UTM Faculty of Science
UNIVERSITI TEKNOLOGI MALAYSIA

https://science.utm.my/biosciences/

INTERNSHIP INFOGRAPHICS

BIOSCIENCES 2020

SMBB- Bachelor of science (biology)
SMBT- Bachelor of science (industrial biology)

MyRoadmap

By Student Development Committee

... where great minds are nurtured

Patron: Assoc. Prof. Dr. Alina Wagiran
Compiled by: Amalina binti Ramli

Published by:
Jawatan Kuasa Pembangunan Pelajar (JKPP)
Jabatan Biosains
Fakulti Sains
Universiti Teknologi Malaysia
81300 UTM Johor Bahru
Johor
MALAYSIA
https://science.utm.my/intern/

Contents

Distribution Internship by Location

SMBB

Johor	2
Melaka	33
Negeri Sembilan	70
Pulau Pinang	83
Perak	114
Sabah	126
Selangor	128

SMBT

Johor	185
Kuala Lumpur	195
Pahang	198
Pulau Pinang	199
Perak	201
Sabah	202
Selangor	203

SMBB
Bachelor of science (biology)

Johor

- Advanced Medical and Dental Institute (AMDI)
- Bertam Kepala Batas, Penang under the governance of Universiti Sains Malaysia (USM).

AMDI is a research institute focusing on three key components which are clinical services, research activities and postgraduate academic programs.

Task done during intern :
- Plasmid DNA isolation
- Culture and maintain C2C12 cells
- Run mycoplasma tests
- Myotube-staining (immunofluorescence)
- Soluble BMP test.

During the internship period of three months, I was exposed to the working nature and challenges as a research personnel and in fact the insights of being a postgraduate student too. I learned plenty of key skills and knowledge during this period, that does not only prepare me to be a highly skilled and confident graduate that guarantees high employability but also assist the efforts of contributing knowledge and data to those of in the area of cell biology.

Equipment:
- Thermal cycler
- pH meter
- Gel Doc XR+ System for gel imaging
- Immunofluorescence microscopy
- Confocal microscopy

- Gain more knowledge on cell biology
- Learnt to be more precise, accurate and careful in handling experiments/samples
- Learnt to work independently
- Learnt to plan effectively, be technically efficient and a good communicator

Janani Ramesh
4SMBB

UTM
UNIVERSITI TEKNOLOGI MALAYSIA

BP HEALTHCARE GROUP
Leader in Health Check

INTERNSHIP PRESENTATION

NAME : NOOR AZALINA BINTI ABD AZIZ

INTERNSHIP PLACE : BP CLINIAL LAB SKUDAI

COURSE STUDIED : BACHELOR OF SCIENCE (BIOLOGY)

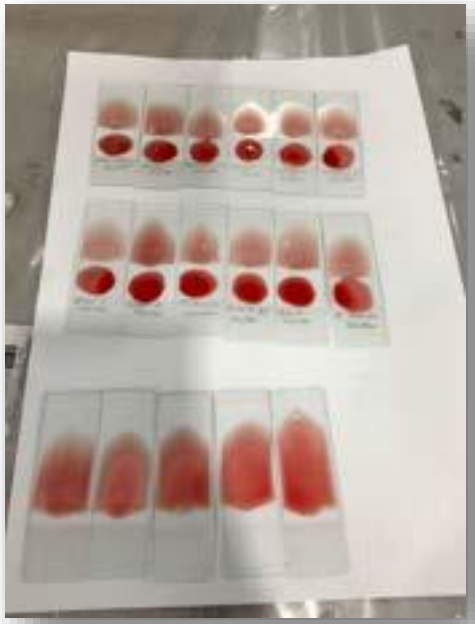
INSTITUTION : UNIVERSITI TEKNOLOGI MALAYSIA (UTM)

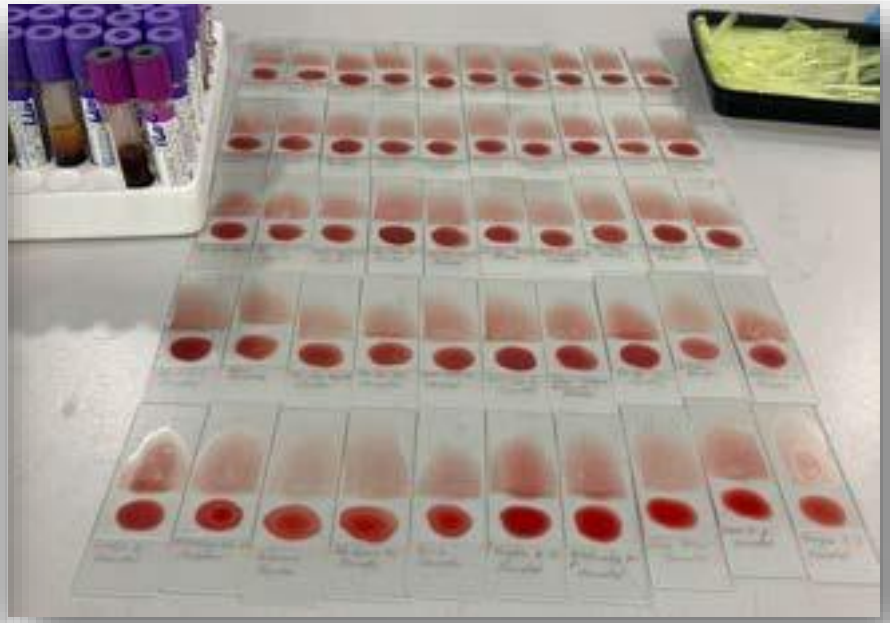
DURATION : 10TH JUN 2020 – 8TH OCTOBER 2020(12 WEEKS)

- BP clinical lab – located at skudai , established on 2014.
- 4 departments – Urology, hematology, serology and Biochemistry.
- Available on Mon - Sat.
- Lab test : Urine FEME Test, FBC, Semen Analysis, ABO Test etc.

BIOCHEMISTRY DEPARTMENT →

1 Blood Smear



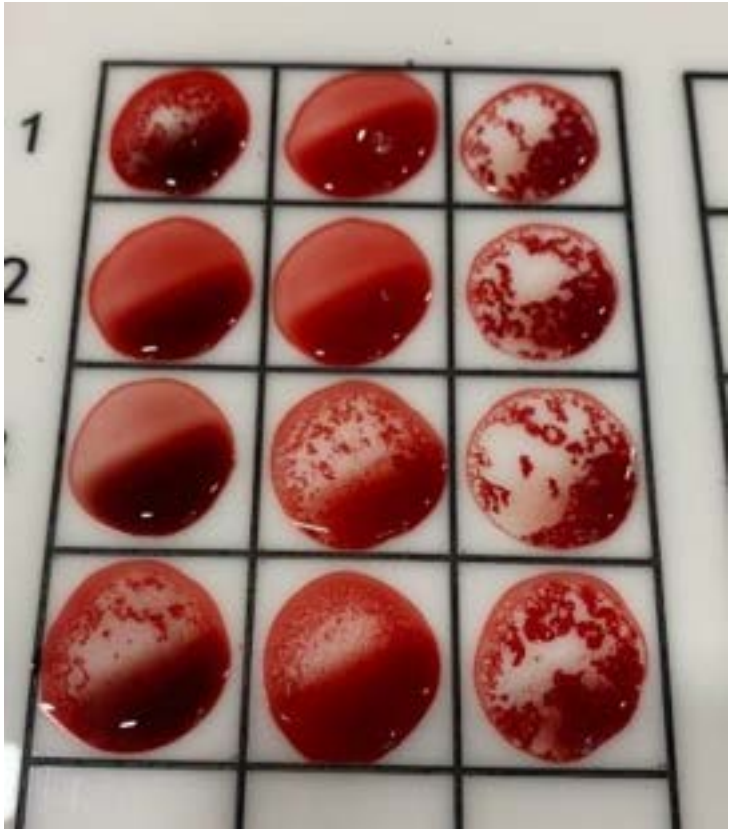


BIOCHEMISTRY DEPARTMENT →

2 Centrifuge Plain Serum and Fluoride

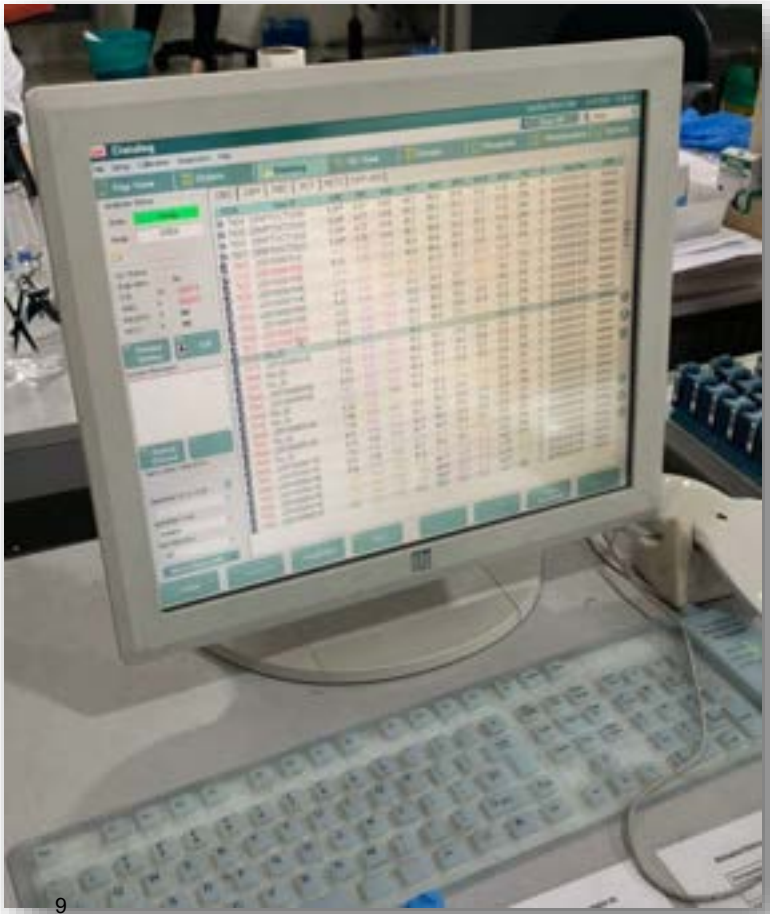
BIOCHEMISTRY DEPARTMENT → 2 Centrifuge Plain Serum and Fluoride

BIOCHEMISTRY DEPARTMENT → 3 ABO Test



HEMATOLOGY DEPARTMENT

1 Quality Control Cell-Dyn Ruby Analyzer & Maintenance



HEMATOLOGY DEPARTMENT → 2 FBC & HbA1C

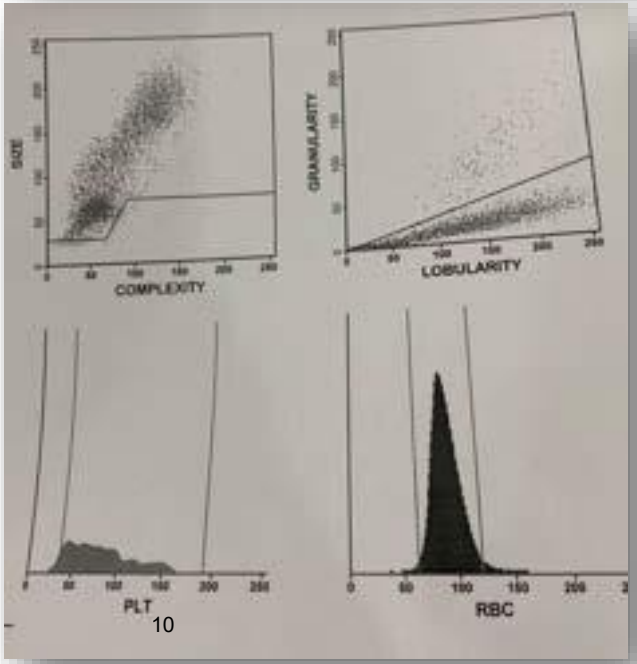
CELL-DYN Ruby Software Version 2.3 ML 11/8/20
Chartable Page
Spec ID
Pat Name
Pat ID
Doctor
Comment

SUSPECT

WBC	5.87	10e3/uL		
NEU	3.01	51.3	%	
LYM	2.32	39.5	%	
MONO	.313	5.34	%	NWBC
EOS	.084	1.44	%	
BASO	.144	2.45	%	
RBC	4.06	10e6/uL		
HGB	11.3	g/dL		
HCT	35.9	%		
MCV	88.3	fL		
MCH	27.7	pg		
MCHC	31.4	g/dL		
RDW	14.0	%		
PLT	67.4*	10e3/uL		
MPV	11.7*	fL		URI

LIMIT SET

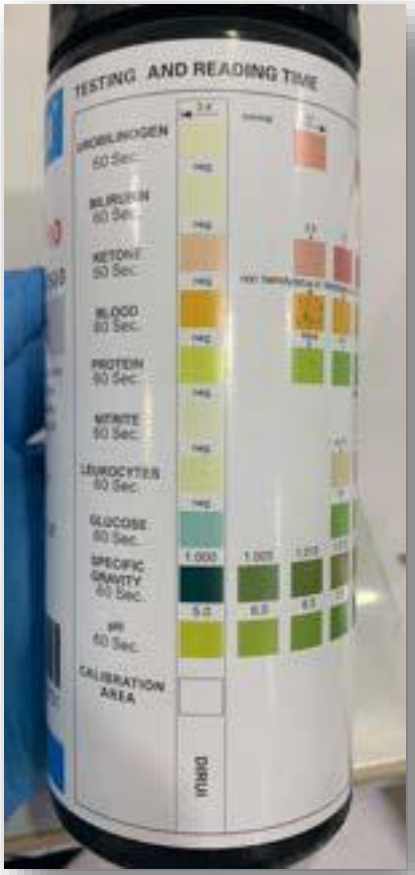
WBC	4.00-11.0			RBC	4.50-6.00	PLT	150.-400.
NEU	1.63-6.96	39.3-79.5	%	HGB	12.5-17.5	MPV	6.90-10.6
LYM	1.09-2.99	18.0-49.5	%	HCT	40.0-50.0		
MONO	.240-.790	4.40-10.5	%	MCV	82.0-98.0		
EOS	.030-.440	.600-5.50	%	MCH	27.0-33.0		
BASO	0.00-.080	0.00-2.50	%	MCHC	31.0-35.0		
				RDW	11.0-16.0		

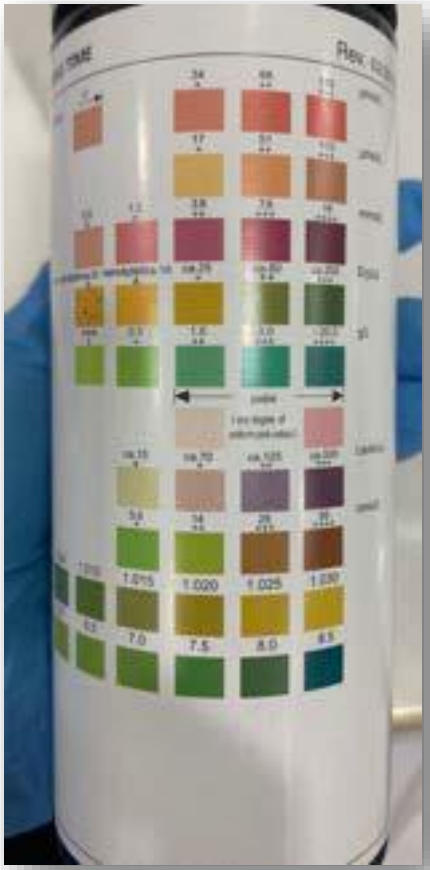


HEMATOLOGY DEPARTMENT → 3 ESR Test

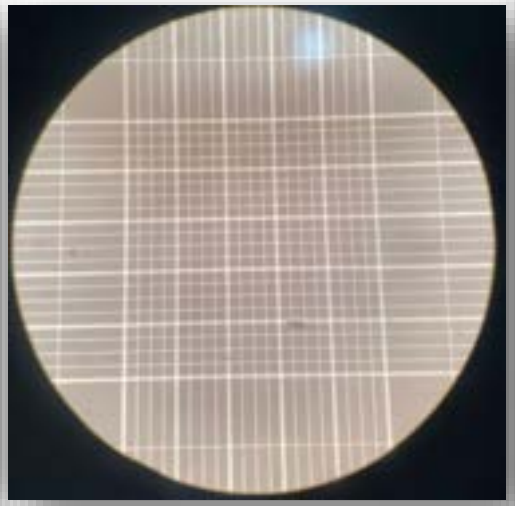
URINE DEPARTMENT

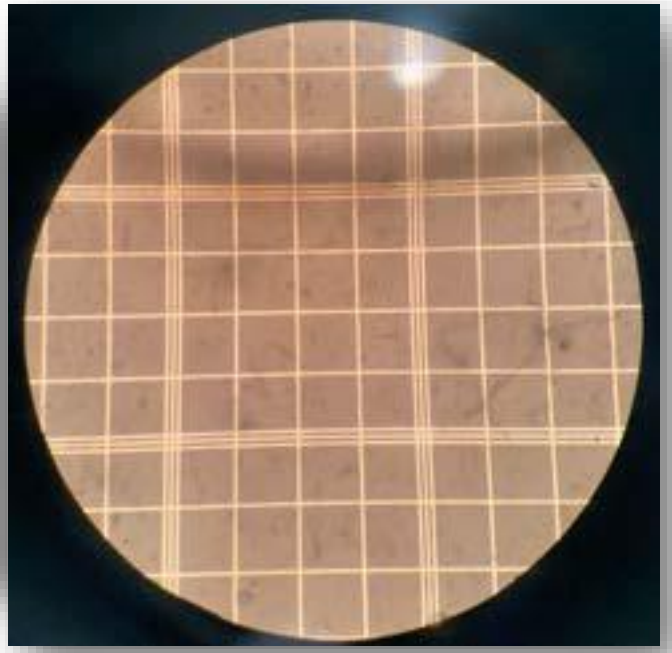
1 Urine FEME & Specific Gravity





URINE DEPARTMENT → 2 Semen Analysis

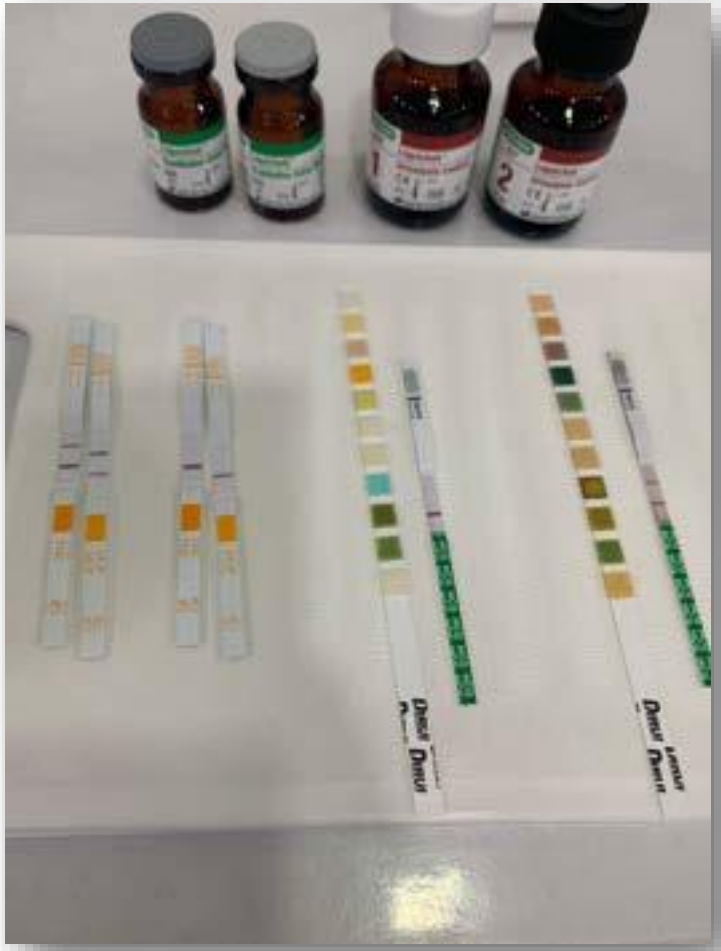




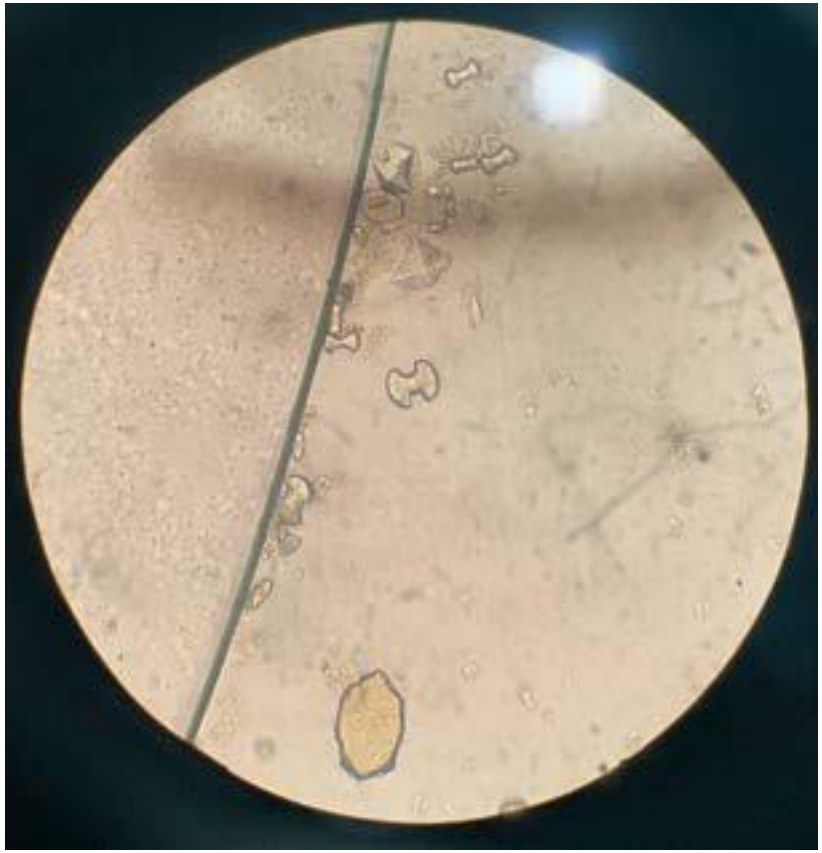
URINE DEPARTMENT → 3 Morphine & Cannabinoid Test

