**

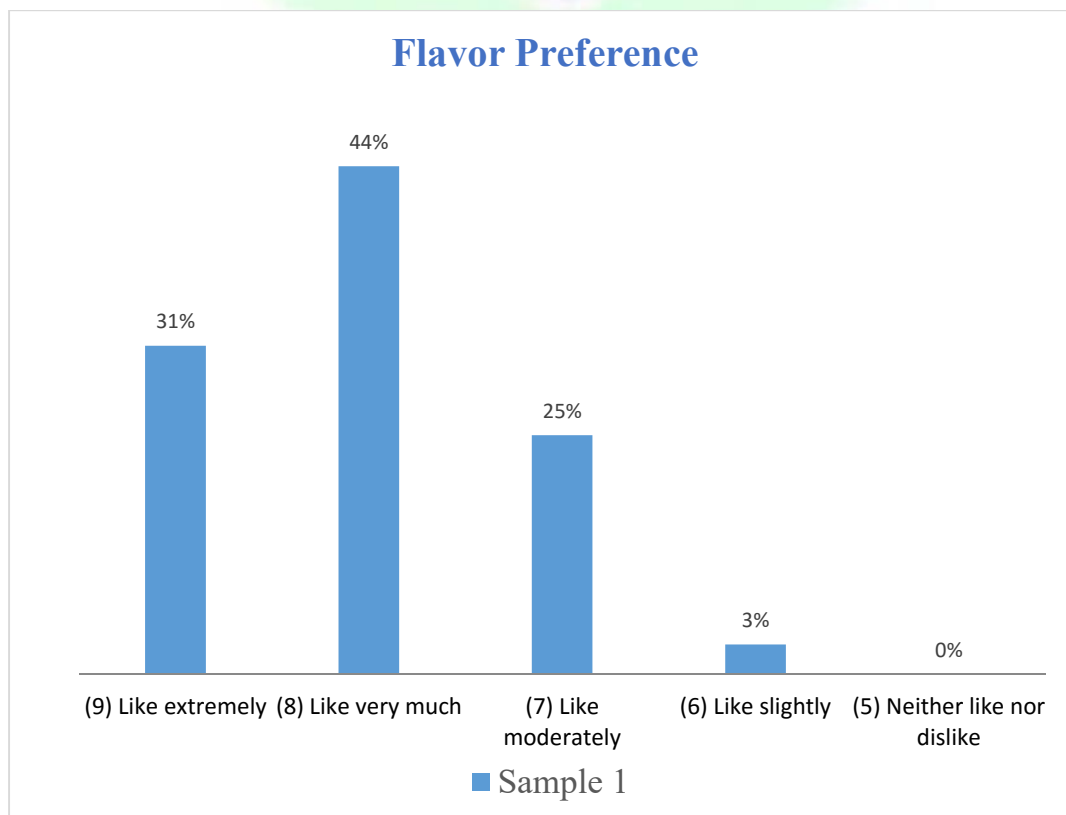
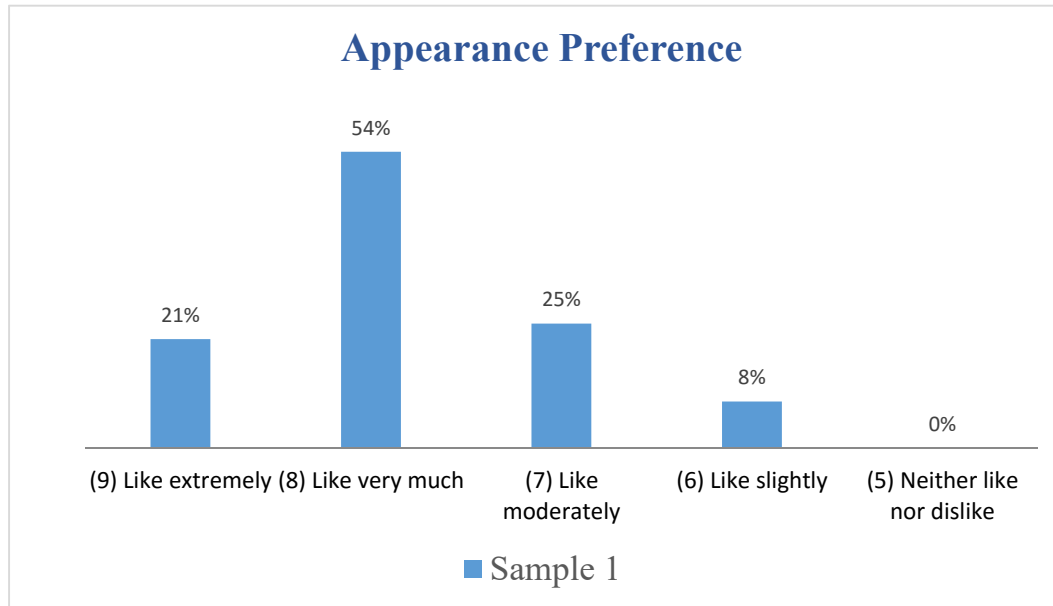
<b>Serving size 100 gm.</b>	
Carbohydrate	<b>87%</b>
Protein	<b>0.89%</b>
Fat	<b>0%</b>
Vitamin C	<b>0.1%</b>

