



**An Internship Report
On
Studies on Production and Quality Control of Food & Beverage
At
S&B Nice Foods Valley LTD.**

Submitted To:

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

Submitted By:

**Shamim Mia
ID: 163-34-571
Department of Nutrition and Food Engineering
Faculty of Allied Health Science
Daffodil International University**

Date of Submission: 08 December, 2019

LETTER OF TRANSMITTAL

Date: 08 December, 2019

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

Subject: Submission of internship report.

Dear Sir,

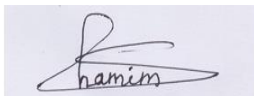
It is a great pleasure and honor for me to have the opportunity to submit Internship report as a Part of the Nutrition and Food Engineering (NFE) program curriculum.

I have prepared this report based on the acquired taste knowledge during my internship period in S&B Nice Foods Valley Ltd. It is a great achievement to work under your active supervision. This Report is based on, **“Studies on the production and quality control of Food and Beverage”** at S&B Nice Foods Valley Ltd., Jer Kacher, National Highway-01, Feni sadar, Feni. I have got the opportunity to work in S&B Nice Foods Valley Ltd. in “Quality Control and Production Department” for thirty days, under the supervision of Dinesh Kumar Biswas, Factory GM.

Firstly of all I have gained knowledge about the organizational culture of a prominent product producing organization of the 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,



Shamim Mia

ID: 163-34-571

Department of Nutrition and Food Engineering
Faculty of Allied Health Science
Daffodil International University

LETTER OF AUTHORIZATION

Date: 08 December, 2019

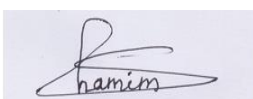
Prof. Dr. Md. Bellal Hossain
Head
Department of Nutrition and Food Engineering
Faculty of Allied Health Science
Daffodil International University

Subject: Declaration regarding the validity of the internship report.

Dear Sir,

This internship report entitled Knowledge and extent the practice of “**Studies on Production and Quality Control of Food and Beverages**” at S&B Nice Foods Valley Ltd. was submitted to the Department of Nutrition and Food Engineering, Faculty of Allied Health Science, Daffodil International University, Dhaka, Bangladesh. This study was fully concerned with the department and faculty members.

Sincerely yours,



Shamim Mia
ID: 163-34-571
Department of Nutrition and Food Engineering
Faculty of Allied Health Science
Daffodil International University

CERTIFICATION OF APPROVAL

I am pleased to certify that the internship report on Production and Quality Control of Food and Beverage, conducted by Shamim Mia, bearing respectively ID No: 163-34-571 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 Shamim Mia. I strongly recommended the report presented by Shamim Mia for further academic recommendations and defense/viva-voice. Shamim Mia 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. Md. Bellal Hossain

Head

Department of Nutrition and Food Engineering

Faculty of Allied Health Science

Daffodil International University

ACKNOWLEDGEMENT

In the preparation of this report, I would like to acknowledge the encouragement and assistance given to me by a number of people. At first, I would like to express my gratitude to almighty Allah for enabling me the strength and opportunity to complete the report in the scheduled times successfully. I am taking this privilege to deliver my gratefulness to each and every person who is involved with me in every phase of my life.

I am grateful to my parents without whom I cannot be here. Without the support of my parents, I could not be able to achieve my objectives and goals.

My deep gratitude and sincere thanks to the honorable Head, Nutrition and Food Engineering department **Professor Dr. Bellal Hossain** for this kind cooperation and to accept this Degree. I am encouraged taking this privilege to deliver my gratefulness to each and every person who is involved with me in every phase of my life.

I am deeply indebted to my Supervisor **Professor Dr. Bellal Hossain** honorable Head, Nutrition and Food Engineering department, Department of Nutrition & Food Engineering, Daffodil International University for his whole-hearted supervision during my organizational attachment period. I am very grateful to **Solayman Rahman, Director** of S&B Nice Foods Valley Ltd. For giving me permission to carry out this internship in his organization. I am also grateful to **Dinesh Kumar Biswas, (Factory GM)** as my organizational supervisor to conduct. 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 **Nutrition and Food Engineering 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 Managing Director.

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Chapter ONE

INTRODUCTION

At 09 semester out of 09 semesters in three year Bachelor of Science in Nutrition and Food Engineering I got an opportunity to work at S&B Nice foods valley ltd., Bangladesh the part of my internship program. The duration of my internship was from 20th October 2019 to 19th November 2019. S&B Nice foods valley ltd. is the top & largest Food & beverage company in the country. S&B Nice foods valley ltd. has many types of department. The departments are – HR & Admin, Quality Control, Research & Development, Production, Electrical, Mechanical, Store, Distribution, Accounts, Vat, Civil, Resource, Hygiene etc. My concern was **Quality Control Department & Production Department** which encompassed the following activities:

- Maintain all quality control parameter as per specification.
- Ensure quality of production.
- Knowledge on product costing.
- To prepare & to submit necessary reports required by the management.
- Have to submit report to authority every day for production consumption, costing, quality etc.
- To make necessary production plan as per the schedule provided by the production department.



AIM OF THE TRAINING

Aim of the Training:

Internships provide an opportunity for students to link theory with practice and further serve as a temporary labor pool for those agencies that have committed to participate in the internship program. The department fulfills its mission of preparing students for significant professional and managerial positions in all the sectors. Relevant professional development topics and workshops are discussed weekly.

The internship...

- Provides a student with a practical real world experience in the public, private or nonprofit sector.
- Enables a student to develop important public administration skills which cannot be taught in the classroom. These experiences vary from working on special projects for the interning agency to learning about the human motivation process in a complex organization.
- Enables a student to compare theoretical ideas learned in the classroom within the world of work regarding public administration experiences.
- Provides a student with experience in an actual public, private or nonprofit agency before entering the job market. Such experience not only increases students' job prospects, but also teaches what is expected in terms of professional behavior.
- Permits a student to apply the technical skills learned in the classroom to real world public, private or nonprofit administrative problems.

