

# JAYA INDUSTRIES PVT. LTD.

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14.06.2022

## TO WHOM IT MAY CONCERN

This is to certify that Sri Sourav Panda, a student of M.voc.(Food Processing) in Mugberia Gangadhar Mahavidyalaya has successfully completed the training in biscuit manufacturing process at JAYA INDUSTRIES PVT.LTD. from (15.05.22-14.06.22)

During his training, he has taken training in Quality control, Process, Engineering and Packaging section under the guidance of Senior officials. His overall performance is found good.

He is sincere, hardworking, intelligent and disciplined student.

We wish him all the best in life.

For JAYA INDUSTRIES PVT. LTD.

  
Factory manager

# JAYA INDUSTRY PRIVATE LIMITED

TRAINING REPORT OF 2022

Duration 1 month (16<sup>th</sup> may to 15<sup>th</sup> June)

Location- Sugandhya, Delhi road, chinchurah, hoogly, West Bengal

Submitted by: Sanjib das, Sourav Panda, Mrinmay Maji, Sushovan Kar

**MUGBERIA GANGADHAR MAHAVIDYALAYA**

Bhupatinager, Purba Medinipur, 721425

Programme Name: M. Voc, B. Voc



*Sanjib Das*  
14/6/22

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## **ACKNOWLEDGEMENT**

NJIB DAS, SOURAV PANDA (M.VOC or Master's in vocational), MRINMAY MAJI, SUSHOVAN R (B.VOC or Bachelor's in vocational) are the student) of MUGBERIA GANGADHAR HAVIDYALAYA in food technology nutrition & management this report based upon one month training in "JAYA INDUSTRIES PRIVATE LIMITED" we learn all activities during training sessions. We highly thankful to all incharges and officers and labours for sharing their valuable knowledge, experience which is very effective to us. I would like to express by sincere gratitude and would also like to thank our respected officers to guide us doing this training.

**THANK YOU**

## Introduction

As one of the largest segments in the food processing sector in India, the bakery industry offers huge opportunities for growth, innovation, and job generation. Separated into three categories, bread, biscuits, and cakes and pastries, the bakery industry reached a market value of USD 12 billion in 2018. As the second largest producer of biscuits after the USA, India is a key player internationally, and with the entrepreneurial spirit of Indian companies and individuals is one of the most exciting regions for the bakery sector.

Changing consumer habits and lifestyle are shaping the bakery industry in India. Part of a global trend, there is greater demand for healthier products and alternatives, particularly when it comes to bakery goods which are now more commonly consumed daily as opposed to being a treat. With high consumption rates, customers want baked goods that are 'guilt-free' and are increasingly seeking gluten-free products, or goods made with alternative ingredients such as multigrain and whole-wheat. Alongside healthier options, millennials in particular are always seeking new flavours and experiences, making flavour innovation key.

With the recent influx of international cafe and bakery chains, on-the-go food has become increasingly popular. With hectic lifestyles, Indian consumers are prioritising convenience, and as breads and biscuits are fast-moving consumer goods (FMCG), bakeries are a go-to option.

While there is demand and appetite for bakery products, the Indian bakery industry faces certain challenges. The industry is generally divided into organised and unorganised, with more than 2,000 organised or semi-organised bakeries, and 1,000,000 unorganised bakeries. Operational efficiency is a major issue in the industry, as is the lack of technology and skilled workers.

Although there are obstacles which are causing losses, there has been a boom in entrepreneurial endeavours in the bakery industry in India. Home baking has always been a popular pursuit, but with new technological innovations individuals have been able to monetise their efforts. Founded by two women, [homebakers.co.in](http://homebakers.co.in) provides a network for home bakers, the majority of whom are female, to promote and sell their products. On a smaller scale, local WhatsApp groups have become popular to supply neighbours and locals with baked goods, which highlights the power of networking technology.

every level in the bakery industry in India there are challenges and opportunities. While the growth of local home bakers is encouraging, there are issues of hygiene practices and standards, and organised bakeries are also incurring losses due to lack of operational efficiency and skilled workers.

Despite certain difficulties, the forecast for the Indian bakery industry is positive with a projected market value likely to exceed USD 12 billion by 2024 expanding at a CAGR of 9.3% from 2019 to 2024. Alongside these predictions, India occupies a unique position in the market as flavour innovation continues to grow in importance on a global scale. Indian bakers' creativity and access to interesting and unusual flavour combinations will allow them to continue to excel and innovate in this market.