URINE DEPARTMENT → 4 Pregnancy Test

URINE DEPARTMENT → 5 Quality Control

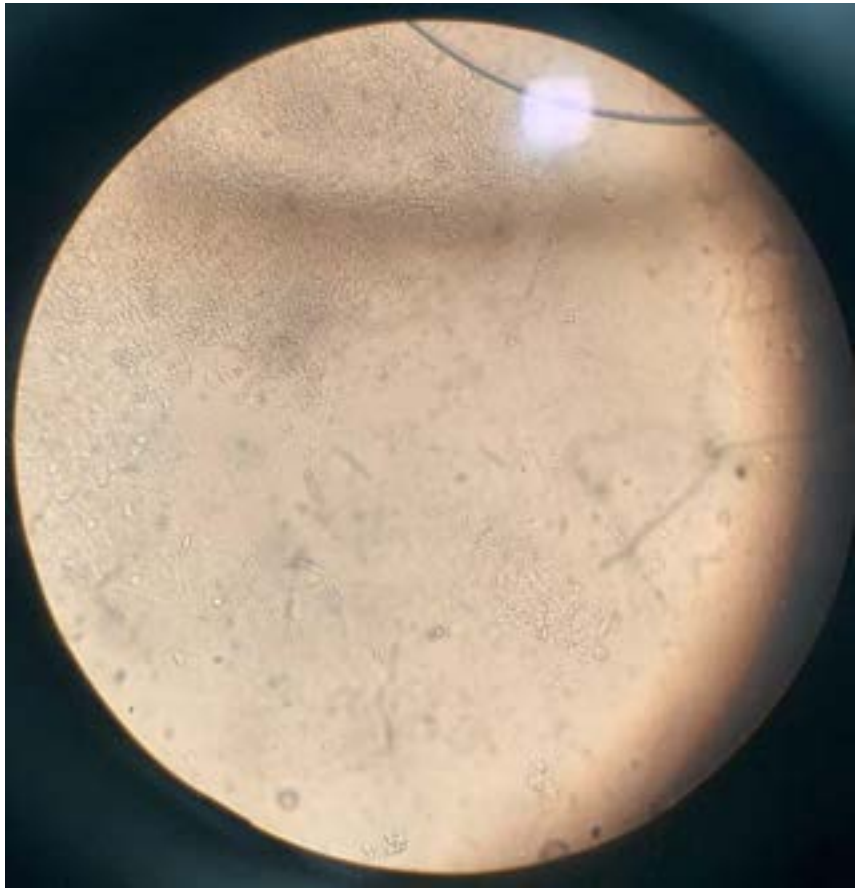


URINE DEPARTMENT → 6 Urine Screening

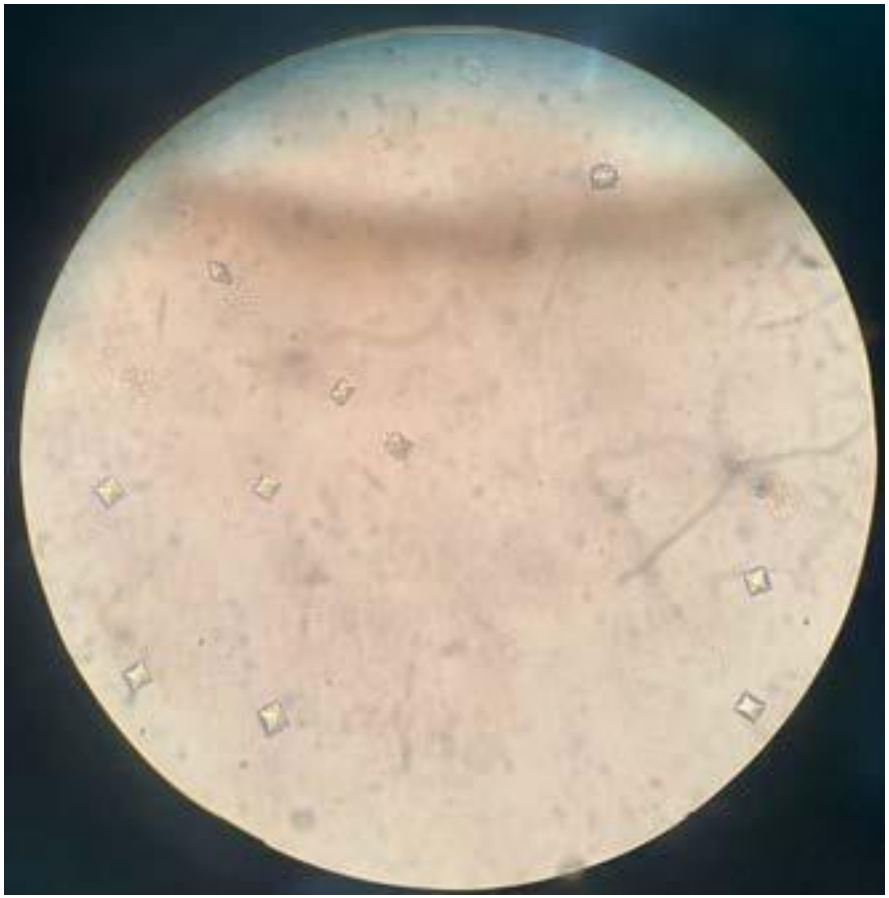


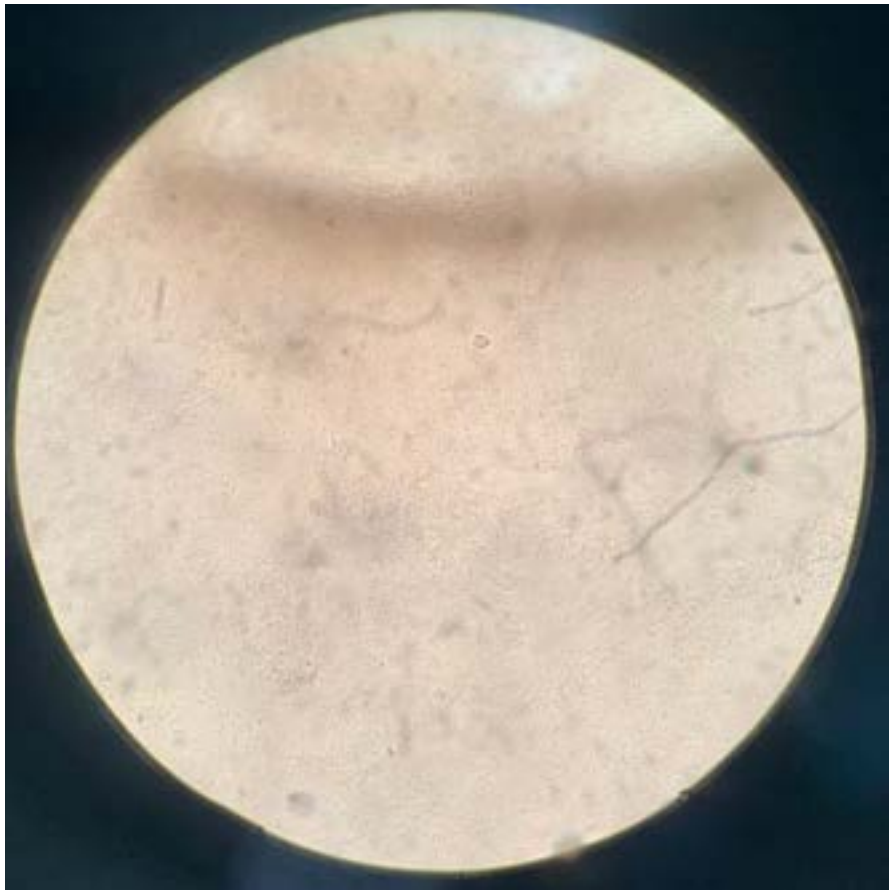
URINE DEPARTMENT

6 Urine Screening

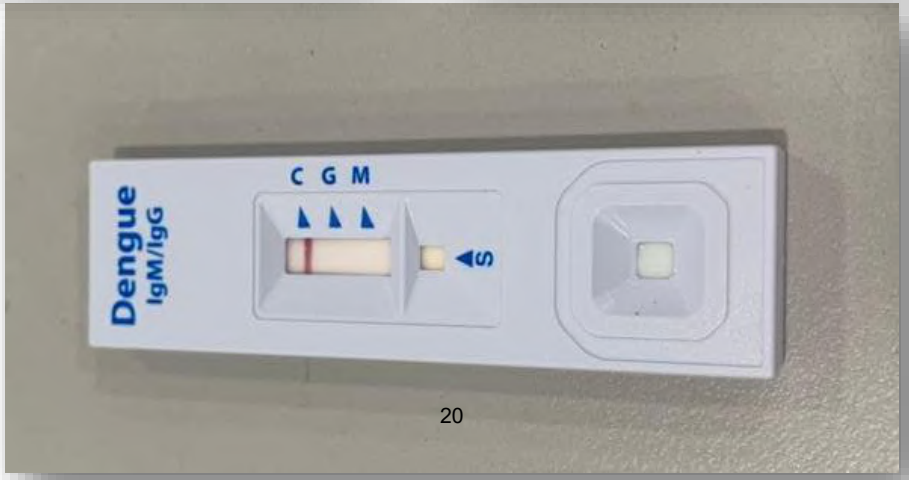


URINE DEPARTMENT → 6 Urine Screening



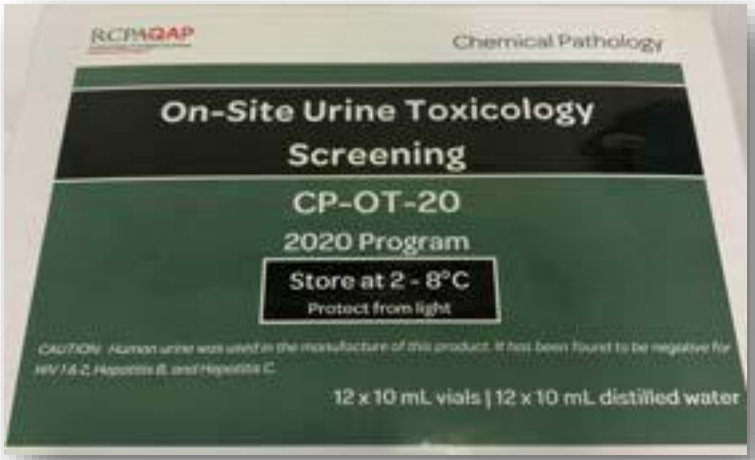


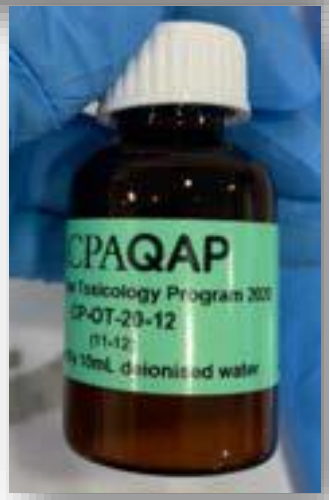
EXTRA TEST → 1 Dengue Test



EXTRA TASKS →

2 On-Site Urine Toticology Severy Quality Control





Utilize many types of machines to do lab test

- ✓ Centrifuge
- ✓ Cell-dyn ruby analyzer
- ✓ Urine analyzer
- ✓ ESR machine

Improve interpersonal skills in organizational environment

- ✓ Multiple-task
- ✓ Time management
- ✓ Team Working
- ✓ Focus

UTM
UNIVERSITI TEKNOLOGI MALAYSIA

INDUSTRIAL TRAINING REPORT BIOPRO COSMECEUTICAL SHD BHD

Faculty supervisor: Dr Siti Halimah Bt Hasmoni
Industry supervisor: Norussakinah Wasyifa' Bt Muhamad
Prepared by: Nur Izzati Syaheerah Tendot Bt Izadin Tendot

BIOPRO COSMECEUTICAL SDN BHD

- **Company Registration No. :201601015837 (1186768-K)**
- **Incorporation Date : 09 MAY 2016.**
- **HQ Address:Block 2,UTM -MTDC,Technology Centre,Technovation Park 81300,Skudai,Johor.**
- **Email:bioprocosmeceutical@gmail.com**
- **Website:**
- **http://www.dermags.com.my/**

Background of company

- **Dermags Skincare is owned by Biopro Cosmeceutical Sdn Bhd (1186768-K) selling a natural-based beauty skincare product.**
- **Using active ingredient in Mangosteen to produce skincare.**
- **They also provide services to produce OEM product.**

Background of the owner

- **Dr Mariani Abd Hamid**
- **Bachelor's Degree of Chemical Engineering(UTM)**
- **Master's Degree of Bioprocess Engineering(UTM)**
- **Doctor of Philosophy Biochemistry (Dongguk University,Korea)**

Products of Company

Skincare: Cleanser, Moisturizer, Toner, Serum

Cosmetics: Perfume, Lipsticks

Healthcare: Disinfectant, Sanitizer

Job scope & Experience

- **PRODUCTION**
- **Learnt on how to produce products such as refining cream, cleanser, mouthwash and shampoo.**
- **Guided by leader step by step on how to make the products.**
- **Gain knowledge about the ingredients of the products**

Job scope & Experience

- **HANDLING MACHINE**
- **Learnt on how to use machines such as: Pneumatic Type Semi Auto Horizontal Liquid/Cream Single Filling Machine. Emulsifier Machine**

Job scope & Experience

- **QUALITY CONTROL**
- **Learnt about Quality Management System such as Good Manufacturing Practice (GMP)**
- **With GMP, we go through very strict practices during production to ensure the end product reaches the quality standard**

Job scope & Experience

- **MINI PROJECT**
- **Produced a sunscreen, SPF 20**
- **Fits to consumer's demands during the pandemic**
- **Has antimicrobial properties**
- **Lightweight formula**
- **Water base**

THANK YOU

Q&A SESSION ☺

Melaka

KILANG MAKANAN MAMEE, QUALITY ASSURANCE DEPARTMENT

ADLINA HANNANI BINTI AHMAD SUKRI

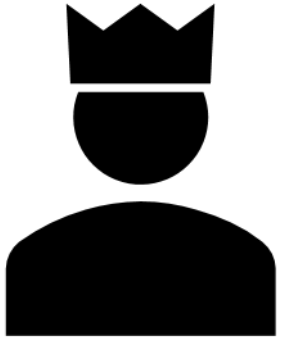
A17MB0003

BACHELOR OF SCIENCE (BIOLOGY)

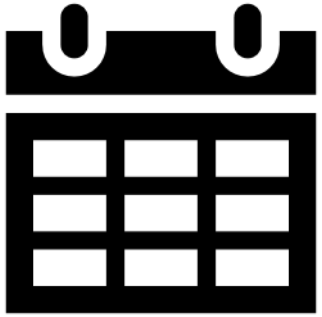
20TH JULY 2020 – 8TH OCTOBER 2020

INTRODUCTION

INTRODUCTION



Datuk Pang Chin Hin



1971

Lucky Instant Noodles

Datuk Pang Father-Son Duo

MAMEE Branch

Melaka

- Mister Potato Crisps (MPC)
- Mister Potato Chips
- MAMEE Monster
- MAMEE SLLLLRPP
- MAMEE Express Cup

Subang

- MPC Export
- Research and Development
- Canister KMM4

Kuantan

- Beverages

Mission

- To spread happiness and excitement through food experiences.

Vision

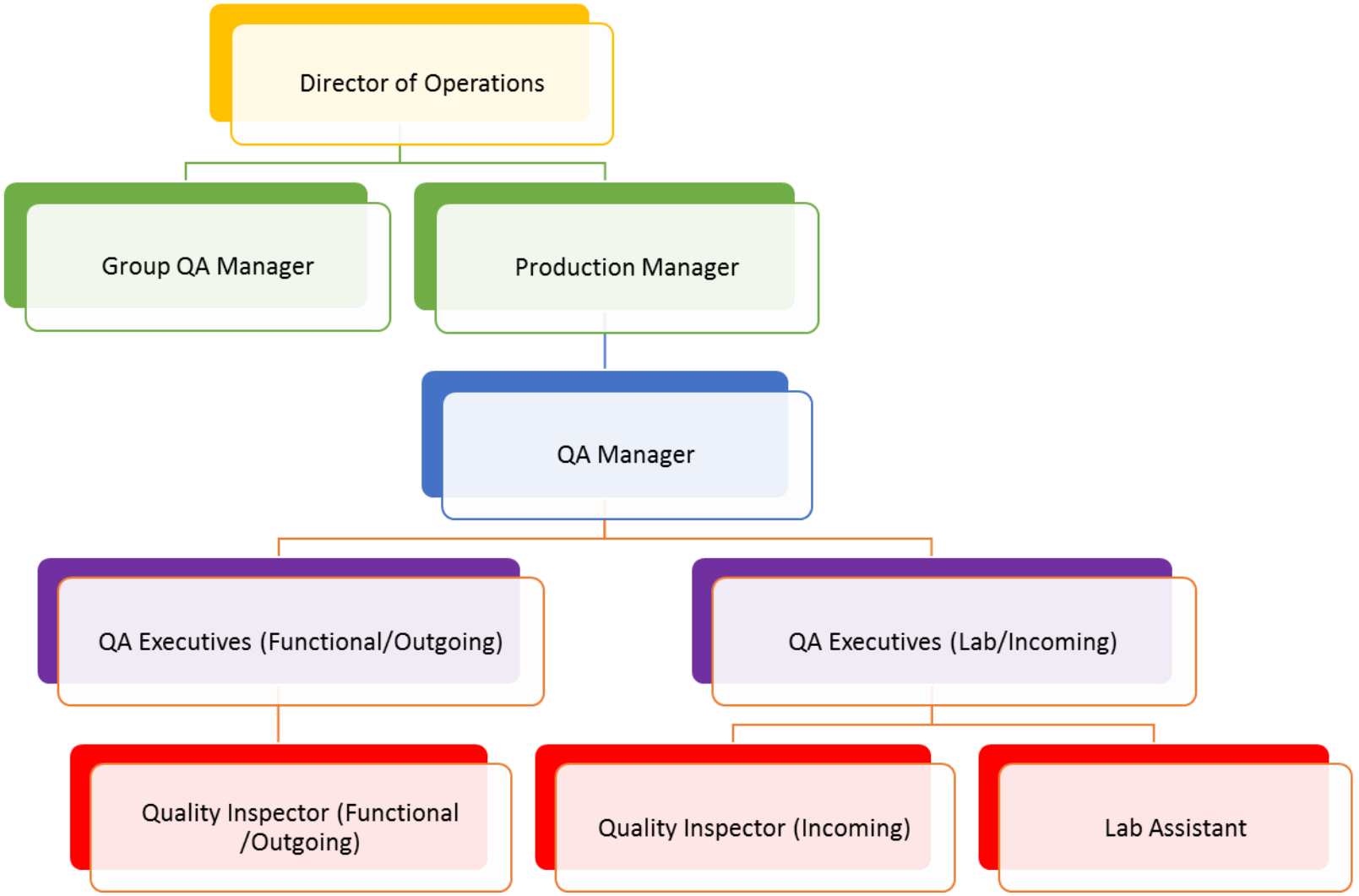
- To be a leading regional food company that is loved and trusted by all.

Core Values

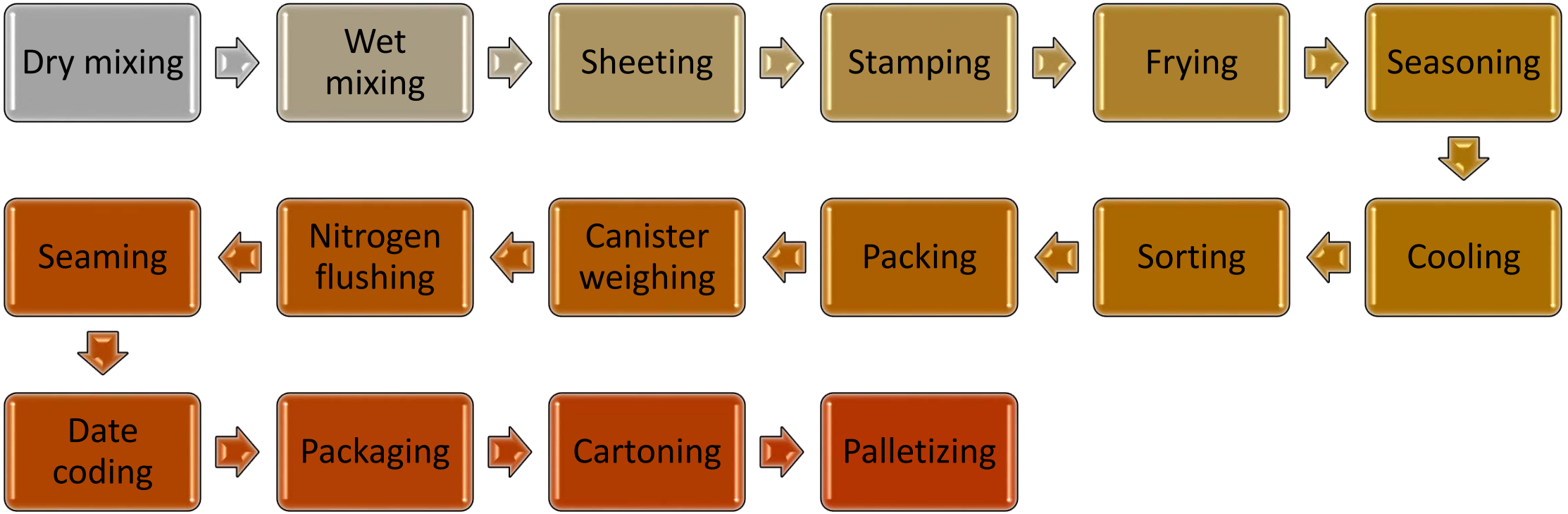
- Consists of 5 which are Innovation, Involvement, Integrity, Collaboration, and Fun.

Role of KMM06 QA Department	To track the quality standards
	Improvised methods used/ products produced parallel to customer’s demands and expectations
	Documentation of customer’s complaints
	Ensure that materials used for production of products are safe for human
	Maintaining the quality achieved by the department

Organization Structure of KMM06

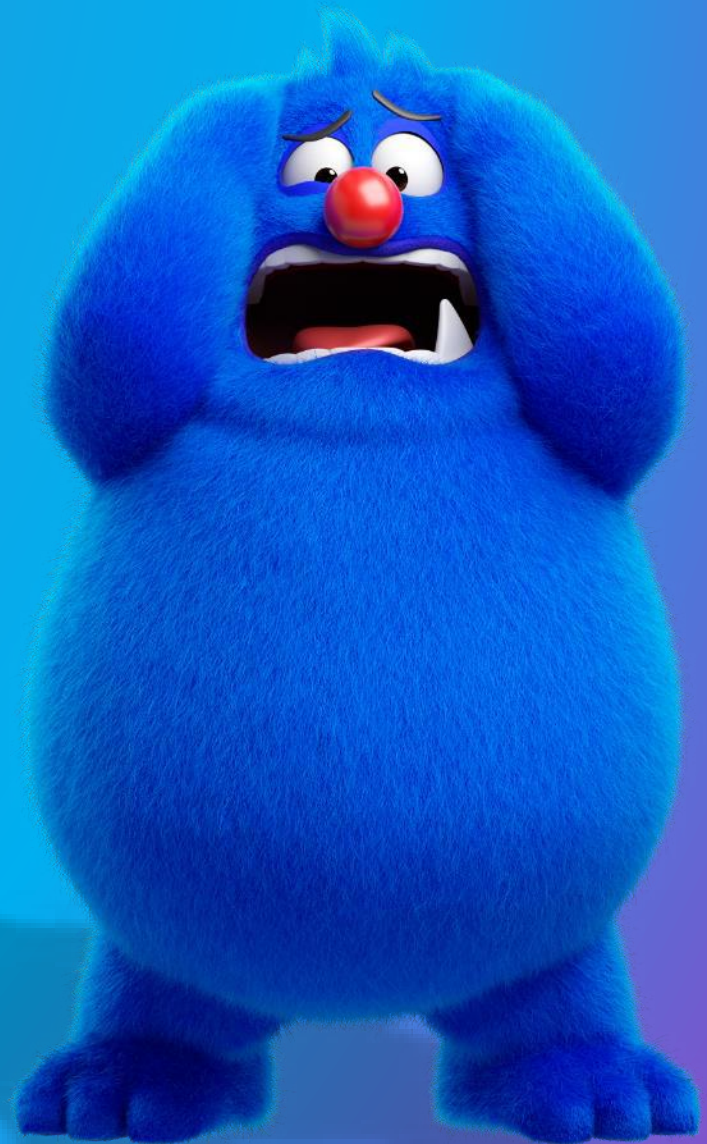


Flowchart diagram of MPC production

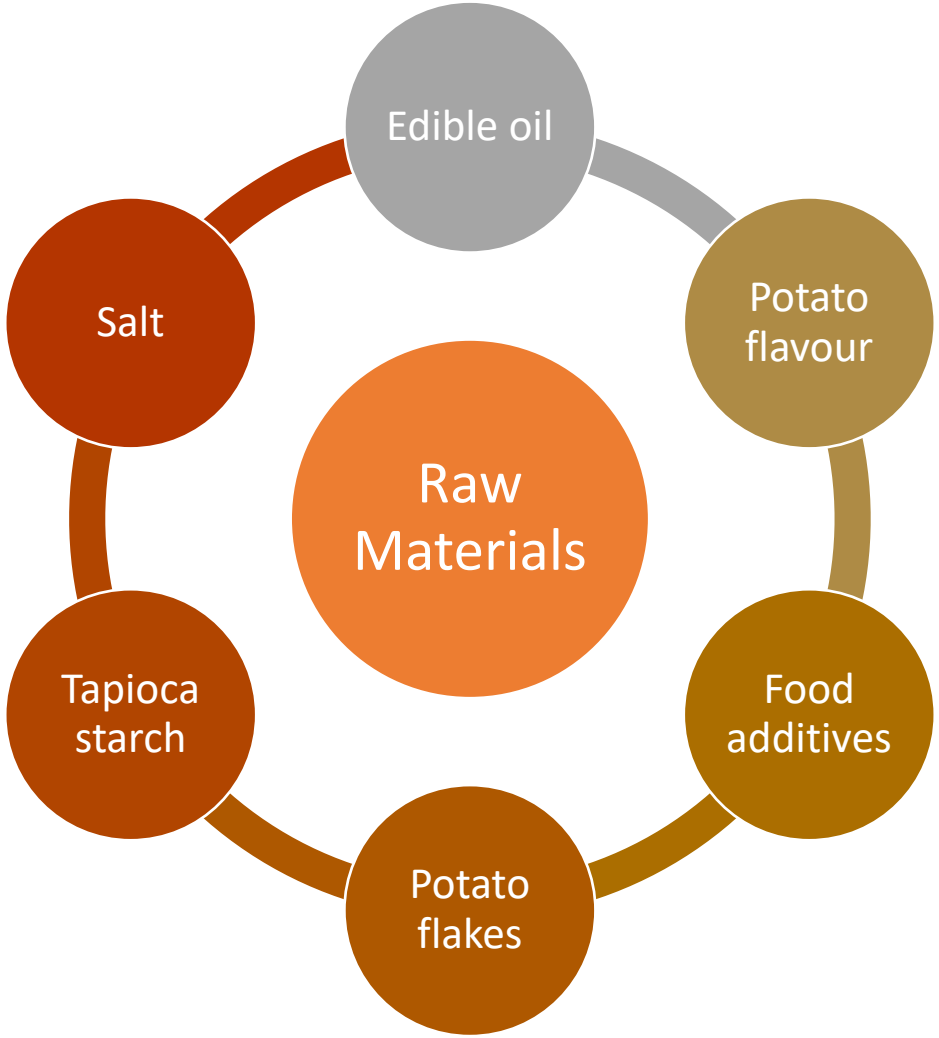


Incoming Inspection

- Raw Materials
- Packaging Materials



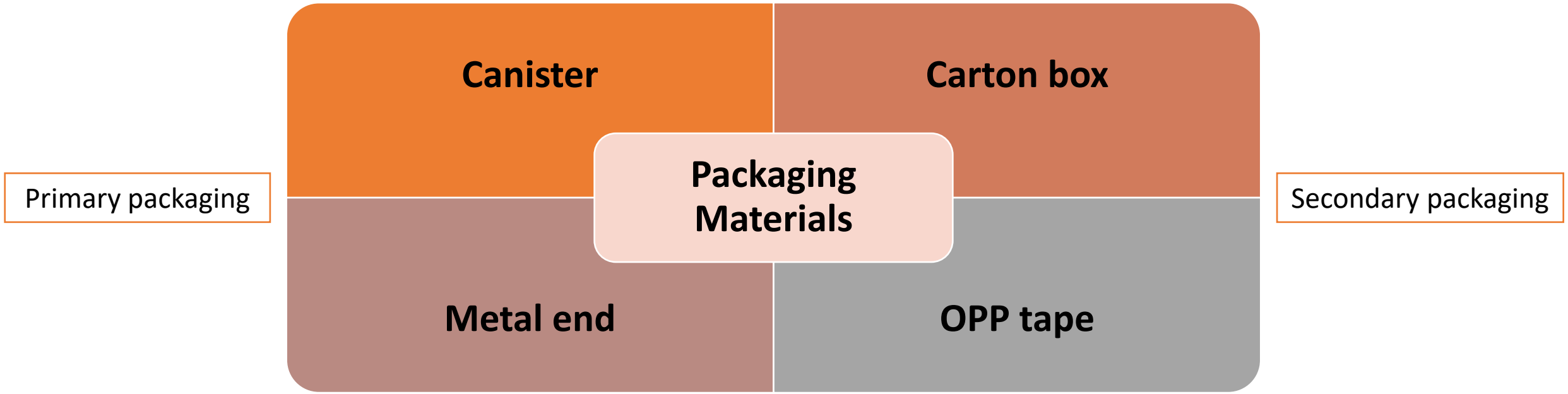
Raw Materials Inspection



1) Sampling of raw materials
   - Inspection sample
   - Microbe test sample
2) Inspection of samples
   - Moisture content
   - Condition
   - Odour
   - Taste
   - Bulk density*
   - Balance shelf life
   - Lab test (*edible oil only)

Parameter	Moisture content	Colour	Odour/Aroma	Taste	Foreign material	Condition	Bulk density	Balance shelf life
Potato Flakes	√	√	√		√	√	√	√
Potato Flavour	√	√	√		√	√	√	√
Tapioca Starch	√	√			√	√	√	√
Seasoning	√	√	√	√	√	√	√	√
Edible oil		√			√	√		
Salt	√	√			√	√		√
Citric acid		√			√	√		√

Packaging Materials Inspection



Canister Inspection

Inspection of canister includes:

- Weight of canister
- Thickness of canister wall
- Internal diameter of canister
- Height of canister (including cap)
- Condition – beading/flange/ membrane/lining/printing
- Barcode
- Physical tests – leakage and implosion test

Carton Box Inspection

The inspection of carton box includes:

- Length of carton box
- Width of carton box
- Height of carton box
- Barcode
- Condition
- Date of manufactured

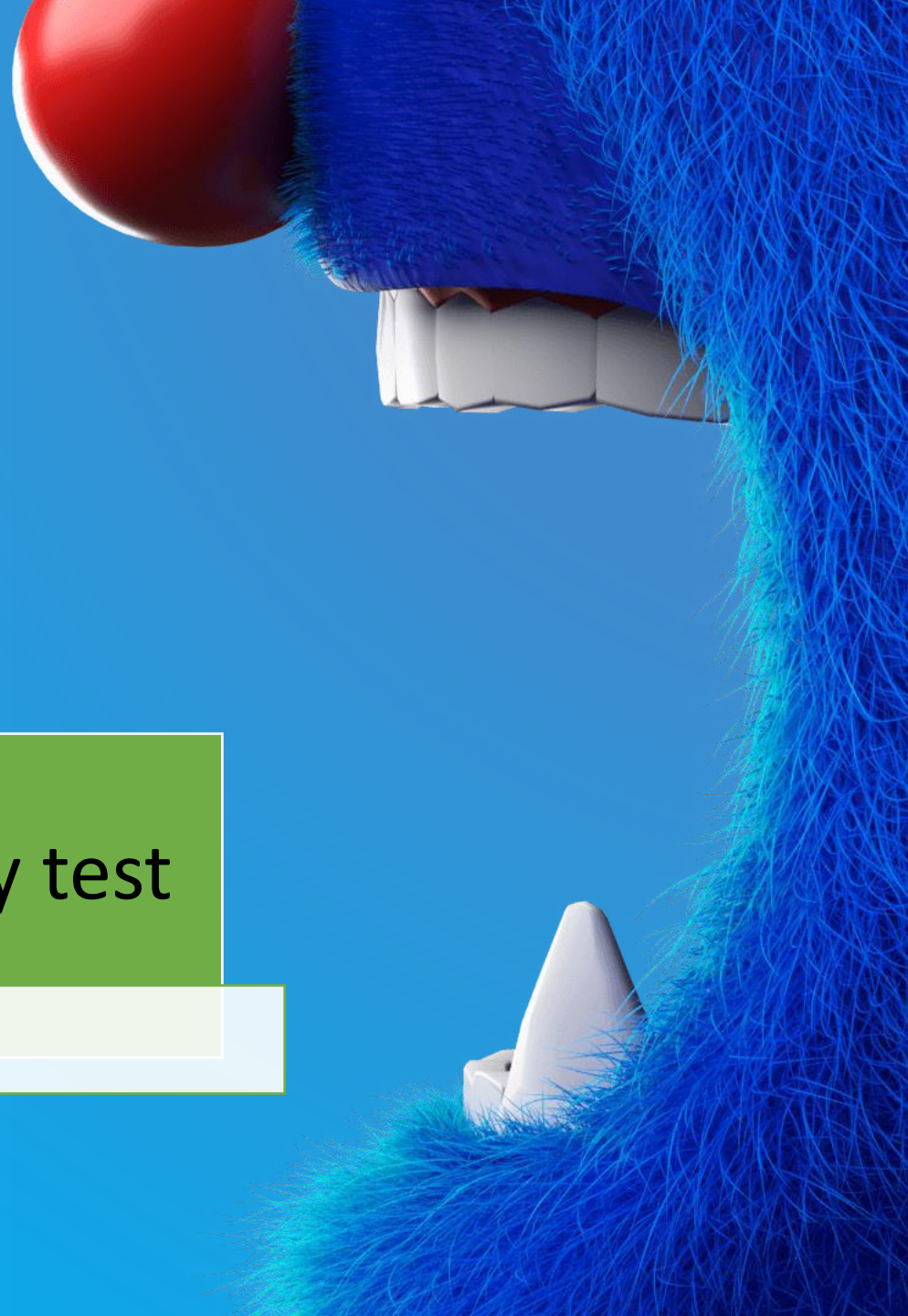
Metal end Inspection

- Weight of metal end – analytical balance
- Thickness of metal end – digital micrometre
- Outside diameter – digital calliper
- Condition – defects/scratch
- Rubber gasket – presence or absence