(DESCRIPTION OF THE ORGANIZATION)

2.1 : About S&B Nice Foods Valley Ltd. :

S&B Nice Foods Valley Ltd. started its operation in the year 2019. S&B Nice Foods Valley Ltd. manufactures a wide range of Snacks and Beverage for both National & International market alike. There are various types of drink. Zafran is the brand name of Snacks, Dum is the brand name of Water. Immediately after the introduction of the brand it became very popular among its consumer because of the high quality and intensive distribution in every nook and corner of the country.

2.2 : Vision of S&B Nice Foods Valley Ltd. :

- The quality of quality, becoming the most food & beverage company of Bangladesh

2.3 : Mission of S&B Nice Foods Valley Ltd. :

- Produce high quality products.
- To supply high quality products.
- To distribute zero defect products.
- All time apply high technology to produce high quality products.
- Brings quality in life.
- Work for social welfare.

2.4 : Values of S&B Nice Foods Valley Ltd. :

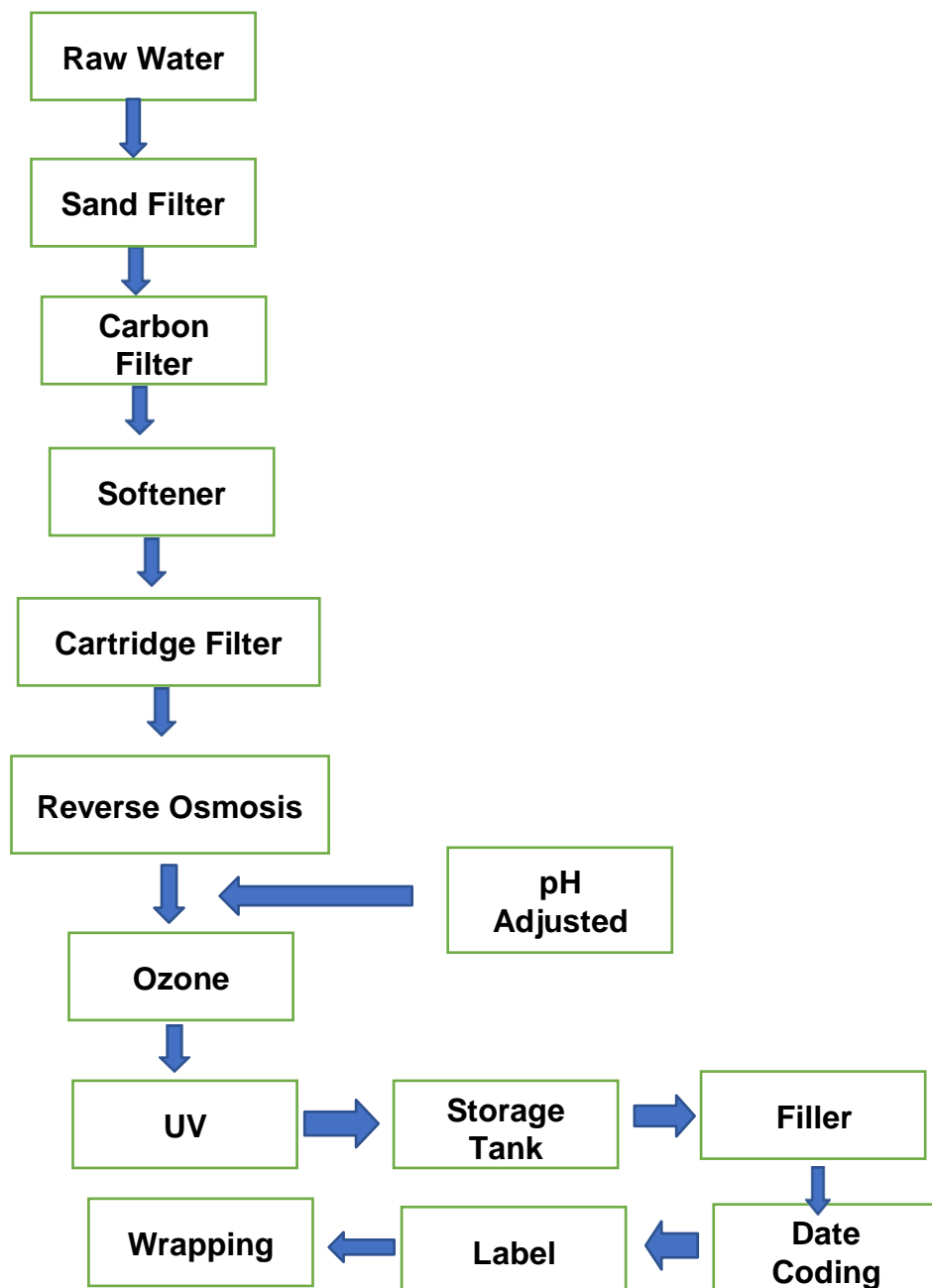
- Innovation
- Teamwork
- Integrity
- Customer focus
- Trust and Respect

Chapter THREE

Production & Process Flow Chart

3.1

Flow chart of Drinking Water production



3.1.1

Production Procedure-

Raw Water:

Raw water reserve a reserve tank for processing. This water collect from deep tubewell .

Sand Filter:

The reserve raw water passed through in sand filter by a high pressure motor. this sand filter use for remove objectionable particle like at silica, sand etc.

Carbon Filter:

The sand filtrate water transferred in carbon filter. Which help to remove Cl, Fe, Color etc.

Softener Filter:

The carbon filtrate water transferred in soften filter, This filter help to decrease hardness. Basically Ca ,mg Ion.

Precision Filter :

In this filter use cartridge filter 1 or 5 Micron nominal, Which help to remove color.

R/O Membrane:

In this filtration process Use a high pressure pump which through the water in .0001 micron filter & its can remove all particle from water. For this reason water remain TDS<10 , PH- 5.5 to 5.8 , Hardness- Nil And also color & odors, Microorganisms free.

