A

On Job Training Report

On

"DAIRY INDUSTRY"

Completed at

SHRI WARANA SAHAKARI DUDH UTPADAK PRAKRIYA SANGH LTD,TATYASAHEB KORENEGAR, DIS.KOLHAPUR.

By

Sanika Dhananjay kachare.

Tejaswini popat pawar.

Jyoti sandip shinde.

Sakshi Santosh parit.

Sayali shivaji shinde.

M.S.C part | semester ||

PG Department Microbiology
Vivekanand College
(An Empowered Autonomous Institute)
Kolhapur, 416003
Maharashtra, India

Year 2025-26

DECLARATION

I hereby declare that successfully completed our On-Job Training at Warana sahkari Dudh Utpadak sangh ltd. Tatyasaheb korenagar Kolhapur. We confirm that the knowledge and practical skills gained during this training period are valuable and will contribute significantly to our professional growth and development.

We would like to express our sincere gratitude to our supervisor, Mr.Wani sir. (Quality control Manager) Kolhapur, and supervisor Sutar mam for her constant guidance and support throughout the training period. We are also thankful to the entire team of warana sahkari dudh utpadak sangh for their cooperation and encouragement during our training.

Date:

Place: Kolhapur

Miss. Sanika dhanajay kachare.

Miss. Tejaswini popat pawar.

Miss. Jyoti sandip shinde.

Miss. sakshi Santosh parit.

Miss. sayali shivaji patil.

Aknowledgement

The completion of our project, we take this opportunity to express our sincere gratitude to all those who supported and guided us during our industrial training and helped us turn our efforts into a successful project.

We are extremely thankful to Dr. k. k. Bhise mam Assistant Professor, PG Department of Microbiology, Vivekanand College, Kolhapur (An Empowered Autonomous Institute) for her valuable guidance, encouragement, and continuous support throughout the project.

We would also like to express our heartfelt thanks to Head Dr. T. C. Gaupale and Coordinator Ms. V. V. Misal, PG Department of Microbiology, Vivekanand College, Kolhapur (An Empowered Autonomous Institute) for their kind cooperation and valuable support. We are also grateful to all the staff members of the department for their direct and indirect assistance.

We sincerely thankful Principal Dr. R. R. Kumbhar for his kind support and encouragement.

We would also like to thanks our parents for their constant support and motivation. in completing this project successfully. Finally, we appreciate our friends and colleagues for their help and cooperation during the project work.

Date:

Place: Kolhapur

Miss. Sanika dhanajay kachare

Miss. Tejaswini popat pawar.

Miss. Jyoti sandip shinde.

Miss. sakshi Santosh parit.

Miss. sayali shivaji patil.

College Recog.No. H.S.C./ 1074/R-1/DT : 8-8-1975
College Code No. 23-09-002
Jr. College U.Dise No. 27341301006

"ज्ञान, विज्ञान आणि सुसंस्कार यांसाठी शिक्षण प्रसार"
-शिक्षणमहर्षी डॉ. बापूजी साळुंखे

Shri Swami Vivekanand Shikshan Sanstha's
VIVEKANAND COLLEGE, KOLHAPUR
(AN EMPOWERED AUTONOMOUS INSTITUTE)
2130, 'E' Tarabai Park, Kolhapur, Tal. Karveer, Dist. Kolhapur -416003
Affiliated to Shivaji University, Kolhapur (M.S.)
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Inch. Principal
Dr. S. P. Thorat
M.Sc.,M.Phil.,Ph.D.

Ref. No. VCK/ 2109/2025-26

Date : 13/12/2025

To,
The Managing Director,
Warna Sahakari Dudha Utpadak Prakriya Sangh Ltd.
Warna Nagar,
Kolhapur.

Subject: - Regarding permission to carry out On Job Training in your esteemed industries

Respected Sir/Madam,

Our students of M.Sc. part I Microbiology are interested to carry out On Job Training as a part of their curriculum during the period of **16th December to 31st December 2025**. So, kindly grant the permission and guide them for their training work. The names of students attending training are as follows-

Sr. No.	Names of students	Roll No.
1.	Sanika.D. Kachare	5408
2.	Tejaswini .P.Pawar	5419
3.	Sayali.S. Patil	5417
4.	Sakshi.S. Parit	5415
5.	Jyoti.S. Shinde	5421
6.	Aishwarya.D. Jadhav	5404

Thanking you,

Yours faithfully

Dr. S. P. Thorat

I/c Principal
Vivekanand College, Kolhapur
(An Empowered Autonomous Institute)

for

for,
(Shree Warana Sahakari D.U.P.S.L.)
T. Kore Nagar

WARANA SAH. DUDH UTPADAK PRAKRIYA SANGH LTD. REG. NO. KPR/PKD (A-1) DT. 20-7-88 TATYASAHEB KORE NAGAR

"Dissesmination of Education for Knowledge ,Science and Culture"

-ShikshanmaharshiDr.Bapuji Salunkhe

Shri Swami Vivekanand Shikshan Sanstha's

VIVEKANAND COLLEGE, KOLHAPUR

(स्वायत्त) कोल्हापूर

(AN EMPOWERED AUTONOMOUS INSTITUTE)

PG Department of Microbiology

CERTIFICATE

OF

"ON JOB TRAINING"

This is to certify that Miss.Sanika Dhananjay Kachare.(Exam seat no.5408) has satisfactorily carried out the required practical work prescribed by the BoS Department of Microbiology, Vivekanand College, Kolhapur (An Empowered Autonomous Institute) for M.Sc. - Part- I Semester II course in On Job Training (Sub code – OJT20MIC21) and this report represents his/her Bonafide work in the year

2025-2026

Place: Kolhapur

Date: 29/09/26

Examiner

OJT In charge

Head

I/C Head
Department of Microbiology
Vivekanand College,Kolhapur
(Empowered Autonomous)

Internship Undertaking

1. Student Name:	Sanika Dharmaraj Kachare		
2. Current Address			
3. Residence Address	Islampur, Tal - Walwa Dist:- Sangli		
4. Email id	sanikakachare@rediffmail.com.		
5. Mobile Nos.	9226269484		
6. Aadhar	8299 4721 6563		
7. PAN	—		
8. Overall GPA	—		
9. Mode of Internship	Offline		
10. Internship Preferences			
	Location	Core Area	Organization / Institute
Preference-1	Warnanagar	warana	warana industry
Preference-2	—	—	—
Preference-3	—	—	—

I confirm that I agree with the terms, conditions, and requirements of the Internship Policy

Student

Signature: S.D.Kachare

Date 23/03/26

I confirm that the student has attended the internship orientation and has met all paperwork and process requirements to participate in the internship program, and has received approval from his/her mentor.