LAB INSPECTION

Finished Products Inspection

Laboratory test



Finished Product Inspection

Oxygen level

- Using oxygen analyser

- The lower the oxygen level, the better the product

Net weight

- Crisps count

- % breakages

Condition

<u>Visual</u>

Off shape, oil stain, uncooked crisps, double attached crisps, presence of foreign materials, colour, evenness

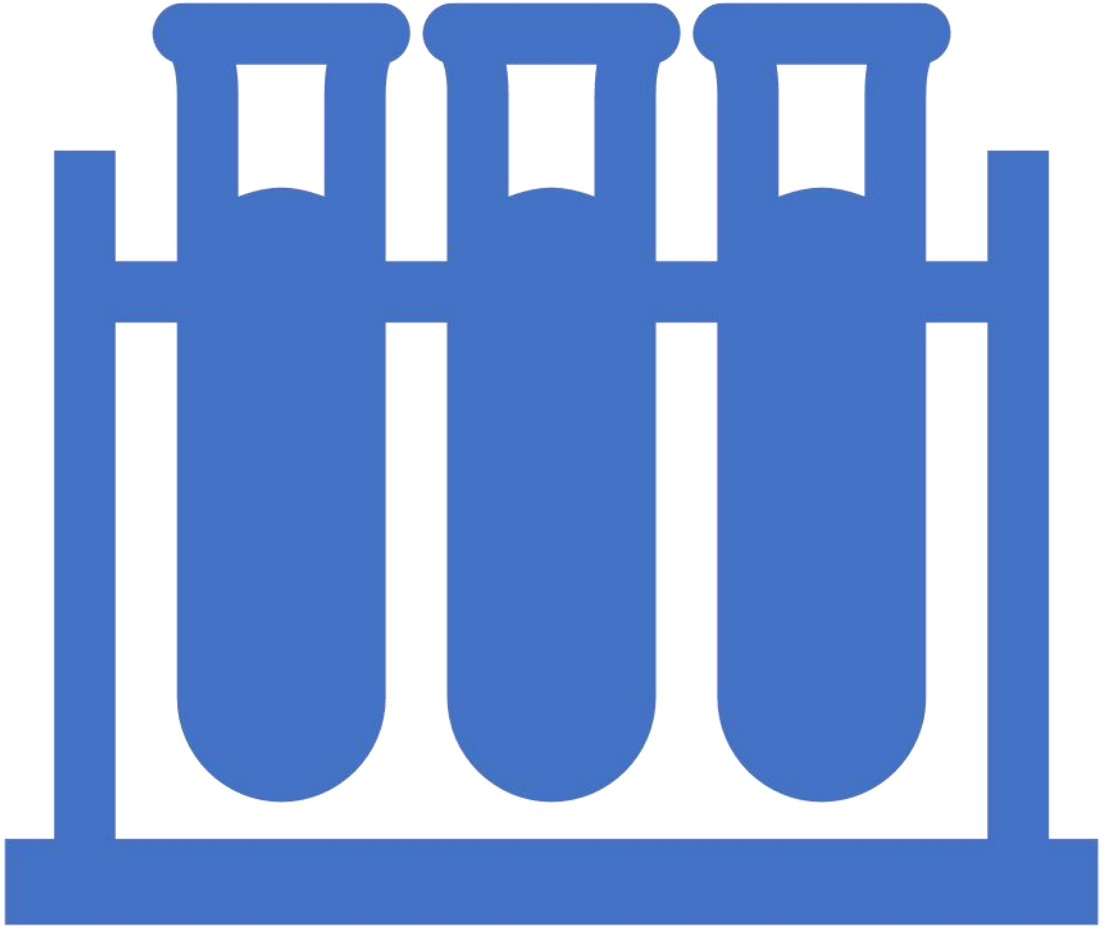
<u>Organoleptic</u>

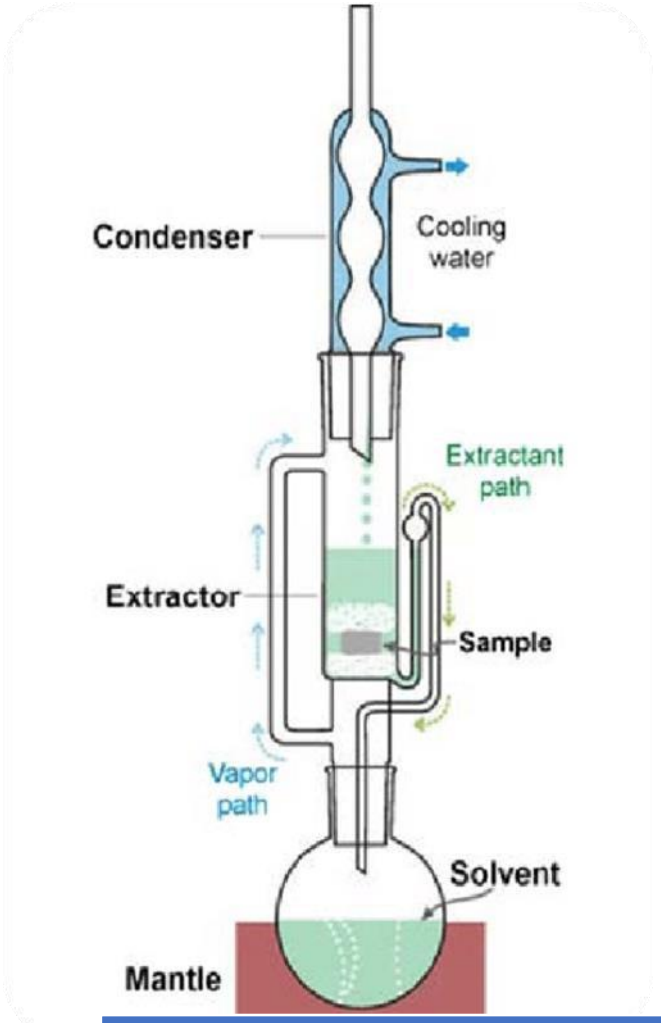
aroma, texture and taste

Moisture content

Crushed and test using moisture analyser

Laboratory Test





Oil Content Analysis

Schaal Oven

Free Fatty Acid, Acid Value and Peroxide Value

(% FFA, AV and PV)

Online Inspection

- Outgoing Inspection
- Release Inspection
- Daily pre-operational cleaning checklist

OUTGOING INSPECTION

*EVERY 2 HOURS

Carton box

- Wrong carton (flavour)
- Taping
- Date code
- Condition
- Weight

Canister

- Quantity
- Condition
- Cap
- Seaming
- Date code

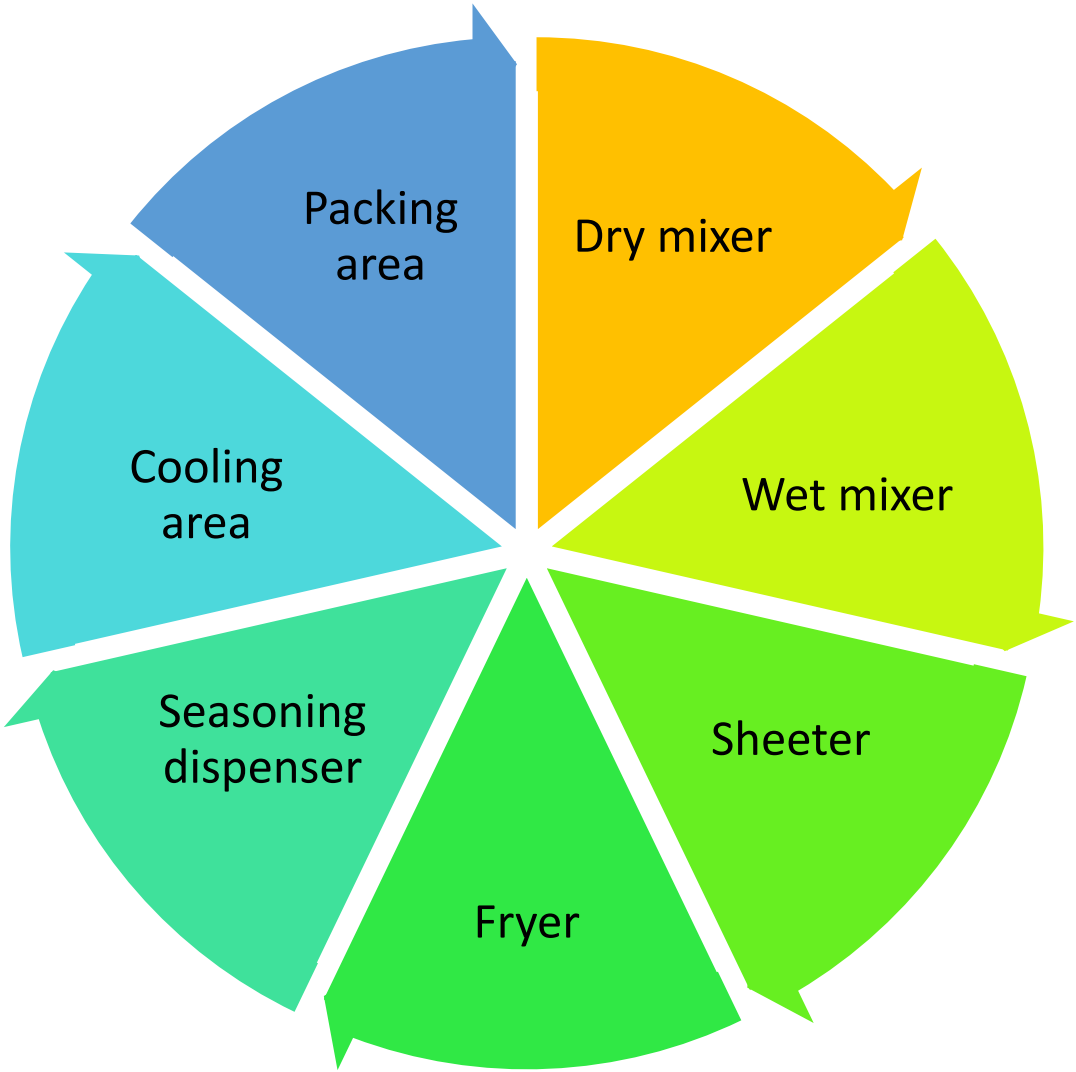
RELEASE INSPECTION

The inspection is held before the products being approved by QI.

The results from outgoing and laboratory inspection is required to approve the products.

Every hour*

DAILY PRE-OPERATIONAL CHECKLIST

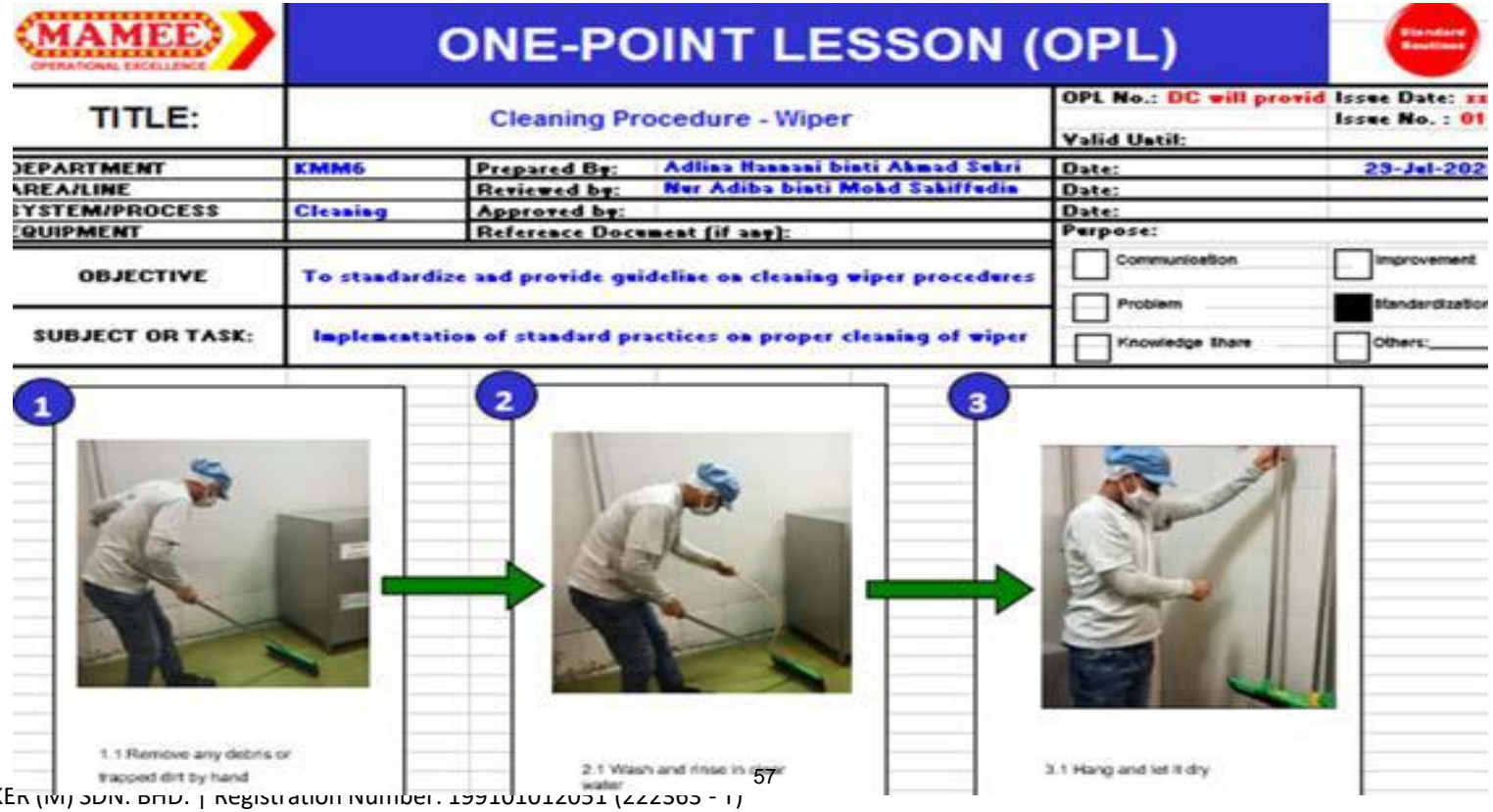


MINI PROJECTS

MINI PROJECT 1: CLEANING TOOLS PROCEDURES

Objectives

i. To standardize the cleaning procedures of cleaning tools.
ii. To provide guidelines of cleaning procedures for local and foreign workers.
iii. To implement the knowledges in daily activities.



MAMEE

ONE-POINT LESSON (OPL)

TITLE:	Cleaning Procedure - Wiper	OPL No.: DC will provid	Issue Date: xx
			Issue No. : 01
		Valid Until:	
DEPARTMENT	KMM6	Prepared By: Adlina Hanaani binti Ahmad Sukri	Date: 23-Jul-202
AREA/LINE		Reviewed by: Nur Adiba binti Mohd Sahiffedin	Date:
SYSTEM/PROCESS	Cleaning	Approved by:	Date:
EQUIPMENT		Reference Document (if any):	Perpose:
OBJECTIVE	To standardize and provide guideline on cleaning wiper procedures		Communication / Improvement
SUBJECT OR TASK:	Implementation of standard practices on proper cleaning of wiper		Problem / Standardization
			Knowledge Share / Others:

1

1.1 Remove any debris or trapped dirt by hand

2

2.1 Wash and rinse in clean water

3

3.1 Hang and let it dry

MINI PROJECT 2: PROFICIENCY TEST

Objectives:

i. To study the percentage of free fatty acid (FFA) in each type of oil samples.

ii. To determine the peroxide value in oil samples.

iii. To analyse the oil content in the finished products.

Low Peroxide Value (PV) indicates that the oil is in good condition (new)

Lowest result of oil content in finishes products is the best result

MINI PROJECT 3: INSPECTION FORMS USAGE

Objectives:

- To determine the usage of inspection forms used by lab assistant and quality inspectors per month.
- To analyse the trend of inspection forms usage for 12-hours production and 24-hours production.
- To renew the limit of reorder point.

CONCLUSION

KTHXBYE!

SMBU 3195-01
INDUSTRIAL TRAINING

NAME : UMI NATASHA BINTI KAMALROZAMAN
MATRIC NO : A17MB0184
PROGRAMME : SMBB – SCIENCE BIOLOGY
HOST COMPANY : PACIFIC FOOD PRODUCTS SDN. BHD.
SUPERVISOR : EN. MUHAMMAD NIZAM BIN HASAN

COMPANY BACKGROUND

- MAMEE-Double Decker (M) Sdn. Bhd. was founded by Datuk Pang Chin Hin in 1971.
- Three branches in Malaysia

a) Melaka – Instant noodles, Noodle snack, Snack products

b) Subang – Nutrigen, Potato chips and crisps products

c) Kuantan – Cheers beverage series

Overview work environment in food industry:

Management Skills

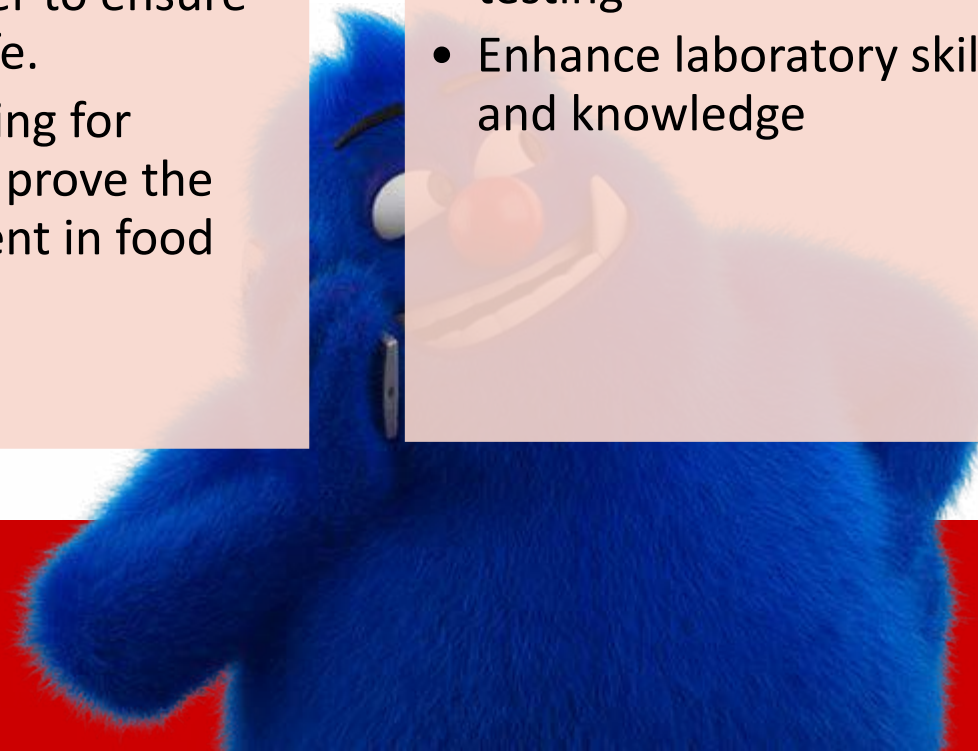
- Learn and apply the knowledge to gain experience
- Learn to be independence, responsible and establishing work ethics

Food Quality and Management System

- To control food safety hazards in order to ensure that food is safe.
- Prepare sampling for external lab to prove the nutrition content in food products

General Laboratory Testing

- Learn and practice daily testing
- Enhance laboratory skills and knowledge



Laboratory Daily Testing

- Chemical testing has been conducted daily on noodle cake, dough, flour, frying oil, and seasoning and has its own specification to ensure the finished goods are under quality control.

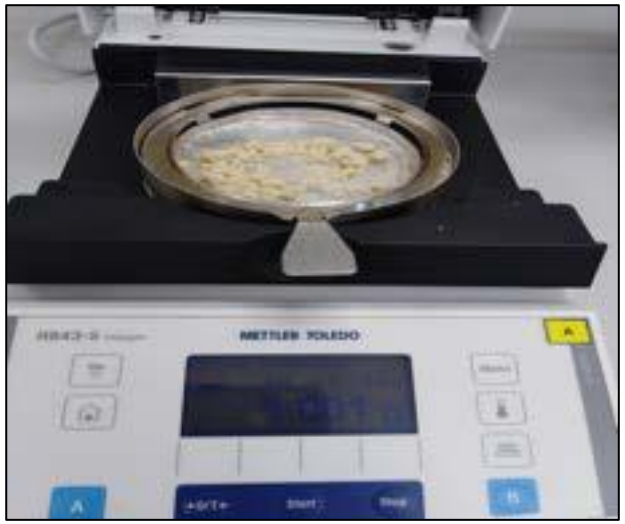
- Daily testing involved:
  - Moisture content (Dough, Noodle cake and seasoning)
  - Oil content (Noodle cake)
  - Acid value & Peroxide value test (Frying oil)
  - Visual Inspection for flour (Weevils, Hard Flour, Larva,etc.)
  - Salt content & Brix (Chicken soup noodle)

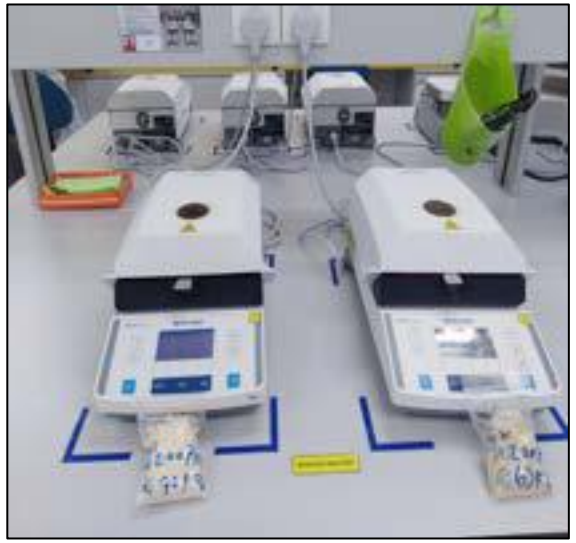
Moisture Content

Objective

To determine the percentage of water in a sample by drying the sample

Procedure





Water activity (aW) test

Objective

To measure how much water is given off by a product at a given temperature.

Procedure

Sample drawer knob of water activity analyzer were turned to the OPEN/LOAD position.

→

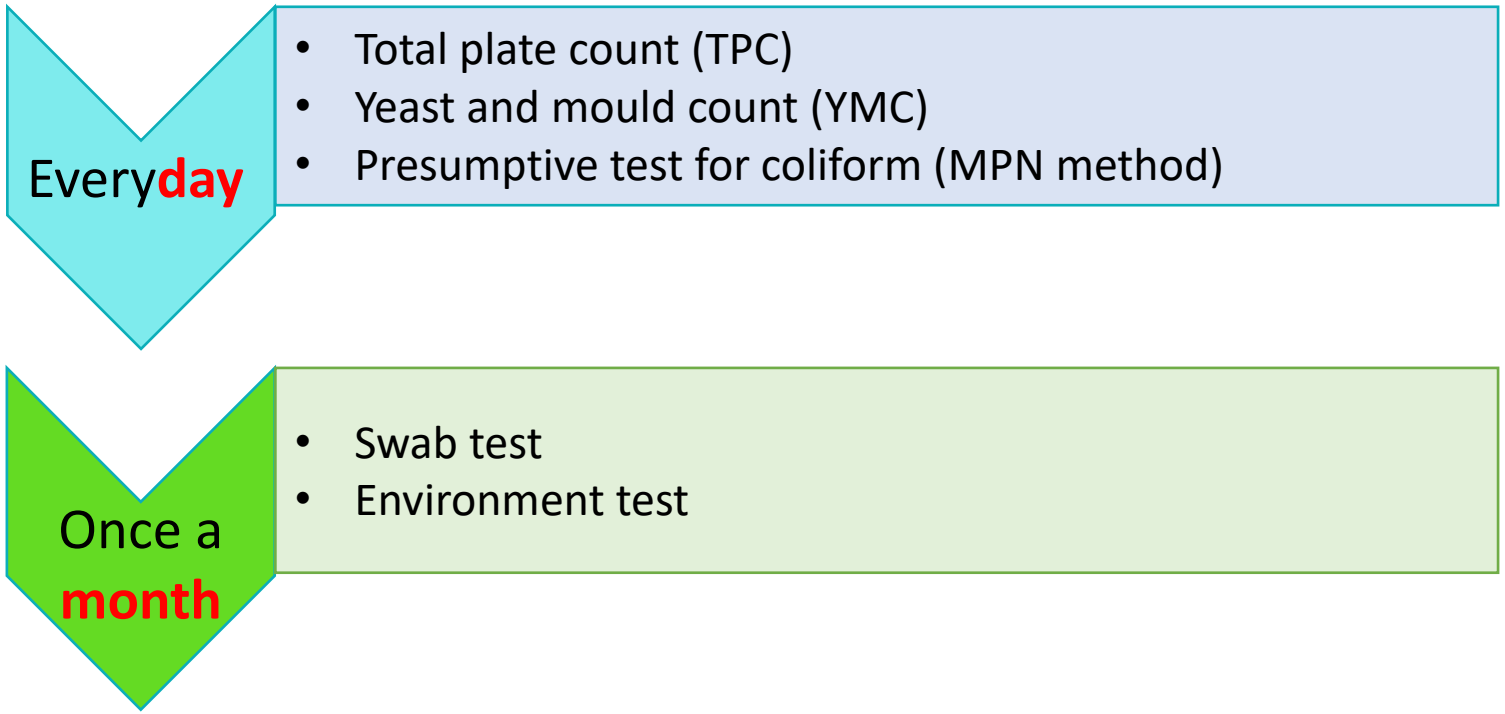
The samples (seasoning powder, curry laksa oil,paste) were placed in a sample cup and turned to the READ position.

→

The water activity and temperature were displayed on screen after the analyzer beep.

Microbiological Laboratory PFP

- The tests to be done including:



Thank You!

Negeri Sembilan

SMBU 3195 : INDUSTRIAL TRAINING

NAME: ANIS ALANNA BINTI ZULKIFLI

MATRIC NO.: A17MB0018

COURSE: BACHELOR OF SCIENCE BIOLOGY

FACULTY SV: DR. CHONG CHUN SHIONG

INDUSTRIAL SV: CIK NOOR FAIZAH BINTI ISMAIL

FRI GLAMI LEMI, JELEBU, NEGERI SEMBILAN

FRI GLAMI LEMI

Begun: 1996

Batu Berendam, Melaka

Jelebu, Negeri Sembilan

Main focus:

- Freshwater fisheries research and development
- Reference centre in fisheries
- Partnership with other fisheries industries

TILAPIA UNIT:

- PLANNING TILAPIA SEEDLINGS PRODUCTION TO ACHIEVE PRESENTED PRODUCTION TARGET
- PRODUCING BETTER SEEDLINGS WITH SELECTED CRITERIA OF PARENTS

EXPERIENCES GAINED:

Daily activities:

- Feeding of Tilapia:

- The daily need of food (commercial fish feed) for Tilapia is usually given based on their body weight per feeding.

- The differences of protein content and food pellet sizes are due to the different age and size of fish.

- Cleaning the tanks of Tilapia:

-Flushing out unclean water and replaced with clean water from the river.

- Constant clean water is provided from the nearby river where it will be pumped to the reservoir tank into the specified fish tank.

- Handling the dead fish body:

- Remove tag

- Dispose the dead body

- Breeding of Tilapia Project:

Analizing The Growth Performance of Tilapia Fry for The First 3 Weeks

Objectives:

- To observe and calculate the growth performance of Tilapia fry based on body weight.
- To observe and calculate the growth performance of Tilapia fry based on survival rate.