## History of the Company

JAYA INDUSTRIES PRIVATE LIMITED is a Private Company, who was incorporated 20 year(s) 3 Month(s) 28 Day(s) ago on dated 11-Feb-2002 . JAYA INDUSTRIES PRIVATE LIMITED is classified as Non-govt. company and is registered at Registrar of Companies located in ROC-KOLKATA. As regarding the financial status on the time of registration of JAYA INDUSTRIES PRIVATE LIMITED Company its authorized share capital is Rs. 1000000 and its paid up capital is Rs. 22331330. As per Registration of Company, It involves under in Business Activity Class / Subclass Code 1412, Main Activity of the said Company JAYA INDUSTRIES PRIVATE LIMITED is : , manufacture of biscuits, cakes and pastries, It Comes Under Division MANUFACTURE OF FOOD PRODUCTS AND BEVERAGES and this come under section MANUFACTURING.

JAYA INDUSTRIES PRIVATE LIMITED Corporate Identification Number U15412WB2002PTC094217 and its registration number is 094217 .Its Email address is jwabiscuit@gmail.com and its registered address is where Company is actual registered : 5/2A ACHARYA JAGADISHCHANDRA BOSE ROAD5TH FLOOR, Kolkata, INDIA 700020. For any Query You can reach this company by email address or Postal address.

JAYA INDUSTRIES PRIVATE LIMITED's Annual General Meeting (AGM) was last held on Mar 31, 2016 and as per records from Ministry of Corporate Affairs (MCA), its balance sheet was last filed on Mar 31, 2016.

Directors of JAYA INDUSTRIES PRIVATE LIMITED are DIPAK KUMAR MODI , GOPAL KUMAR MODI , SOMNATH MODI

## Mixing section

Ingredients used in mixing-

- |                               |                                     |
|-------------------------------|-------------------------------------|
| 1. Flour /Maida               | 9. SAPP (sodium acid pyrophosphate) |
| 2. Sugar                      | 10. Condensed milk                  |
| 3. Salt                       | 11. SMP                             |
| 4. Water                      | 12. Citric acid                     |
| 5. Yeast                      | 13. Panadon                         |
| 6. Fat & oil (palm oil)       | 14. Starch powder                   |
| 7. ABC (ammonium bicarbonate) | 15. Flavour                         |
| 8. SBC (sodium bicarbonate)   | 16. Palm oil                        |
| 17. Glucose                   |                                     |
| 18. Enzyme                    |                                     |

### 1) Maida –

- Major constituent of a Biscuit
- A structure builder or binder that provides the basic framework in Biscuit
- The Protein from Maida forms a sticky rubbery mass when combined with water. This is known as Gluten which provides the basic framework.
- Gluten permits the retention of gas bubbles during baking of a Dough to give open textured & pleasant eating products.

### 2) Palm Oil –

a) Act as a Shortening Agent – The water or Sugar solution interacts with the flour protein to create gluten, which forms a cohesive & extensible network. When some fat coats the flour this network is interrupted & the eating properties after baking are less hard, short & more inclined to melt in the mouth.

b) Nutrition.

c) Lubrication.

d) Machinability.



- e) Aeration (Creaming) – incorporation of air into fat Matrix.
- f) Flavour development.
- g) Emulsification.
- h) Heat transfer.

### 3) Sugar –

- a) Imparts Sweetness
- b) Contributes to the eating texture
- c) Increases Crispness of Biscuit
- d) Increasing level of Sugar results in a softening of Gluten & hence reduction in water quantity.
- e) Browning effect
- f) Fuel for yeast

### 4) Salt (Sodium Chloride) –

- a) Most effective conc. is around 1- 1.5% based on flour wt.
- b) Used for flavour & flavour enhancing properties.

### 5) Leavening Agents –

Leavenings is defined as a raising action that aerates dough during mixing or baking so that the finished products are greater in volume than raw ingredients & have superior flavour & eating characteristics. These are incorporated during Creaming process

Leavening Agents used in Biscuits are

#### a) Sodium Bicarbonate (Baking Soda/SBC) –

- In presence of moisture soda will react with any acidic materials to liberate  $\text{CO}_2$ , decomposing to the appropriate sodium salt & water
- As many Biscuit ingredients including flour have an acidic reaction it is often useful to use soda as a means of adjusting PH of a dough.

#### b) Ammonium Bicarbonate (ABC) –

- It decomposes completely when heated, breaking down into  $\text{CO}_2$ , ammonia gas & water.

- It is readily soluble but is very alkaline, giving softer dough, which require less water for a given consistency.