Ozone M/C:

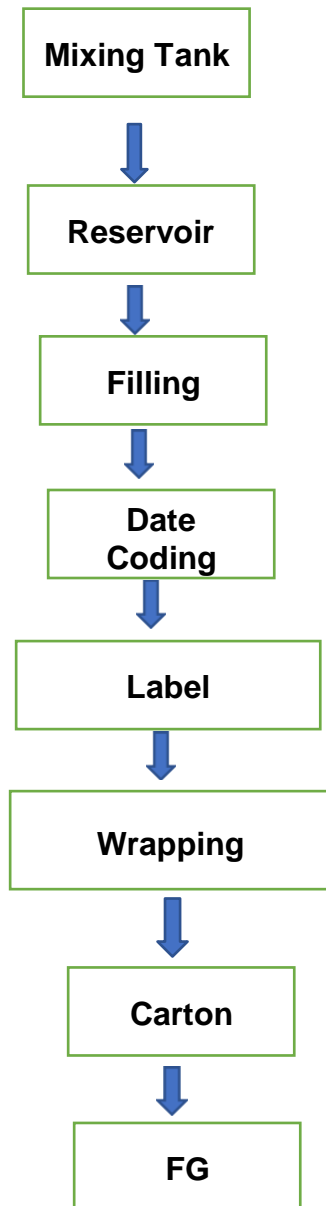
In this chamber add Ozone gas for inhibit the microbial contamination.

UV:

This water pass through UV lamp. Which help to decompose the ozone, And also kill all types of micro-organisms.

Finally this treated water reserve in a reserve tank, This water Filling, Labeling, Wrapping And ready to sell.

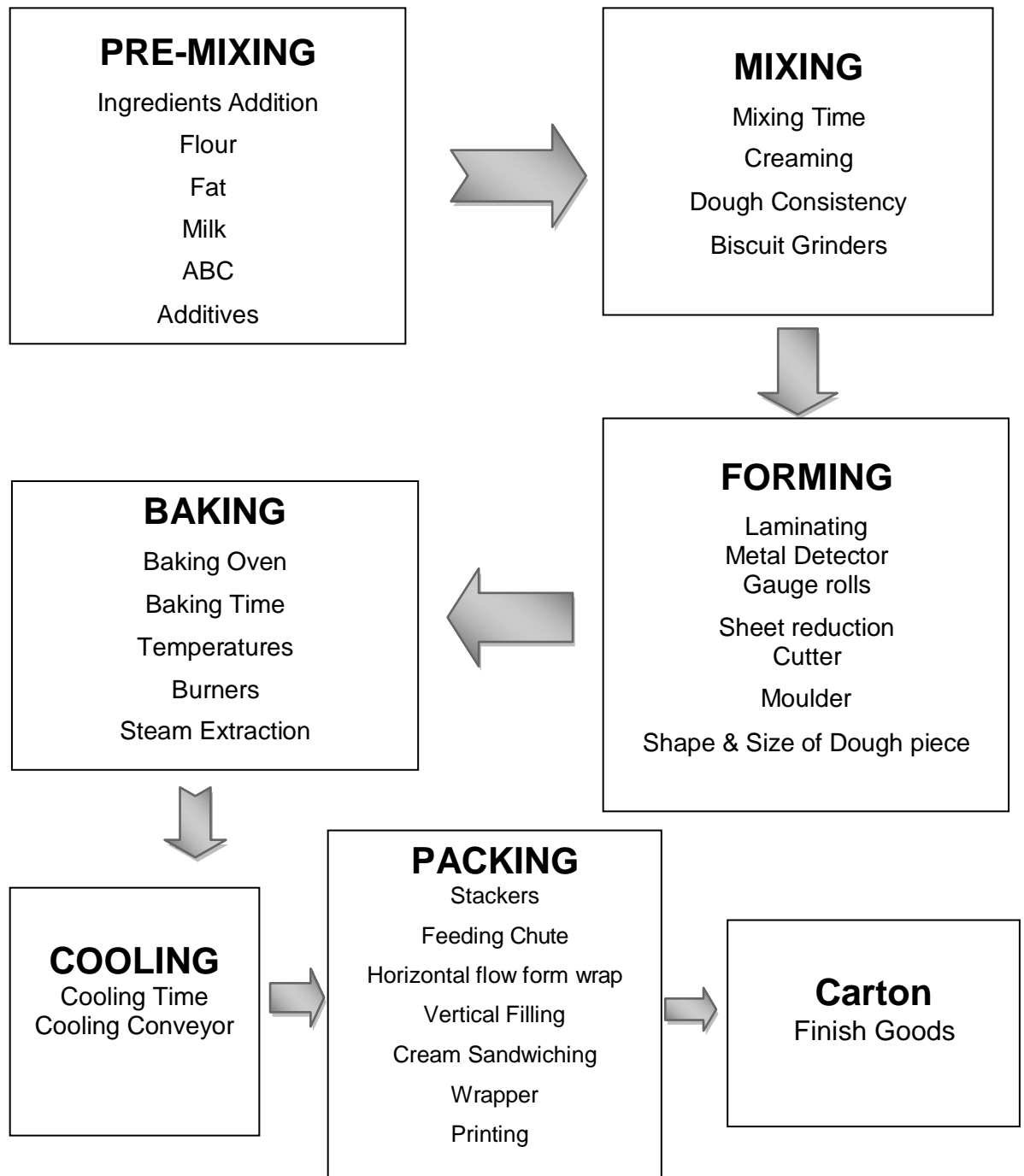
3.2 Flow chart of Flavored Drinks Production-



