



## “A STUDY ON DEVELOPMENT AND FORMULATION OF FRUIT DIPS”

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**Abstract:** Food is any substance consumed by an organism for nutritional support. Eating a variety of foods helps to grow and nourishes our body. There are different types of foods in the extended world. Fruits are one among the major food group. Fruits are packed with antioxidants to enhance Nutrition. Nutrition is the baseline for several bodily functions in which immunity is one among them. Fruit helps to built immunity and shows its lifetime importance in our healthy life. But, it isn't easy to get kids to Eat fruits because they don't like the taste or because they prefer other kinds of sweets. However to have a balanced diet, people need to include enough veggies and fruits in their meals. The best way to get everyone to munch on enough fruits is to introduce fruits dips to spice things up a little bit. Dips are well known as chips and dips. Chips and dip is a dish consisting of chips (crisps) served with dips. Chips used include potato chips, corn chips, bean chips, plantain chips, tortilla chips and others. Crackers are also sometimes used as are crudités which are whole or sliced raw veggies. These creamy dip serves as a perfect foil to sweet fruits and spicy foods and will become an instant hit with children.

Keywords: Fruits, dips, Chips, etc.,

### INTRODUCTION:

In India, the demand for Ready-to-eat (RTE) food products has been increasing over the last few years on account of busier lifestyles and rising income levels of consumers. Increase in disposable income and consumer preferences for healthy and convenient food coupled with the rising demand for snacks and fried food products are expected to further boost the demand for ready-to-eat food products.

A dip or dipping sauce is a common condiment for many types of food. It is a mixture of ingredients that complements other foods such as raw vegetables, chips, or toast, which are dipped into it.

A dip can be prepared with sour cream, softened cheese, and/or mayonnaise with herbs and spices added.

**History of dips** - Like deep, dip comes ultimately from a Germanic base \*d(e)up- 'deep, hollow'. The derived verb, \*dupjan, produced Old English dyppan, ancestor of modern English dip. It originally meant quite specifically

‘immerse’ in Old English, sometimes with reference to baptism; the sense ‘incline downwards’ is a 17th-century development. French Onion as a flavor emerged in the 17th century. Sour cream was invented in the U.S. between 1815 – 1825.

Dips are used to add flavor or texture to a food, such as pita bread, dumplings, crackers, chopped raw vegetables, fruits, seafood, cubed pieces of meat and cheese, potatochips, tortilla chips, falafel, and sometimes even whole sandwiches in the case of jus. Unlike other sauces, instead of applying the sauce to the food, the food is typically placed or dipped into the sauce.

This project is about developing a healthy fruit dips made from fruits like PAPAYA, MUSKMELON, MANGO, PINEAPPLE and spices like PEPPER, RED CHILLI AND GARLIC for an healthier optional.

The objective of “**A STUDY ON DEVELOPMENT AND FORMULATION OF FRUIT DIPS – SWEET AND SPICY**” is

- To formulate a fruit dip as a substitute to enhance the taste of raw fruits, veggies and chips
- To standardize the proportion of fruit dips.
- To evaluate the organoleptic characteristics of the developed fruit dips.
- To analyse the proximate composition of fruit dips.
- To estimate the shelflife, cost calculation and labeling of the product.

### **SELECTION OF INGREDIENTS:**

When buying fresh fruits, choose those that have a good shape, texture and color and a fresh smell. It is best to shop for fresh produce often and buy only what you will use within a few days. This will cut down on the amount wasted because of spoilage.

Do not buy fresh produce that is moldy, bruised or injured or that shows signs of insect damage. Handle produce gently to avoid bruising and other damage. Bruises and cuts may allow pathogens to enter a fruit and cause it to spoil quickly.

### **PRE-PREPARATION:**

The unedible and edible parts are separated. The fruits are cleaned and washed. The pulp of the fruit is used.