Work flow chart:

Breeding process [START]

Collection of egg/larvae

1st sampling (300)

3 weeks

2nd sampling (survived)

6 weeks

3rd sampling (survived)

Methodology:

Preparation of breeding tank

- Pumped with clean river water
- Equipped with blower channel

Preparation of breed stocks

- Ratio 1:2
- Best characteristics were selected
- Record tag number

Breeding process

- Given starter pellet
- Checked for egg/larvae

Egg/ larvae collection

- Larvae were put into the hapa cage
- Egg were collected from the female mouth and put into the incubator

Data collection of parents, larvae and fry

- Body weight of parents, larvae and fry
- Total number of egg/larvae

Preparation of the larvae/fry feed

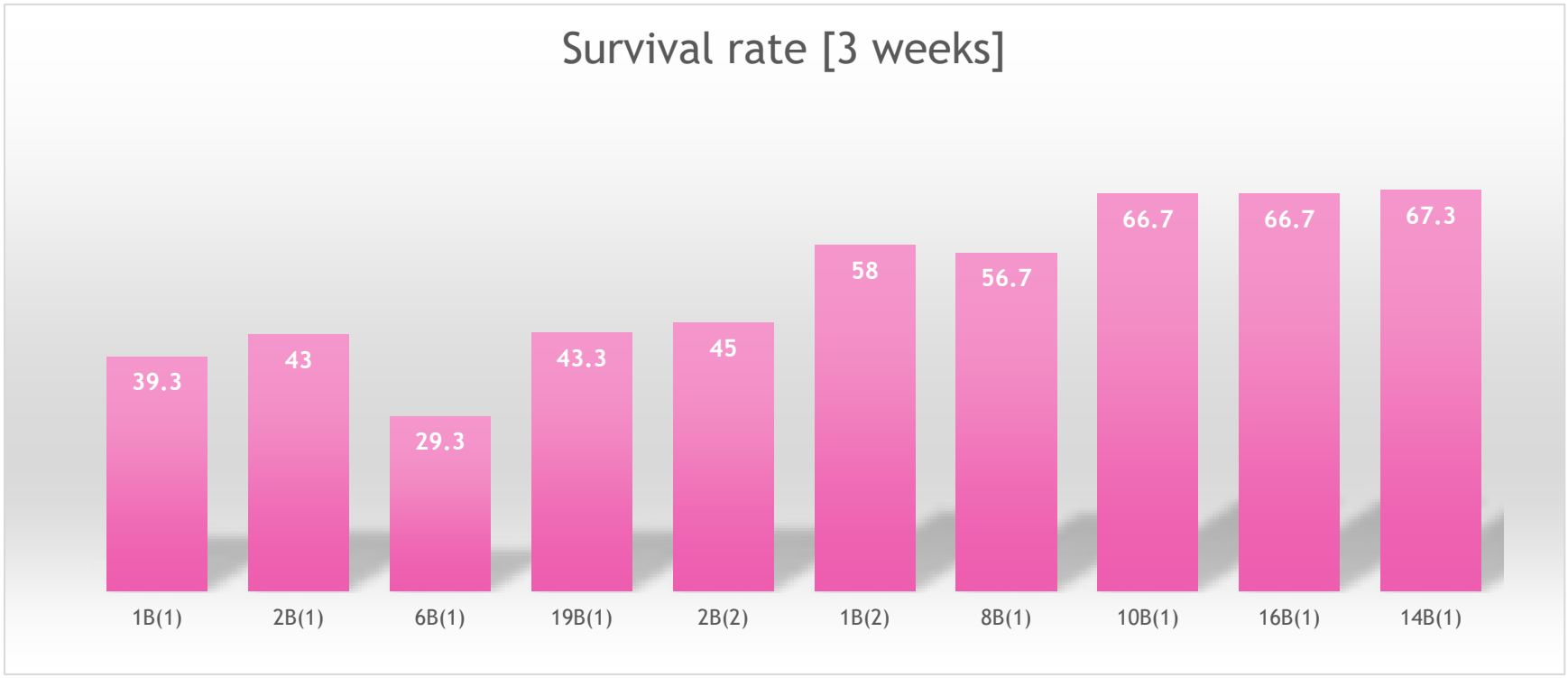
- Weight and record the fish feed provided

Results:

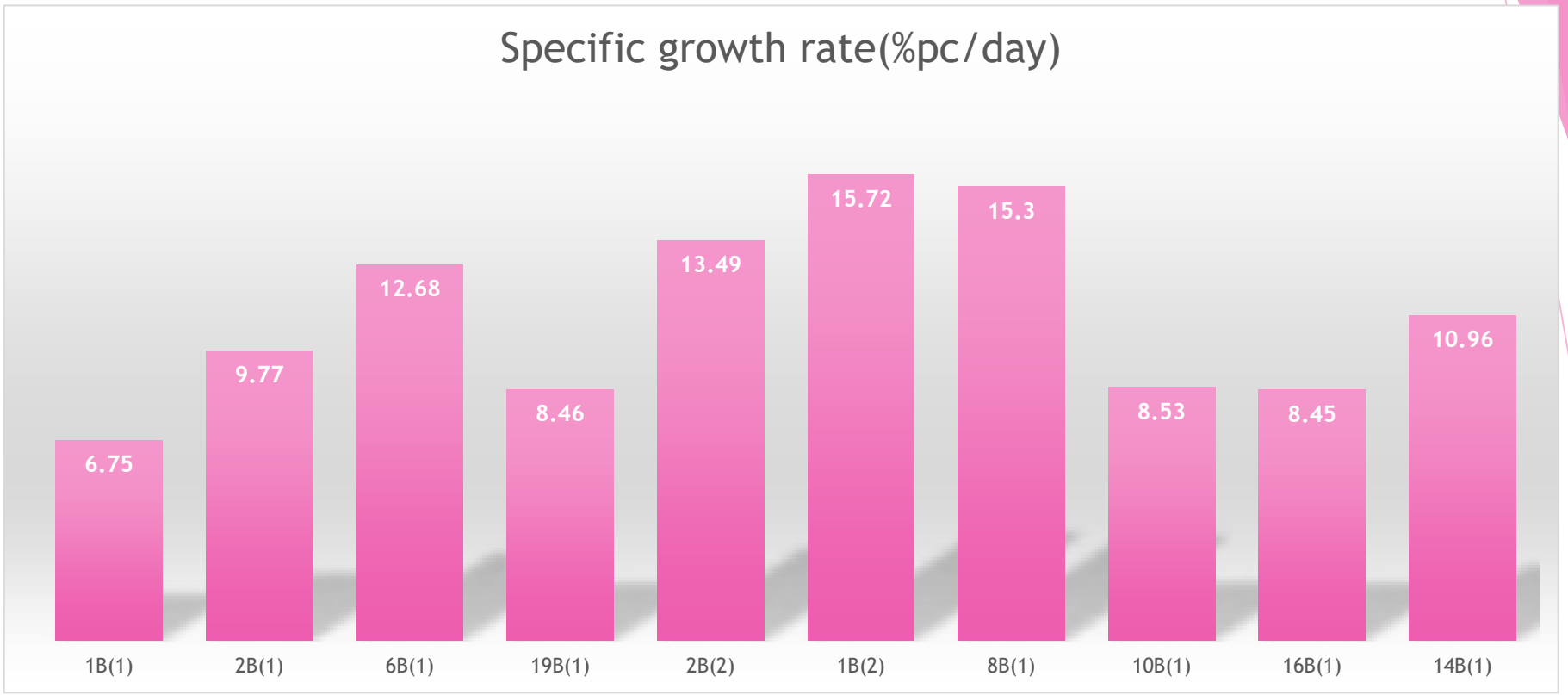
No.	Tank	Hybrid	Hatching date	Category	No. of fry	Fry weight[Initial](g)/each	Fry weight[3 weeks](g)/each	Survival rate [3 weeks]	Specific growth rate(%pc/day)
1	29	1B(1)	4/08/2020	Fry	2871	0.008	0.033	39.3	6.75
2	1	2B(1)	6/08/2020	Fry	1137	0.009	0.070	43	9.77
3	4	6B(1)	6/08/2020	Fry	1412	0.006	0.086	29.3	12.68
4	22	19B(1)	12/08/2020	Fry	419	0.011	0.065	43.3	8.46
5	1	2B(2)	19/08/2020	Fry	802	0.008	0.136	45	13.49
6	29	1B(2)	19/08/2020	Fry	806	0.007	0.190	58	15.72
7	30	8B(1)	19/08/2020	Fry	287	0.007	0.174	56.7	15.3
8	10	10B(1)	25/08/2020	Fry	1436	0.006	0.036	66.7	8.53
9	12	16B(1)	25/08/2020	Fry	554	0.010	0.059	66.7	8.45
10	7	14B(1)	27/08/2020	Fry	844	0.010	0.100	67.3	10.96

Survival rate(%) = $\frac{Final}{Initial} x100$

Specific growth rate(%pc/day) = $\frac{\ln(final) - \ln(initial)}{duration / day} x100$



Hybrid with the highest survival rate percentage is 66.7% [10B(1),16B(1)] while hybrid with the lowest survival rate is 29.3% [6B(1)]. The average survival rate is 51.53%.



Hybrid with the highest specific growth rate is 15.72% [1B(2)] while hybrid with the lowest specific growth rate is 6.75% [1B(1)]. The average specific growth rate is 11.01%.

Pulau Pinang

FISHERIES RESEARCH INSTITUTE

July-October 2020

INTRODUCTION

On July 19th 2020, eight UTM students under Faculty of Science, Biology major have been assigned to undergo internship training at Fisheries Research Institute (FRI), Gelang Patah, Johor for 12 weeks. These students are assigned to respectives supervisor from the industry to guide them upon finishing projects that have been put to task.

Dr Huszalina, Faculty of Science lecturer evaluated them at week 11 via online presentation.

Each projects were supervised by **Puan Fadzilah, Puan Azlina, Encik Bakar and Puan Ir. Rosmaria.**

EXPERIENCE




JOB SCOPE

Pond Management

1. Feeding the prawns and fishes
2. Fish treatment
3. Liming the ponds
4. Transferring fish into new cages
5. Transferring paddle wheel into the pond.
6. Trawl fishes
7. Sampling (fishes, prawns, cockles)

Laboratory works

1. Total Suspended Solid
2. Akalinity Test
3. BOD Test
4. Chemical Content Test
5. Soil Texture Analysis
6. Identification of Plankton

Research Projects:

1. Effect of buffering media from crushed cockles shells for pH in brackish water (tank)
2. Growth of *Penaeus monodon* in Pond
3. Determination of growth and survival of tiger shrimp, *Penaeus monodon*
4. Sediment quality in cockles areas in Johor waters.

Industrial Training

Nordina Syamira
Advanced Medical and Dental Institute, USM

What I did throughout the internship?

01

Task 1

Writing literature review on Xenobiotics Drugs related to Colorectal Cancer

02

Task 2

Writing literature review on Cyclin A expression in Colorectal cancer tissues

03

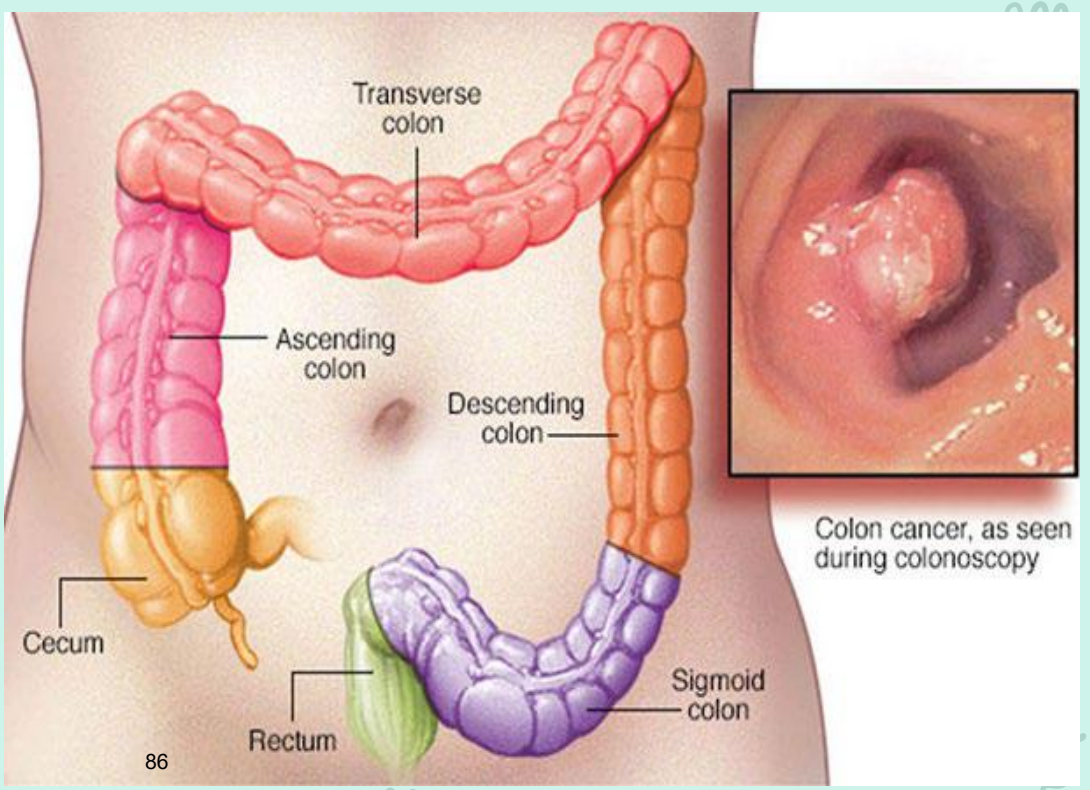
Task 3

Lab works

Colorectal Cancer

- According to American Cancer Society,
  - Colorectal cancer (CRC) starts in the colon or rectum.

- CRC is caused by the accumulation of modification in genetic and epigenetic
  - normal colonic mucosa to adenocarcinoma



CRC Prevalence in Malaysia

- For men:
  - Malays : 1/65
  - Chinese : 1/43
  - Indians : 1/95
- For women:
  - Malays: 1/89
  - Chinese: 1/57
  - Indians: 1/95

❑ Conclusion: Chinese might have higher risk to CRC.

➢ Studies show that it might due to the lifestyle as they consume more alcohol and MSG food compared to other race.

Task 1

Arylamine N-acetyltransferase 1 (NAT1) and 2 (NAT2) polymorphisms in susceptibility to Colorectal Cancer in Malaysian populations.

Arylamine N-acetyltransferase 1 (NAT1) and 2 (NAT2) polymorphisms in susceptibility to Colorectal Cancer in Malaysian populations.

- Xenobiotics – foreign to life
  - chemical substance found within an organism that is not naturally produced by the organism
- Body able to remove xenobiotics but in some cases, it also possible to be converted into more toxic form.
- Xenobiotics metabolizing enzymes (XME) can be divided into :

Phase I

Phase II (NAT involved)

Phase III

Phase I- convert the xenobiotics to more polar active metabolites by inserting a polar functional group (-OH)

- cytochromes P450 (CYP) play a major role, are located on the smooth endoplasmic reticulum

Phase II- convert the xenobiotics to more polar active metabolites by conjugation of subgroups

- GST and NATs acts as catalyst to the process.

Phase III- eliminate the compound which is rendered water-soluble, outside the cell

- Acetate will bind to macromolecule and form adduct and activated immune sys

How does NAT involve in the susceptibility to Colorectal Cancer ?

NAT will activate the N-hydroxyarylamine

form the reactive N-acetoxy species that bind and altered the DNA.

The altered DNA will produced cells with mutated DNA

Accumulation of mutated cells will transform normal colonic mucosa into adenocarcinoma

Task 2

Cyclin A expression in Colorectal cancer tissues in Malaysian populations

Cell Cycle

Eukaryotic cell have 2 types of cell division

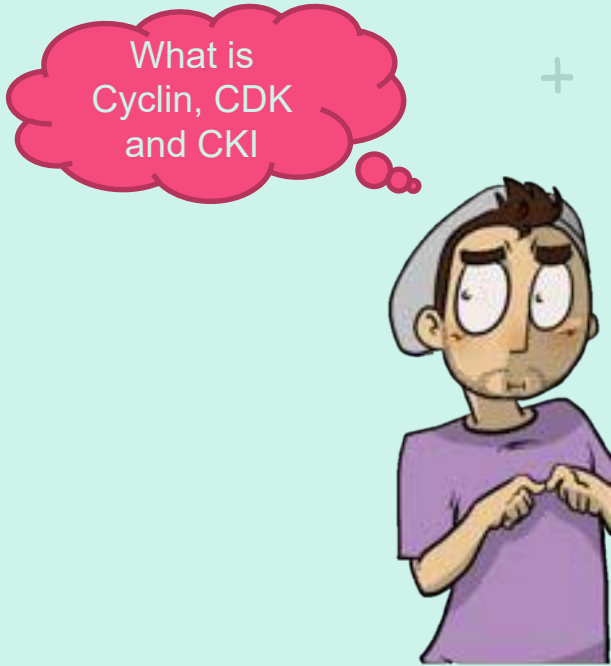
- Mitosis – producing new body cells for growth and healing
- Meiosis – only used to produce sex cell likes eggs and sperms

Mitosis have 4 phases

- Gap 1 phase (G1)
- Synthesis phase (S)
- Gap 2 phase (G2)
- Mitotic phase (M)

Interphase – where the changes in cell cannot be observed under microscope

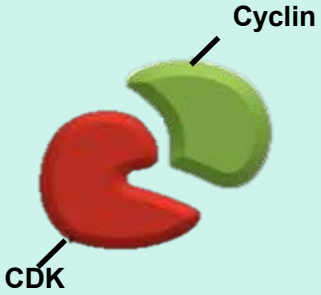
Cyclin	Cyclin-Dependent Kinase (CDK)
Promotes cell cycle transition	• Enzymes • Regulate the cell cycle
• no enzymatic abilities • bind to cyclin-dependent kinases (CDK) to activate them • control kinase activity • substrate specificity	• modify substrates • transferring the phosphate group from ATP to the substrates • control cell cycle progression
CDK Inhibitor (CKI)	
Inhibit the function of cyclin/CDK complexes	
Can be used to treat cancer cells by preventing over proliferations	



CDKs are activated by cognate cyclins

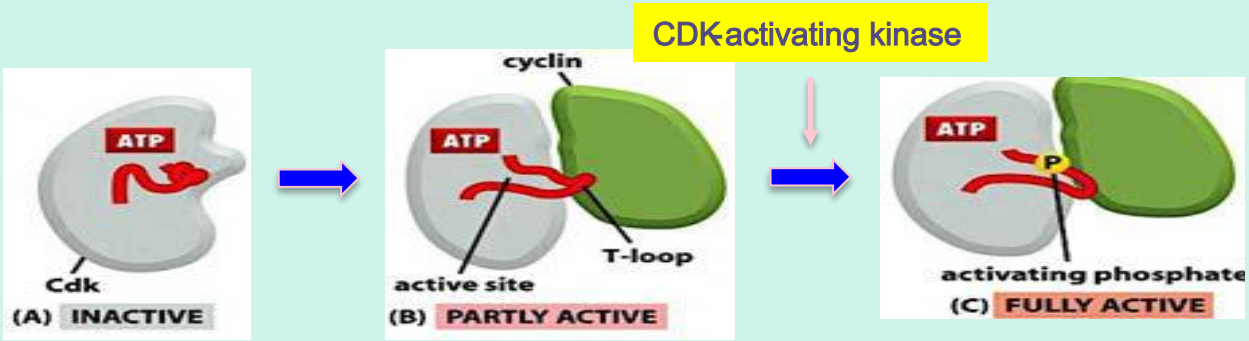
CDKs:

- Not active as monomers
- Constitutively expressed



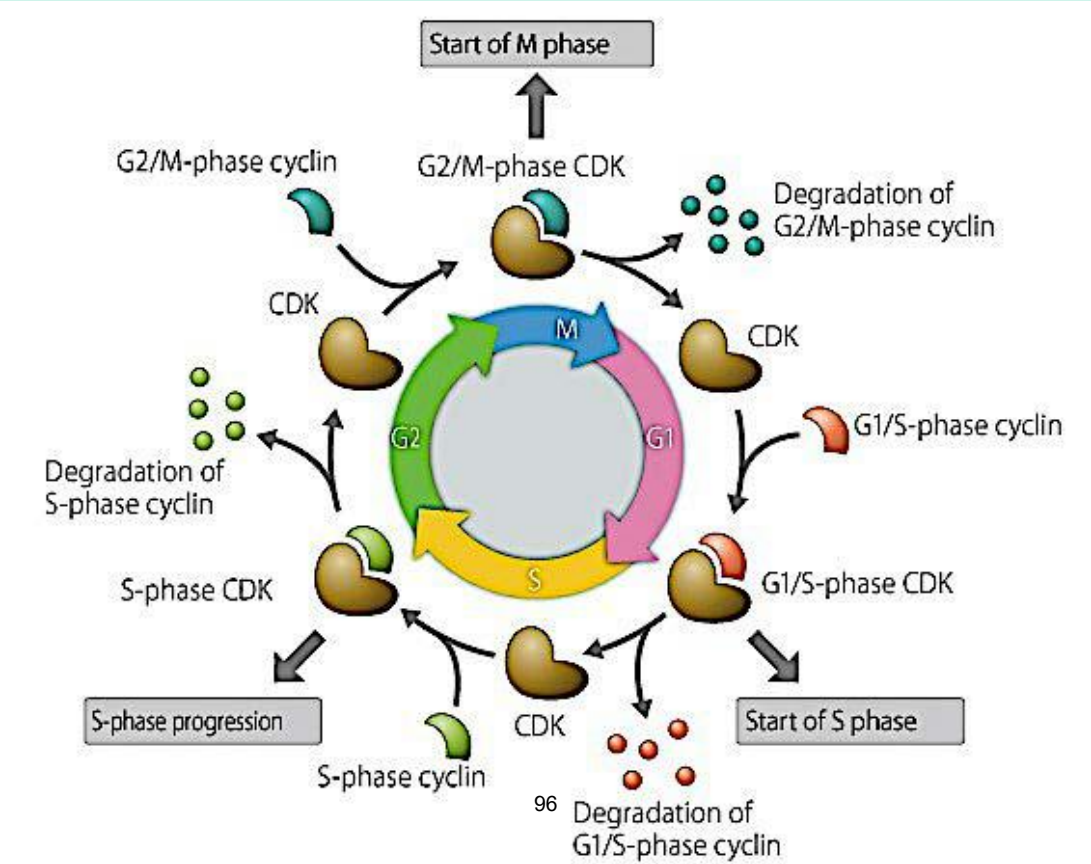
Cyclins:

- Have no enzymatic activity
- Expression fluctuates during the cell cycle



Adapted from Cells, 5th edition

The classical eukaryotic cell cycle



Relationship between cyclins, CDK and CKI in cell cycle

CDK enzymes will acts as engine that ensure the cell cycle progression while cyclin will binds to the CDK to activated it. However, the cyclin/CDK complexes will be Controlled and inhibited by CKI.

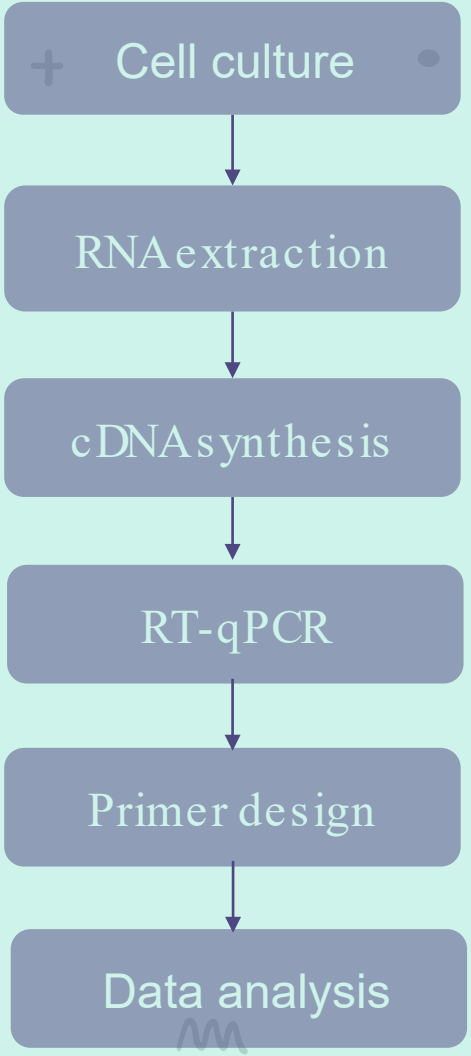
How does expression of Cyclin A lead to colorectal cancer development?

- Overexpression of cyclin A is correlated with carcinogenesis and metastasis, and act as prognostic marker for colorectal cancer (Sánchez-Botet et al., 2018) (Bendris, Arsic, Lemmers, & Blanchard, 2012)
- Loss of cyclin A2 in murine colonic epithelial cells disrupts colon homeostasis by triggering DNA damage and dysplasia (Guo et al, 2019)
- Cyclin A2 interacts with, and activates, RhoA, an actin regulator, which in turn negatively regulates migration that will halt the cell progression (Casimiro, Crosariol, Loro, Li, & Pestell, 2012)

Task 3

Lab works

Summary of the lab works



Cell culture

refers to the removal of cells from an organisms and their subsequent growth into a favorable artificial environment

HEK 293T

- Embryonic kidney cells
- Expressed mutant version of SV40 large T antigen
- Commonly used in protein expression &production of recombinant retroviruses
- Advantages :
  - Hardy
  - Semi-adherent
  - Low maintenance
  - Divide rapidly (within 36 hrs)

Procedures

The cryo cell were revive and washed using PBS

DMEM were added into the cell and undergo centrifugation

The supernatant is removed and the palette is resuspended with DMEM until there is no clump

The mixture is transfer into culture flask and 3ml of the DMEM is added.

The cell then being observed under microscope

The cell then were kept in 37℃ with 5% CO2

RNA extraction

Using trizol reagent

Trizol and chloroform were added. These substances will lyse and disturb the cell membrane and let the cell to release its DNA

Isopropyl alcohol were added to precipitate the RNA.

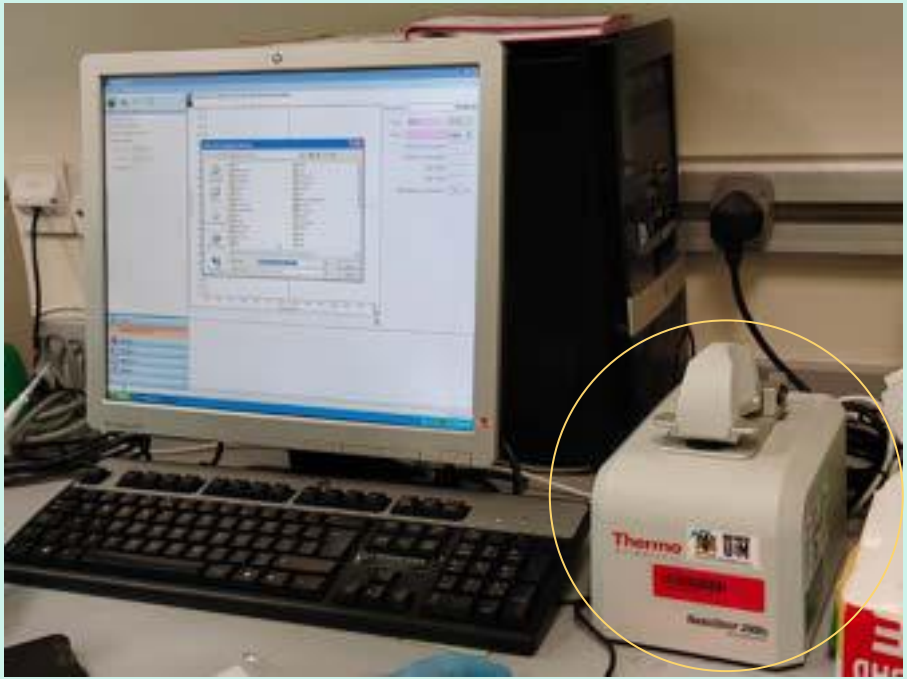
Alcohol (ethanol) were added to wash the cell

Nanodrop Spectrometer

to examine the concentration of the extracted RNA

RNA will absorb UV light project by the machine.

The light absorbed will determine the RNA concentration



Concentration is calculated using Beer-Lambert law.