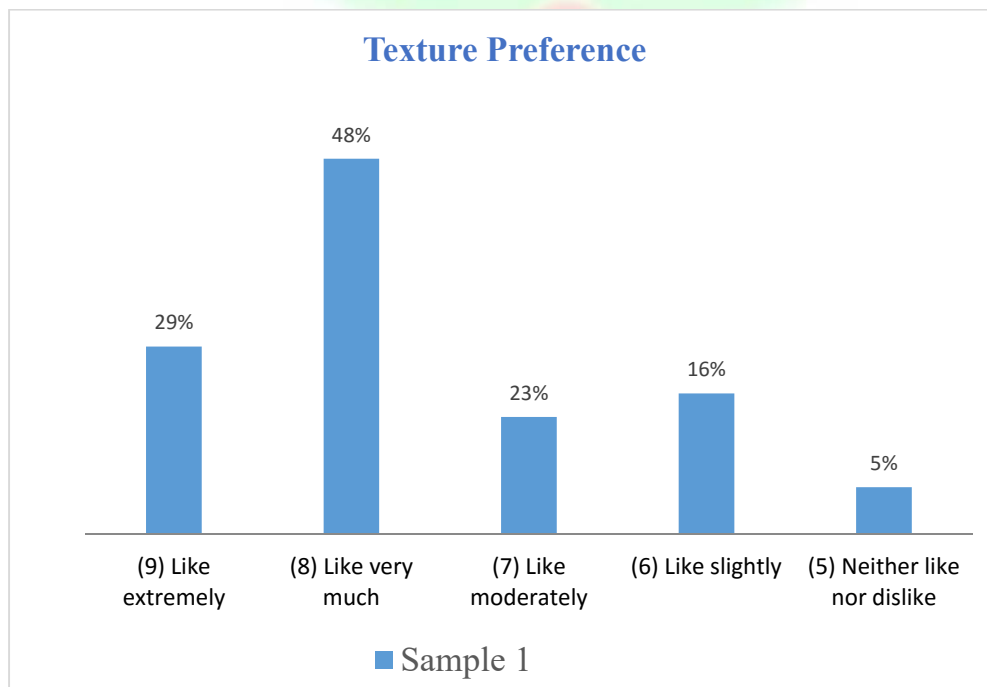
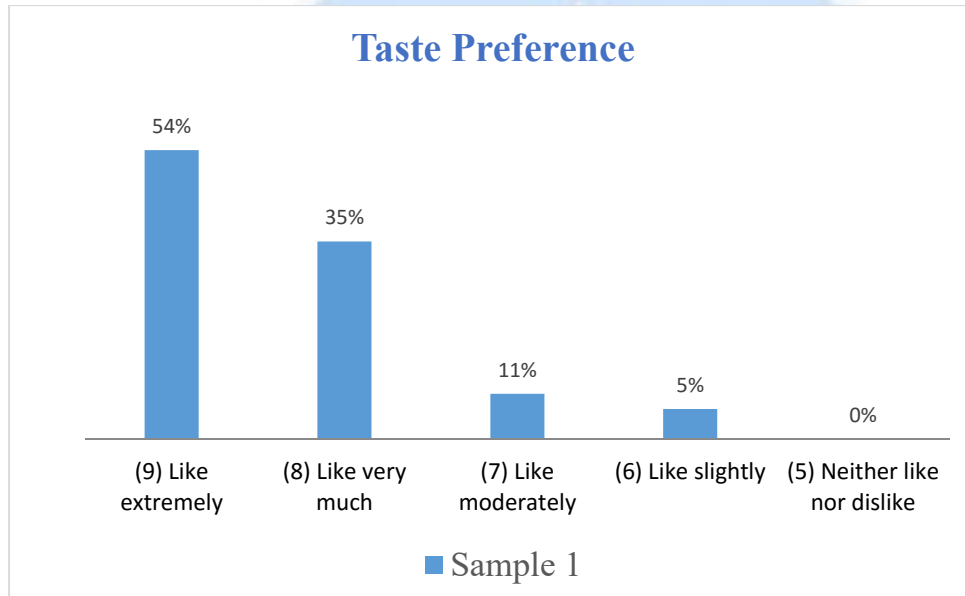
## 6.2. Sensory evaluation:

I conducted a survey among 41 staff of Daffodil International University and prince food products Ltd. Total data are submitted below.