Sign of Department Faculty Coordinator

Date 23/03/26

Attendance Sheet

Name & Address of Organization: Shree Warna sahkari Utpadak Prakriya sangh Ltd. Tatyasaheb Kore nagar, Warnanagar, dist. Kolhapur. 416-113

Name of the Student	Sanika. D. kachare
Roll Number	
Name of Course	MSC-I (Microbiology)
Date of Commencement of Training	16/12/25
Date of Completion of Training	31/12/25

Month and Year:

Day	Date	Sign of student
1	16/12/25	S.D.kachare
2	17/12/25	S.D.kachare
3	18/12/25	S.D.kachare
4	19/12/25	S.D.kachare
5	20/12/25	S.D.kachare
6	21/12/25	S.D.kachare
7	22/12/25	S.D.kachare
8	23/12/25	S.D.kachare
9	25/12/25	S.D.kachare
10	26/12/25	S.D.kachare
11	27/12/25	S.D.kachare
12	28/12/25	S.D.kachare
13	29/12/25	S.D.kachare
14	30/12/25	S.D.kachare
15	31/12/25	S.D.kachare

- Attendance Sheet should remain affixed in Daily Training Diary. Do not remove or tear it off.
- Holidays should be marked in Red Ink in attendance column. Absent should be marked as A 'in Red Ink.

Name and Signature with date of Internship Supervisor 31/12/2025 (P.P.Wasi)

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Supervisor Evaluation of Intern

Student Name Janika Dhananjay Kachare Date 31/12/25

Work Supervisor Pankaj Wani Title QC. Manager

Organization shree ganga sahkari utpadak prakriya sangh

Internship Address Ltd. Tatyasaheb Kore nagar, Gaonnagar dist. Kolhapur

Dates of Internship From 16 December To 31 December.

Please evaluate intern by indicating the frequency with which you observed the following behaviors:

Parameters	Needs Improvement	Satisfactory	Good	Excellent
Behaviors				✓
Performs in a dependable manner				✓
Cooperates with co-workers and supervisors				✓
Shows interest in work				✓
Learns quickly				✓
Shows initiative				✓
Produces high quality work			✓	
Accepts responsibility			✓	
Accepts criticism				
Demonstrates organizational skills		✓		
Uses technical knowledge and expertise		✓		
Shows good judgment			✓	
Demonstrates creativity/originality		✓		
Analyzes problems effectively		✓		

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Is self-reliant			✓	
Communicates well			✓	
Writes effectively			✓	
Has a professional attitude		✓		
Gives a professional appearance		✓		
Is punctual			✓	
Uses time effectively			✓	

Overall performance of student intern (circle one):

(~~Needs improvement~~ / ~~Satisfactory~~ / (Good) / ~~Excellent~~)

Additional comments, if any:

Signature of Industry supervisor _____ 31/12/20xx

HR Manager _____ Checked

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Student Diary (Log) Recording Format

Week	Task Assigned	Activities Performed	Key Learnings	Additional Remarks
16/12/25 to 20/12/25	Acidity testing of milk & other finishing products.	- Determine acidity of milk, milk powder, curd, mango pulp by titration & performed fat estimation of milk, curd, paneer.	Learned acidity & fat of milk products & their importance in quality control of dairy products.	Satisfactory
21/12/25 to 25/12/25	i) Heat stability test of milk ii) moisture con. in milk, shrikhand & table butter ghee.	Conduct heat stability test of milk. moisture cont. in milk, shrikhand, table butter work performed under supervision	understand effect of heat on milk protein & importance of moisture control for product quality shelf life	Satisfactory.
26/12/25 to 31/12/25	Microbiological analysis & hygiene monitoring - collected coorkers hand & cloth scoab	performed spc, coliform, yeast & mold on milk & finishing products. (basundi, ghee, paneer, lassi)	Learned microbiological quality testing & hygiene practices in dairy plant	Satisfactory.

31/12/2025

Signature of Industry Supervisor

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Student Feedback of Internship

(To be filled by Students after Internship completion)

Student Name: Sarika Dharmraj Kachare Date: 05/03/26

Industrial Supervisor:

Title: ____

Supervisor Email:

Internship is: ____ Paid X

Unpaid ✓ Organization: Warna Sahkari, Dudh utpadak prakriya ranjh, Warna Nagar, Warana. ← Internship Address:

Date of internship from:- 16/12/25 to 31/12/25

Give a brief description of your internship work (title and tasks for which you were responsible):

Was your internship experience related to your major area of study?

- Yes, to a large degree
- Yes, to a slight degree
- No, not related at all

Indicate the degree to which you agree or disagree with the following statements.

This experience has:	Strongly Agree	Agree	No opinion	Disagree	Strongly Disagree
Given me the opportunity to explore a career field	✓				
Allowed me to apply classroom theory to practice		✓			
Helped me develop my decision-making and problem-solving skills	✓				
Expanded my knowledge about the work world prior to permanent employment	✓				

Expanded my sensitivity to the ethical implications of the work involved	✓				
Made it possible for me to be more confident in new situations	✓				
Given me a chance to improve my interpersonal skills	✓				
Helped me learn to handle responsibility and use my time wisely	✓				
Helped me discover new aspects of myself that I didn't know existed before	✓				
Helped me develop new interests and abilities	✓				
Helped me clarify my career goals	✓				
Provided me with contacts which may lead to future employment	✓				
Allowed me to acquire information and/ or use equipment not available at my Institute	✓				

- In the Institute internship program, faculty members are expected to be mentors for students. Do you feel that your faculty coordinator served such a function? Why or why not?

→ Yes, the Faculty co-ordinary guided & supported me throughout the internship

- How well were you able to accomplish the initial goals, tasks and new skills that were set down in your learning contract? In what ways were you able to take a new direction or expand beyond your contract? Why were some goals not accomplished adequately?

  I was able to achieve most of the goals & learned several new practical skills.

- In what areas did you most develop and improve?

  I improved my laboratory techniques communication & practical knowledge.

- What has been the most significant accomplishment or satisfying moment of your internship?

  successfully performing laboratory experiments independatly.

- What did you dislike about the internship?

  limited time to explore more advanced techniques.

- Considering your overall experience, how would you rate this internship? (Circle one).

  -Satisfactory/ Good/ Excellent

- Give suggestions as to how your internship experience could have been improved. (Could you have handled added responsibility? Would you have liked more discussions with your professor concerning your internship? Was closer supervision needed? Was more of an orientation required?)

  More- hand-on training & longer internship duration coould improve the experiense.

Signature of Student: S.D. Kachare

Name: Sanika Dhananjay Kachare

Roll number: 5408

Date: 05/01/26

INDEX

1. INTRODUCTION

Tatyasaheb Kore Shri Warana Sahakari Dudh Utpadak Prakriya Sangh Limited, Korenagar is a classic example and excellent work of creativity in real sense of them and which play very important role in the development of rural welfare. Warana Dairy is one of the successful dairy established in 1968 by Shri. Tatyasaheb Kore with the financial assistance provided by Shareholders and State Government.