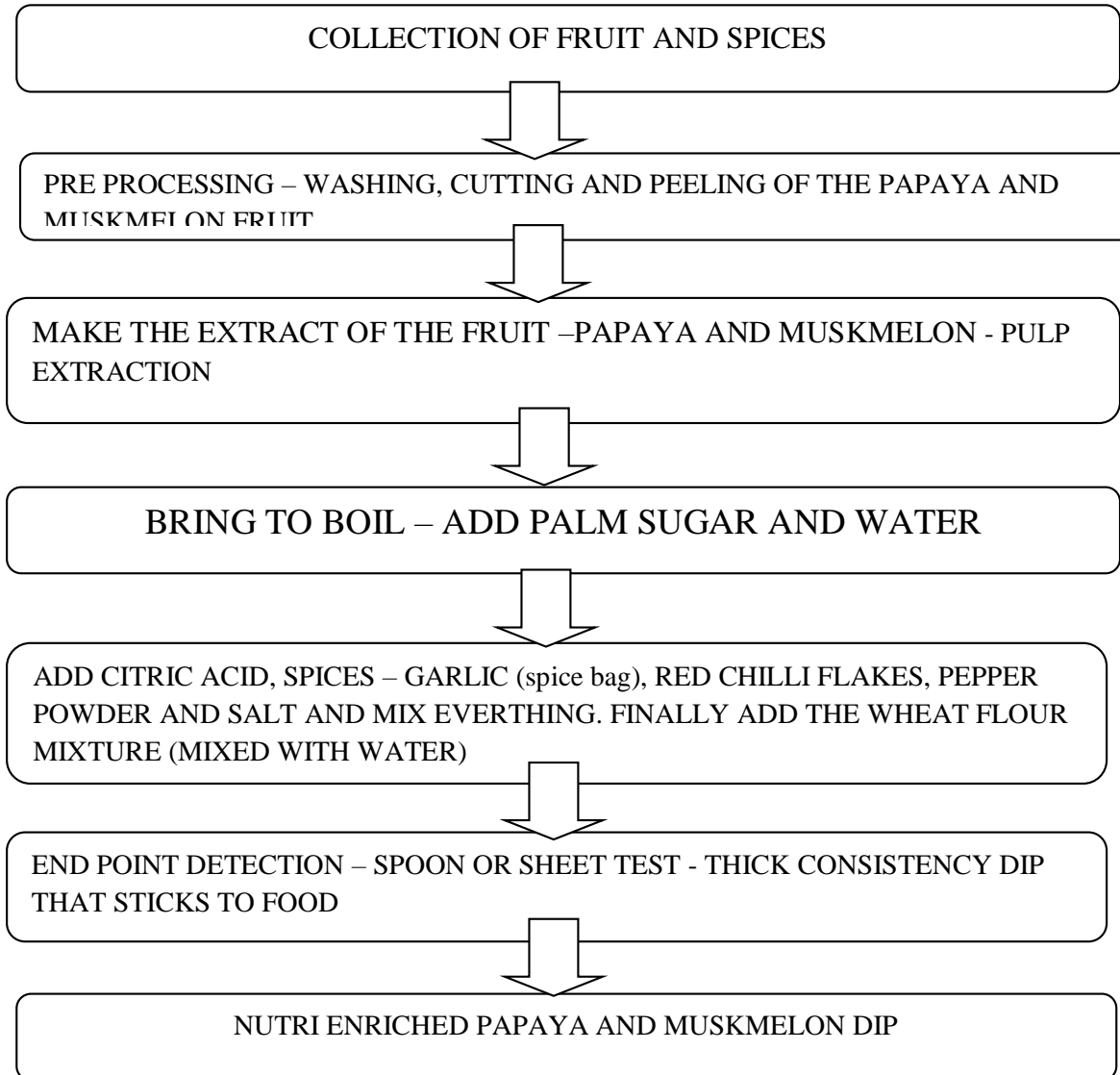
### **FORMULATION OF THE FRUIT DIPS:**

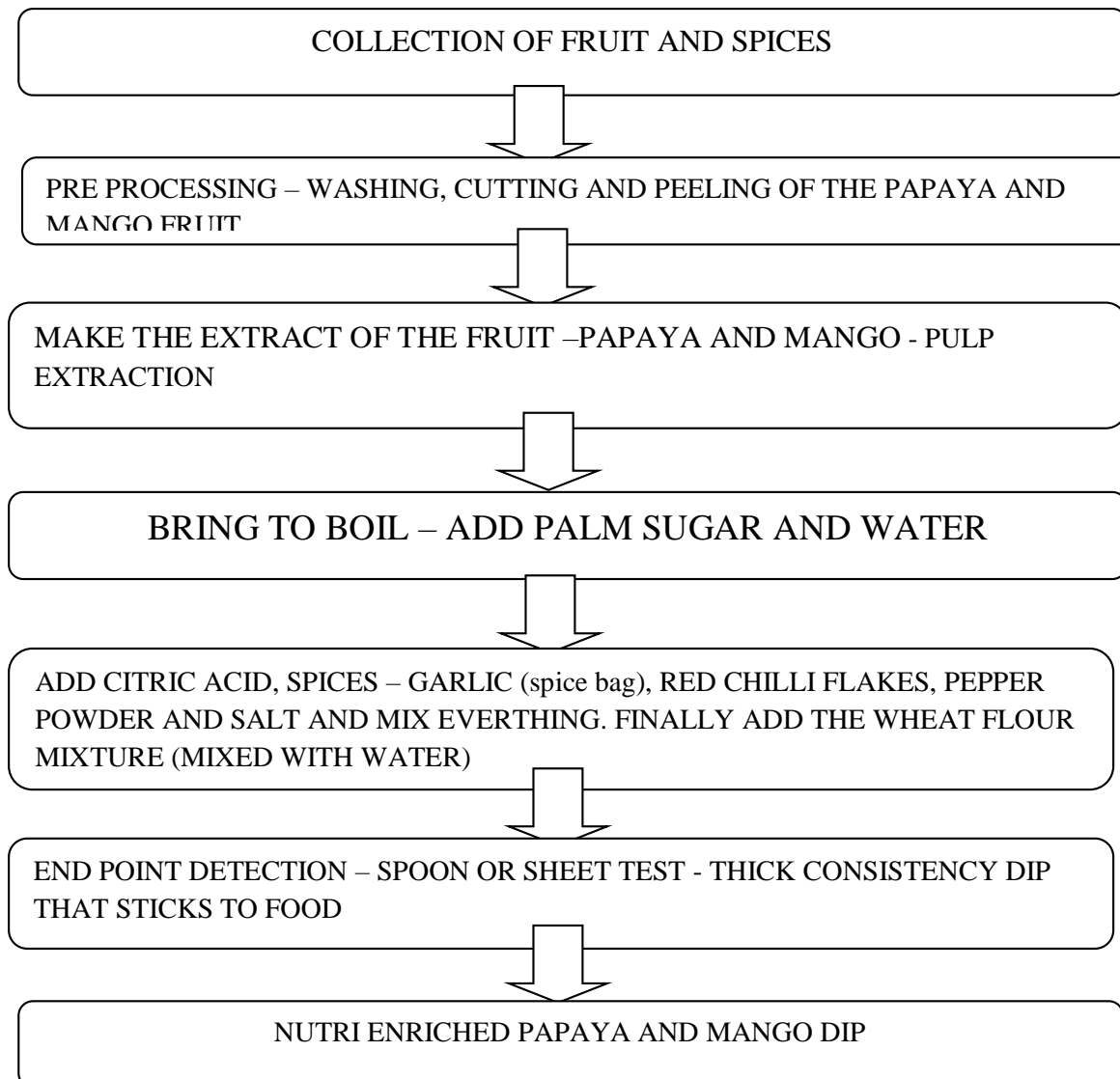
### **METHOD OF PRODUCTION:**