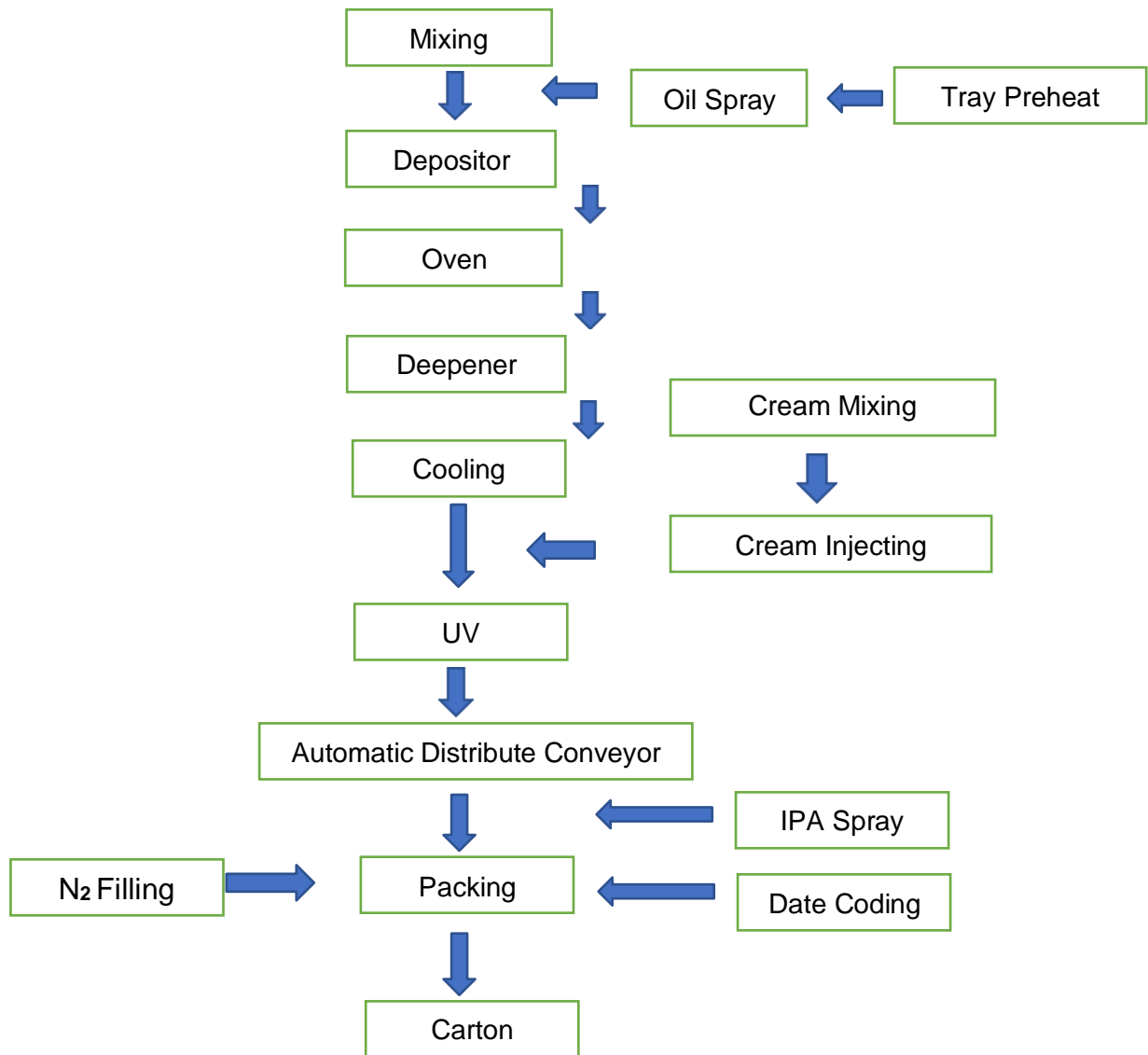
3.2.1 Production Procedure-

1. The first step to mix CMC/Xanthan gum Equal amount of sugar in hot water tank.
2. Sugar syrup prepare another tank
3. Dragon fruit pulp take final mixing tank
4. After finish preparation of Syrup& CMC take final tank And mixed thoroughly.
5. In the 2nd step, After 20 minutes added another ingredients ,Potasium sorbet ,ascorbic acid ,Sodium citrate, salt.
6. Mixed its properly And give needed water for final volume
7. Take a sample juice and checked acidity & Brix.
8. Then add Citric acid depends on pulp acidity.
9. Finally Added flavor & homogenize for pasteurization.
10. After pasteurization filled in Bottle.