The purpose of establishing this dairy was to provide additional source of income to the farmers from the surrounding village, to improve their economic, social and educational leave and to provide employment. Tatyasaheb Kore had started first sugar factory at Warana in 1959 and then his journey has taken place for thousand miles just like by developing industries like Warana Mills, Warana Animal Foods, Warana Distilleries and one of them Warana Dairy

Hence, the milk is procured from chilling centre like Ganeshwadi, Muthol, Jat, Pancham, Solapur etc. At present nearly 800 societies are working from 250-260 villages and one milk packaging centre at Washi branch in Mumbai

Warana Dairy has plant of milk processing with the capacity of 6 lakhs per day of which 3 lakhs lit per day sold as pasteurized

and the rest of milk is processed in various products. These products are Table Butter, Mozzarella Cheese, Curd, Lassi, Shrikhand, Paneer, SMP, WMP, Flavoured milk. The dairy has most hygienic plant of milk processing with the capacity of 10 lac liters per day.

Warana Shrikhand has set a record of highest selling in India. It's also one of the most popular product in Maharashtra. Warana milk powder as an export quality product which is produced in the quantity of 55 tons per day and is exported to Gulf nations like Kuwait, Saudi Arabia.

Since the establishment it is continuously processing. According to product quality it has been certified by HACCP, ISO-2018-2021, AGMARK, FPO, ISI, BIS, EIA. So that these produets have International Market value that's why it counts in greatest dairy industry in India. Due to market success and quality products Warana Dairy has crossed the turnover of 1500 crores per annual.

Dairy Address and about dairy :

ADDRESS OF DAIRY :-

Shree Warana Sahakari Dudh Utpadack Prakriya Sangh Ltd.Tatyasaheb Korenagar,Tal-Panhala Dist-Kolhapur Pin-416113

YEAR OF ESTABLISHMENT; -1968

FORM OF ORGANIZATION: - Cooperative society

DISTANCE FROM CITY:- Warana dairy is 30Km. Away from Kolhapur city.

TOTAL AREA OF DAIRY:- acres

CATCHMENT AREA FOR MILK

COLLECTION:- From the villages of Panhala, Hatkangale, Shiroli and Walava Talukas of Kolhapur and Sangali distric .

About the Organization :

Warana Dairy Plant is a well-established organization engaged in the processing and manufacturing of milk and milk products. The plant is equipped with advanced machinery and modern technology to ensure high-quality production and hygiene standards.

Quality and Certification :

Warana Dairy is committed to maintaining high standards of quality and safety. The dairy plant is certified by:

- FSSAI
- BIS
- Agmark
- EIA
- ISO 9001
- HACCP

These certifications ensure that the products meet national and international quality standards.

Production Capacity :

The dairy plant has a milk handling capacity of 7,00,000 litres per day, which enables it to supply milk and milk products efficiently to both domestic and export markets.

Products and Achievements:

Warana brand milk and milk products are popular in domestic as well as export markets due to their superior quality.Warana Dairy is a pioneer in launching innovative products in the market such as:

1. Introduction of pouch milk in Mumbai.
2. Introduction of the traditional product Shrikhand.
3. Launch of Sweet Lassi in pouch packing.

Conclusion :

Warana Dairy Plant plays an important role in the dairy industry by providing high-quality milk and milk products. With modern technology, strong quality control systems, and innovative product launches, the organization continues to maintain its strong position in the market.

Objectives :-

1. To study the Organizational structure of the dairy plant.
2. To study the Production process of milk and milk products.
3. To examine the quality control measures followed by the dairy industry.
4. To understand the microbiological testing procedures conducted for raw milk and milk products.
5. To analyze the microbial load (Total Plate Count, Coliform Count, Yeast & Mould count, etc.) in milk samples.
6. To understand the microbiological testing procedures conducted for raw milk and milk products.
7. To study the hygiene and sanitation practices followed in the dairy plant.

Manufacturing Products :

The dairy plant manufactures a wide range of high-quality milk and milk products such as

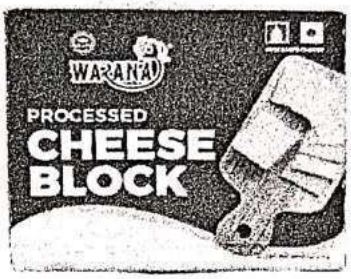
- Milk
- milk powder
- Shrikhand.
- paneer
- Butter
- cheese
- Ghee
- Dahi,
- Lassi
- Chhas,
- Flavoured milk
- Fruit pulp
- Tetra pack