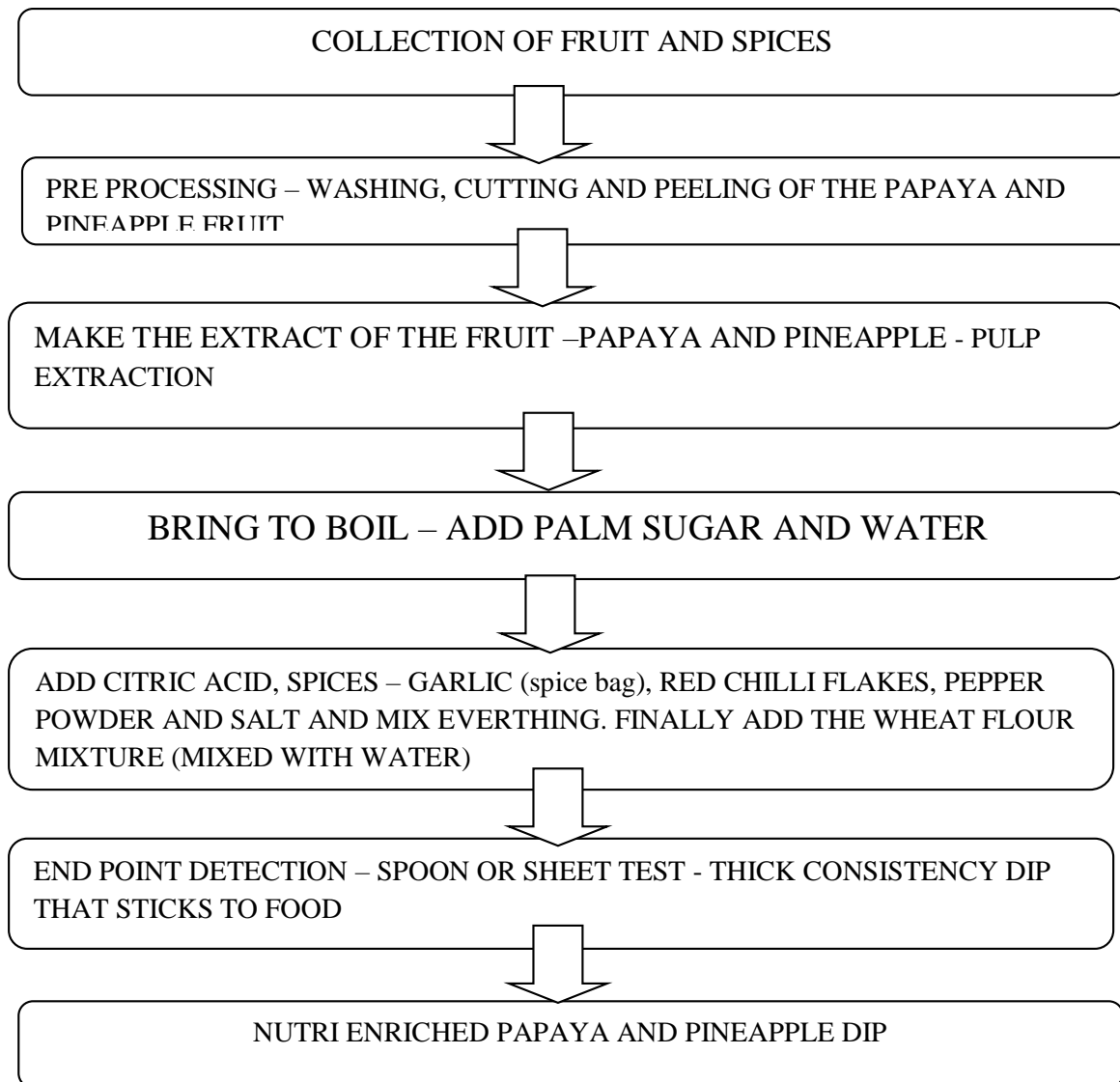
For all the fruit based products, the first stage is the extraction of juice or pulp from the fruit.