RNA Integrity

A

- RNA integrity number (RIN) is very important in gene expression– RNA quality assessment
- RNA quality were checked using agarose gel stained with ethidium bromide (EtBr)
- Gel image will show 2 bands when examine due to the existence of 2 subunits (28S & 18S eukaryote sample)

B

cDNA synthesis

using Tetro cDNA synthesis kit

Tetro cDNA Synthesis Kit contains all the necessary components to generate cDNA from an RNA template

cDNA is more stable and can withstand heat better than RNA

The generated cDNA is suitable for PCR with gene-specific primers

RT-qPCR

SYBR green I dye

- **will attached to the newly form DNA**
- **More DNA = more binding = more fluorescence**
- **It is used in quantitative PCR because the fluorescence can be measured at the end of each amplification cycle**
  - **determine the amount of DNA that has been amplified.**

Primer design

Using NCBI to design the primer for CCND1 gene

Result from NCBI search:

Primer pair 1

	Sequence (5'->3')	Template strand	Length	Start	Stop	Tm	GC%	Self complementarity	Self 3' complementarity
Forward primer	TGAGGAGCCCCAACAACTTC	Plus	20	808	827	59.89	55.00	4.00	1.00
Reverse primer	CTTGGGGTCCATGTTCTGCT	Minus	20	965	946	59.96	55.00	4.00	0.00
Product length	158								

Products on intended targets

>NM_053056.3 Homo sapiens cyclin D1 (CCND1), mRNA

```
product length = 158
Forward primer  1    TGAGGAGCCCCAACAACTTC  20
Template        808  ....................  827

Reverse primer  1    CTTGGGGTCCATGTTCTGCT  20
Template        965  ....................  946
```

Data analysis

for CCND1 gene using excel to calculate the delta Ct

	Mock CCND1	CCND1 B	CCND1 B	CCND1 B3
	25.50967	27.92425	27.05396	27.38087
	25.75887	27.22117	26.95772	27.09535
	25.84778	27.21439	27.16024	27.67072
Average	25.70544	27.45327	27.05731	27.38232

R for Mock		R
T1-R1	-0.27059	1.206299
T2-R2	-0.22345	1.16752
T3-R3	-0.12455	1.09017

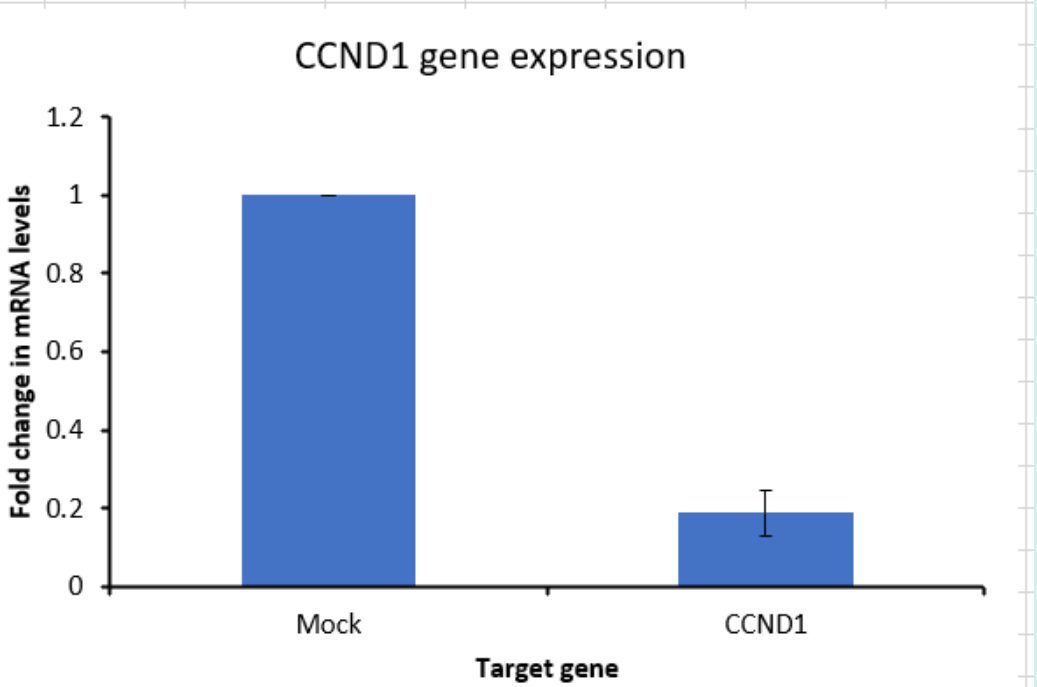
The two-tailed P value is less than 0.0001

By conventional criteria, this difference is considered to be extremely statistically significant.

	Mock Bactin	Bactin BR1	Bactin BR2	Bactin BR3
	25.78026	25.35324	23.99328	25.46452
	25.98232	25.46756	24.5466	25.51149
	25.97234		24.21477	
Average	25.91164	25.4104	24.25155	25.488

Delta Ct M	-0.2062	Delta Ct E	2.042867	2.805761	1.894312	
Delta2	0	Delta2	2.249063	3.011957	2.100509	
FC	1		0.210361	0.123968	0.233176	
R	1.153643		0.242681	0.143015	0.269002	
FC	1		0.210361	0.123968	0.233176	0.057606 0.189168

Mock	1	0
CCND1	0.189168	0.057606



Weakness vs Strength

Weakness	Strength
Work efficiency • Took longer time to transfer cell, preparing the cell andetc	More alert and cautious when carry out an experiment
	Better understanding on the writing of literature review
	Improve in the technique of using the pipette
	Experiencing how to use different type of machines.

SITI NURSHAKIRAH BINTI JAMALUDDIN
BACHELOR OF SCIENCE (BIOLOGY)

INSTITUT PERUBATAN DAN PERGIGIAN TERMAJU

IPPT BEGUN IN 2002 FOCUSING ON ACADEMIC, RESEARCH AND CLINICAL SERVICE TO CATER THE NEEDS OF THE COMMUNITY IN THE NORTHERN REGION OF PENINSULA OF MALAYSIA. IPPT IS EQUIPPED WITH FACILITIES TO CONDUCT RESEARCH IN THE FIELDS OF MEDICINE AND DENTISTRY.BESIDES, IPPT PROVIDE COMPREHENSIVE CLINICAL SERVICE BASED ON ADVANCED DIAGNOSTIC IMAGING, LABORATORY TESTING AND INTERVENTION SUCH AS RADIATION THERAPHY (EBRT, IMRT & BRACHYTHERAPHY) AND CHEMOTHERAPHY.

SCOPE

Intern as Medical Laboratory Technologist to provide information for diagnosis, treatment and prevention of disease by conducting medical laboratory test.

CONTACT

ippt@usm.my pauziah@usm.my

https://www.amdi.usm.my/

Institut Perubatan & Pergigian Termaju, Universiti Sains Malaysia, Bertam 13200, Kepala Batas, Pulau Pinang, Malaysia.

SUPERVISOR

Faculty: Dr. Nuriza bt Abd Latif

Company : Dr. Nawal Radhiah binti Abd Rahman

WORK EXPERIENCE

Transfusion Medicine Lab

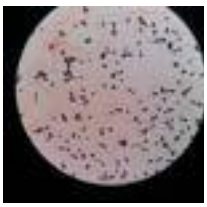
ABO and Rh Group Test, Antibody Screening, Crossmatch, Direct Coombs Test





Microbiology lab

Bacteriology Test, Mycobacterium test, Serology test

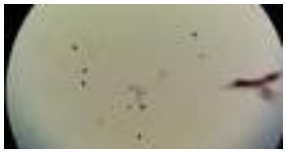

Histology lab

Hepatology Examination test, Immunohistochemistry, Special stain


Genetic lab

Cytogenetic test



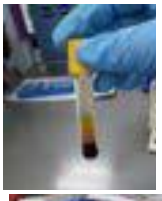


Haematology Lab

Full Blood Count test, Differential Count test, Partial Time thrombin Test

Chemical Pathology

Biochemical Test, Immunoassay test, HbA1c test, Urine FEME test, UPT test





Perak

INDUSTRIAL TRAINING

SHORT SEM 2019/2020

ALYA SORFINA BINTI RAMLI

980824-02-6104

A17MB0012

PLACEMENT

gnosis® Laboratories

- ✓ Sharing session with seniors
- ✓ Favour in health science

- A medical laboratory company
- Began in year 2002
- HQ in Subang Jaya, branch:

i. Ipoh (Hematology, Urinology, Analytical chemistry)

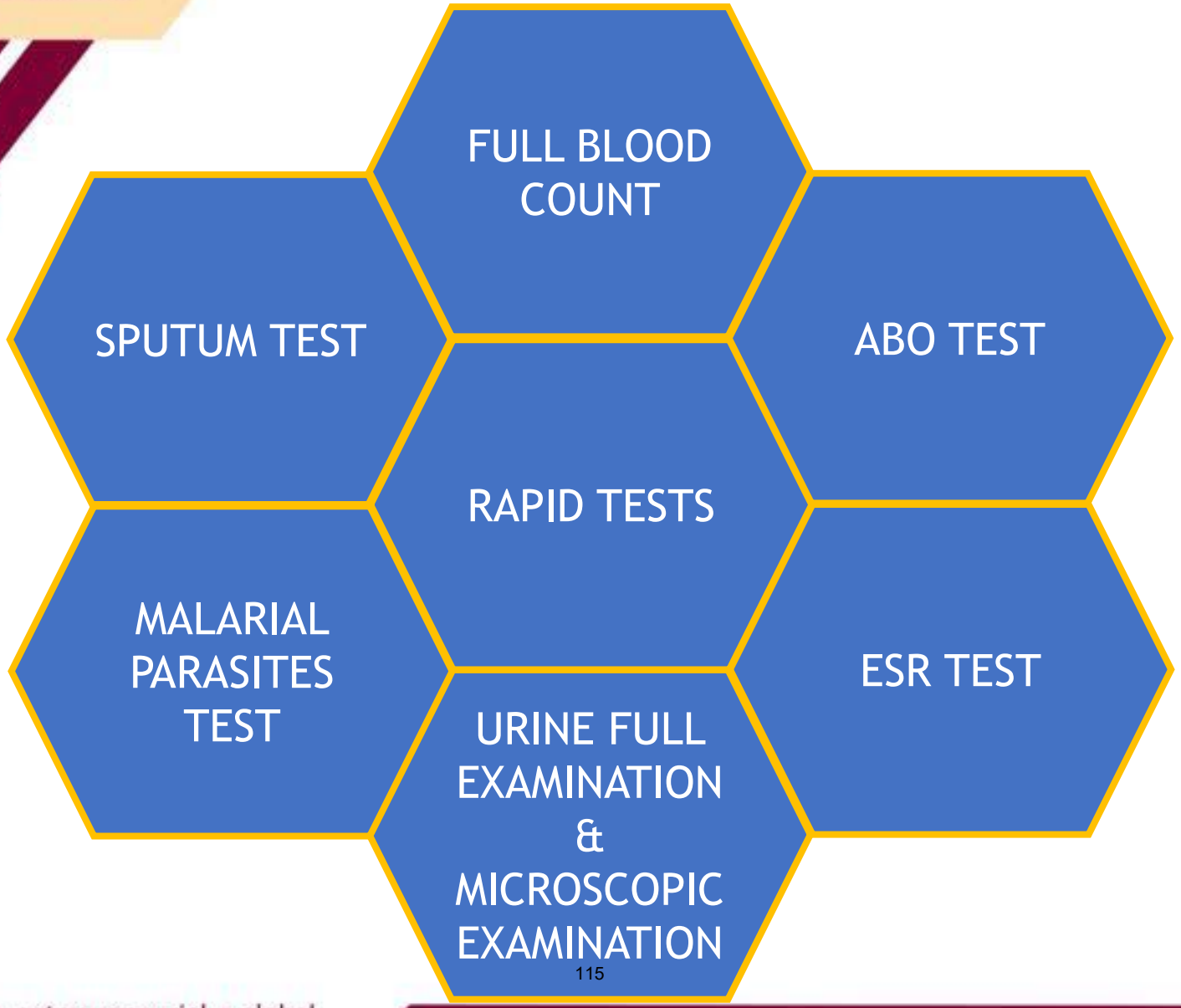
ii. Penang

iii. Johor Bahru

iv. Sabah

v. Sarawak

MY TASKS/LABORATORY TESTS



DETAILS
(FULL BLOOD COUNT)

- Hematology analyzer
- Quality control, 3 levels (low, normal, high)

Run samples

↓

Checking each blood components normality

Normal → Keep in fridge

Out of range → Thin blood smear slide → Methylene blue stain → Microscopic observation

Description	Unit	Reference Value
Hb	g/dl	M: 13.0-18.0 F: 11.5-16.0
RBC	mil/cumm	M: 4.5 - 6.5 F: 3.8 - 5.8
HCT/PCV	%	M: 40 - 54 F: 35 - 47
MCV	fl	78 - 96
MCH	pg	27 - 33
MCHC	g/dl	30 - 36
RDW	%	11.0 - 16.0
Platelet Count	tho/cumm	150 - 400
WBC	tho/cumm	4.0 - 11.0
Neutrophil	%	40 - 75
Lymphocytes	%	20 - 45
Monocytes	%	2 - 10
Eosinophils	%	1 - 6
Basophils	%	0 - 1

DETAILS
(ABO TEST)

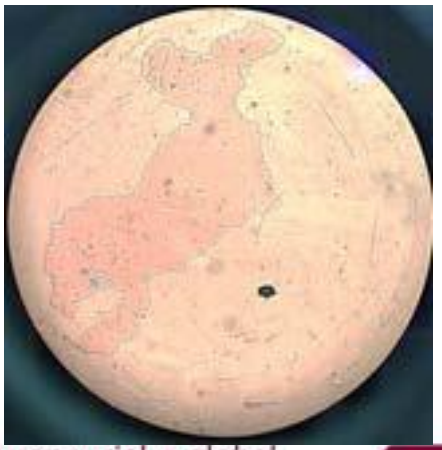
- Tiles method
- Each samples divided into 3 sections
- Tested with 3 different antigens

i. Anti-A

ii. Anti-B

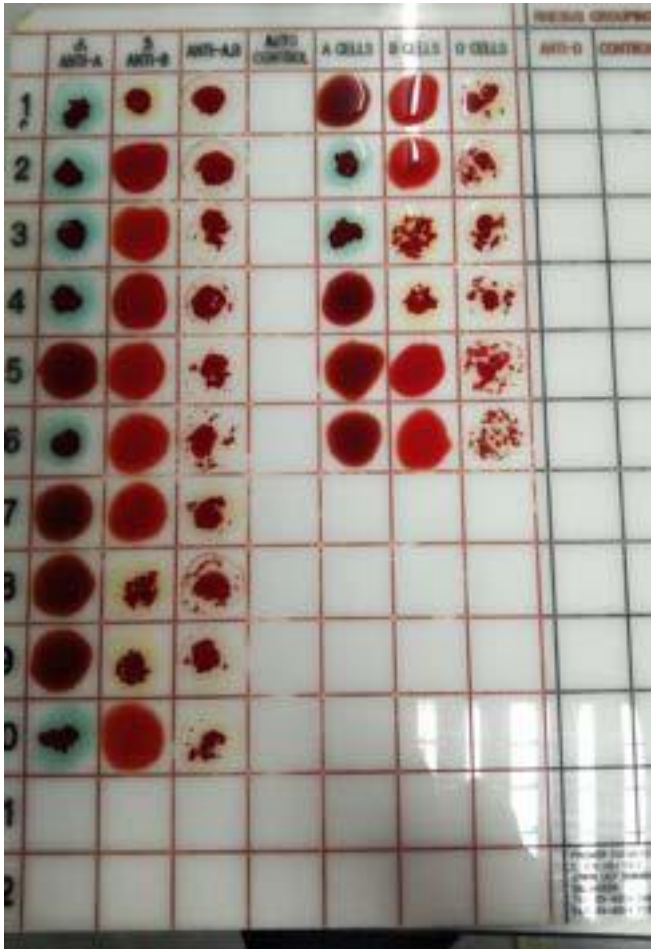
iii. Anti-D

- Blood group based on agglutination formation
- Microscopic observation for negative blood group



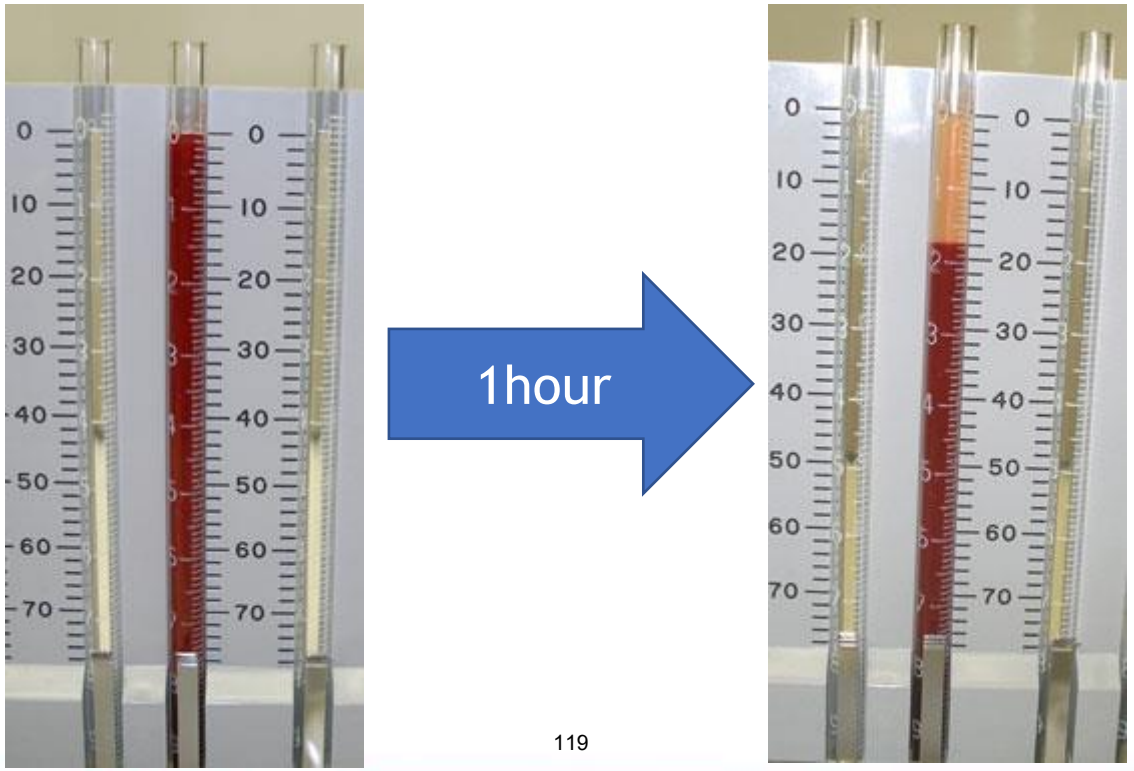
DETAILS
(ABO TEST)

Agglutinate			Blood group	Rhesus
anti A	Anti B	Anti D		
✓	X	✓	A	+
X	✓	✓	B	+
X	X	✓	O	+
✓	✓	✓	AB	+
**	**	X		-



DETAILS
(ESR TESTS)

- Erythrocyte sedimentation rate (ESR)
- Wintrobe method
- EDTA anticoagulated blood is drawn into a tube, and the
- Rate of fall of red blood cells is measured after 1 hour



DETAILS

(URINE FULL EXAMINATION & MICROSCOPIC EXAMINATION)

- Urine analyzer
- Quality control, 2 levels

Run samples, urine strips

↓

Checking each urine components normality

- **Specific gravity:** 1.005 - 1.030
- **pH:** 5.0 – 8.5
- Absent from any unwanted components (**blood, leukocytes, protein, glucose, bilirubin, ketones, nitrite**)

← Normal

↓

Keep in fridge

→ Out of range

↓

Discard a bit into clean tube

↓

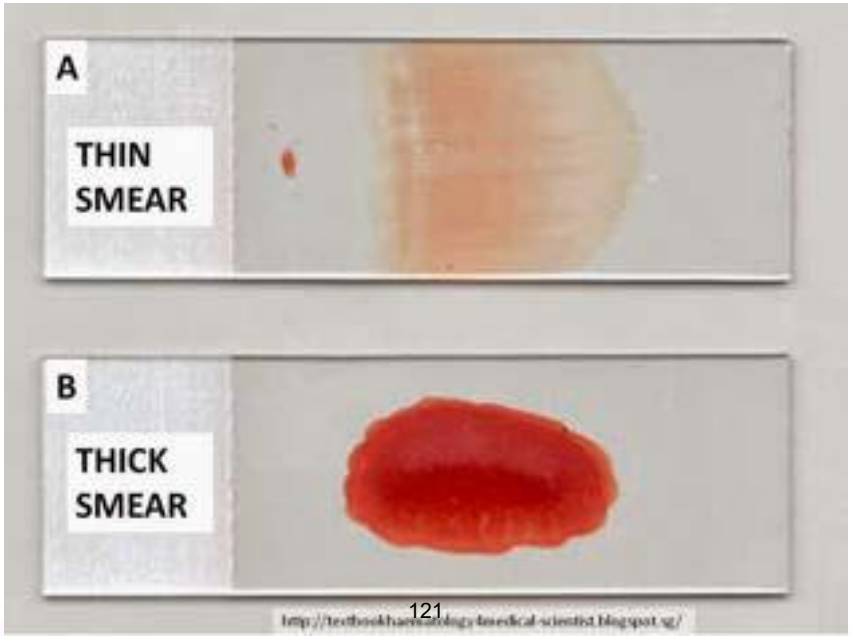
Centrifuge, 3500rpm, 5mins

↓

Microscopic observation

DETAILS
(MALARIA PARASITE TEST)

- No full blood count
- Thick blood smear, greater volume, more likely to be seen
- Stain A and Stain B
- Examined under microscope for the morphology of infected blood cells and the malaria parasites if present



DETAILS
(SPUTUM TEST)

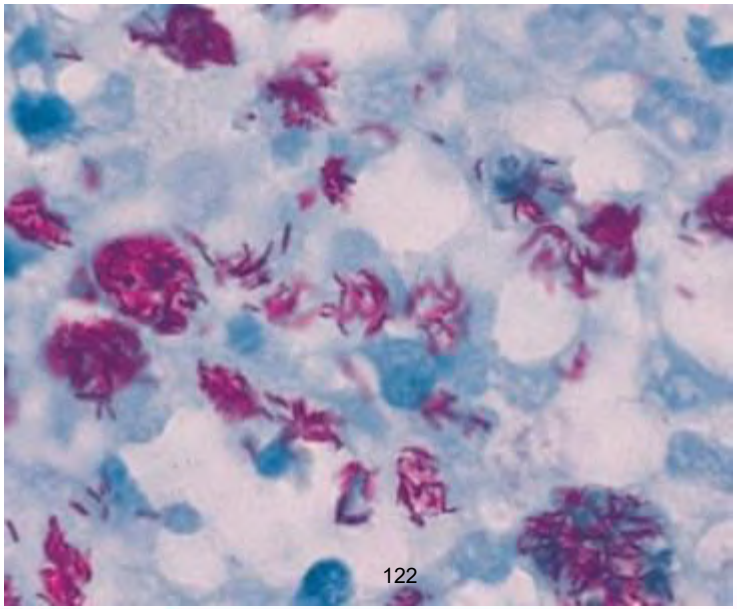
- Diagnose tuberculosis
- Sputum smear, stain with:

i. Carbon fusion

ii. Decolourize

iii. Methylene blue

- Microscopic observation for TB bacteria



DETAILS
(RAPID TESTS)

Urinology rapid tests

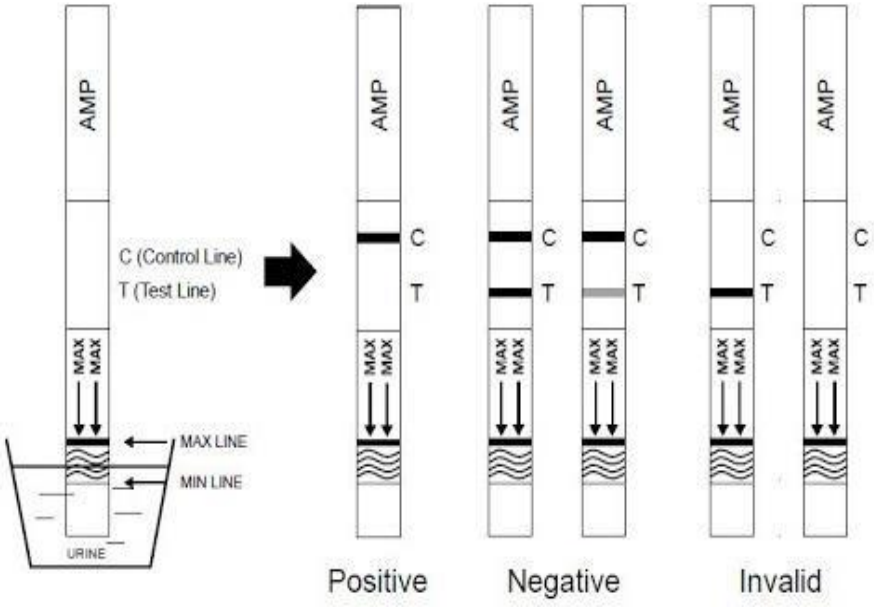
1. MOCA

✓Drug test

✓Marijuana rapid test strip

✓Opiates rapid test strip

(have a morphine-like pharmacological action, opiates are also used primarily for relief of pain)



2. Amphetamine

✓Drug test

3. Urine Pregnancy Test

DETAILS
(RAPID TESTS)

Serology rapid tests

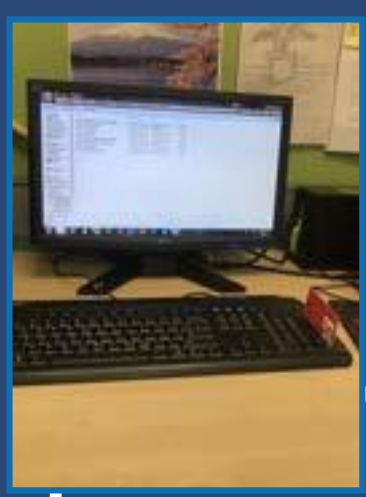
1. Chikungunya IgM
2. Dengue IgG/IgM
3. Ns1 (protein NS1 of dengue virus secreted into the blood during dengue infection)

Thank You

Sabah

SCOPE WORK

FITTIRI BINTI AHMAD BARY
A17MB0037

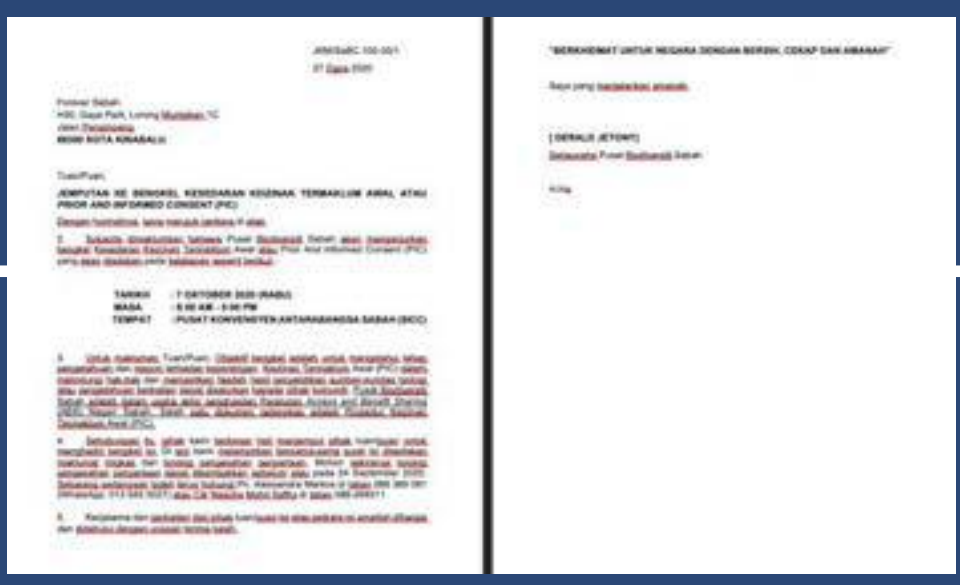


- Administration work
  - covering the reception
  - helping in docate file and document
  - helping in procedure of collecting export and access licenses

- Registration day at Sabah Biodiversity Centre(SaBC)
- Briefing from Mrs. Alessandra about SaBC and brief us to our scope of work throughout the 12 week there

- Sabah Biodiversity Integrated Information System
  - An open resources will published on end of 2020 (estimated)
  - species found in Sabah
  - identify the spelling error in the databases before published it
  - helping in new species databases to find picture and categorized into common group

- Preparation of slides for documentation of traditional knowledge in KG.Melangkap, Kota Belud
  -learn about how important to protect the traditional knowledge and maintained biodiversity in Sabah



- Preparation of Prior Inform Consent (PIC) workshop
  - helping in editing draft invitation letter for committee

- Educational Tour to University Malaysia Sabah
  - helping in borneensis lab which is in the lab specimen lab and helping in changing alcohol for the specimen in the lab
  - learn about cataloging process of fish sample
  - learn lab work in mycology lab with Dr Jaya Seelan
  - learn subculturing and culturing using 3 point techniques and how to take picture for fresh and dry sample

VISION

SaBCi s aspired to be an internationally recognized center in sustainable management and utilization of biological resources

MISSION

SaBC is determined to provide an effective management based on scientific findings and strategic partnership to achieve sustainable use of biodiversity in Sabah

SaBC
Sabah Biodiversity Centre

EDUCATIONAL VISIT TO ITBC, UMS

SPECIFIC TASKS

PHONE

+6088-369 000
or
+6088-369 099

ADDRESS

Sabah Biodiversity Centre
Natural Resources Office, Chief Minister's Department
19th Floor, Block A, Sabah State Administrative Building
88400 Kota KinabaluSabah, Malaysia

EMAIL

sabc.sabah@gmail.com

WEB

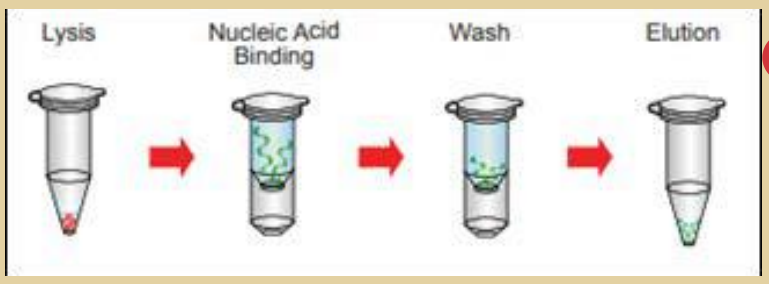
https://sabc.sabah.gov.my/

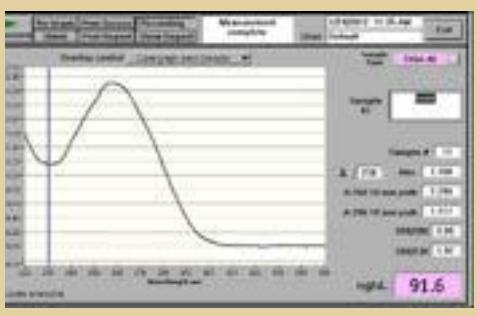
DAY TO DAY TASKS

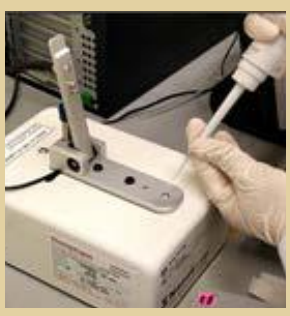
Selangor

INDUSTRIAL TRAINING INSTITUTE OF MEDICAL MOLECULAR BIOTECHNOLOGY (IMMB)

During this training, we were placed at the DNA laboratory located at IMMB (Institute Medical of Molecular Biotechnology, UiTM Sg Buloh). We learned and practiced all the basic techniques used in molecular biology such as western blotting, extraction of DNA, preparation of gel electrophoresis and reagents for conventional PCR and Real-Time PCR. Plus, we got a chance to enter COVID-19 lab to observe the process of DNA extraction and how to establish the result from the samples collected using Real-time PCR. We also had an opportunity to sort and store the samples for further research purposes. From this training, we had learned a lot of techniques where we can implement our knowledge and skills that surely will benefit our future positively.