#### 6) Yeast –

- Converts sugar to  $\text{CO}_2$  & alcohol. , This reaction is called as Fermentation.
- Heat is released so temp. increases.
- Acids are developed so PH drops to 4-6.
- Flavour development.
- Dough Mellowed.

#### 7) Water –

- Main function is hydration of dry materials.
- Acts as a solvent.
- Controls dough temp.
- Controls dough consistency.
- Imparts softness to final product.

#### 8) Enzymes

- Added at Mixing stage.
- Dough conditioner.
- Improved machinability
- Prevents shrinkage of dough
- No toxicity problems like SMBS.

#### 9) Skimmed Milk Powder (SMP) –

- When the fat is separated from cream or butter manufacture, a white fluid, rich in lactose & proteins, remains. This is known as Skimmed Milk.
- It has strong flavour.
- The lactose is a reducing disaccharide which is only about 16% as sweet as sucrose but combines with proteins by the Millard reaction, under appropriate conditions of heat, at the biscuit surface during baking to give attractive reddish brown hues & surface bloom
- Thus, it gives subtle flavour & textural improvements.
- Aids in colouring.
- If not well dispersed in the dough, small lumps will appear as dark brown or black specks in the baked biscuit.

### 10) Sodium Metabisulphite (SMBS)-

Used in very small quantities to modify the gluten quality chemically.

It behaves as a reducing agent through the liberation of  $\text{SO}_2$  gas (unpleasant smell) when in solution.

It causes the gluten to become more extensible & less elastic & therefore reduces the shrinkage of dough pieces as they are baked.

### 11) Sodium Acid Pyrophosphate (SAPP)-

This is an acid salt available in fine white powders with an acrid acid taste.

They are preferred in Biscuit dough as the reaction with soda is very slow until the dough is heated in the oven.

### 12) Invert syrup –

To aid the surface coloration during baking.

Is derived by hydrolyzing sucrose into its components dextrose & fructose. This is done by citric acid. The acid is neutralized after the reaction is complete by adding NaOH.

## Baking Section

<u>Biscuits name</u>	<u>Baking time</u>	<u>Baking Temperature(°C)</u>	<u>RPM</u>
3 in 1 /Twin win	4 min 34 Sec	1 <sup>st</sup> - 58.4, 2 <sup>nd</sup> - 129.1, 3 <sup>rd</sup> -195.3, 4 <sup>th</sup> - 204, 5 <sup>th</sup> -204, 6 <sup>th</sup> - 213, 7 <sup>th</sup> -153	859
Cream cracker	6 min 28 sec	1 <sup>st</sup> - 222, 2 <sup>nd</sup> - 249, 3 <sup>rd</sup> - 278, 4 <sup>th</sup> - 260, 5 <sup>th</sup> - 239,	300
Big Boss	4 min 30 sec	1 <sup>st</sup> - 135, 2 <sup>nd</sup> - 254, 3 <sup>rd</sup> - 277, 4 <sup>th</sup> - 265, 5 <sup>th</sup> - 227	751
Morning Time	4 min 28 sec	1 <sup>st</sup> - 123, 2 <sup>nd</sup> - 258, 3 <sup>rd</sup> - 280, 4 <sup>th</sup> - 262, 5 <sup>th</sup> - 229	430
T - Time	4 min 37 sec	1 <sup>st</sup> - 150, 2 <sup>nd</sup> - 259, 3 <sup>rd</sup> - 284, 4 <sup>th</sup> - 276	727

		5 <sup>th</sup> - 257	
Butter D-lite	5 min 30 sec	1 <sup>st</sup> - 134, 2 <sup>nd</sup> - 220 3 <sup>rd</sup> - 269, 4 <sup>th</sup> - 276 5 <sup>th</sup> - 246	22.5

### Energy Plus

#### Ingredients:-

- 1.- Refined wheat flour (maida- 51.1%)
- 2.- Edible vegetable oil(palm)
- 3.- Edible Starch
- 4.- Milk solids
- 5.- Invert syrup
- 6.-Raising agents[500(ii),503(ii)]
- 7.- Butter(1.3%)
- 8.- Liquid glucose
- 9.- Cheese
- 10.- Edible common salt
- 11.- Permitted emulsifier
- 12.- Acidity Regulator[450(I) ]
- 13.- Dough conditioner(223)& Dough improver(1104)

14.- Contains permitted synthetic food colours (102) and flavours (butter).