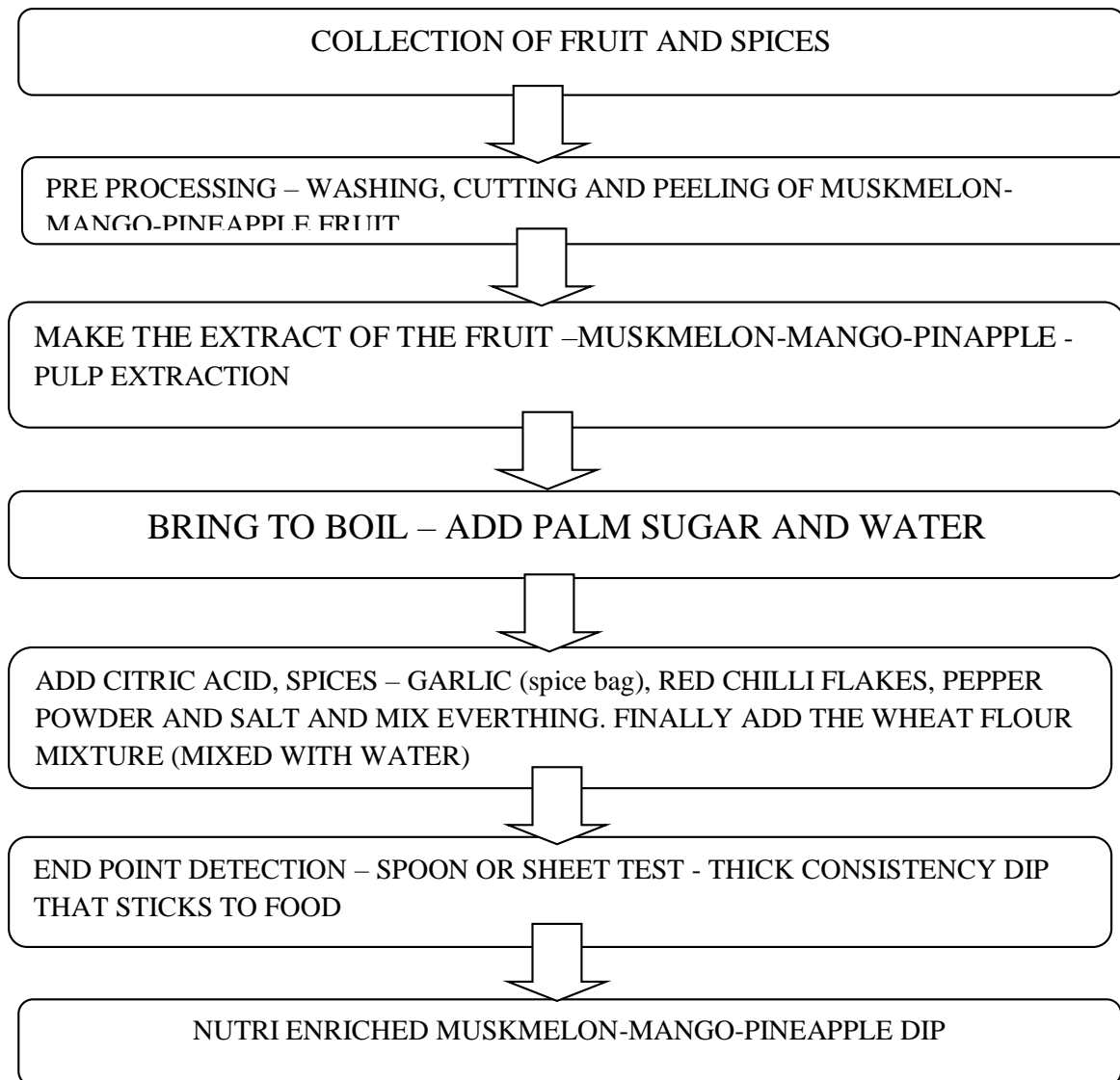
**JUICE EXTRACTION:**

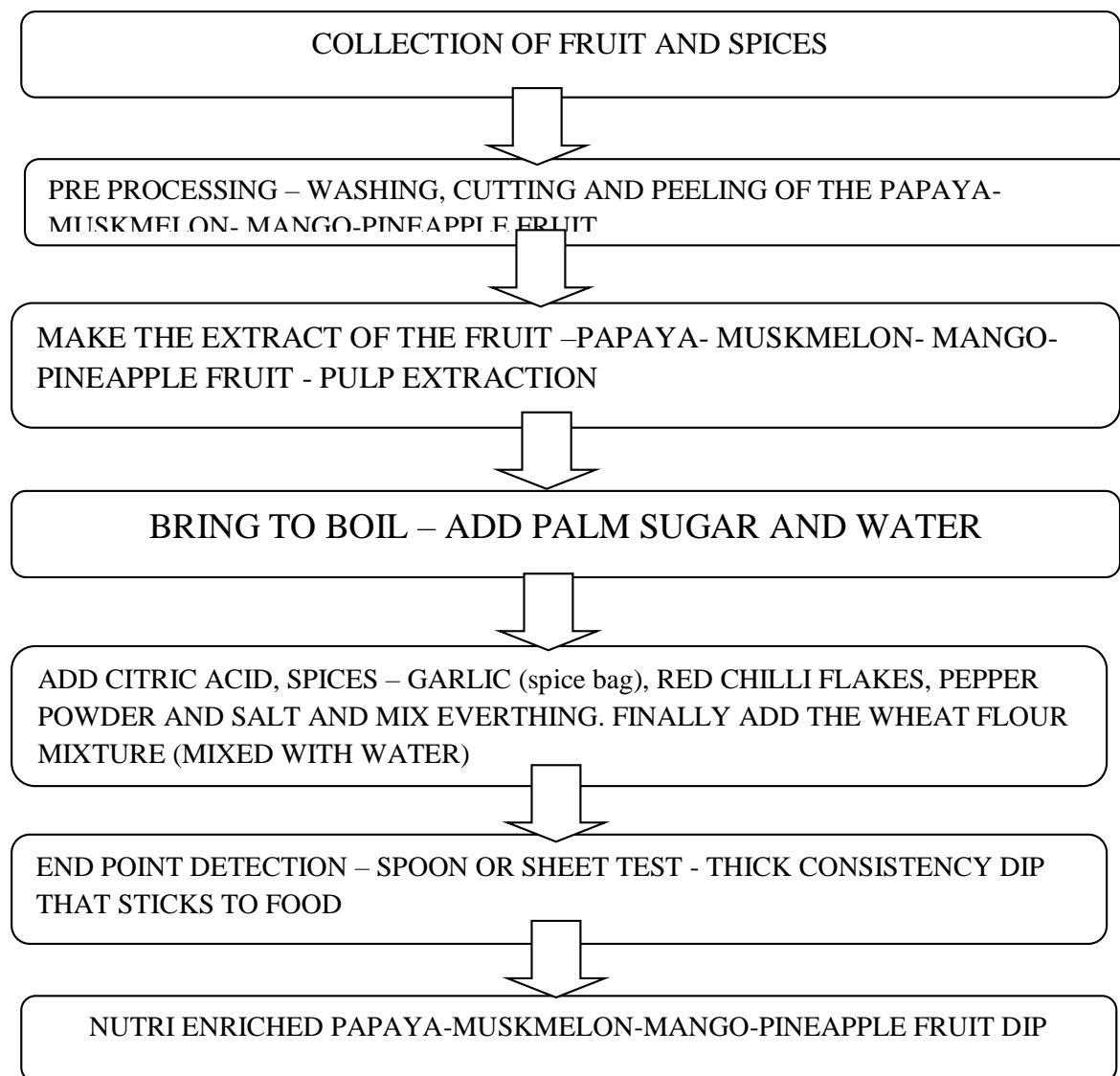
There are several methods to extract juice depending on the type of fruit you use. There is a range of equipment available that varies in size and in the type of power supply (some are manual while the larger ones require electricity). For the small scale processor, the muslin cloth or a hand-powered pulper/sieve.

**PRODUCT 1 – PAPAYA AND MUSKMELON DIP PREPARATION:**

**PRODUCT 2 – PAPAYA AND MANGO DIP:**

**PRODUCT 3 – PAPAYA AND PINEAPPLE DIP PREPARATION:**

**PRODUCT 4 – MUSKMELON-MANGO-PINEAPPLE DIP PREPARATION:**

**PRODUCT 5 – PAPAYA-MUSKMELON-MANGO-PINEAPPLE DIP PREPARATION:**

**MIXING:**

Mix the ingredients in a correct quantity for three variations for each product and mix well.

**STANDARDISATION OF THE DEVELOPED PRODUCT:****TABLE 1 - DIP -1 PAPAYA AND MUSKMELON DIP**

INGREDIENTS	V1	V2	V3
PAPAYA PULP	20	30	40
MUSKMELON PULP	35	30	25
PALM SUGAR	25	25	25
WHEAT FLOUR	20	15	10

**TABLE 2- DIP -2 PAPAYA AND MANGO DIP**

INGREDIENTS	V1	V2	V3
PAPAYA PULP	20	30	40
MANGO PULP	45	30	15
PALM SUGAR	25	25	25
WHEAT FLOUR	10	15	20



**TABLE 3 - DIP -3 PAPAYA AND PINEAPPLE DIP**

INGREDIENTS	V1	V2	V3
PAPAYA PULP	20	30	40
PINEAPPLE PULP	45	30	15
PALM SUGAR	25	25	25
WHEAT FLOUR	20	15	10

**TABLE 4 - DIP -4 MUSKMELON, MANGO AND PINEAPPLE DIP**

INGREDIENTS	V1	V2	V3
MUSKMELON PULP	20	25	30
MANGO PULP	25	30	35
PINEAPPLE PULP	20	15	10
PALM SUGAR	25	25	25
WHEAT FLOUR	15	10	5

**TABLE- 5 -DIP -5 PAPAYA, MUSKMELON, MANGO AND PINEAPPLE DIP**

INGREDIENTS	V1	V2	V3
PAPAYA PULP	20	15	10
PINEAPPLE PULP	15	10	5

MANGO PULP	20	30	40
MUSKMELON PULP	20	25	30
PALM SUGAR	10	10	10
WHEAT FLOUR	15	10	5

## RESULT AND DISCUSSION

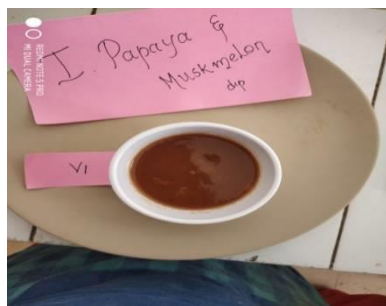
### ORGANOLEPTIC EVALUATION OF THE DEVELOPED FRUIT DIPS

The developed and formulated **FRUIT DIPS** was evaluated by 50 panel members using 5- point hedonic scale.