DNA EXTRACTION AND DNA QUANTIFY

Extraction using kit omega BIO-TEK DNA

Extraction of sample was done according to the protocol of the extraction that already prepared and it involves process of Lysis, Binding of nucleic acid, Washing and Elution. DNA also was quantify using Nanodrop machine to measure the purity of RNA and DNA in the sample.

POLYMERASE CHAIN REACTION (PCR)

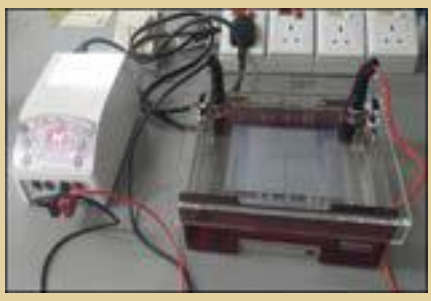
Preparation of the reagent for PCR reaction and preparation of the gel

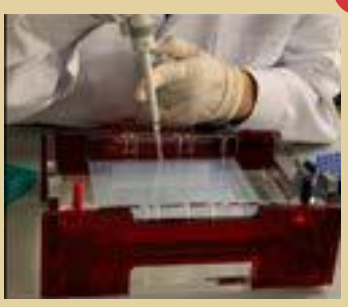
Did some calculation to calculate the reagent needed to run the PCR and start to set up the protocol to amplified the sample inside the thermall cycler PCR machine (Brand: Veriti 96 well thermal cycler) .

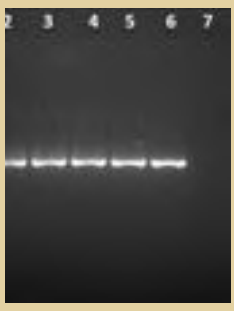
GEL ELECTROPHORESIS AND GENE SEQUENCING

Preparation of the gel to load the sample and cut gel for sequencing

Set up the gel tray including the comb into the casting apparatus. Process begin with the preparation of 2% agarose gel to be insert in the gel tray. After gel solidify, the samples that have been amplified was load in the gel and run the gel electrophoresis. The gel that produce band will then be cut under UV Transilluminator for sequencing.



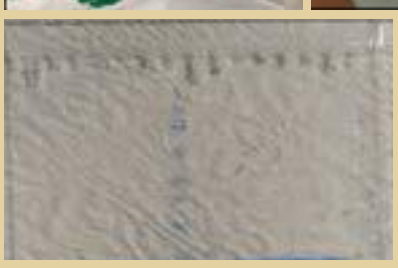


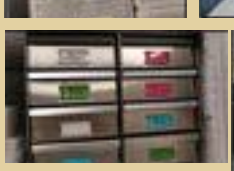


WESTERN BLOTTING

General Procedure for western Blotting

The re are several steps included in the preparation of western blotting technique. This include Sample Preparation, Loading the Sample, Running the Gel, Transfer Membrane, Blocking Buffer and Antibody Incubation and Detection.



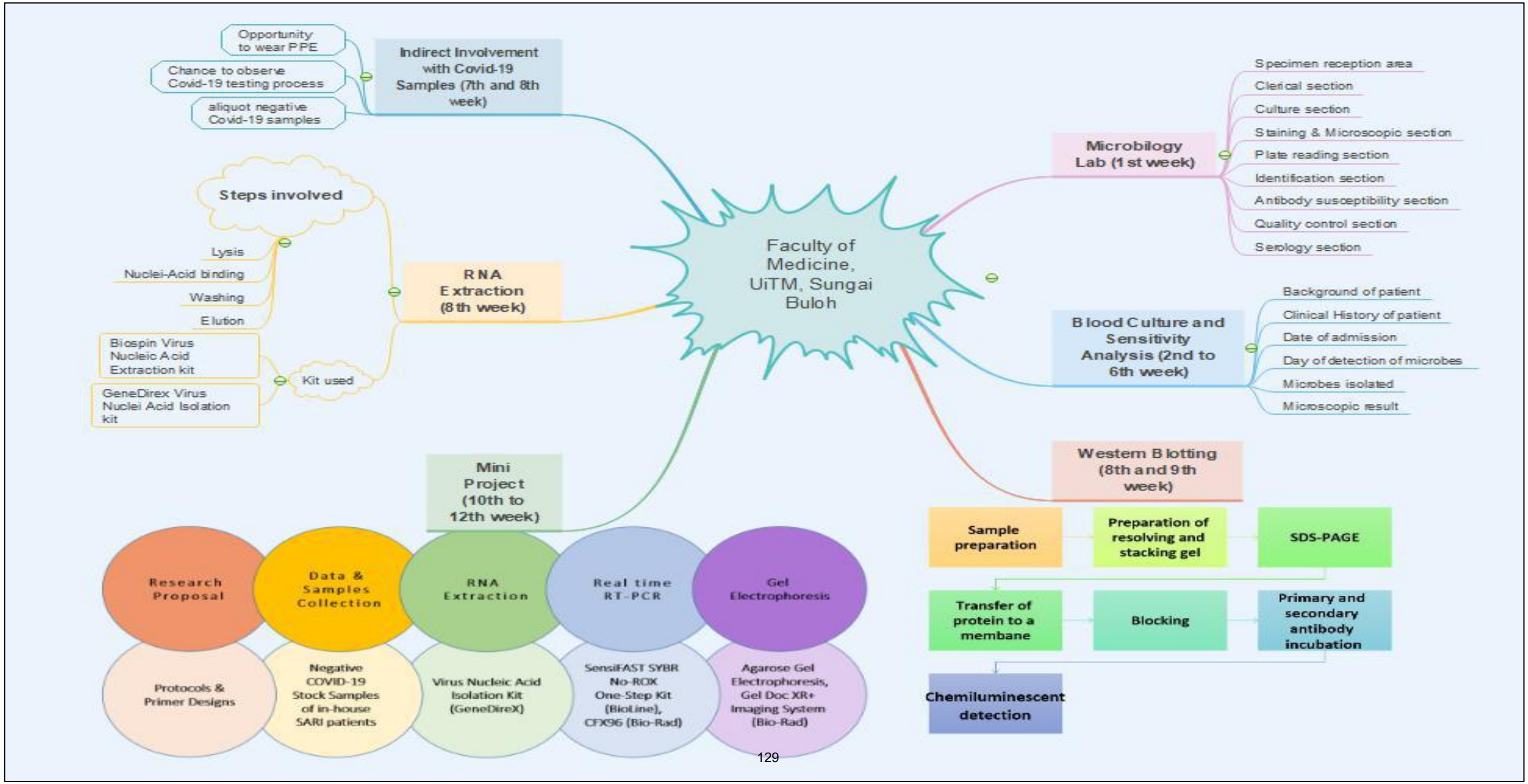


COVID-19

Labelling and Sorting COVID-19 samples

We are required to wear Personal Protective Equipment (PPE) suit at the lab. We enter the lab and start with the sorting the sample in the tube according to the patient's name and learn the extraction and Real Time PCR method for this virus. We also did the labelling and sorting the sample for study purposes.

PREPARED BY : ASYIKEEN, 'AISYAH, AMIRA, FADILLAH


Faculty of Medicine, UiTM, Sungai Buloh
Indirect Involvement with Covid-19 Samples (7th and 8th week)
Opportunity to wear PPE
Chance to observe Covid-19 testing process
aliquot negative Covid-19 samples
RNA Extraction (8th week)
Steps involved
Lysis
Nuclei-Acid binding
Washing
Elution
Kit used
Biospin Virus Nucleic Acid Extraction kit
GeneDirex Virus Nuclei Acid Isolation kit
Microbiology Lab (1st week)
Specimen reception area
Clerical section
Culture section
Staining & Microscopic section
Plate reading section
Identification section
Antibody susceptibility section
Quality control section
Serology section
Blood Culture and Sensitivity Analysis (2nd to 6th week)
Background of patient
Clinical History of patient
Date of admission
Day of detection of microbes
Microbes isolated
Microscopic result
Western Blotting (8th and 9th week)
Sample preparation
Preparation of resolving and stacking gel
SDS-PAGE
Transfer of protein to a membane
Blocking
Primary and secondary antibody incubation
Chemiluminescent detection
Mini Project (10th to 12th week)
Research Proposal
Data & Samples Collection
RNA Extraction
Real time RT-PCR
Gel Electrophoresis
Protocols & Primer Designs
Negative COVID-19 Stock Samples of in-house SARI patients
Virus Nucleic Acid Isolation Kit (GeneDireX)
SensiFAST SYBR No-ROX One-Step Kit (BioLine), CFX96 (Bio-Rad)
Agarose Gel Electrophoresis, Gel Doc XR+ Imaging System (Bio-Rad)

INDUSTRIAL TRAINING
SMBU3915 (Section 1)

Faiqah Nadhirah Binti Mazkamal

A17MB0032

BSc Biology

Supervised by

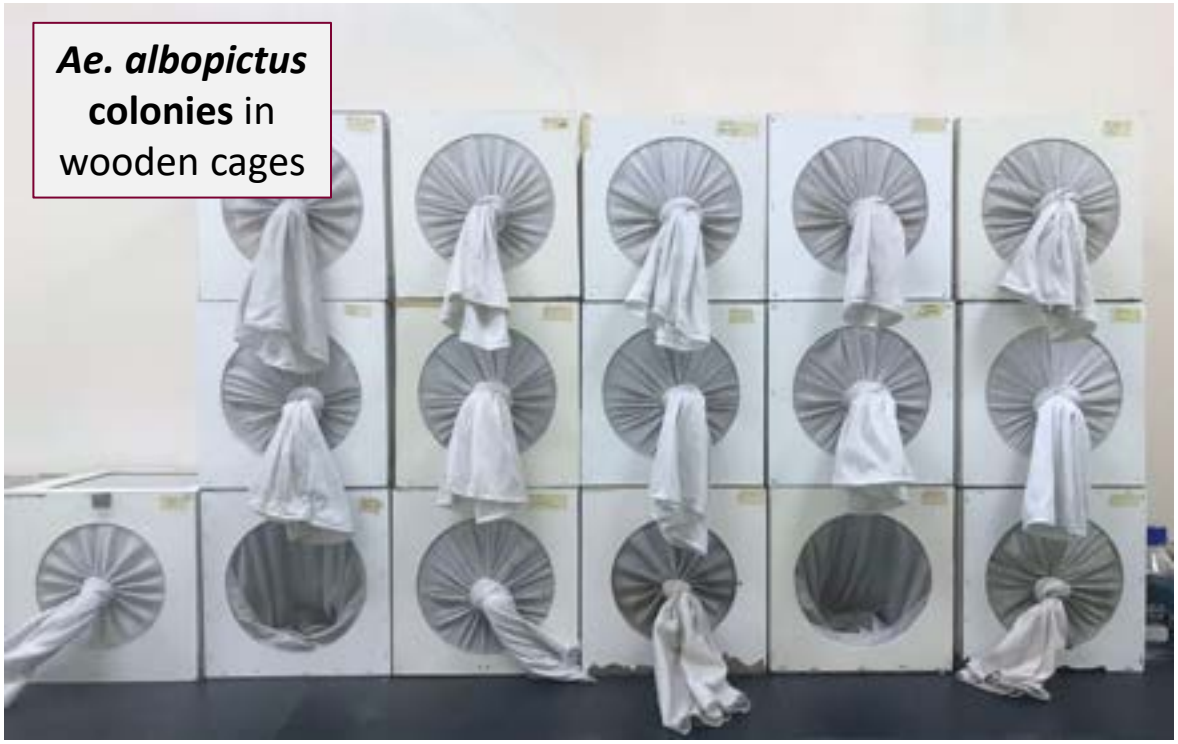
Dr Wan Norafikah Othman

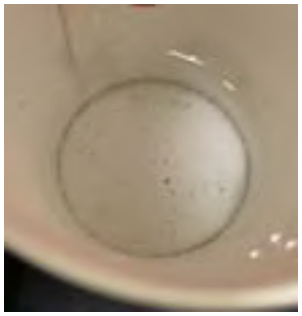
Department of Microbiology and Parasitology

Faculty of Medicine

UiTM Sungai Buloh

Taking care of mosquito colonies



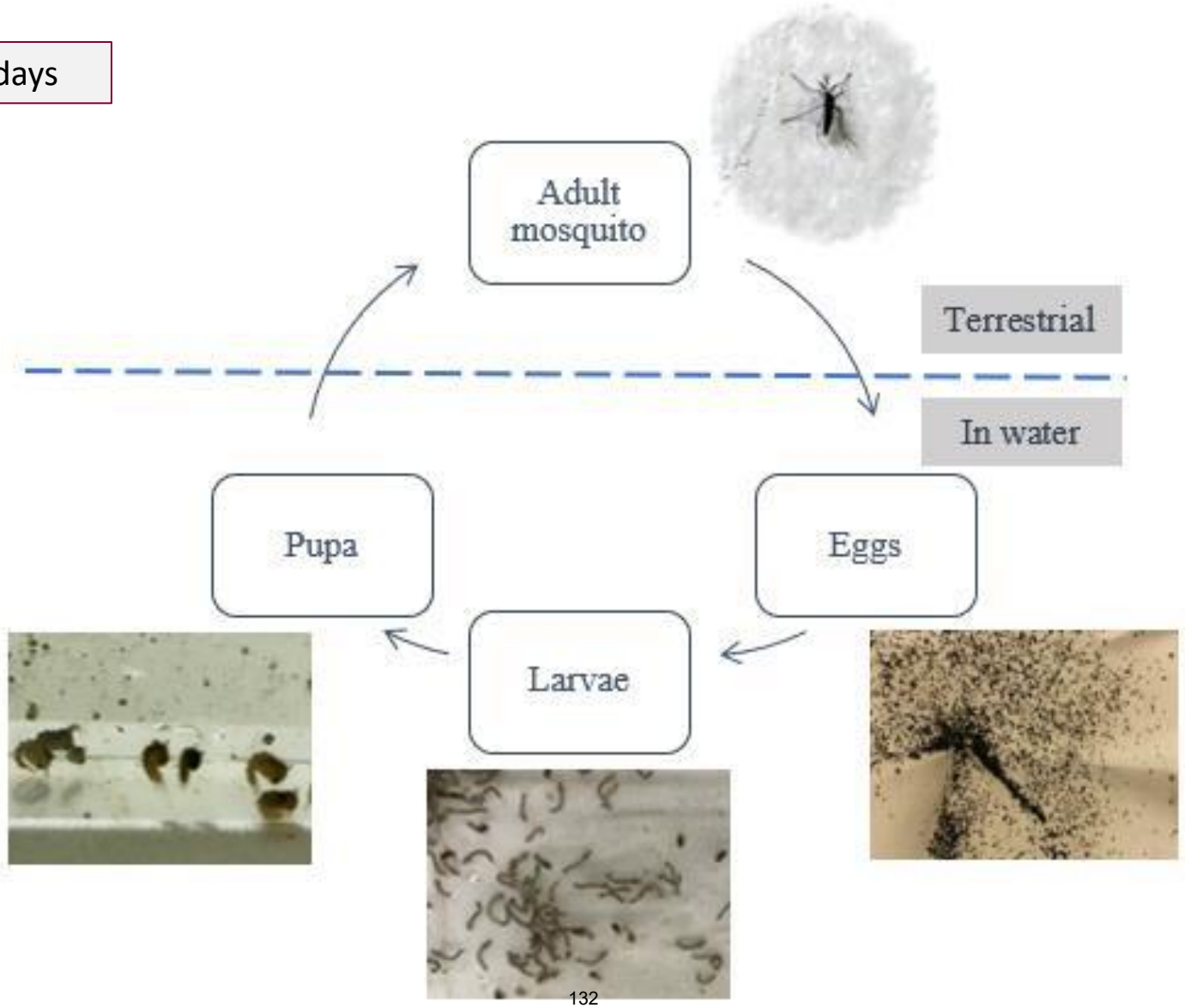


Why filter?

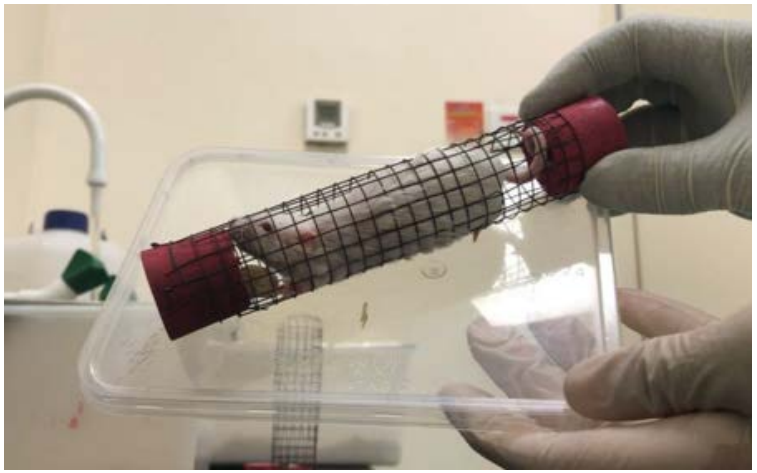
Mosquito eggs do not hatch in desiccation.

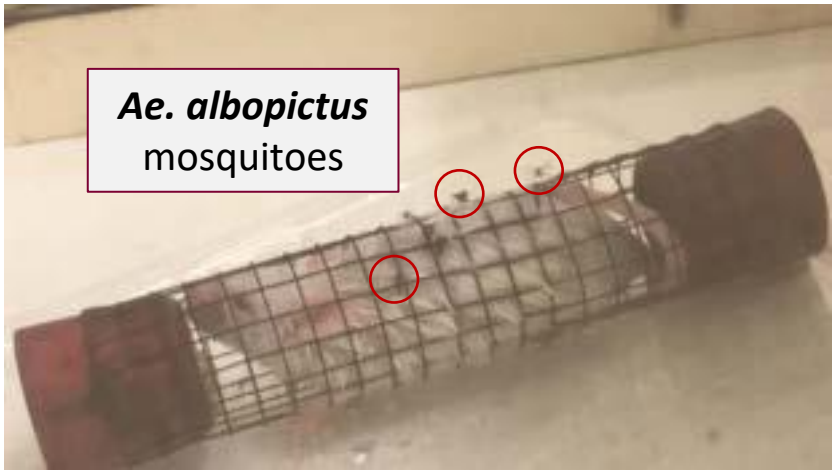
Life Cycle of Mosquito

10-12 days

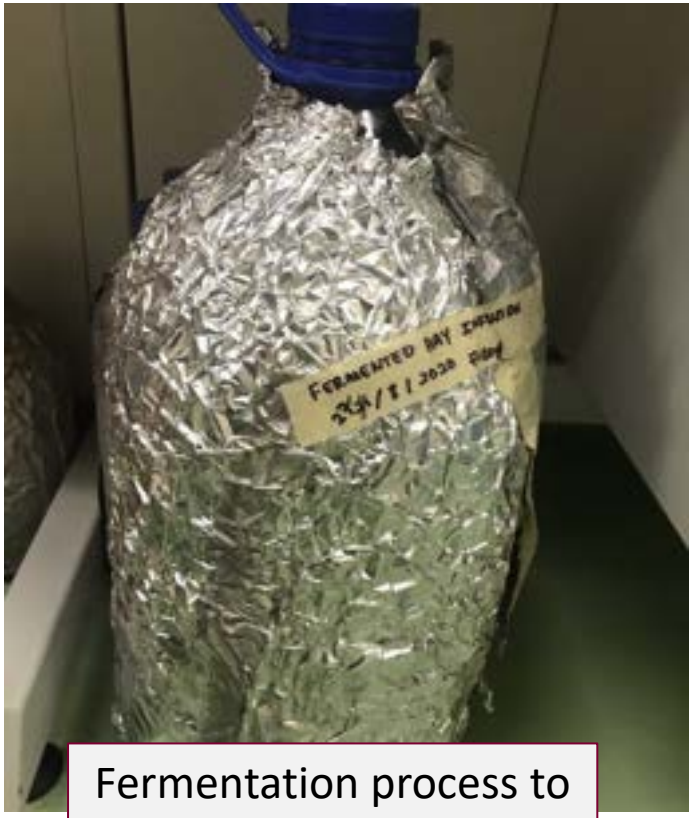


Blood-feeding every Thursday





Preparation



Fermentation process to make **10% hay infusion**

Ovitraps

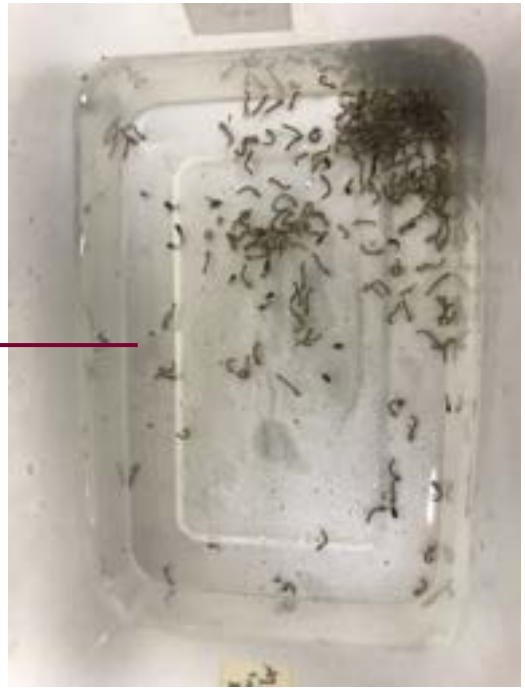
Taman Negara Scientific Expedition

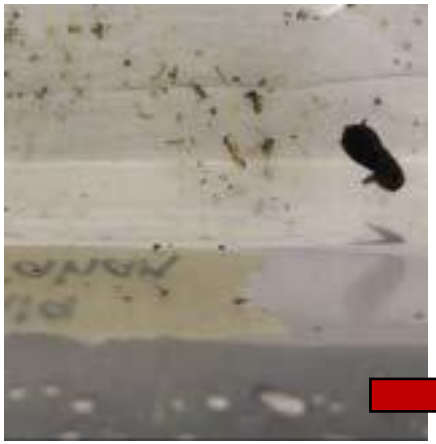
4-8 September 2020

- Larvae survey
- Ovitrap surveillance
- Questionnaires

Mosquito colonisation

>1 species of mosquito larvae is observed = mixed breeding





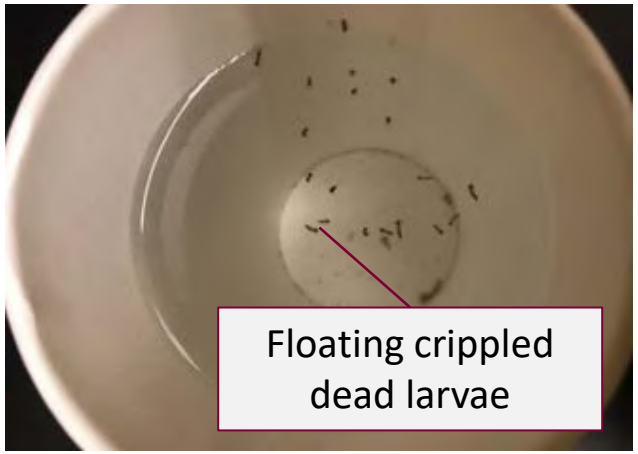
Process for identification

Taxonomical identification is done by En. Azahari from Institute of Medical Research (IMR)

-80°C

-20°C

Larval Bioassay

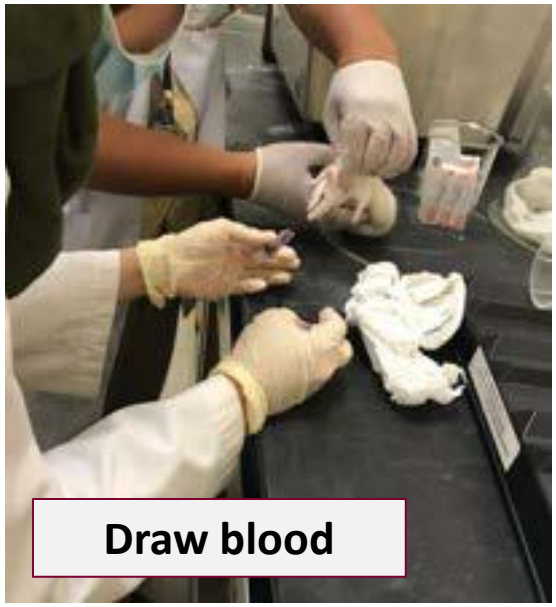


Assist postgrad students in LACU

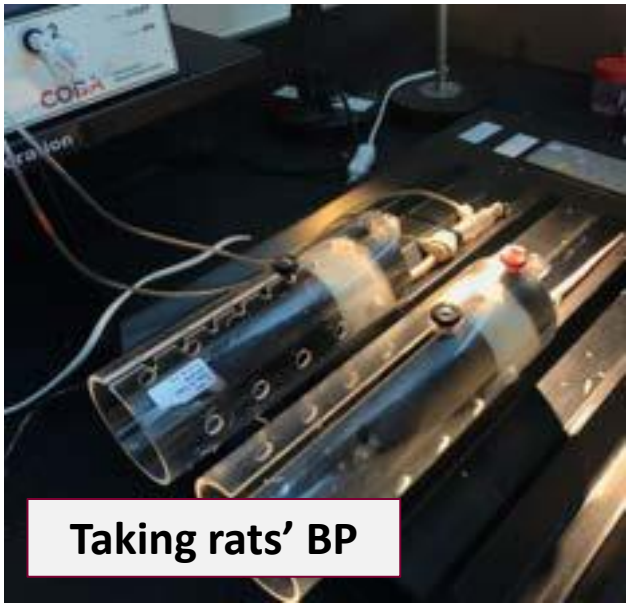

Blood serum


Organ retrieval


Dissect rabbits


Draw blood


Dissect new-born rats


Taking rats' BP

Acknowledgement

DR WAN NORAFIKAH OTHMAN, PhD
for her continued guidance and advise throughout completing this industrial training.