Shrikhand

Paneer

Lassi

Table butter



Cheese

Curd

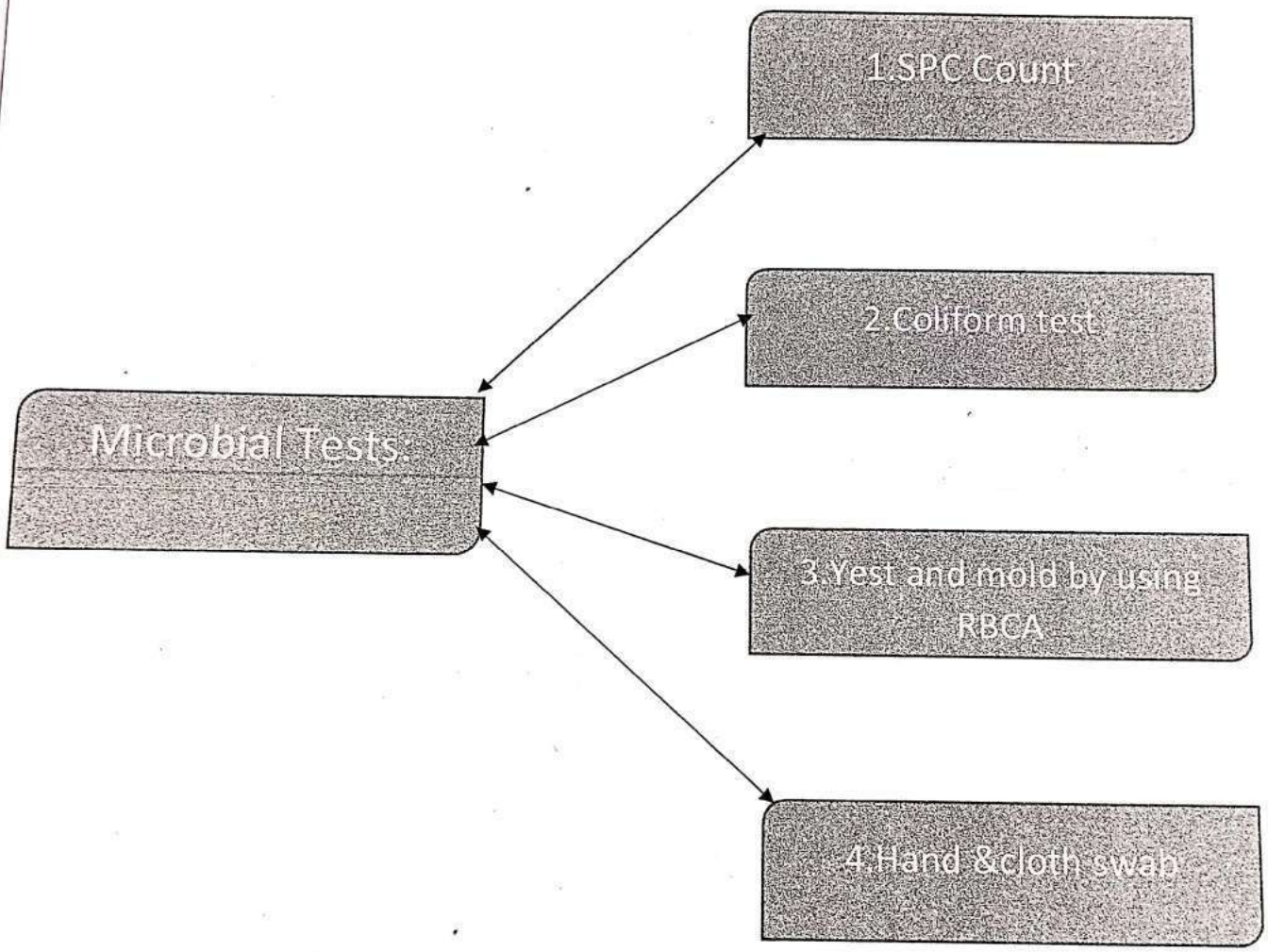
Flavoured milk

Tetra pack milk

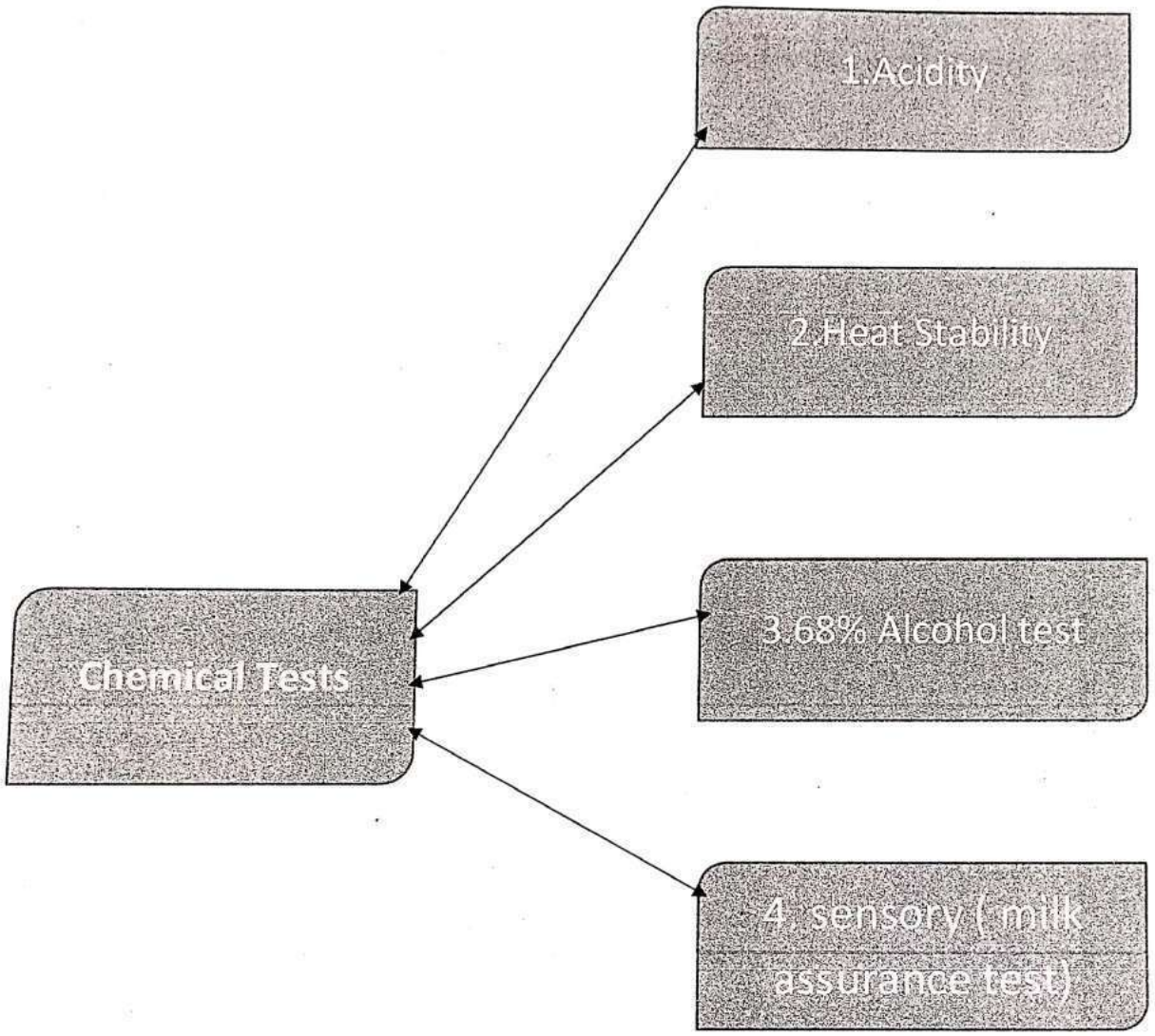
Milk powder

The following flow chart represents the Test followed in the laboratory for microbial and chemical analysis of food samples.

1. Microbial tests :



2. Chemical tests :



Instrument Used :-

Various laboratory equipment were used during the practical work to ensure proper testing and accurate results."

1. Autoclave :

An autoclave is a sterilization device used to kill micro - organisms using high-pressure steam and high temperature (usually 121°C). It is used to sterilize culture media, glassware, and laboratory instruments before microbiological testing.

Fig.1 Autoclave

2.Incubator :

An incubator is used to maintain a controlled temperature for the growth of microorganisms. Microbial cultures are kept in the incubator for 24–48 hours to allow colonies to grow on agar plates.