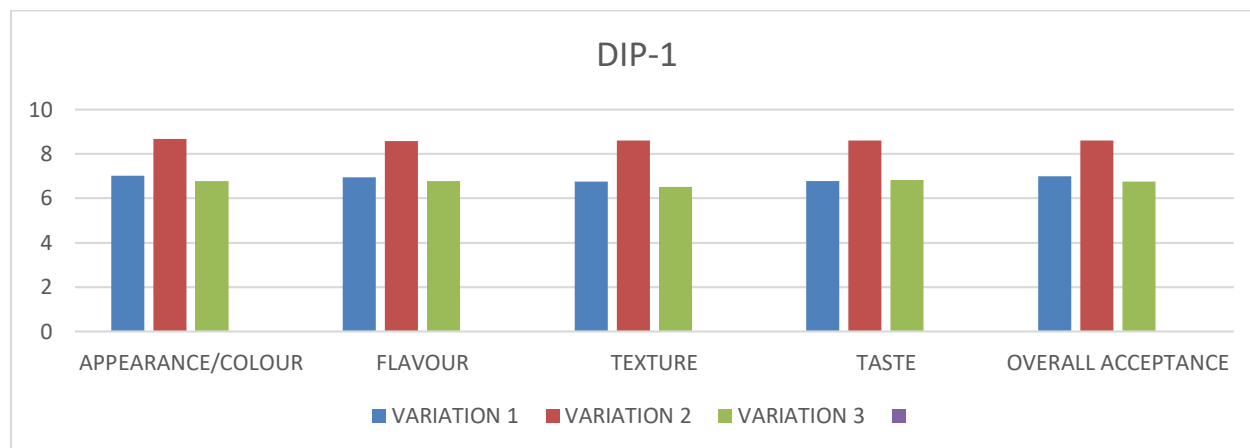
In this evaluation, the quality of the product were asked to judge by the panel members with respect to appearance, color, texture, taste and overall acceptability.

**TABLE- 6- PRODUCT 1: PAPAYA AND MUSKMELON FRUIT DIP**

CRITERIA	VARIATION 1	VARIATION 2	VARIATION 3
APPEARANCE	7.02±0.58	8.66±0.47	6.78±0.86
FLAVOR	6.94±0.65	8.58±0.50	6.78±0.73
CONSISTENCY	6.74±0.85	8.6±0.63	6.52±0.64
TASTE	6.78±0.81	8.6±0.53	6.82±0.66



**SENSORY STATISTICS:**



**SENSORY RESULT OF PRODUCT- 1:**

VARIATION 2 SCORES THE BEST

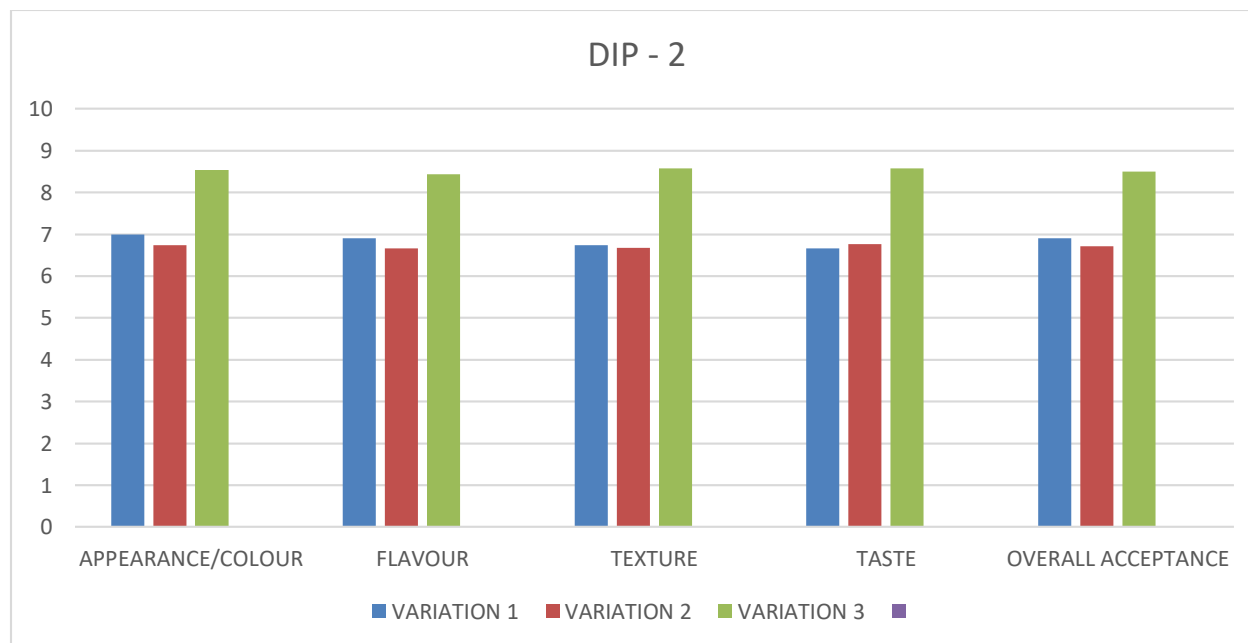
**TABLE -7- PRODUCT 2 – PAPAYA AND MANGO DIP:**

CRITERIA	VARIATION 1	VARIATION 2	VARIATION 3
APPEARANCE/COLOUR	7±0.57	6.7±0.82	8.54±0.61
FLAVOUR	6.9±0.64	6.66±0.82	8.44±0.54
TEXTURE	6.74±0.75	6.68±0.86	8.58±0.64

TASTE	6.66±0.65	6.76±0.71	8.58±0.53
OVERALL ACCEPTANCE	6.9±0.61	6.72±0.70	8.5±0.54



**SENSORY STATISTICS:**

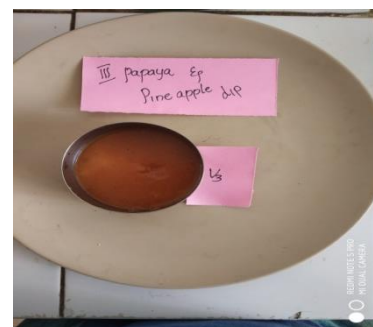
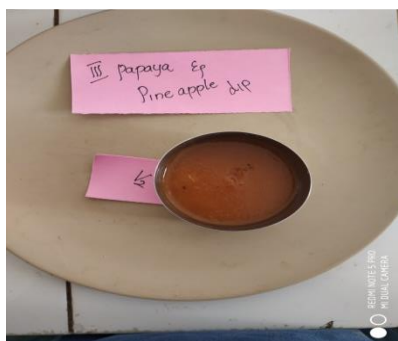
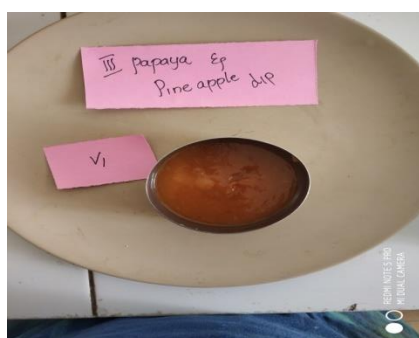
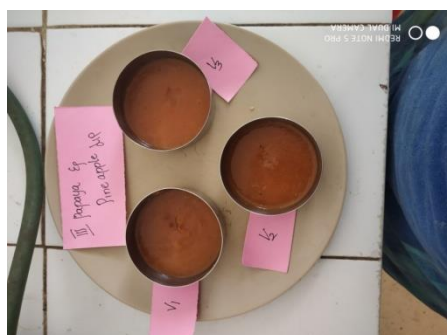