Thank You

Internship

Farra Adib Saw

A17MB0250

3SMBB

INTERNSHIP

COMPANY

SIRIM Berhad Sdn. Bhd.

Environmental Technology Research Centre (ETRC)

JOB SCOPE

Developed working instructions

Designed study plans

Create slides

Designed forms

Lab work

DURATION

20/7/2020-09/10/2020

SMBU 3915 INDUSTRIAL TRAINING INFOGRAPHIC
DEPARTMENT OF MEDICAL MICROBIOLOGY & PARASITOLOGY UiTM
SG.BULOH, SELANGOR, 2020

BY: FENNY UNGADAU (SMBB)

Microbiology & diagnostic laboratory

Specimens processing

Gram Staining

Blood CNS analysis from worksheets

Molecular diagnostic of Influenza-Like Illness from residual volume of negative Covid-19 swab

RNA Extraction

Conventional & real-time RT PCR

Mini project

Laboratories activities

Western Blotting

Detect presence of specific protein

Autoclaving

Preparing tips for our mini project

RT-PCR

To amplify targeted gene of seasonal Coronavirus

RNA Extraction

Extracting gene from negative Covid-19 swab sample for mini project

Transferring residual negative COVID-19 swab

For storage purpose

Gel Electrophoresis

Conventional PCR & RT-PCR viewing bands- Mini Project

INTERNSHIP INFOGRAFIC

BIO HARUANTECH (M) SDN BHD

PERSONAL DETAIL :
MUHAMMAD HAFIZ DANIAL B. ROSZAIDI
A17MB0091

INDUSTRIAL SUPERVISOR :
EN AHMAD AZIZI ADNAN

INDUSTRIAL SUPERVISOR :
PROF. MADYA DR. GOH KIAN MAU

INTRODUCTION :

- Established on May 2009 by En Muhammad Munir Lokman
- Located at Rawang and Shah Alam, Selangor
- F&B factory
- Have 35 workers.

JOB SCOPE

- ✓ HACCP documentation team
- ✓ Quality control
- ✓ Vending machine project with UiTM Shah Alam
- ✓ KDN project supply food to 3000 people
- ✓ Handle retord machine

EXPERIENCES :

- ❖ Being exposed to the real-life working environment
- ❖ Able to learn about equipment used in the factory
- ❖ Able to improve communication scale

INDUSTRIAL TRAINING

DEPARTMENTS OF PATHOLOGY AND MEDICAL MICROBIOLOGY & PARASITOLOGY, HOSPITAL UiTM SUNGAI BULOH

NORIATULAZIMAH MAZEN
A17MB0116

CHEMICAL PATHOLOGY UNIT



HEMATOLOGY & TRANSFUCION MEDICINE UNIT

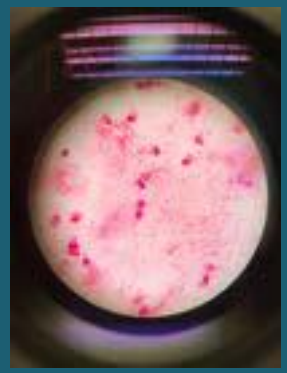
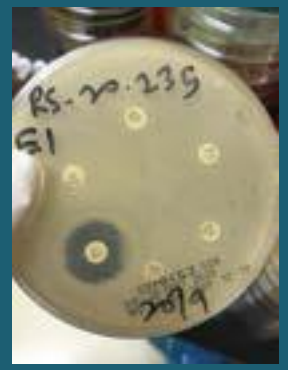




ANATOMIC PATHOLOGY UNIT



MEDICAL MICROBIOLOGY UNIT

INDUSTRIAL TRAINING PROGRAMME

AT: UITM SG BULOH
DATE: 20/7-9/10 2020
FACULTY SUPERVISOR: DR ALINA BT WAGIRAN
INDUSTRIAL SUPERVISOR: ASSOC. PROF. DR. MUDIANA MUHAMAD

MINI PROJECT GIVEN BY SUPERVISOR

investigation
of the anti inflammatory activity of Cissus hastata in vitro

Objective:
To investigate the bioactive property of Cissus hastata in vitro

METHODS

The experiments were carried out in 3
parts

- Preparation of Cissus hastata crude extract (cCH)
- Cell culture of Caco-2 (colon cancer cell lines)
- In vitro cytotoxicity assay of the cCH

PREPARATION OF CCH

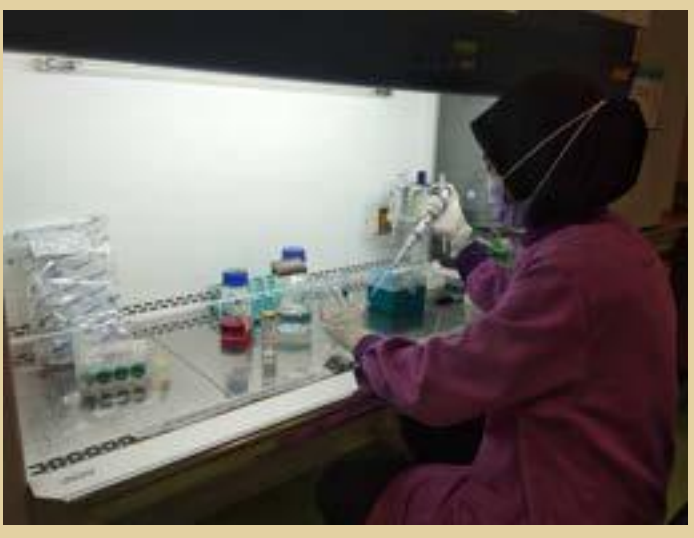
The dried leaves were ground into powder form

Produced 3 different extracts which were 2 lyophilized extract with different time taken during boiling and methanol extract

CELL CULTURE ON CACO-2

Reviving the cells from cryostock and subculture or seeding

Infographics are visual representations of data, making complex info easier to share and digest. When making your own, simply organize your images, charts, and text. Finally, cite your sources.



IN VITRO CYTOTOXICITY ASSAY OF THE CCH

testing the compound treatment on caco-2

Infographics are visual representations of data, making complex info easier to share and digest. When making your own, simply organize your images, charts, and text. Finally, cite your sources.

by: NUR HASYA BT ABD HALIM

INDUSTRIAL TRAINING at UiTM SG. BULOH

TRAINEE : NUR SYAZWINA BINTI SYAHRIZAL (A17MB0140) INDUSTRIAL SUPERVISOR : AZDAYANTI MUSLIM

LAB ROTATION

ANATOMY PATHOLOGY

MICROBIOLGY LAB

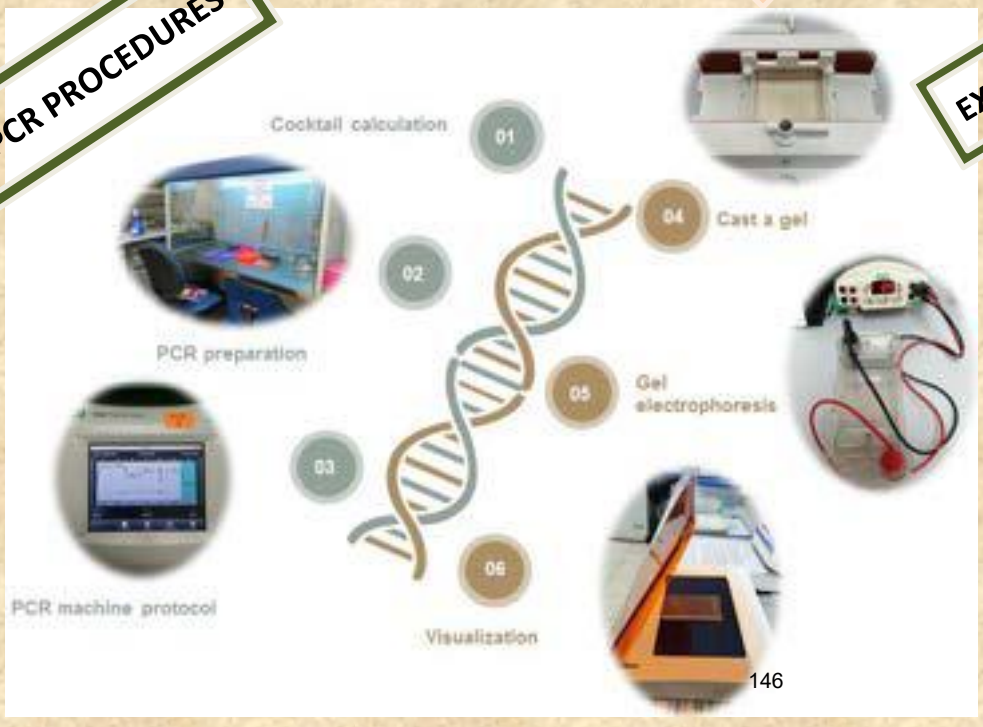
CHEMICAL PATHOLOGY

HEMATOLOGY LAB

MINI PROJECT

Molecular Investigation of Parasites Infections Among Indigenous Negrito

PCR PROCEDURES



EXAMPLE RESULT

UNIVERSITI TEKNOLOGI MARA

UTM
UNIVERSITI TEKNOLOGI MALAYSIA

INDUSTRIAL TRAINING PROJECT PRESENTATION

EVALUATION & COMPARISON OF CHLOROHEXIDINE GLUCONATE (CHG) ANTISEPTIC WIPES & (CHG) BATHING SOLUTION AGAINST BACTERIA CAUSING NOSOCOMIAL INFECTIONS

NURUL ASYIQIN BINTI RIHZAM
SMBU 3195-01
BACHELOR OF SCIENCE (BIOLOGY),
UNIVERSITI TEKNOLOGI MALAYSIA

SUPERVISOR: DR. HASSANAIN AL-TALIB

UTM
UNIVERSITI TEKNOLOGI MALAYSIA

BACKGROUND OF COMPANY

Institute Of Medical Molecular & Biotechnology(IMMB), UiTM Sg.Buloh

1. Organization Background

IMMB is committed to multidisciplinary research, creation of new knowledge and advances in biomedical research, health care, education, and training of its staff, existing as well as future generations of scientists and health care professionals. IMMB aims to provide an unsurpassed environment for young and established scientists by creating an atmosphere of lively research environment with a free exchange of ideas and technical knowledge leading to innovations.

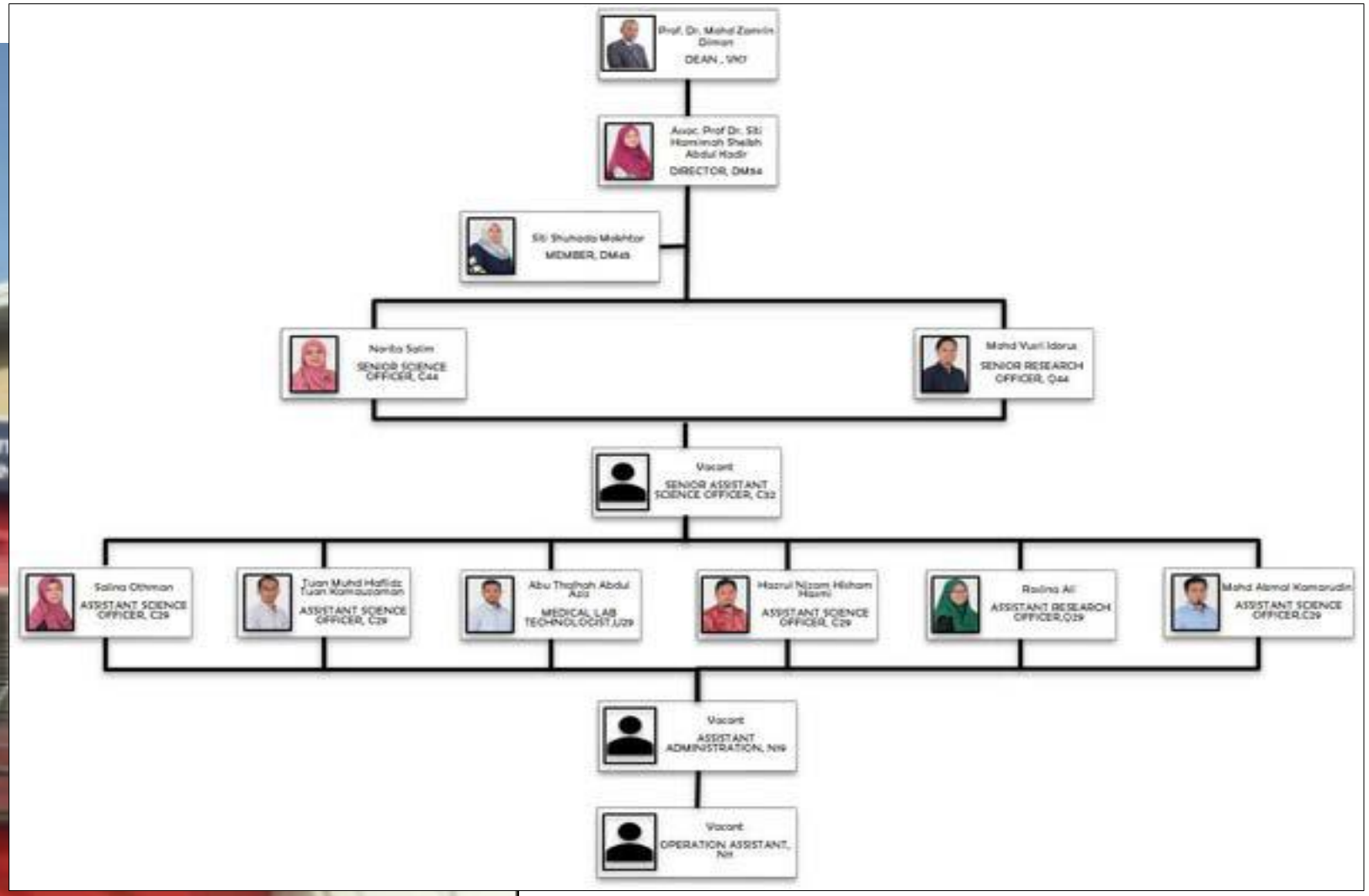
2. Mission

Contribute to knowledge advancement and wealth creation through excellence in biomolecular and biomedical research, sound management, innovative thinking, and smart entrepreneurship.

3. Vision

To be a world class research institute in fundamental and applied medical molecular biotechnology research.

Institute Of Medical Molecular & Biotechnology, UiTM Sg.Buloh



Organization chart of IMMB

INTRODUCTION

Chlorohexidine Gluconate (CHG)

DEFINITION :

- antiseptic that can use on skin and environmental surfaces, and has displayed broad-spectrum activity against several organisms, including multi-drug resistant (MDR) bacteria (Vergnano, 2015).

TYPES:

1. Bathing solution.
2. Antiseptics wipes.

USED FOR:

-skin preparation to reduce microbial burden on patients' skin and prevent secondary bacterial infections (Climo et al., 2013).

- daily bathing with 2% chlorhexidine-impregnated washcloths reduced the incidence of NI infections by 60% (Climo et al., 2013; Vernon et al., 2006).

pharmacology co

Patricia O'Malley, Phl

Chlorhexidine Wipes

The New Weapon Against Surgical Site Infections?

PATRICIA O'MALLEY, PhD, RN, CNS

Improving Skin Antisepsis: 2% No-Rinse CHG Cloths Improve Antiseptic Persistence on Patient Skin Over 4% CHG Rinse-Off Solution

Marcia Ryder, PhD, MS, RN, Research & Consulting: Medical Biofilm-related Infections and Vascular Access and Jodi Balbinot, BS

METHODS

RESULTS

the amount of CHG residual left on the skin at within each test group (4% CHG solution and 2%

Seattle Children's Patient and Family Education

CHG: Bathing with Sage Chlorhexidine Gluconate Wipes

What are sage wipes?

Sage chlorhexidine gluconate (CHG) wipes are strong

Sage 2% chlorhexidine gluconate (CHG) wipes are antiseptic (germ-killing) cloths used to wash the skin. During your stay in the hospital, you will use

Canadian Agency for Drugs and Technologies in Health

RAPID RESPONSE REPORT: SUMMARY WITH CRITICAL APPRAISAL

TITLE: **Chlorhexidine Gluconate Wipes for Infection Prevention in Acute and Critical Care: A Review of Clinical Effectiveness and Cost-Effectiveness**

DATE: 13 April 2016

CONTEXT AND POLICY ISSUES

Health care-associated infections are among the most common types of adverse events reported in acute care settings, and the infection rates of difficult-to-treat pathogens, such as methicillin-resistant *Staphylococcus aureus* (MRSA) have steadily and significantly increased over time in Canadian hospitals.[1,2] Health care-associated infections can lead to considerable

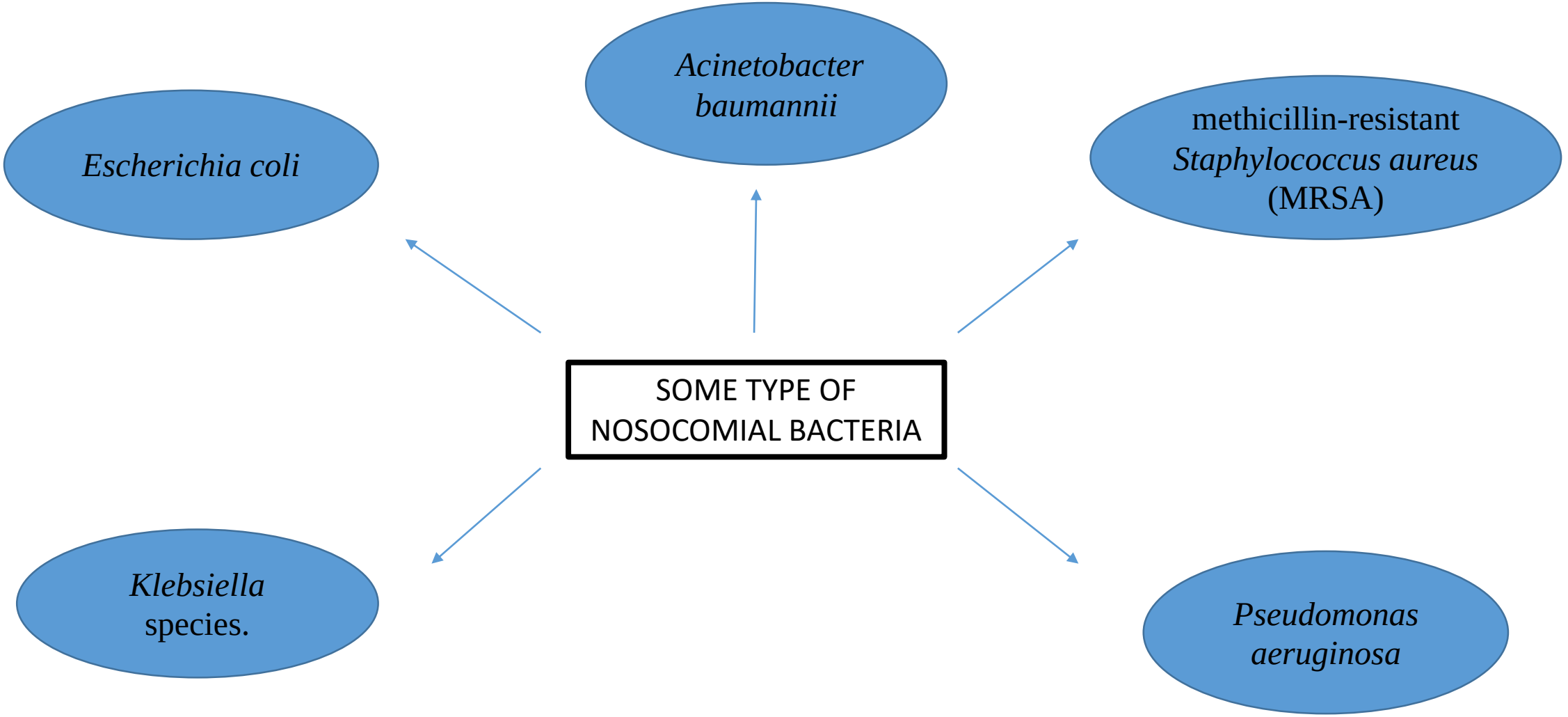
Bactiseptic Wipes

Antiseptic with 2% CHG and 70% isopropanol

Single-use wipes impregnated with Bactiseptic Orange

Bactiseptic Wipes are single-use sachets containing a wipe impregnated with **Bactiseptic Orange** (2% chlorhexidine and 70% isopropyl alcohol).

The single-use format eliminates the risks of


SOME TYPE OF NOSOCOMIAL BACTERIA
Escherichia coli
Acinetobacter baumannii
methicillin-resistant *Staphylococcus aureus* (MRSA)
Klebsiella species.
Pseudomonas aeruginosa

OBJECTIVES

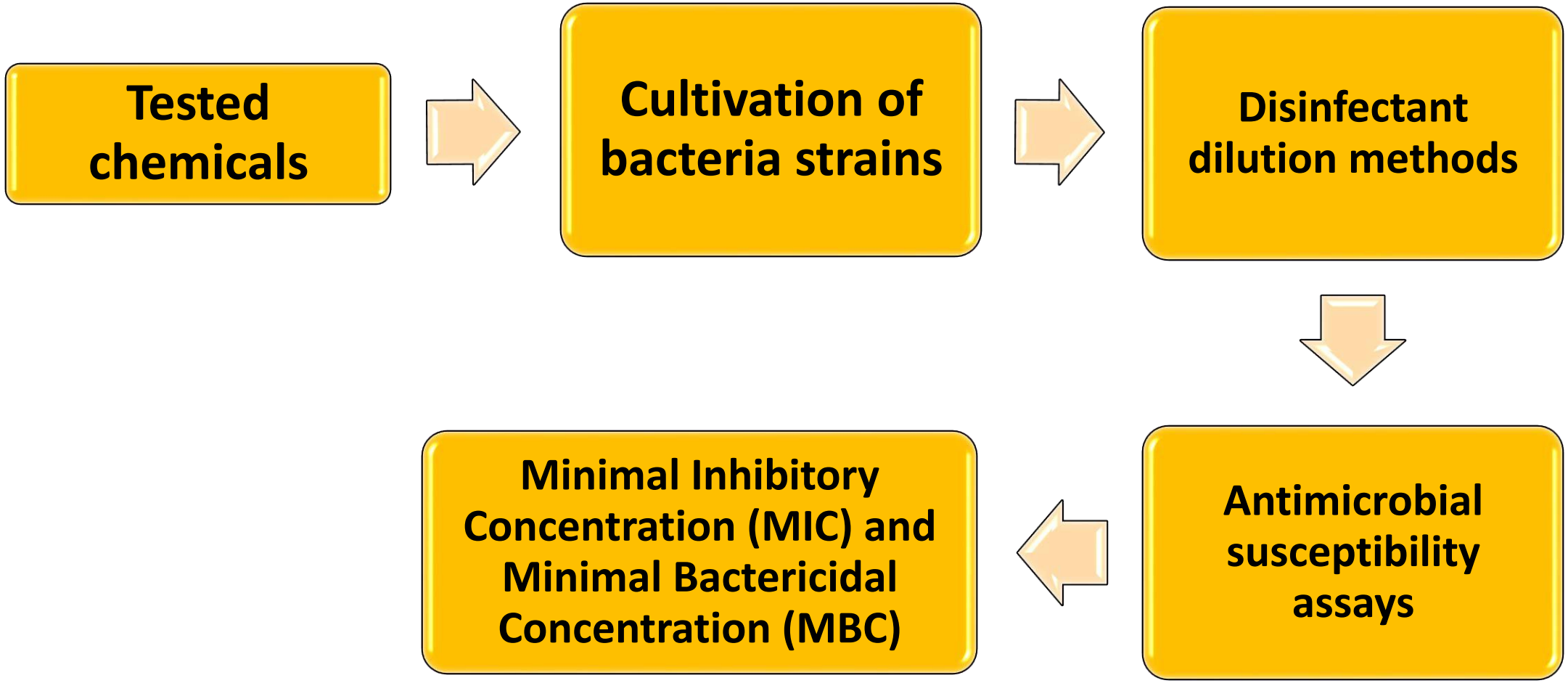
I. To determine the effectiveness of CHG antiseptic wipes against bacteria causing nosocomial infections.