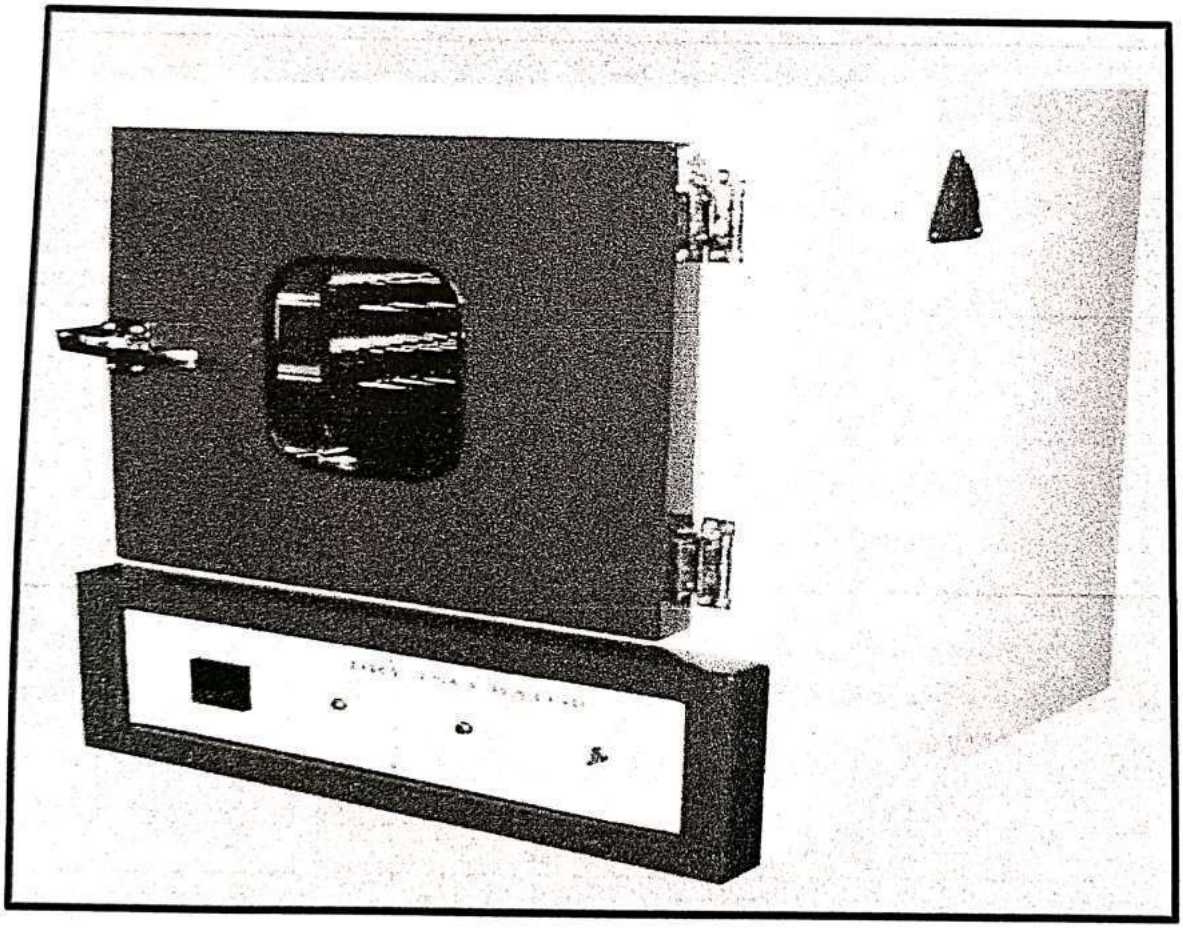


Fig.2 Incubator

3.Laminar airflow:

A laminar air flow cabinet provides a sterile working environment by passing air through HEPA filters. It protects samples from contamination during media preparation and microbial inoculation.

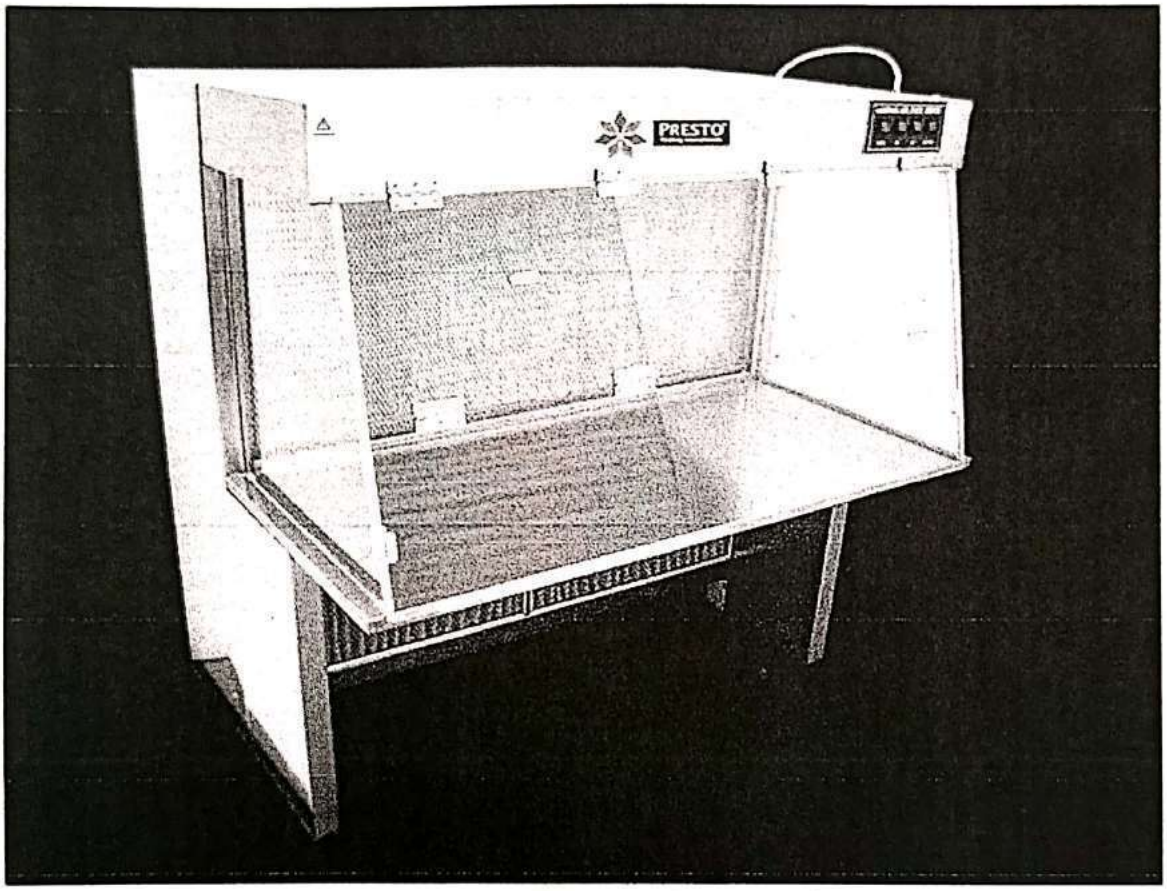


Fig 3. Laminar airflow

4.ATP swab machine :-

An ATP swab machine is used to check surface cleanliness and hygiene. It detects ATP (Adenosine Triphosphate) from microorganisms or organic matter present on surfaces such as hands, equipment, or counters.

Fig.4 ATP swab machiene

Practical No.1

Title: Introduction to Quality assurance in milk and milk products.

Aim:

To study the concept, importance, and methods of quality assurance in milk and milk products.

Requirements: 1. Fresh milk and selected milk products (curd, butter, paneer)

2 .Laboratory glassware ,Lactometer

3.Chemical reagents for routine milk testing

Principle:

Quality assurance ensures that milk and milk products meet prescribed standards of safety, purity, and quality. It involves

testing raw milk and finished products for physical, chemical, and microbiological parameters as per standards laid down by regulatory

authorities like FSSAI. Proper quality control helps in preventing adulteration and ensuring consumer safety.

Procedure:

1.Collect representative milk and milk product samples.