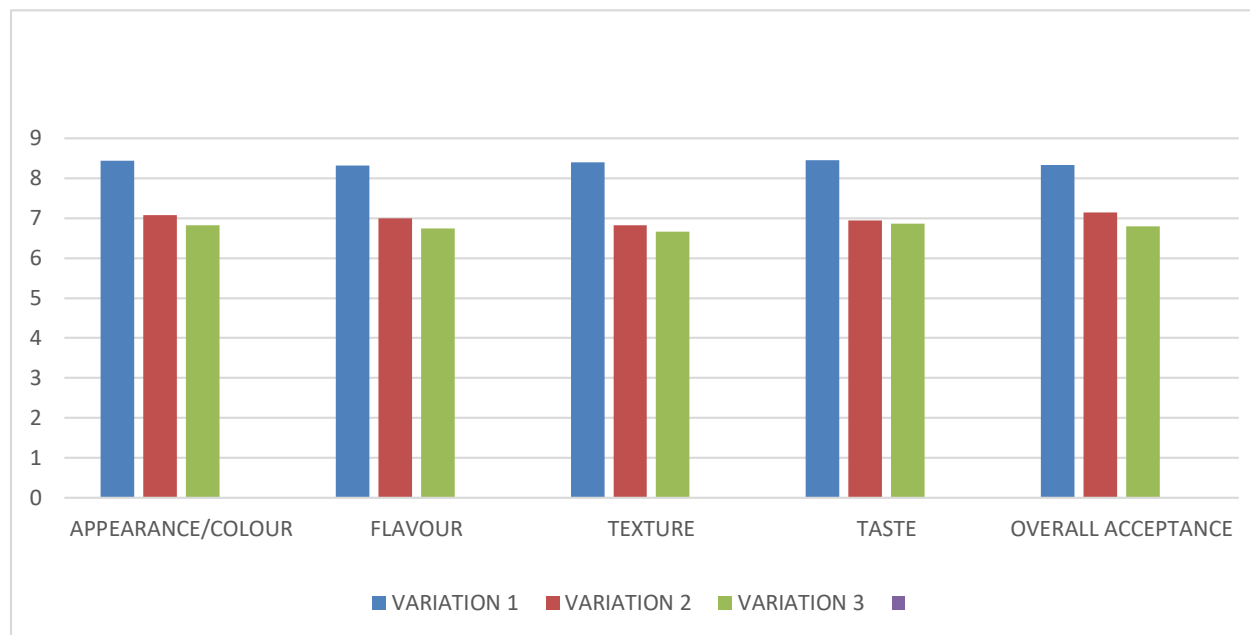
**SENSORY RESULT OF PRODUCT 2:**

VARIATION 3 SCORES THE BEST

**TABLE 8 - DIP 3 - PAPAYA AND PINEAPPLE DIP**

	APPEARANCE/ COLOUR	FLAVOUR	TEXTURE	TASTE	OVERALL ACCEPTANCE
VARIATION 1	8.44±0.70	8.32±0.68	8.4±0.85	8.46±0.57	8.34±0.68
VARIATION 2	7.08±0.48	7±0.60	6.82±0.84	6.94±0.73	7.14±0.63
VARIATION 3	6.82±0.82	6.74±0.72	6.66±0.72	6.86±0.72	6.8±0.69

**SENSORY STATISTICS:**

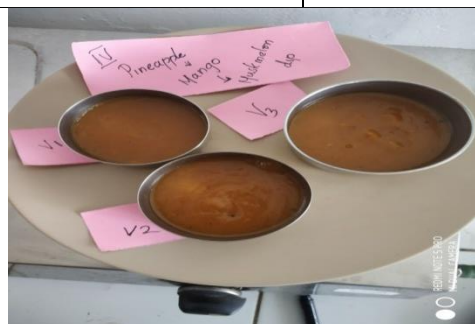


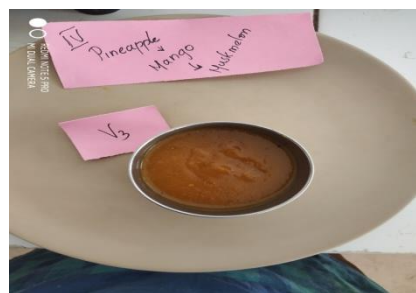
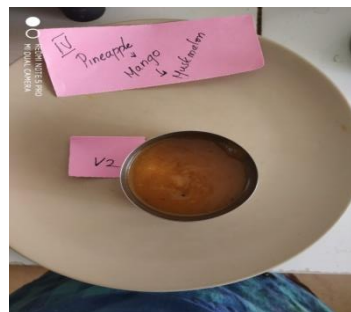
**SENSORY RESULT OF PRODUCT 3:**