**Nutritional information per 100gm of product:-**

Carbohydrate	68.7g
Sugar	23.7g
Protein	7.5g
	19.6g
Saturated fatty acid	9.8g
Mono unsaturated fatty acid	7.6g
Poly unsaturated fatty acid	2.15g
Trans fatty acid	<0.01g
Cholesterol	<1mg
Energy	481 kcal
Contains traces of vitamins	
Figures Based on calculated value	

## Dream Marie

### Ingredients:-

- 1.- wheat flour
- 2.- Sugar
- 3.- Edible vegetable oils
  
- 4.- Milk & milk products
- 5.- Invert syrup
- 6.-Raising agents[500(ii),503(ii)]
- 7.- Liquid glucose
- 8.- Edible common salt
- 9.- Dough conditioner (223)
- 10.- Permitted emulsifier(322, 471)
- 11.- Contains added artificial flavor(milk and butter)

### Nutritional information per 100g product

Carbohydrate	75.48g
Sugar	20.54g
Protein	8.58g
Fat	12.19g

Saturated fatty acid	5.82g
Mono saturated fatty acid	4.63g
Poly unsaturated fatty acid	1.29g
Trans fatty acid	<0.01g
Cholesterol	<1mg
Energy	446.02 kcal
Contains traces of vitamins and minerals	

### Top Star

#### Ingredients:-

- 1.- Refined wheat flour (maida)
- 2.- Edible vegetable oil(palm)
- 3.- malt extract
- 4.- Sugar
- 5.- Milk solids
- 6.-Raising agents[500(ii),503(ii)]
- 7.- Butter

- 8.- Liquid glucose
- 9.- Edible common salt
- 10.- Permitted emulsifier(472e)
- 11.- Acidity Regulator[450(i) ]
- 12.- Dough conditioner(223)& Dough improver[1100, 1101(i) ]
- 13.- Contains permitted synthetic food colours (102) and added artificial flavor(butter).

**Nutrition facts 100gm of the product:-**

Carbohydrate	65.67g
Sugar	12.8g
Protein	8.5g
Fat	21.1g
Saturated fatty acid	10.57g
Mono unsaturated fatty acid	8.18g
Poly unsaturated fatty acid	2.32g
Trans fatty acid	<0.02g
Cholesterol	<1mg
Energy	486.58kcal



Contains traces of vitamins	
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### Cream Cracker

#### Ingredients:-

- 1.- Refined wheat flour (maida-82.35%)
- 2.- Edible vegetable oil(palm)
- 3.- Sugar
- 4.- Milk solids
- 5.- Iodized salt
- 6.- Permitted emulsifier(322)
- 7.- Dough improver(1101)
- 8.- yeast
- 9.- malt extracts
- 10.- mixed spices

#### Nutrition facts 100gm of the product:-

Carbohydrate	64.19g
Sugar	2.47g
Protein	9.68g
Fat	21.68g
Saturated fatty acid	11.78g

Mono unsaturated fatty acid	7.69g
Poly unsaturated fatty acid	1.77g
Trans fatty acid	<0.01g
Cholesterol	<1mg
Energy	490.50kcal

### Baking Section

In biscuit making baking play an important role. It is a heat treatment process where 129-280°C heat is required for proper structure, puffing, moisture removal and colour for biscuits making. In baking there are different zone and different functions.

The zones are classified as:

There are 7 independent zones in all three plants. These

are

- Proofing zone: zone 1 & 2 (Structure is set here) and baking tem. is 58.5 & 129°C
- Puffing zone: zone 3 & 4 (Product get oven spring) and baking tem. is 195 & 204.8°C
- Baking zone: zone 5 & 6 (Moisture removal of product) and baking tem. is 204 & 213°C
- Colouring zone: zone 6 & 7 (Millard & Caramlization) and baking tem. is 153°C

### FLOW DIAGRAM OF SNACKS BISCUIT MAKING

Creaming (glucose, salt, soda, ABC, biscuit dust, water, invert syrup, *RPD*, sugar solution, left dough, sodium bicarbonate, panodan)

Sponge fermentation (sugar dust, yeast, malt, water)

Dough Making/ mix together (Maida, , citric acid, enzyme, , flavour, SMBS, SAPP)

Dough laminating

Dough sheeting

Cutting

Salt application

Baking

Oil spraying

Cooling

Packaging

3 in 1 Biscuits Making Flow Diagram

Creaming (Glucose, Soda, Salt, Sodium, Ammonium bicarbonate, Biscuits dust, Invert syrup, RPO, water, Left dough, ABC, Panodan)

Sponge fermentation :(sugar dust, yeast, water, malt.)