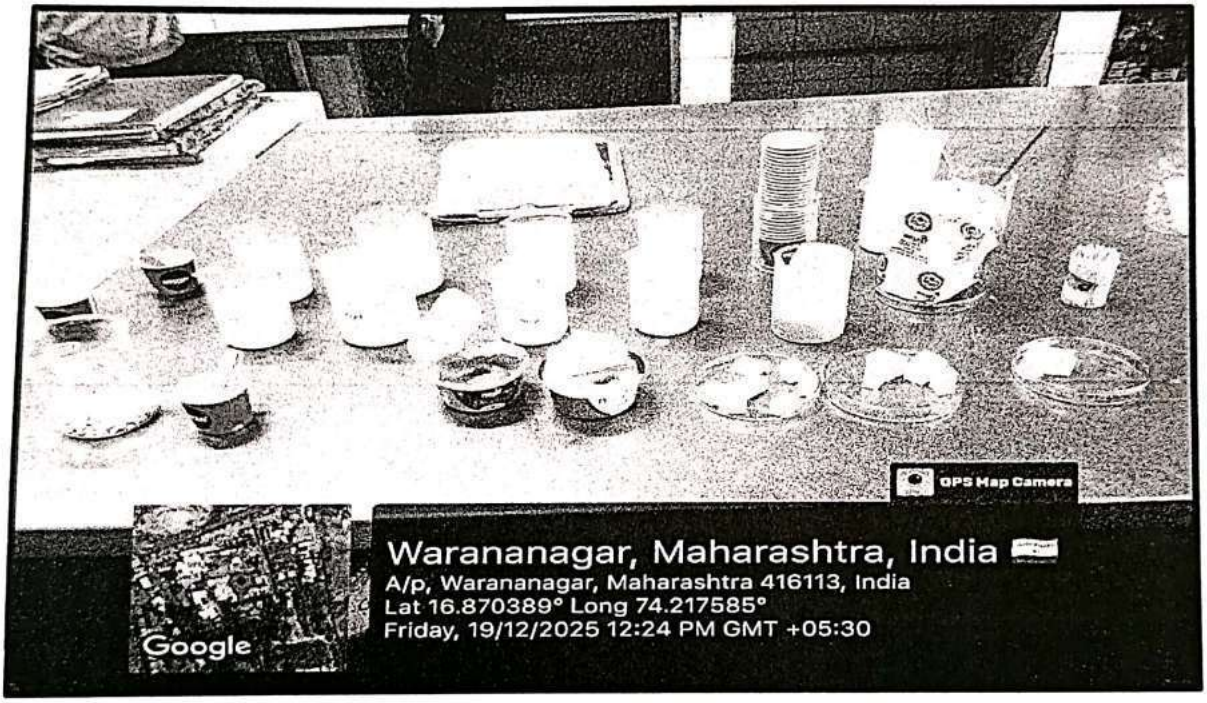
2.Perform visual examination (color, odor, taste, consistency).

3.Measure physical parameters like temperature and lactometer reading.

4.Check acidity using titration.

5.Record sensory, chemical, and microbiological finding parameters sample.

Result : The tested milk and milk products required quality standard



SENSOERY : Identify the milk products quality, test, texture.

Practical No.2

- **Title :** Measurement of Titrable Acidity of Milk

• Aim :

To determine titrable acidity of milk using standard NaoH solution.

• Requirements :

Pipette (10 ml) , burrete , conical flask, 0.1 N NaoH, phenolphthalein indicator, fresh milk sample.

• Principle : Acidity of milk is mainly due to lactic acid by bacterial fermentation of lactose. The acid is neutralized by

alkali (NaoH) and endpoint is indicated by a faint pink colour.

• Procedure :

1. Pipette 10 ml milk into clean conical flask.
2. Add 1-2 drops of phenolphthalein indicator.
3. Titrate against 0.1 N NaoH until faint colour appear for 30 seconds.
4. Note the burrete reading.

Calculation :

lactic acid = 1.6 0.1 9 =10

Result : the acidity of given sample is 0.14% lactic acid

Practical No.3

Title : 68% Alcohol test for assessment of heat.

Aim: To determine heat stability and freshness of milk by performing 68% alcohol test.

Principle :

The alcohol test based on coagulation of milk protein in presence of alcohol.

Requirement :

1. 5ml milk sample

2.68% alcohol

3. clean test tube

Procedure :

1. Take 5ml of milk sample in clean tube.

2. Add 68% alcohol in milk.

3.Mix by gentle titling tube.

4.Observe coagulation or flocculation

Result : 1. If no flocculation observed = milk passes 68% alcohol test indicates good heat and freshness

2. If flocculation was observed = milk fail alcohol test, indicates poor heat stability and higher acidity.

Practical No.4

Title : Heat stability test of milk.

Aim: To determine the heat stability of milk by observing coagulation after heating milk with 1 N HCl.

Principle : Milk proteins, mainly casein, are stable only within a limited pH range. When milk is heated in the presence of acid, the pH decreases, causing destabilization of proteins. If milk has poor heat stability, coagulation occurs upon heating. The presence or

absence of coagulation indicates the heat stability and quality of milk.

Requirements:

Fresh milk sample, 1 N Hydrochloric acid (HCl), measuring cylinder, pipette, test tube, test tube holder, water bath or

burner, stopwatch.

Procedure:

1. Take 10 mL of milk in a clean test tube.
2. Add 5 mL of 1 N HCl to the milk.
3. Mix gently without shaking vigorously.
4. Place the test tube in a boiling water bath.
5. Boil for 10 minutes.
6. Remove the test tube and allow it to cool slightly.

7. Observe for coagulation.

Observation:

1.No coagulation - Milk is heat stable.

2. Partial coagulation - Milk has modeate heat stability.

3. Complete coagulation - Milk is heat unstab

Result: If no coagulation is observed, the given milk sample is heat stable and of good quality. If coagulation is observed, the milk

sample is heat unstable and of poor quality.

Practical No.5

Title : Microbial examination of mango pulp for coliform count.

Aim: To detect coliform bacteria present in mango pulp by using VRBA(Voilet red bile agar)

Principle : coliform bacteria are lactose fermentative gram –ve rods. VRBA is selective and differential medium.lactose

fermentation produce acid forming red to purple colonies

Procedure :

1. take 10 ml mango pulp and transfer into 100 ml D/W (10:1dilution).
2. Transfer 1ml dilution sample in sterile petri plate.
3. pour VRBA medium into plates.
4. Allow agar to solidify and incubate for 37 degree celcius for 24 hours.
5. After incubation ,observe colonies of coliform.
6. Record colonies count.

Observation table :

Dilution Medium used No.of colonies Coloney character CFU

1.10:1 VRBA TNTC Red colonies bile zone -----

2. 10:2 VRBA 45 Red or purple coloney 4.5*10**:3**

3. 10:3 VRBA 12 Coliform coloney 1.2*10:4 =10

Calculations :

No. of colonies dilution factor

= 4.5 10:2

Result : coliform bacteria detected in given mango pulp.

Practical No.6

Title : Microbial examination of water by SPC

Aim:

determine total vidole bae. count given coater rample by (opc) standard plate Count Principle: plate count method estimate nu. viable arobic bac. present in water diluted plated on PCA agar each viable bacterial cell grow into visible coloney,after incubation.

Requirement :

Water sample 100ml ,PCA agar petri plates, Incubator, coloney counter.