VARIATION 1 SCORES THE BEST

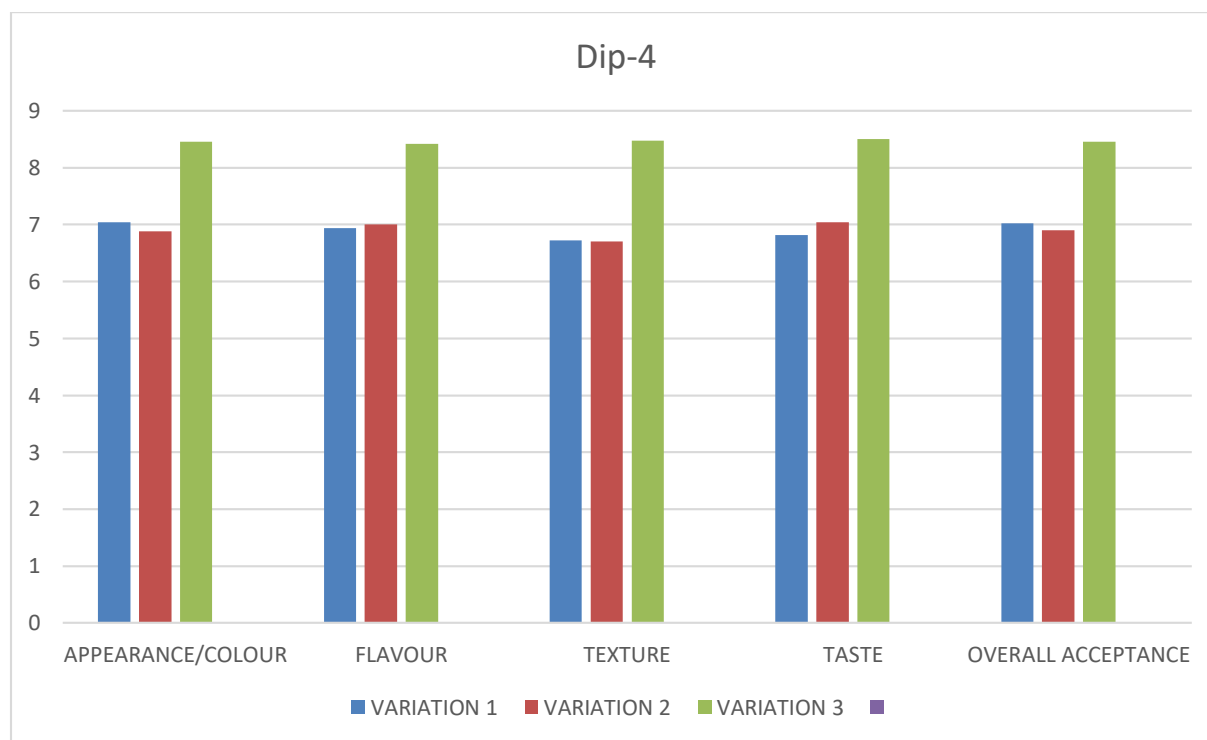
**TABLE 9- PRODUCT 4 – MUSKMELON, MANGO AND PINEAPPLE DIP**

	VARIATION 1	VARIATION 2	VARIATION 3
<b>APPEARANCE/COLOUR</b>	7.04±0.56	6.88±0.84	8.46±0.54
<b>FLAVOUR</b>	6.94±0.61	7±0.69	8.42±0.53
<b>TEXTURE</b>	6.72±0.77	6.7±0.78	8.48±0.61
<b>TASTE</b>	6.82±0.69	0.04±0.78	8.5±0.58
<b>OVERALL ACCEPTANCE</b>	7.02±0.58	6.9±0.61	8.46±0.50





**SENSORY STATISTICS:**



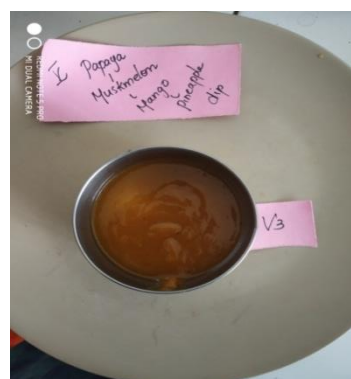
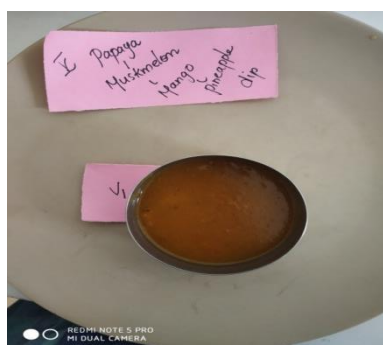
**SENSORY RESULT OF PRODUCT 4:**

VARIATION 3 SCORES THE BEST

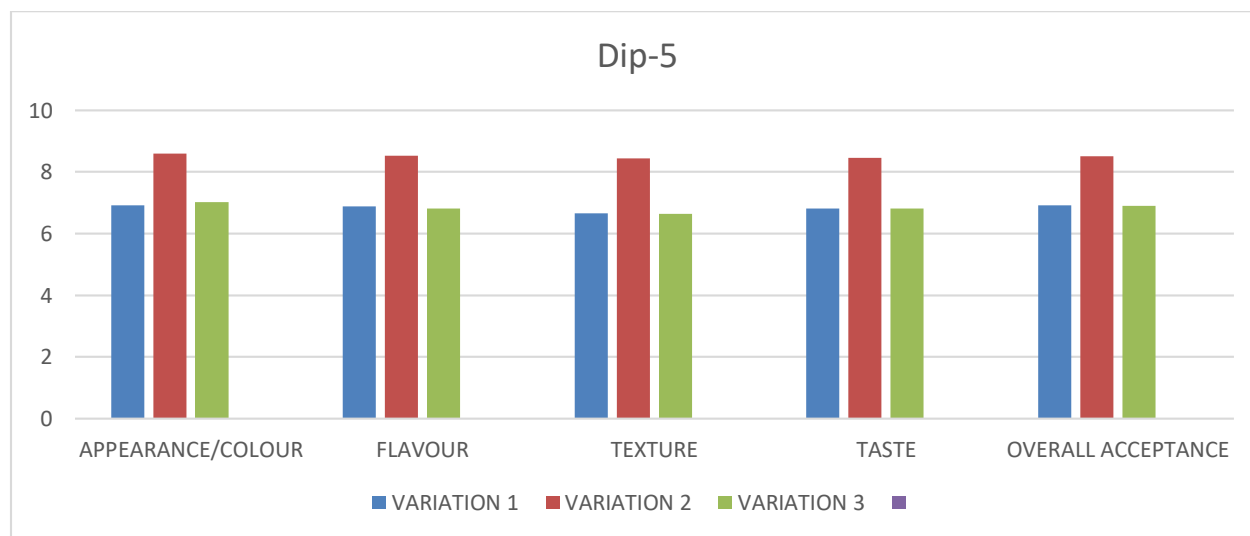
**TABLE – 10 PRODUCT – 5 PAPAYA, MUSKMELON, MANGO AND PINEAPPLE DIP:**

	VARIATION 1	VARIATION 2	VARIATION 3
APPEARANCE/COLOR	6.92 ±0.66	8.6 ±0.57	7.02 ±0.74
FLAVOUR	6.88 ±0.59	8.52 ±0.54	6.82 ±0.69

TEXTURE	6.66 ±0.71	8.44 ±0.73	6.64±0.74
TASTE	6.82 ±0.69	8.46 ±0.61	6.82±0.74
OVERALL ACCEPTANCE	6.92 ±0.66	8.5 ±0.58	6.9±0.73



**SENSORY STATISTICS:**





**SENSORY RESULT OF PRODUCT 5:**

VARIATION 2 SCORES THE BEST

**NUTRIENT ANALYSIS:****NUTRIENT CONTENT IN THE DIPS:**

NUTRIENTS	DIP -1	DIP – 2	DIP – 3	DIP - 4	DIP - 5	CONTROL
ASH(g)	2.83	3.24	3.22	2.21	3.22	3.45
MOISTURE (g)	86.5	86.1	86.9	84.8	85.6	70
ENERGY(kcal)	45.7	59.4	42.4	56.5	46.7	376.90
CARBOHYDRATE(g)	8.9	12.08	8.68	10	10.3	11.40
PROTEIN(g)	1.29	1.58	0.74	2.19	0.67	0.70
FAT(g)	0.48	0.34	0.46	0.77	0.26	36.50
FIBER(g)	2.79	3.13	4.24	3.98	5.81	0.57
IRON(mg)	1.4	2.6	2	2.4	2	0.02
PHOSPHORUS(mg)	75	50	50	80	50	74.2
CALCIUM(mg)	68.2	69.2	82	76	69.2	0.34
VITAMIN C(mg)	130	157	145	147	184	53.3

**SHELF LIFE EVALUATION:**

Shelf life is the length of time that a commodity may be stored without becoming unfit for use, consumption, or sale. Time during which the food product will remain safe; retain desired sensory, chemical, physical and microbiological characteristic; comply with any label declaration of nutritional data, when store under the recommended conditions. It begins from the time the food is finished processing and packaged. Shelf life of each product has been evaluated.