Name :					Product : Multi-layer fruit jelly				
Panelist No :					Date :				
<b>Instructions:</b> Taste the given samples, then place a $\checkmark$ mark on the point in the scale which best describes your feeling.									
SCORE	SAMPLE CODE								
	Sample 1								
	Appearance	Flavor	Taste	Texture	Overall Acceptance				
(9) Like extremely	9	13	22	12	15				
(8) Like very much	22	18	15	20	18				
(7) Like moderately	10	10	4	9	8				
(6) Like slightly									
(5) Neither like nor dislike									
(4) Dislike slightly									
(3) Dislike moderately									
(2) Dislike very much									
(1) Dislike extremely									

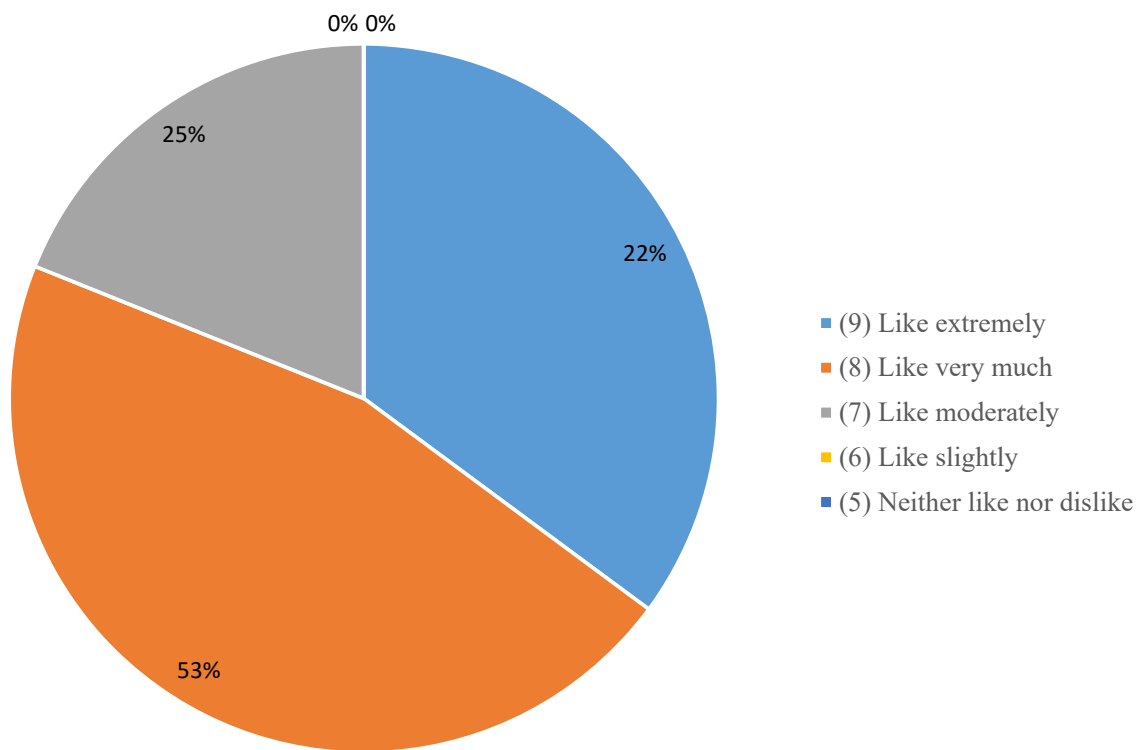
Total Respondent= 41







### Sample 1



# Chapter07

## Conclusion

Multi-layer jellies products are intermediate moisture foods are prepared from fresh fruits. Multi fruit layer jelly is uncommon jelly in Bangladesh. It is made by orange, grape and apple fruit. It is very nutritional products. It is eat very taste Products. The shelf life of traditional jelly products have minimum storage period without the use of any preservatives. It is shelf life minimum 12 months.

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