Dough Making :( Maida, , Citric acid, Enzyme, flavours, SMBS, SAPP)

Dough lamination

Dough sheeting

Cutting

Salt application

Baking

Oil spraying

Cooling

Packaging

### LAB SECTION

Lab instrument name :

1. Sieving machine
2. Hot plate
3. Digital ph meter
4. Magnetic stirrer
5. Weight machine
6. Hot air oven
7. Refrigerator
8. Bursting strength tester
9. Sealing machine
10. Desiccator
11. Digital thermometer
12. Distillation unit
13. vernier scale
14. Refractometer

### LAB TESTING

1. gluten test-

Take 25gm flour



Water 15-16ml

Mixing

Create dough

Stepping the dough in water for 45minute to 1 hour

Washing (to remove starch particle)

Wash water should be poured through the mesh

The remaining parts have to be collected

Water should be drained out as much as possible from the dough

Weighting the dough

Calculating ( $8 \div 3.2 * 4$ )

## 2. SV value test-

3.5gm flour

Sieving the flour

Take 50ml blue indicator and mix the flour

Shaking the mix in shaker machine for 5 min.

Take 25ml SV solution

Poured the solution and mix together

Shaking the mix in shaker machine for 5 min.

Let it stand for 5 minutes

Then check the reading

## 3. melting point test-

At first take capillary tube

Dip the tube in the oil

Keep the tube in the refrigerator to freeze the oil and attach with thermometer for 1 hour

After 1 hour take it out the sample from the refrigerator

When temperature is rise gradually and solid state of oil started to melt and in which temperature fat is melt that is called melting point

Take the reading

### Biscuit name & weight

BISCUIT name	Weight
1.Top Star	60mg,150mg,200mg,42mg,30mg,36mg
2.Jeera top star	60gm
3.Inter marie	250gm,80gm,70gm
4.Hot Marie	150gm
5.Maxx Marie	180gm
6.3 in 1	80gm,38gm,21gm
7.Dream Marie	300gm,250gm,90gm,70gm, 36gm
8.Snacks	75gm, 38gm, 21gm
9.Butter delite	150gm,350gm,35gm
10.Snack	75gm,38gm,21gm
11.Thin arrow	300gm,36gm
12.Cream craker	82gm,300gm,250gm,75gm
13.Mr. butter	35gm
14.Choco drop	38gm
15.coconut	30gm
16.Morning time	80gm

17. T Time	400gm, 90gm
18. Jaya G	100gm, 30gm
19. Coktale	150gm, 75gm, 30gm

## BISCUITS NAME & STANDARD

Biscuits Name	Biscuits weight	Stack
Top star	60	90
Cocktail	36	17
Cream cracker	82	61
Jeera Cream cracker		
Jaya G	30	58
T Time	90	54
Butter D light	35	51
Dream Marie	90	110
International Marie	250	83.5
Thin arrowroot	300	99
Snacks	38	110
3in 1	38	113

### Food packaging:-

Food packaging is packaging for food. A package provides protection, tampering resistance, and special physical, chemical, or biological needs. It may bear a nutrition facts label and other information about food being offered for sale.

Functions of food packaging: -

- 1.- Containment
- 2.- Protection
- 3.- Communication
- 4.- Preservation
- 5.- Convenience
- 6.- Unitization
- 7.- Information about the product
- 8.- Brand communication

9.- Presentation

10.- Promotion.

**Requirements for effective food packaging: -**

1.- Be nontoxic

2.- Protect against contamination from

3.- microorganisms

4.- act as a barrier to moisture loss or gain and oxygen ingress

5.- protect against ingress of odours or environmental toxicants

6.- Filter out harmful UV light

7.- Provide resistance to physical damage

8.- Be transparent (8) be tamper – resistant or tamper – evident

8.- Be easy to open

9.- Have dispensing and resealing features

10.- Be disposed of easily.

11.- Meet size, shape, and weight requirements.

12.- Have appearance, printability features.

13.- Be low cost.

14.- Be compatible with food.

15.- Have special features such as utilizing groups of products together.



### **CONCLUSION:-**

In our training period at Jaya industry Pvt limited we were able to get better understanding of how processing industry (biscuit) work and how effective it is. Which we learnt in college and also here those are totally different and also effective for us. During training period many workers, supervisor and lab attendant sharing their valuable knowledge very easily than our theoretical knowledge. However, the overall experience was positive, and everything we learned will be useful in my future career in this field.