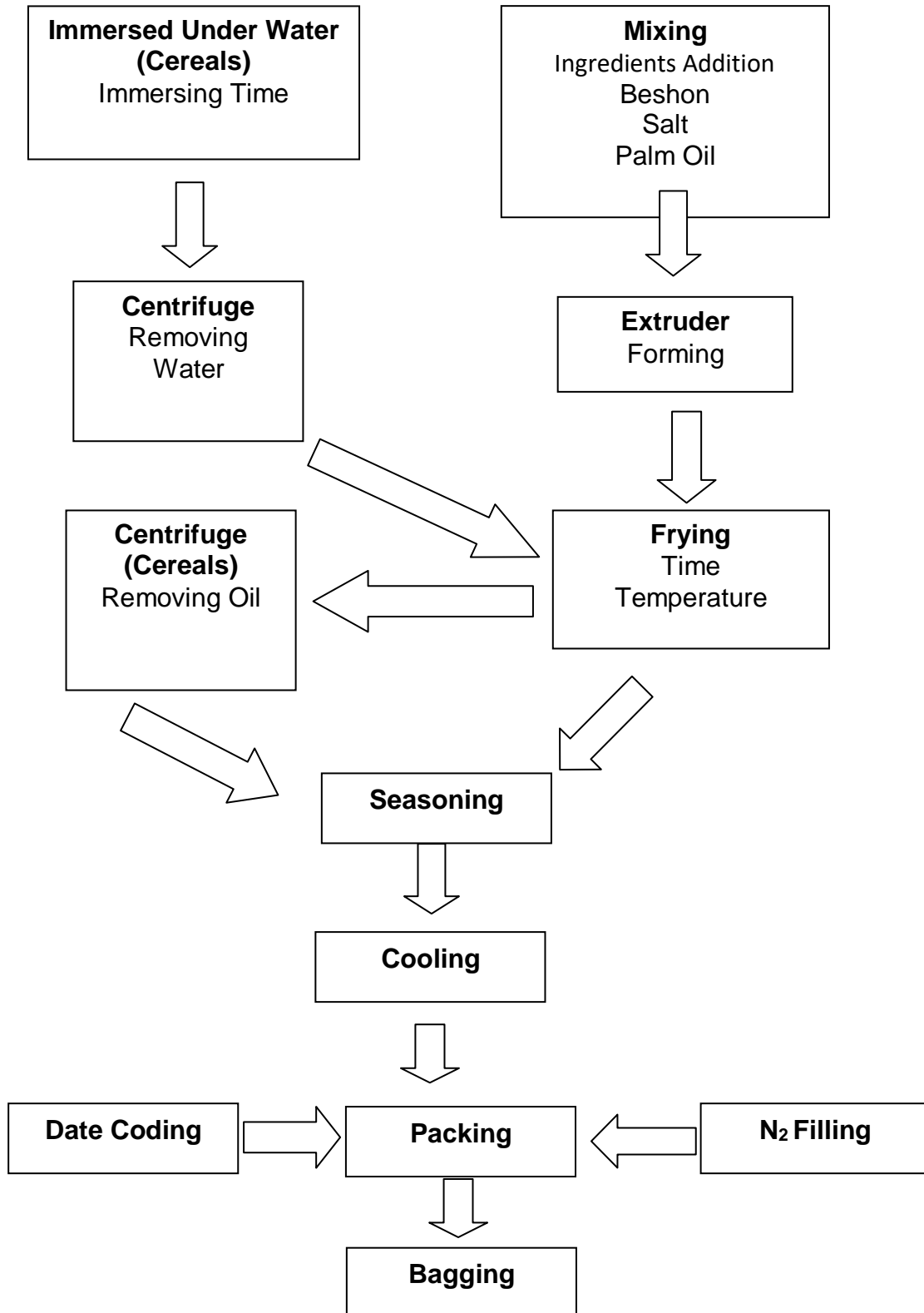
3.3 Biscuit process flow Chart



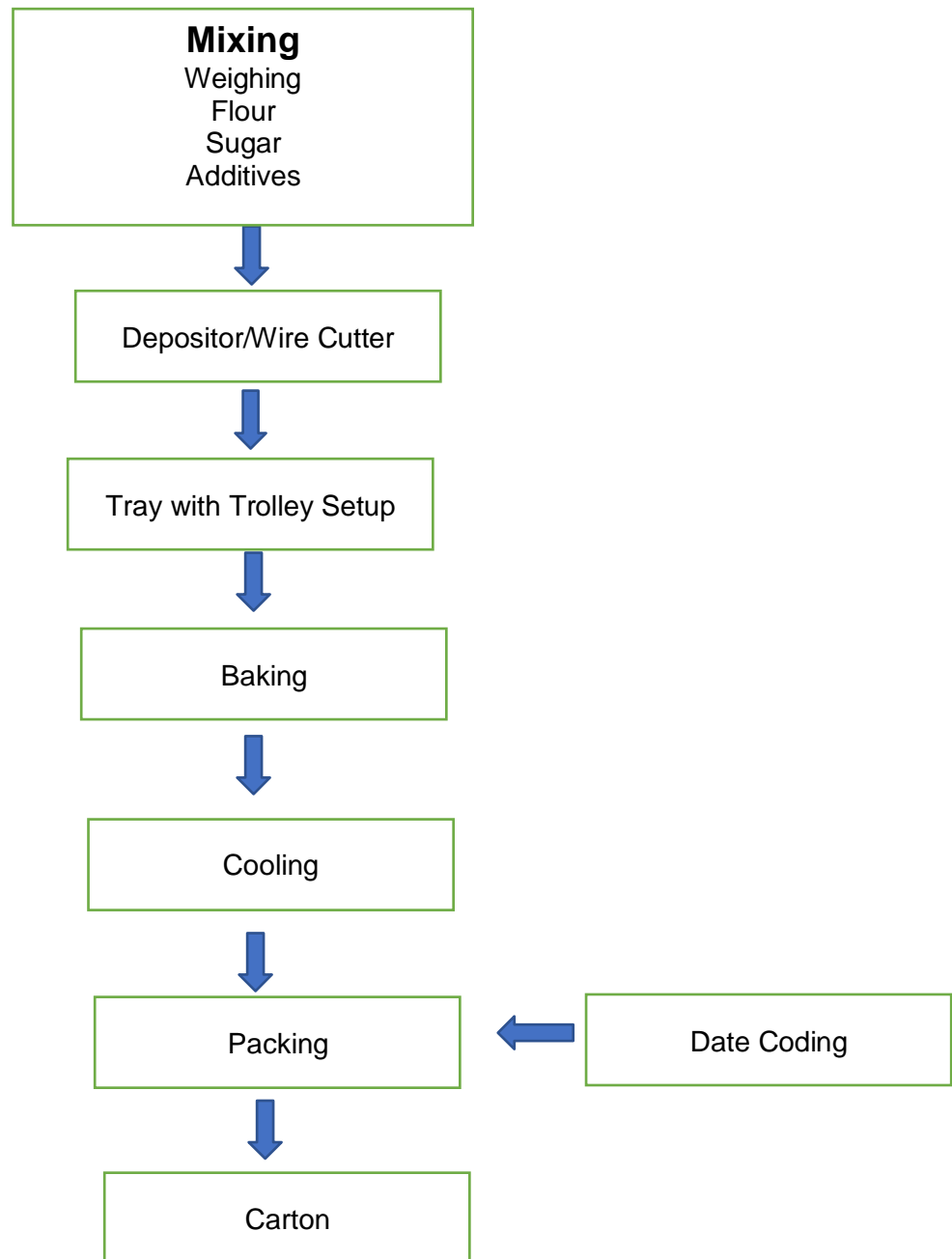
3.4 Flow Chart of Plain or Custard Cake



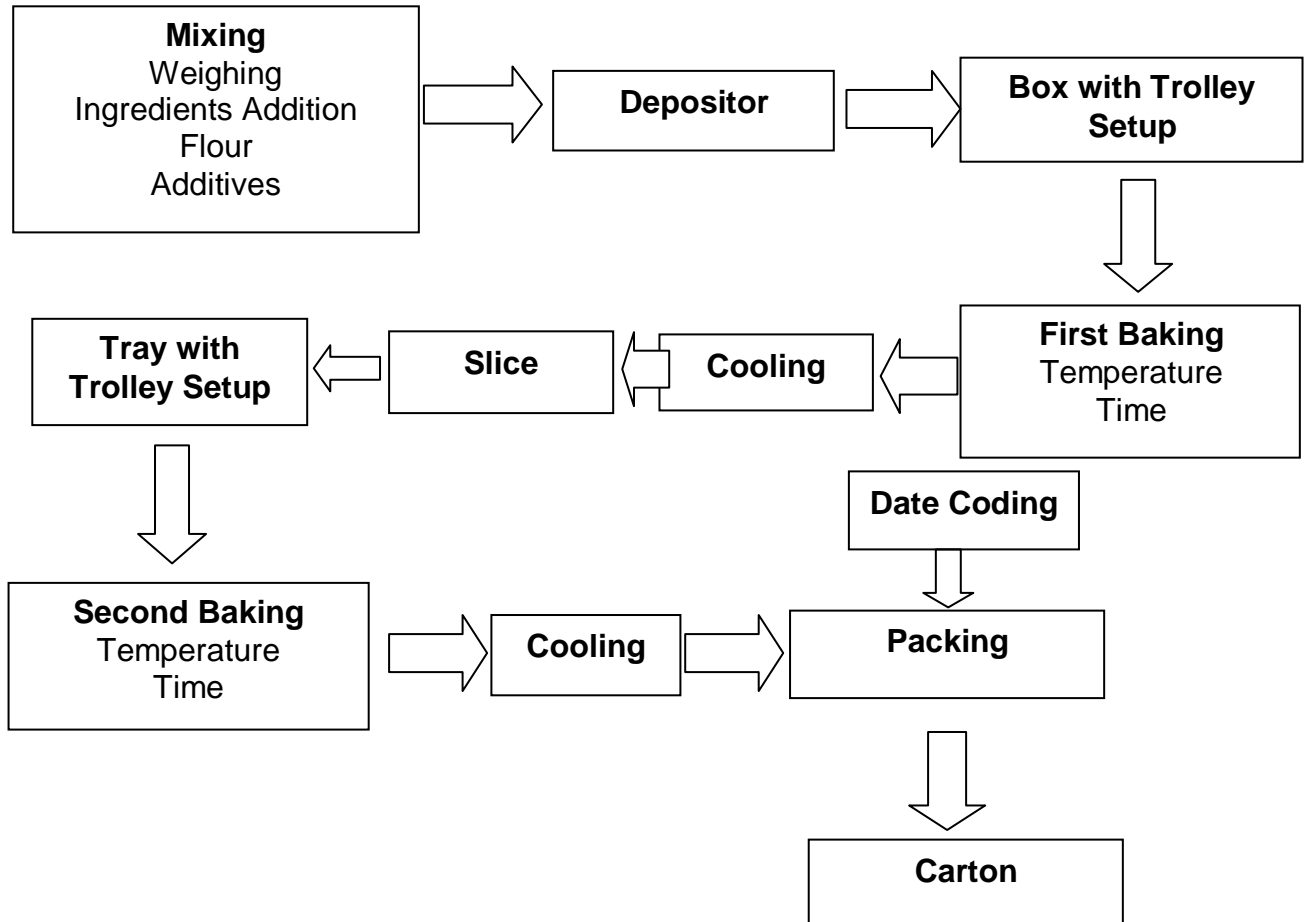
3.5 Flow Chart of Chanachur



3.6 Flow Chart of Cookies

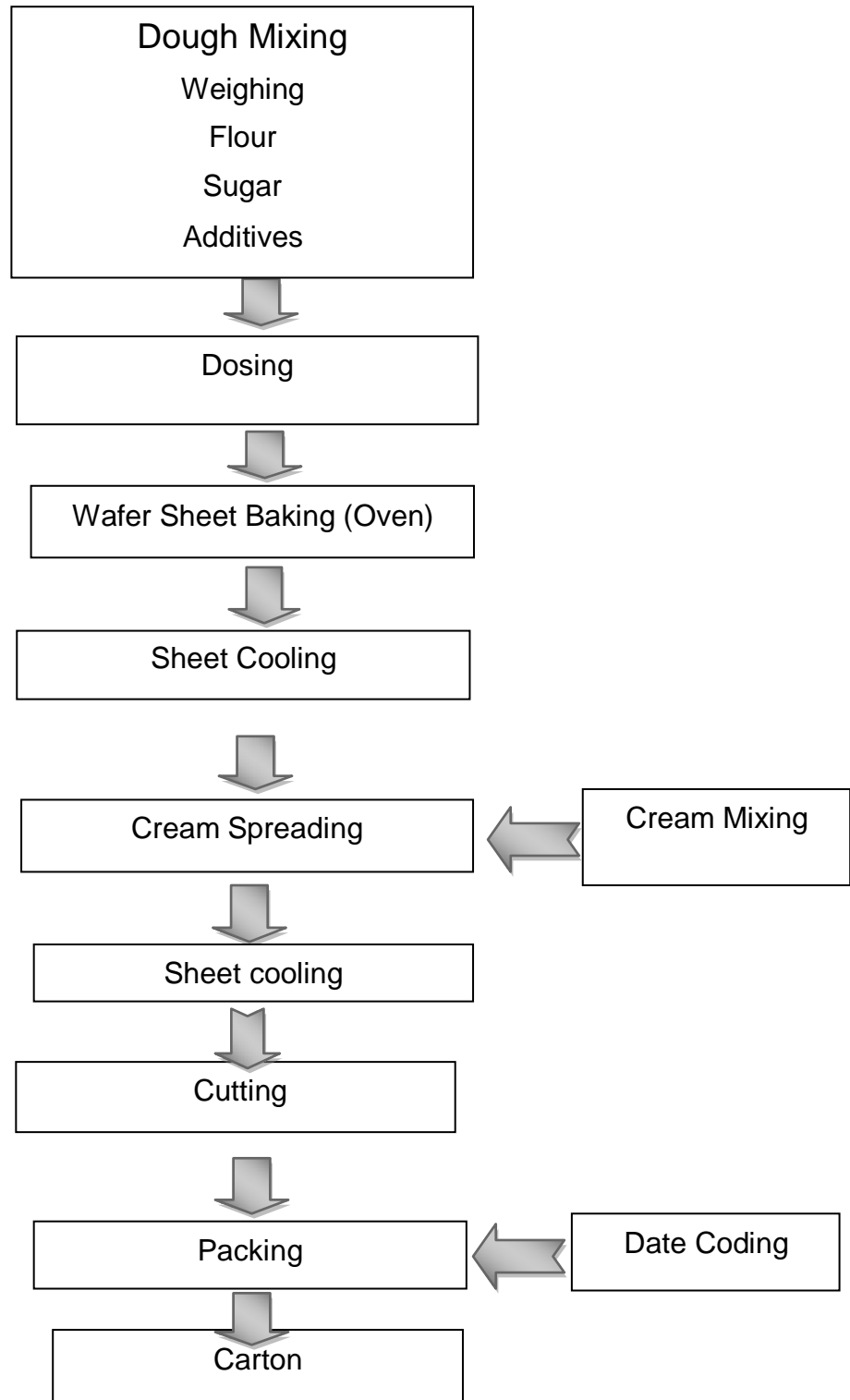


3.7 Flow Chart of Dry Cake



3.8

FLOW CHART of WAFER



Chapter FOUR

4.1 : LAB WORKS

Equipment list of Lab

1. Micro oven
2. SST (Secure Seal Tester)
3. Magnetic stirrer
4. Moisture meter
5. Gauge tester
6. Digital meter
7. Viscometer
8. Water bath
9. Gas volume analyzer
10. BOD teste
11. Enamel tester
12. COD analyzer
13. Distilled water plant
14. Density meter
15. Shaker
16. Thermometer
17. pH meter
18. Filter paper
19. Microscope
20. Colony counter
21. Digital Autoclave
22. Digital sterilizer
23. Laminar air flow
24. Refrigerator

4.2 :Making of Indicator

Phenolphthalein:

1. Take 0.5g dissolved in 50ml alcohol
2. Add 50ml distilledwater

Mixed indicator:

1. 0.33g Bromocresol Green.
2. 0.66g methyl red.
3. Dissolve them in 100ml distilled water.

(0.1N) Sodium ThioSulphate:

1. Take 2.5g sodium thiosulphate.
2. Dissolve it into 100ml distilled water.

Erriochrom Black T (Hardness Indicator):

1. Take 6.1g powder.
2. Dissolve it into 100ml methanol.

4.3 Tests of Lychee Drinks

1. pH
2. Acidity
3. Sealing
4. °Brix

Name of Test: Determination of Acidity.

Required Equipment's:

- Conical Flasks
- Burette
- Pipette with pipette filler
- Beaker
- Magnetic stirrer with magnet bar

Required Chemicals:

- NaOH 0.1N
- Phenolphthalein (Indicator)