**WHEN KEPT AT ROOM TEMPERATURE:**

On the day of preparation      The product is fresh for the whole day.

DAY -1                                      The product has no changes

DAY -2                                      Slight changes in their physical properties (smell).

DAY -3                                      Mould formation

**WHEN KEPT AT REFRIGERATION TEMPERATURE:**

1-15 DAYS      No changes in their properties

15-30 DAYS Still no spoilage of the product

30-40 DAYS Slight changes in physical and chemical properties

40-50 DAYS Spoiled and mould formation

DAY 1-10

FRESH, FLAVORFUL AND GOOD



DAY 11-30

FRESH AND GOOD



DAY 31-40

SLIGHT CHANGES IN PHYSICAL APPEARANCE (FLAVOR) AND SMALL MOULF FORMATION



DAY 41-50

SPOILED AND BIG MOULD FORMATION



**COST CALCULATION:****OVERALL DISPLAY OF THE COST CALCULATION:**

<b>PRODUCT</b>	<b>RUPEES PER 100G</b>	<b>ROUND UP MRP</b>
DIP 1	54.6	55
DIP 2	54.3	54
DIP 3	55.5	56
DIP 4	55.4	55
DIP 5	56.04	56
<b>CONTROL</b>		
CHEESE DIP	130	
<b>OTHER DIPS IN THE MARKET (PER 100G)</b>		
1. WALDEN FARMS RANCH DIP	227	
2. GARLIC DIP	133	
3. WINGREEN FARMS PERIPERI GARLIC DIP	133	
4. MARSGMELLOW DIP	176	

**LABELLING OF THE DEVELOPED FRUIT DIPS:**

Food labeling serves as a primary link of communication between manufacturer or packer of food on the one hand and distributor, seller and user or consumer

AN EXAMPLE OF LABELLING FOR THE FRUIT PRODUCT – PAPAYA AND MANGO DIP



**INGREDIENTS:**


Papaya 🍌  
Mango 🥭  
Palm sugar and salt  
Pepper and chilli powder 🌶️  
Lime (citric acid)  
With no added synthetic preservatives🚫

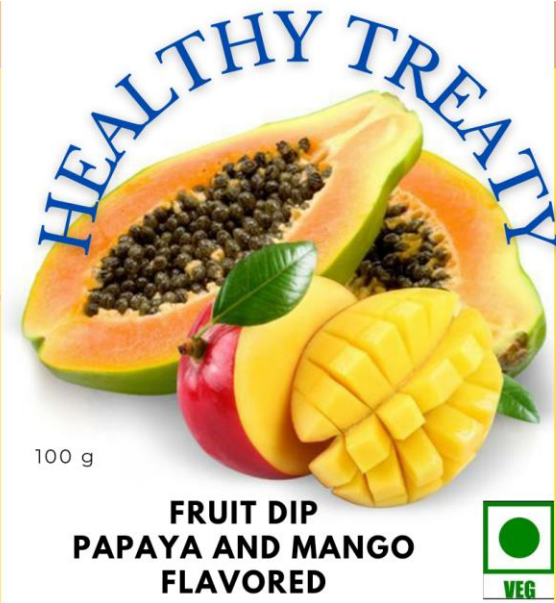
**DIRECTIONS:**

Keep in refrigeration and  
Have this dip with your fires 🍷 and enjoy!!!❤️

**NUTRIENT CONTENT  
PER 100G**

ENERGY -59.4 KCAL  
CARBS- 12.08G  
PROTEIN- 1.58G  
FAT-0.34G  
FIBER-3.13 G  
IRON-2.6MG  
VITAMIN C -157MG  
CALCIUM-69.2 MG  
PHOSPHORUS- 50MG


  
FSSAI code: 001234xxx



**HEALTHY TREATY**

100 g

**FRUIT DIP  
PAPAYA AND MANGO  
FLAVORED**



Dip your happiness and bite your love

**Enjoy your chip n' dip**

HEALTHY AND TASTY

**BOTTLED ON:**  
04/05/2022


**BEST BEFORE:**  
04/06/2022

**COMPANY  
ADDRESS**

Heathy treaty  
📞 1234567890  
12 th Street  
Xxx Road  
Yyy  
Tamil Nadu

www.healthytreaty.com

MRP: Rs.55/-



### SENSORY ATTRIBUTES OF VARIATION:

- The formulated fruit dips were prepared and it was organoleptically evaluated.
- The mean±standard deviation of overall acceptability of the formulated fruit dips, samples showed the best variations.

PRODUCT NAME	BEST VARIATION
PAYAYA AND MUSKMELON DIP	VARIATION 2
PAPAYA AND MANGO DIP	VARIATION 3
PAPAYA AND PINEAPPLE DIP	VARIATION 1
MUSKMELON, MAANGO AND PINEAPPLE DIP	VARIATION 3
PAPAYA, MANGO, MUSKMELON AND PINEAPPLE DIP	VARIATION 2

Hence, it is concluded that 80 percent of fruit dips, which increase nutritional value without majorly affected the sensorial and textural quality profile of fruit dips.

### CONCLUSION:

Fruits are richest natural sources of Vitamin C and plays a vital role in preventing innumerable health disorders. It is considered to be a safe herbal medicine without any adverse effects. So it can be concluded that the fruits are traditionally and clinically proven for both its application and efficacy. The study was carried to provide a healthy fruit dips to the people. The nutrient enriched fruit dips were developed and formulated by mixing various variation and finding the best. The organoleptic scores for Product 1 variation-2 has got highest mean

score for all sensory attributes, for product 2- variation 3 has got highest mean score for all sensory attributes, Product 3 variation-1 has got highest mean score for all sensory attributes, Product 4 variation-3 has got highest mean score for all sensory attributes, Product 5 variation-2 has got highest mean score for all sensory attributes - namely appearance, color, taste, texture and overall acceptability in comparison with other variations. The developed fruit dips are rich in Vitamin- c and iron and other essential nutrients. The sensory characteristic were acceptable according to the consumer preferences, it would be a healthy product for all aged people.

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- In the honor of National chip and dip day- Written by Tom – March 2017