Procedure :

1.collect 100ml water sample

2. prepare serially dilutions and transfer 1ml of each dilution in petri plates.

3. pour plates count agar into plates.

4. Allow agar solidify and incubate plates 37.c for 72 hours

5. record coloney count.

Result : SPC of given water sample was 1.6 *10as 4 CFU/ml

Practical No.7

Title : Microbial examination of Milk by SPC

Aim:

determine total viable bacterial count given sample by (SPC) standard plate Count .

Principle: plate count method estimate nu.of viable aerobic bac. present in Milk diluted sample plated on PCA agar each viable bacterial cell grow into visible coloney ,after incubation.

Requirement :

Milk sample 100ml ,PCA agar petri plates, Incubator, coloney counter.

Procedure :

1.collect 100ml Milk sample

2. prepare serially dilutions and transfer 1ml of each dilution in petri plates.

3. pour plates count agar into plates.

4. Allow agar solidify and incubate plates 37.c for 72 hours

5. record coloney count.

Result : SPC of given Milk sample was 1.6 *10as 4 CFU/ml

Practical No. 8

Title: Detection of Yeast and Mold in Dry Fruits (Elaichi) using Rose Bengal Chloramphenicol Agar (positive test)

***Aim :**

To detect the presence of yeast and mold contamination in dry fruit (Elaichi) by culturing the sample on Rose Bengal Chloramphenicol Agar.

***Requirements:**

1.Sterile test tubes / 2.dilution bottles

3.Sterile pipettes

4.Sterile Petri plates

5.Rose Bengal Chloramphenicol Agar (RBCA)

6.Sterile distilled water / peptone

***Principle:**

1.Rose Bengal Chloramphenicol Agar is a selective medium used for the isolation of yeasts and molds.

2.Rose Bengal dye restricts the spreading of mold colonies.

3.Chloramphenicol inhibits bacterial growth.

If yeast and mold are present in the dry fruit sample, they grow as distinct colonies on the agar after incubation.

***Procedure:**

1.Take 10 g of Elaichi sample and crush it aseptically.

2.Add the crushed sample to 90 mL sterile diluent to prepare a 1:10 dilution.

3.Shake well to obtain a uniform suspension.

4.Prepare further serial dilutions if required.

5.Transfer 0.1 mL of diluted sample onto sterile Petri plates.

6.Pour melted and cooled Rose Bengal Chloramphenicol Agar into the plates.

7.Mix gently and allow the agar to solidify.

Incubate the plates at 25–28°C for 3–5 days.

8.Observe the plates daily for yeast and mold colonies.

Result : Thus, Yeast and molds colonies were observed on RBCA plates after incubation. Given elaichi sample is contaminated with yeast and molds.

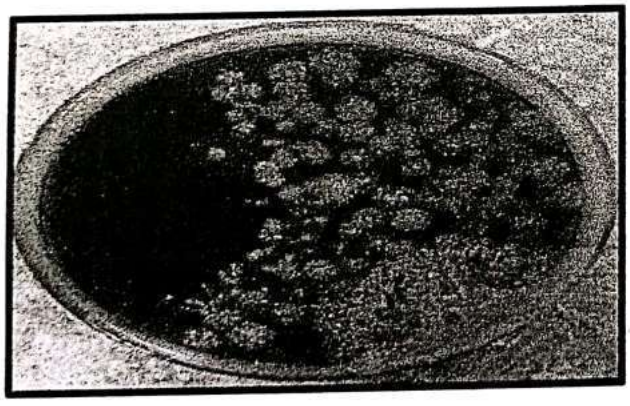


Fig. yeast and molds of Dry fruits

Practical No. 9

***Title** : Detection of Yeast and Mold in Dry Fruits (pistachio/pista) using Rose Bengal Chloramphenicol Agar.

(Negative test)

***Aim :**

To detect the presence of yeast and mold contamination in dry fruit (pistachio) by culturing the sample on Rose Bengal Chloramphenicol Agar.

***Requirements:**

1.Sterile test tubes / 2.dilution bottles

3.Sterile pipettes

4.Sterile Petri plates

5.Rose Bengal Chloramphenicol Agar (RBCA)

6.Sterile distilled water / peptone water

7.Weighing balance

8.Incubator (25–28°C)

9.pistachio(dry fruit) sample

***Principle :**

1.Rose Bengal Chloramphenicol Agar is a selective medium used for the isolation of yeasts and molds.

2.Rose Bengal dye restricts the spreading of mold colonies.

3.Chloramphenicol inhibits bacterial growth.

If yeast and mold are present in the dry fruit sample, they grow as distinct colonies on the agar after incubation.

***Procedure :**

1.Take 10 g of Pista sample and crush it aseptically.

2.Add the crushed sample to 90 mL sterile diluent to prepare a 1:10 dilution.

3.Shake well to obtain a uniform suspension.

4.Prepare further serial dilutions if required.

5.Transfer 0.1 mL of diluted sample onto sterile Petri plates.

6.Pour melted and cooled Rose Bengal Chloramphenicol Agar into the plates.

7.Mix gently and allow the agar to solidify.

Incubate the plates at 25–28°C for 3–5 days.

8.Observe the plates daily for yeast and mold colonies.

Result :

Thus ,No yeast and mold colonies were observed on RBCA plates incubated at 25-28'c for 3 to 5 days. therefore, given pista sample is free from yeast and molds.

Practical No.10

Title :Swab Testing of Coworkers' Hands and Clothes for Microbial Contamination

Aim :

To detect the presence of microorganisms on coworkers' hands and clothes using swab culture technique.

Requirements :

1. Sterile cotton swabs
2. Sterile test tubes with saline/distilled water
3. Nutrient agar plates / MacConkey agar plates
4. Inoculating loop
5. Incubator (35–37°C)
6. Marker pen & labels
7. Bunsen burner / spirit lamp

Principle :

Microorganisms present on surfaces like hands and clothes can be transferred using a sterile swab. When this swab is cultured on nutrient agar, microorganisms grow into visible colonies after incubation. The number and type of colonies indicate the level of contamination.

Procedure :

1.Take a sterile cotton swab and moisten it with sterile saline.

2.Rub the swab gently on the surface of coworkers' hands and clothes.

3.Transfer the swab onto sterile nutrient agar plates.

4.Streak the swab evenly over the agar surface.

5.Label the plates properly (hand/cloth sample).

6.Incubate the plates at 35–37°C for 24–48 hours.

7.Observe the plates for microbial growth.

Observation :

Type of Swab test	test	result
1.hand swab	Yeast and molds coliform	Negative
2.cloth swab	Yeast and molds coliform	Negative

Result : no coliform & yeast and are detected. No chances of contamination. Test is negative

Practical no :11

Title: Detection of Surface Hygiene by ATP Swab machiene.

***Aim:**

To detect the level of cleanliness and organic contamination on food contact surfaces using the ATP bioluminescence swab test.

***Requirements:**

1.ATP swab test kit

2.ATP luminometer

3.Sterile gloves

Clean working surface (equipment, table, container, etc.)