Test Procedure:

- At first Take 10ml sample into a conical flask by pipette.
- Add 2/3 drops phenolphthalein indicator into conical flask.
- Titration against 0.1N NaOH until pink color appeared.
- Take burette reading.
- Calculate % Acidity by using below calculation.

$$\text{Calculation: \% Acidity} = \frac{\text{Burette Reading} \times \text{Normality of NaOH} \times \text{Eq. Wt. of Acid} \times 100}{\text{Sample Wt.} \times 1000}$$

Name of Test: Determination of P^H

Required Equipment's:

- Beaker
- P^H Meter

Test Procedure:

- At first take sample into a beaker..
- Placed P^H meter electrode into the beaker.
- Take reading from P^H meter which shown sample P^H.

Name of Test: Determination of %Brix

Required Equipment's:

- Beaker
- Digital refract meter

Test Procedure:

- At first take beverage sample into a beaker.
- Open sample chamber of refract meter.
- Take few drop sample into refract meter sample chamber.
- Take reading from refract meter which shown sample brix as percentage.

Name of Test: Organoleptic Test (Taste, Odor, Appearance)

Required Equipment's:

- Beaker

Test Procedure:

- At first take sample into a beaker.
- See appearance and compare with existing one.
- Appearance should becomplies.
- Take odor and compare with existing one.
- Must be not any bad odor and complies with existing one.
- Taste beverage sample.
- Compare with existingone.
- Taste should becomplies.

Name of Test: Determination of Net Content.

Required Equipment's:

Digital Balance Meter

Test Procedure:

- Take sample bottle from line just after filling according to number of filling valve.
- Measure every bottle gross weight by using digital balance meter.
- Measure net weight followed by given formulation.
- Measure net content followed by given formulation.

$$\text{Net Content} = \frac{\text{Net Weight}}{\text{Product Density}}$$

4.4

Tests of water

- PH
- TDS
- Hardness
- Ozone

Name of Test: Determination of P^H

Required Equipment's:

- Beaker
- P^H Meter

Test Procedure:

- At first take sample into a beaker..
- Placed P^H meter electrode into the beaker.
Take reading from P^H meter which shown sample P^H

Name of Test: Determination of TDS

Required Equipment's:

- Beaker
- TDS Meter

Test Procedure:

- At first take sample into a beaker..
- Placed TDS meter electrode into the beaker.
Take reading from TDS meter which shown sample TDS.

Name of Test: Determination of Hardness

Required Equipment's:

- Conical Flaks
- Burette
- Pipette with pipettefiller
- Beakar

Required Chemicals

- EBT
- EDTA

Test Procedure:

- At first take 100ml sample into a Conical Flaks
- Add 1 or 2 ml Hardness buffer sol.
- Add 2-3 drops EBT Indicator
- Titration with 0.01N EDTA Sol.

Calculation-

$$= \frac{\text{Burret reading} \times \text{Normality} \times \text{E. wt.} \times 1000}{\text{Sample wt.}}$$

Name of Test: Determination of Ozone

Required Equipment's:

- Ozone kit

Required Chemicals

- DPD tablet

Test Procedure:

- At first take 5+5=10ml sample into 2 testtube
- Add DPD Tablet only one test tube
- Shake it properly & adjust color with reading discs
- Note reading adjusted point.