4.Marker pen (for labeling)

***Principle:**

•ATP (Adenosine Triphosphate) is present in all living cells and organic residues such as food particles, bacteria, and residues.

•When ATP reacts with luciferin–luciferase enzyme in the ATP swab, light is produced.

•The amount of light measured in RLU (Relative Light Units) is directly proportional to the level of contamination on the surface.

Procedure:

1.Wear sterile gloves before sampling.

2.Take an ATP swab from the test kit.

3.Swab a defined surface area (10 × 10 cm) using horizontal and vertical strokes.

4.Insert the swab back into the tube and activate the reagent by snapping the bulb.

5.Shake gently to mix the reagent.

6.Place the swab tube into the ATP luminometer.

7.Record the RLU value displayed on the screen.

•Observation Table:

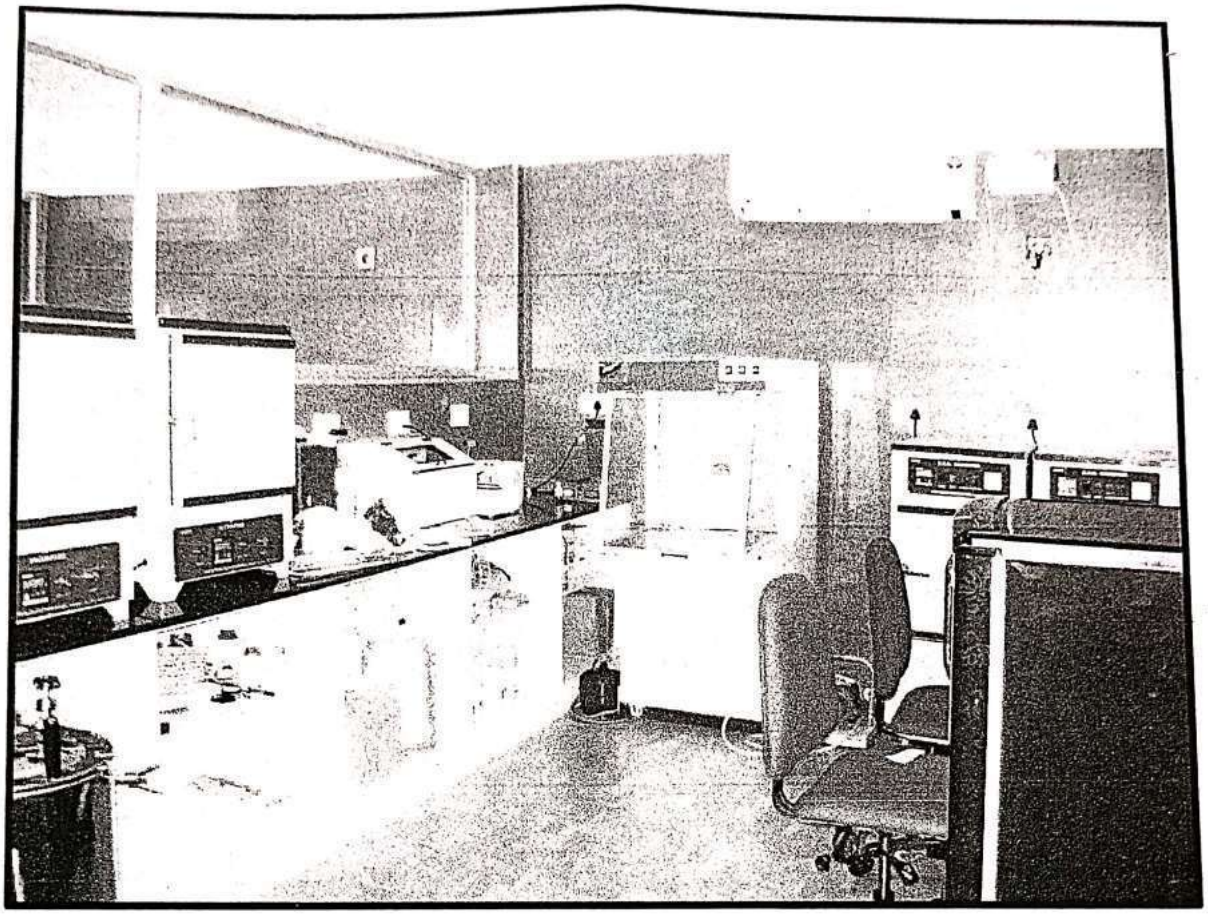
RLU value	Surface condition	interpretation
1.(0-50)	Very clean	Excellent hygiene
2.(151-300)	Residuece found	Poor hygiene ,not acceptable

Result:

The ATP swab test showed an RLU value of ___40__, indicating level of surface cleanliness.

Quality control Department of Warna dudh utpadak sangh warnanagar, kolhapur. Quality control manager Mr.Wani sir

Supervisor Mr.Nangre sir, and Head of Microbiology Depatment Mrs.Sutar mam.



Microbiology Lab of Quality Control Department.

Learning Outcome of Training

Here,we have reached the conclusion of my training in the Dairy Industry (Warana Sahkari Dudh utpadak Sangh,Tatyasaheb korenagar) – Quality Control Department.

We would like to share our experience and learning outcomes during this period. It was a valuable and enriching experience that enhanced our practical knowledge and technical skills. During our training in the QC microbiology department, we learned to perform various tests such as Titrable acidity of milk, 68% alcohol test,Standard Plate Count (SPC), Coliform count, and Yeast and Mold analysis for finished dairy products. These tests helped us understand the importance of maintaining product quality, safety, and hygiene standards. we also gained knowledge about Good Manufacturing Practices (GMP) and Standard Operating Procedures (SOP), which are essential for ensuring proper laboratory practices and consistent product quality. Additionally, we developed skills in observation, accuracy, teamwork, and effective communication within the laboratory environment. Overall, this training improved our understanding of microbiological analysis and quality control in the dairy industry. We are thankful for this opportunity, which helped us gain confidence and practical exposure in our field.

Shree Warana Sahakari Dudh Utpadak Prakriya Sangh Ltd.,
Tatyasaheb Korenagar, Post. Warananagar-416113, Dist. Kolhapur (Maharashtra)
श्री वारणा सहकारी दूध उत्पादक प्रक्रिया संघ लि., तात्यासाहेब कोरेनगर.
पोस्ट वारणानगर, जिल्हा कोल्हापूर (महाराष्ट्र)

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E-mail :- waranadairy@rediffmail.com

Certificate No.: *WDU/QC/ TS /25-26 /004* **Certificate Issue Date:** *07/01/2026*

CERTIFICATE
of Training

This is to certify that -

Miss. Sanika Dhananjay Kachare

Student From College - Vivekanand College Kolhapur Student of M.Sc. Part I Year General Microbiology has undergone in plant training at our Quality Control Lab. from date 16th December 2025 to 31st December 2025.

Her performance during training was satisfactory. We wish her brilliant success in life.

Authorized Signatory

SHREE WARANA SAH. DUDH UTPADAK PRAKRIYA SANGH LTD. REG. NO. KOP/PKO(A-1) DT. 20-7-98 TATYASAHEB KORE NAGAR