4.5 Name of Test: Determination of Moisture test:

At first take 100gm Sample
Then keep it moisture analyzer for final reading

4.6 Name of Test: Determination of Ash Test:

Apparatus:

- Crucible lid
- Muffle furnace
- Measuring
- Desiccator

Procedure:

- First of all set 600°C temperature on the muffle furnace
- Then weight crucible lid
- Then weight water caltrop.
- Then weight crucible lid + sample
- Then heat sample 600°C temperature on the muffle furnace in 6 hours.
- After that sample cool in 1 hour on desiccator
- Then again weight crucible lid + sample
- Then calculate it for a result.

Calculation

$$\% \text{ ASH (wet)} = \frac{\text{Wt. crucible and ash} - \text{wt. crucible}}{\text{Wt. crucible and sample} - \text{wt. crucible}} \times 100$$

4.7 Name of Test: Determination of Bottle Opening Torque-

Required Equipment's:

- Torque Tester

Test Procedure:

- Take sample bottle from line just after filling according to number of capper head.
- Placed bottle base on the torque tester and closed clamp properly. This prevents the bottle rather than the cap rotating when torque is applied.
- Set torque tester reading zero to cancel any torque detected during placement of the bottle.
- Twists the cap in a counter-clockwise direction till open the closure.
- Take opening torque reading as lbs.-Inch.

4.8 Name of Test: Blown Bottle Performance Check.

Required Equipment's:

- Thickness Gage (Hall Effect)
- Bottle Hot Ware Cutter

Working Procedure (Bottle wall thickness):

- Take sample blown bottle from blow mold according to blow mold m/c cavity no.
- Enter magnetic ball into the sample bottle.
- Checked various points' wall thickness (Shoulder, Label, and Base & Gate Area) by using Hall Effect thickness gage.
- Recorded the wall thickness reading and compare with standard.
- All values should be within standard.

Working Procedure (Sectional Weight of Bottle):

- Take sample blown bottle from blow mold according to blow mold m/c cavity no.
- Set bottle at hot ware cutter according to bottle wise provided standard range.
- Cut at various points of bottle and separate bottle section (Base, Label & Shoulder)
- Take various sectional weight of bottle by using digital balance meter.
- Recorder measured weight and compare with standard.
- All values should be within standard.

Chapter FIVE

Microbiological Test

5.1 : Name of the test: Total bacterial count

Method: Pour plate (For Water, Mango pulp, Fruit Drinks)

Purpose: Use to The pour plate technique can be determine the number of microbes/ml or microbes/gram in a specimen.

- Requirements:
- Sterile Petridis(90mm)
- Micropipette
- Alcohol (70%)
- Laminar Air Flow
- Autoclave
- Incubator
- Colony Counter
- Water bath
- Plate Count Agar
- Procedure:
- Media preparation-
- For 100ml water taken 2.35gm media.

1. Prepared ,Petridis ,pipette, sterilized by autoclave at 121°C for 15 minutes, 14.5 psi.
2. Take specific amount of sample in Petridis.
3. After autoclaving media allow to cool in 40°C.
4. About 15-20ml of media is pour in Petridis and allows to solidify.
5. After solidification incubate the plate at 37°C in inverted position for 24-48 hours.
6. After incubation count the colony by colony counter.
7. All the steps should be done under laminar air flow to maintain aseptic condition.

Results: Count the result and record as cfu/ml or gm.

5.2 : Name of the test: Total Yeast, mold count

Method: Pour plate (For Water, Mango pulp, Fruit Drinks)

Purpose: The pour plate technique used to determine the number of microbes/ml or microbes/gram in a specimen.

Requirements:

- ✚ Sterile Petridis (90mm)
- ✚ Micropipette
- ✚ Alcohol (70%)
- ✚ Laminar Air Flow
- ✚ Autoclave
- ✚ Incubator
- ✚ Colony Counter
- ✚ Water bath
- ✚ Potato dextrose agar

Procedure:

Media preparation-

For 100gm water taken 3.9 gm powder.

1. Prepared media, Petridis, piped sterilized by autoclave at 121°C for 15 minutes, 14.5 psi.
2. Take specific amount of sample in Petridis.
3. After autoclaving media allow to cool in 40°C.
4. About 15-20ml of media is pour in Petridis and allow to solidify.
5. After solidification incubate the plate at 37°C in inverted position for 24-48 hours.
6. After incubation count the colony by colony counter.
7. All the steps should be done under laminar air flow to maintain aseptic condition.

Results: Count the result and record as cfu/ml or gm

5.3 : Name of the test: Total Coliform count

Method: Pour plate (For Water, Mango pulp, Fruit Drinks)

Purpose: Use the Pour Plate Method to determine the coliform bacteria from the specimen

Requirements:

- ❖ Sterile Petridis
- ❖ Micropipette
- ❖ Alcohol (70%)
- ❖ Laminar Air Flow
- ❖ Autoclave
- ❖ Incubator
- ❖ Water bath
- ❖ MacCONKEY Agar

Procedure:

- **Media preparation-**

For 100ml water used 5.15gm of powder.

1. Prepared media, Pippete, & petri dish sterilized by autoclave at 121°C for 15 minutes, 14.5 psi.
2. Take specific amount of sample in Petridis.
4. After autoclaving media allow to cool in 40°C.
5. About 15-20ml of media is pour in Petridis and allow to solidify.
6. After solidification incubate the plate at 37°C in inverted position for 24-48 hours.
7. Observe and count all colonies that are red and have a metallic sheen

Results:

Red colonies having the metallic sheen are coliforms

Chapter SIX

Conclusion

S&B Nice foods valley Ltd. is one of the pioneer's food company in Bangladesh. I feel proud for that I have got an opportunity to train myself in this company. Trainers are very sincere to us. They have given us enough time to try to give ideas about different sections of the production and quality control department completely. Hope this experience will be useful in our real life.



THE END