II. To compare between CHG antiseptic wipes and CHG bathing solution against bacteria causing nosocomial infections.

UTM
UNIVERSITI TEKNOLOGI MALAYSIA

METHODOLOGY

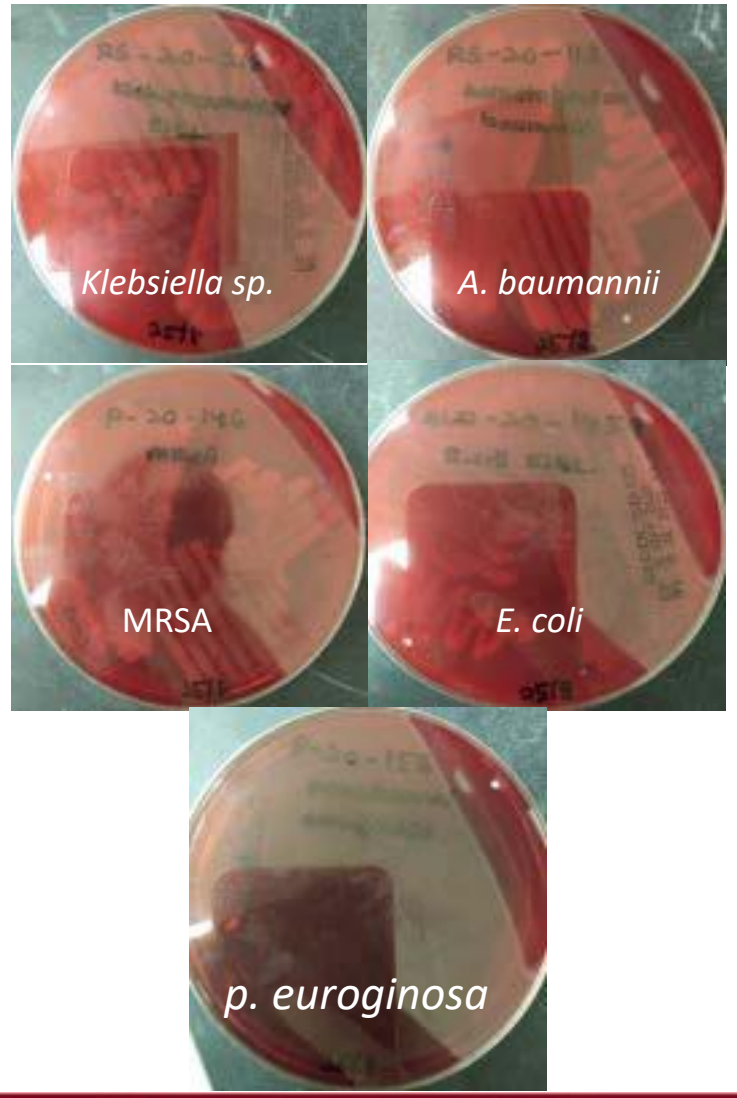
METHODOLGY


Tested chemicals
Cultivation of bacteria strains
Disinfectant dilution methods
Antimicrobial susceptibility assays
Minimal Inhibitory Concentration (MIC) and Minimal Bactericidal Concentration (MBC)

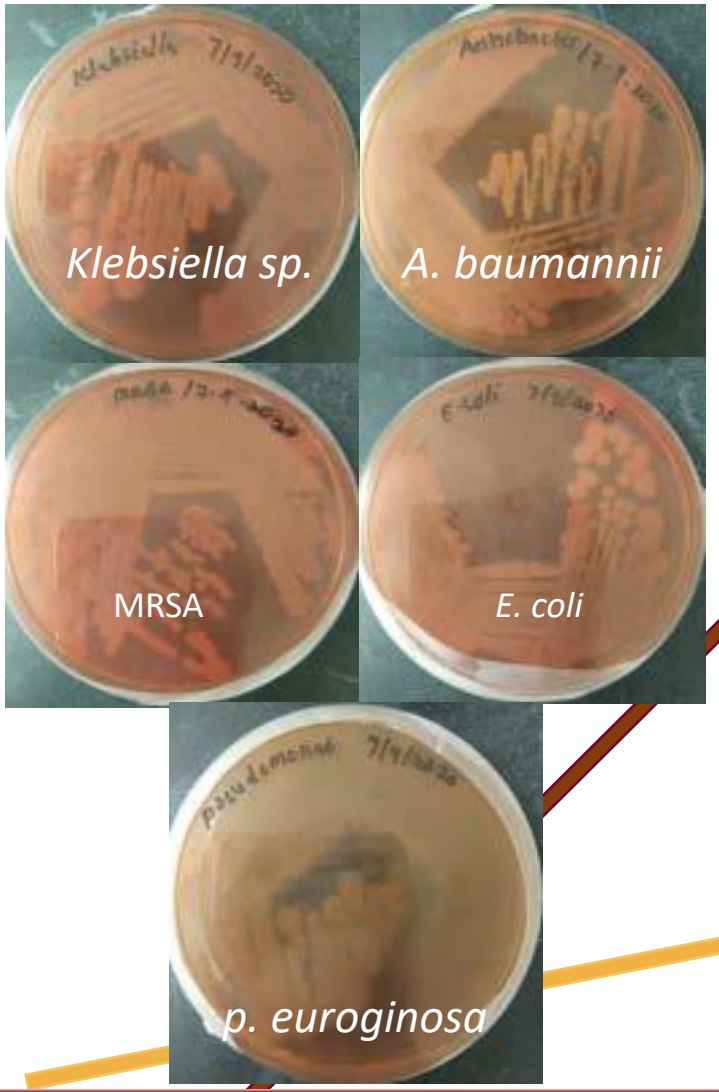
TESTED CHEMICALS

2% CHG from commercial wet wipes	4% of CHG bathing solution from Intensive Care Unit (ICU)
	

CULTIVATION OF BACTERIA STRAINS



Sub-culture



DISINFECTANT DILUTION METHOD

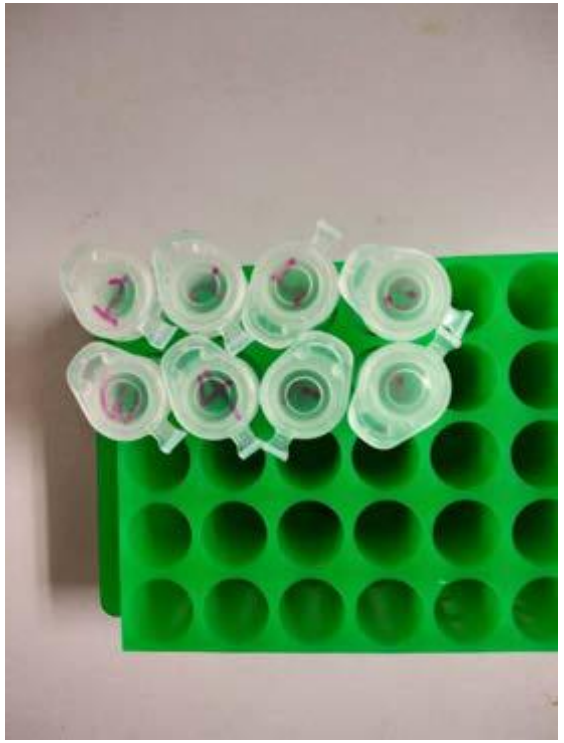


Figure 1: Label all the tube in numbering (1 -8)

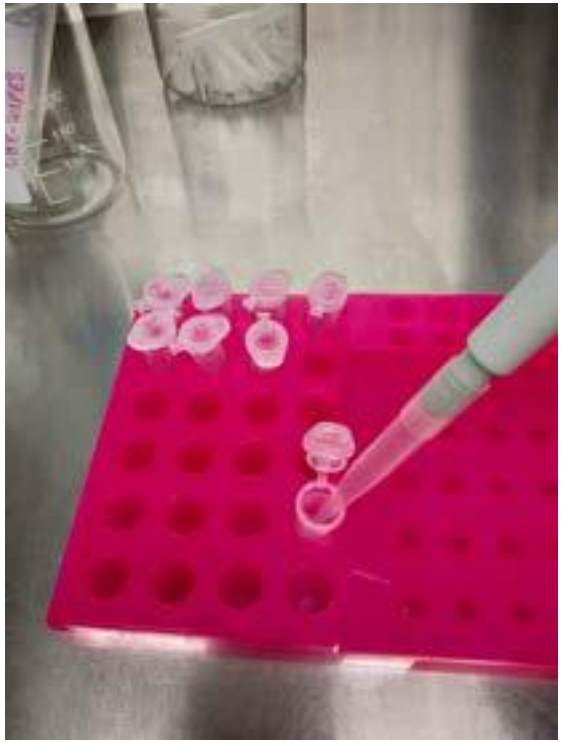
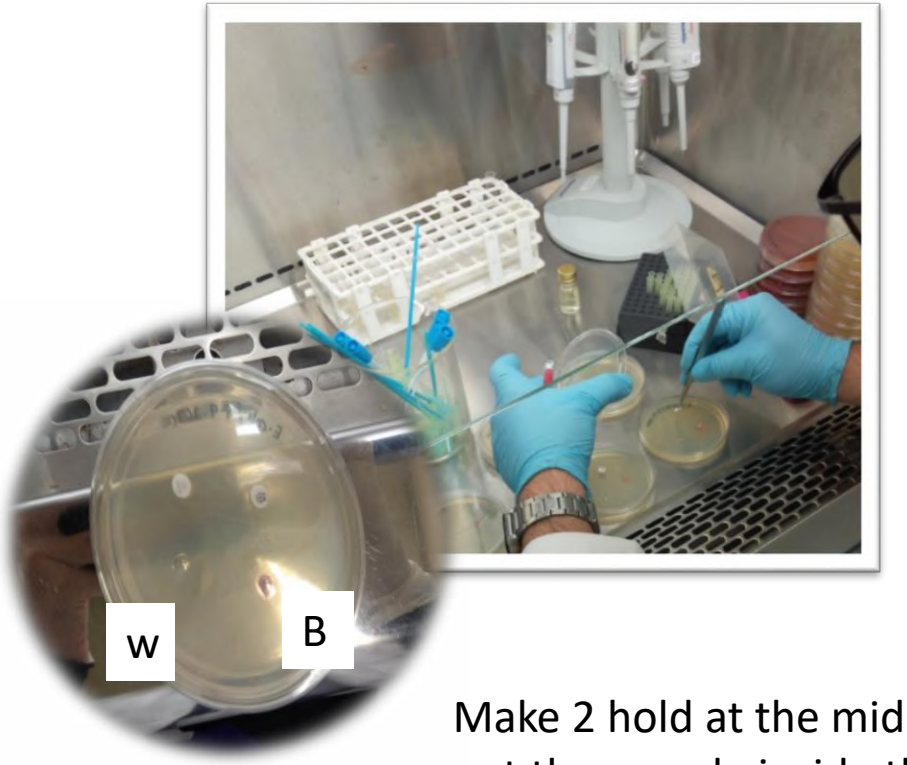


Figure 2: Doing the dilution method

ANTIMICROBIAL SUSCEPTIBILITY ASSAYS : WELL DIFFUSION METHOD



Make 2 hold at the middle & put the sample inside the hold respectively

- W: wipes
- B: bathing solution

Put the antibiotics dics at the suitable bacteria plate

WELL DIFFUSION METHOD

Took out the bacteria broth culture

-Spread it on MH-Agar

-Make two holes at middle for inserting 100 MicroLitre of:

1. CHG bathing solution
2. CHG antiseptics wipes

Put a disk of antibiotics of the bacteria as positive control

Incubate in incubator at 370C, 24h.

MINIMAL INHIBITORY CONCENTRATION (MIC)

Prepare CHG solution:

Antiseptics wipes & bathing solution

Prepare the bacteria broth & check on McF 0.5 for the concentration of each types.

Divide by 2 microplate sample:

Plate 1: CHG antiseptics wipes

Plate 2: CHG bathing solution

-Put positive control at empty column and negative control next to positive control

Incubate at 37oC, 24h

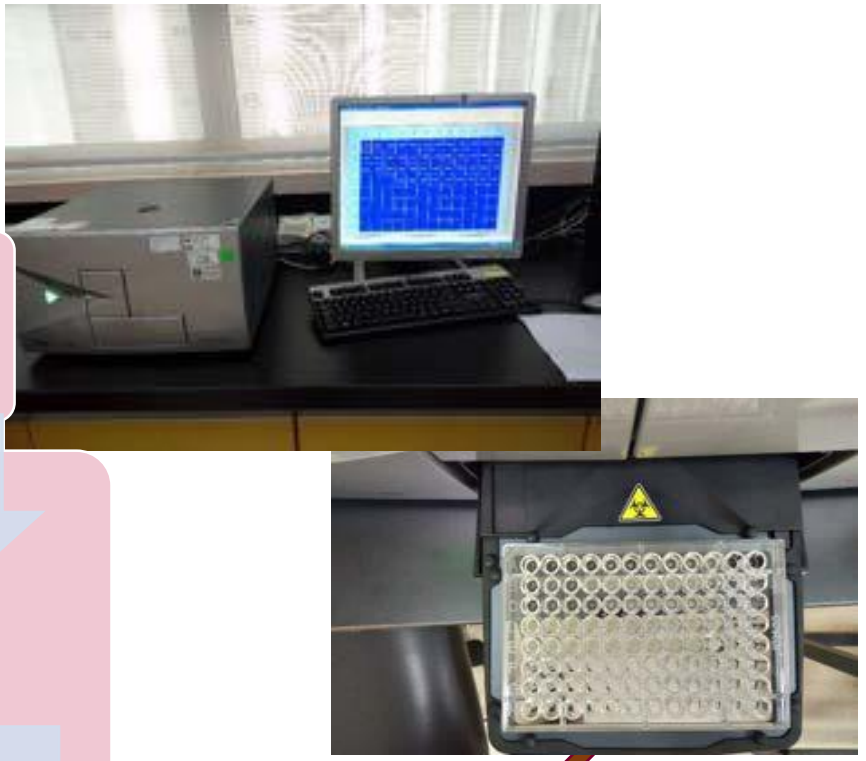


Figure 3: Elisa Plate Reader machine

MINIMAL BACTERICIDAL CONCENTRATION (MBC)

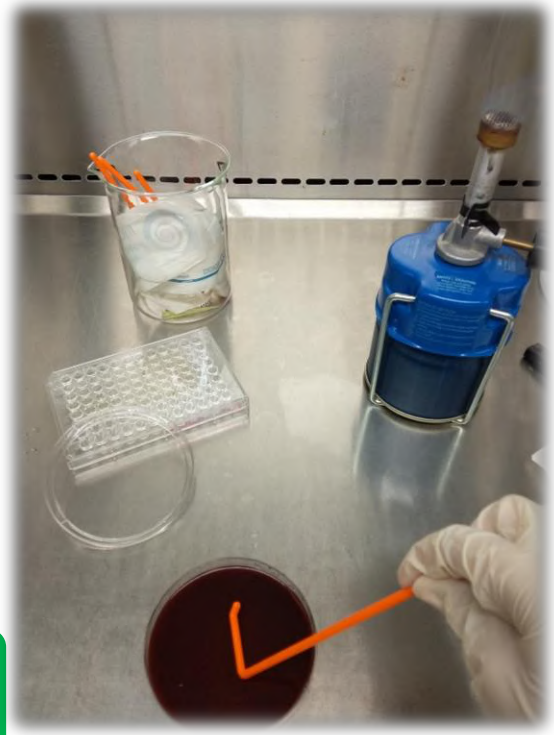
Send the plates to Dentistry Department, read by the ELISA plate Reader

Observe the result and compare it.

Took out suitable aliquate solution from the plate and do spread plate

Incubate in incubator at 37^0C,24h

Observe & count on colonies after 24h



RESULT & DISCUSSION

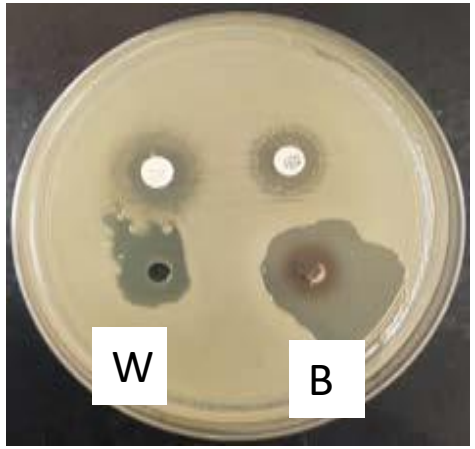
1. Antimicrobial effects of CHG on nosocomial bacteria

BACTERIA	INHIBITION ZONE (mm) BY		ANTIBIOTICS CONTROL DISC	ZONE SIZE (mm)
	CHG (B)	CHG (W)		
MRSA	25	11	Vacomyxin	12
A. Baumannii	15	0	Polymixin B	10
E. coli	23	15	Polymixin B Gentamicin	13 13
Klebsiella sp.	17	10	Gentamicin Imipenem	0 15
P. aeruginosa	20	0	Polymixin B	13

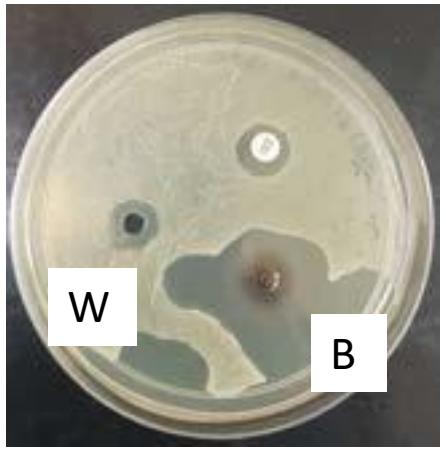
Table 1. Bacterial inhibition zones by using CHG bathing solution and CHG antiseptics wipes.

- B: bathing solution
- W: antiseptics wipes

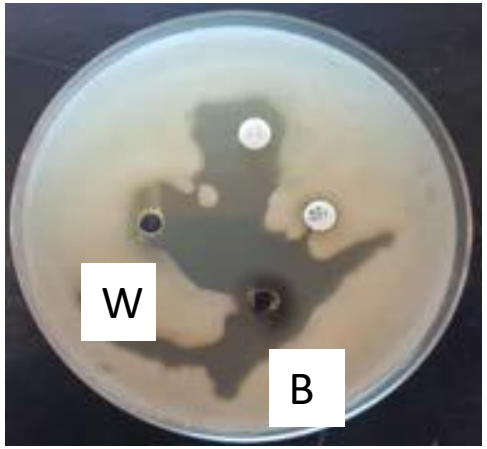
Figure 1: Antimicrobial effects of CHG bathing solution and CHG wipes on nosocomial bacteria:



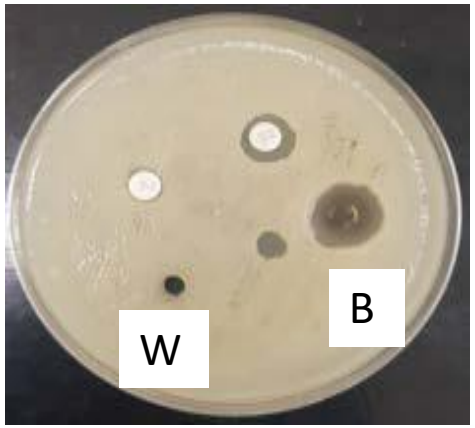
E. coli



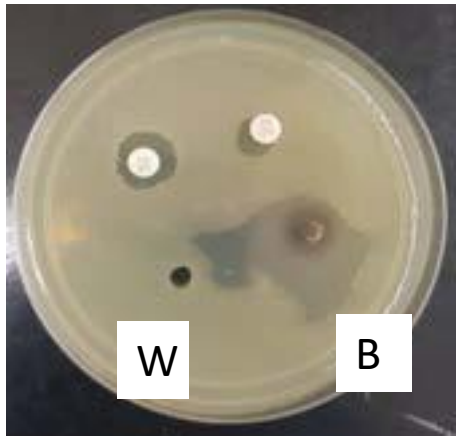
MRSA



Klebsiella sp.



A. banumannii



P. euruginosa

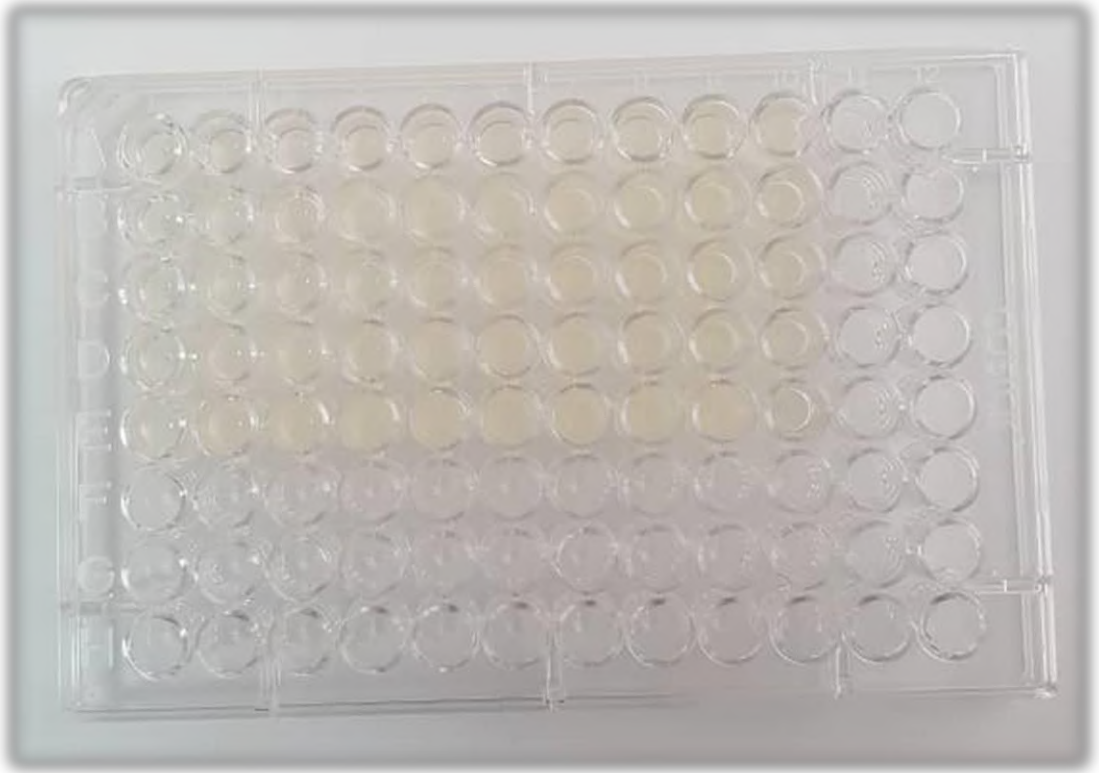
2. MIC of CHG bathing solution against nosocomial bacteria

BACTERIA	CONCENTRATION OF CHLORHEXIDINE GLUCONATE (CHG) IN BATHING SOLUTION (%)									
	4	2	1	0.5	0.3	0.13	0.06	0.03	POSITIVE CONTROL	NEGATIVE CONTROL
MRSA	0.06	0.056	0.05	0.054	0.052	0.051	0.054	**0.05**	0.354	0.044
A. baumannii	0.046	0.05	0.053	0.057	0.06	0.066	0.07	**0.077**	0.675	0.044
E. coli	0.048	0.05	0.055	0.06	0.064	0.07	0.075	**0.08**	0.789	0.044
Klebsiella sp.	0.06	0.06	0.07	0.07	0.08	0.082	0.085	**0.09**	0.744	0.043
P. aeruginosa	0.048	0.05	0.05	0.050	0.052	0.055	**0.09**	0.3	0.562	0.043

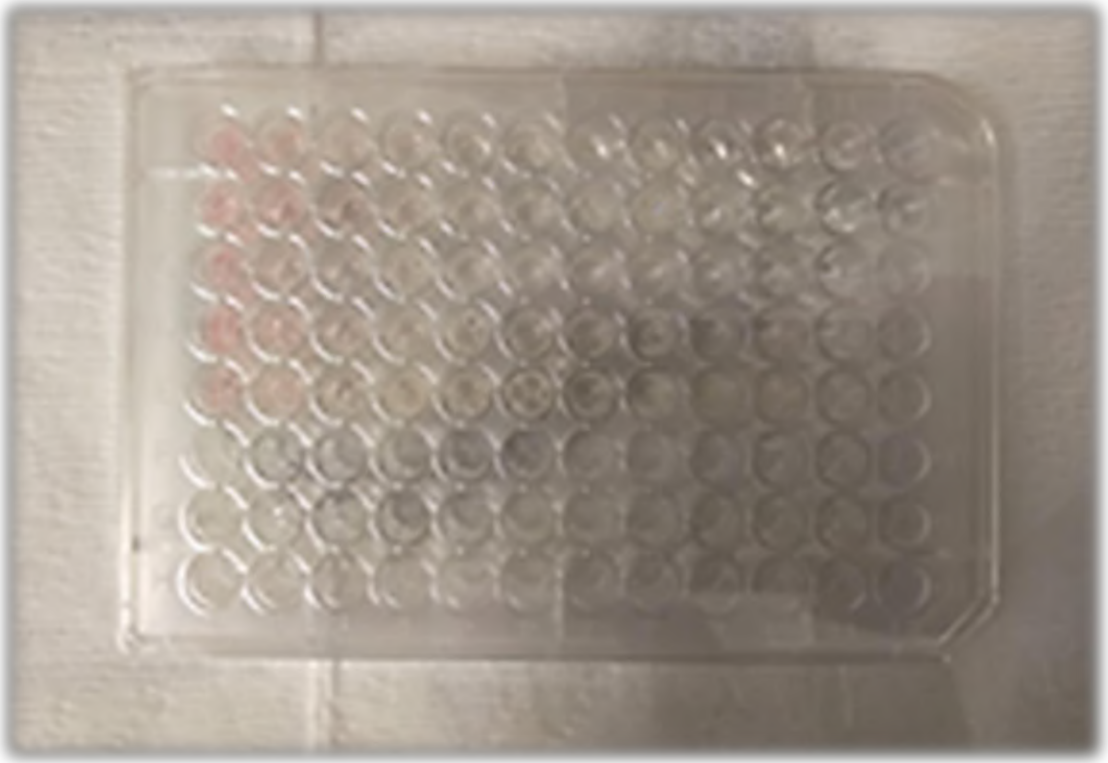
2. MIC of CHG Wipes against nosocomial bacteria

BACTERIA	CONCENTRATION OF CHLORHEXIDINE GLUCONATE SOLUTION ANTICEPTICS WIPES (%)									
	2	1	0.5	0.25	0.13	0.06	0.03	0.02	POSITIVE CONTROL	NEGATIVE CONTROL
MRSA	0.06	0.08	0.10	0.15	**0.2**	0.6468	0.7348	0.7868	0.7369	0.043
A. banumannii	0.025	0.34	0.6	0.88	1.10	1.12	1.13	1.2	1.1507	0.040
E. coli	0.05	0.062	**0.07**	0.82	0.91	1.08	1.11	1.18	1.1229	0.048
Klebsiella sp.	0.49	0.62	0.65	0.72	0.75	0.75	0.87	0.91	0.8912	0.045
P. euruginosa	0.51	0.69	0.95	1.12	1.06	1.05	1.05	1.07	1.1388	0.0487

Microplate well-96



Chlorohexidine Gluconate (CHG) in antiseptics wipes



Chlorohexidine Gluconate (CHG) in bathing solution

2. Minimum Inhibition Concentration (MIC)

BACTERIA	Minimum Inhibitory Concentration (MIC) of CHG bathing solution & CHG antiseptics wipe	
	CHG (B)	CHG (W)
MRSA	0.03	0.13
A. baumannii	0.03	NA
E. coli	0.03	0.5
Klebsiella sp.	0.03	NA
P. euroginosa	0.06	NA

Table 4. Minimal Inhibitory Concentration (MIC) of CHG of bathing solution & CHG wipes.

- B: bathing solution
- W: antiseptics wipes

3. Minimal Bactericidal Concentration (MBC)

BACTERIA	MICROBIAL BACTERICIDAL CONCENTRATION (%)	COUNTED COLONIES
MRSA	4	no growth
A. Banumannii	0.25	no growth
E. coli	0.5	no growth
Klebsiella	-	uncountable
P. aeruginosa	-	>200

BACTERIA	MICROBIAL BACTERICIDAL CONCENTRATION (%)	COUNTED COLONIES
MRSA	-	uncountable
E. coli	-	uncountable

Table 5. Minimal Bactericidal Concentration (MBC) from CHG of bathing solution & CHG antiseptics wipes.

CONCLUSION

Objectives was achieved.

Chlorohexidine Gluconate (CHG) bathing solution more effective than Chlorohexidine Gluconate (CHG) antiseptics wipe against the nosocomial infections. This is due to

- Higher concentration of bathing solution 4%.
- Could be due to bad storage and transport conditions of the wipes.
- The concentration of CHG is lower than 2% due to usage of preservatives.

REFERENCES

- Al-Talib et al.(2019*) Effectiveness of commonly used antiseptics on bacteria causing nosocomial infections in tertiary hospital in Malaysia.*

- Shrestha et al.(2015) *Phytochemical Screening and Antimicrobial Activity Of Asparagus Racemosus Willd. And Asparagus Curillus Buch.-Ham. Ex Roxb.*

- H. Alserehi et al.(2018) American Journal of Infection Control: *Chlorhexidine gluconate bathing practices and skin concentrations in intensive care unit patients.*

RECOMMENDATION

Recommendation for Improvement:

-This industrial training place (IMMB) are suitable most for entomology, forensics and medical microbiology field.

-This place give a big an opportunity to expose handling unusual laboratory work/project and feel as researcher.

- It give big benefits for final year project preparation.

THANK YOU.

#STAYSAFE #FIGHTCOVID19


– 5 laboratories in IBS
main research center in UPM –
– supported by 85 permanent staffs
established on 1 August 1996 –
Background
– more than 81 master and PhD graduates
Laboratory of Vaccine and Molecules
Cell culture for cancerous bladder cells (J82)
Program Microbiome and Therapeutics –
focused on the discovery and development of biotherapeutics agent –
involved in locally isolated beneficial microbiome and their metabolites –
discovery of new antibacterial and antiviral therapies –
– Fetal media bovine preparation
– Subculture when cells reach its confluency
– briefly rinsed to remove all traces of serum that contains trypsin inhibitor
– preparation of freezing media
– cryopreservation in liquid nitrogen vapor phase at -130°C
Industrial Training at Institute of Bioscience, UPM Serdang
Gene Network Analysis of wastewater treatment bacteria for fosfomycin
R studio –
Cytoscape –
Disk diffusion test for antibiotic-resistant bacteria gene analysis
– 12 samples for disk diffusion test
– swabbed bacteria samples with MacFarland standard onto nutrient agar
– incubated overnight at 37°C
– measured the diameter of halozone formed

WORKING INSTRUCTIONS
I develop working instructions for 3 tests based on OECD guidelines

LAB WORKS
I learned how to prepare and conduct BOD and COD test and learned how to conduct Daphnia sp. Acute Immobilization test. I also learned how to use oil-grease shaker and rotary evaporator.

STUDY PLANS
I did study plans for all the tests based on Oecd and working instructions of respective tests

SLIDES
I also did presentation slides for all the 3 tests based on OECD guidelines

FORMS
The forms I did are for all the test to record the observation for all the test.

YAMUNATHEVI
3SMBB
A17MB0192

INTERNSHIP COMPANY:
SIRIM BERHAD

Throughout my internship, I were assigned to develop Working instructions, study plans and forms for several tests. I did WI for 3 tests which are Sediment-Water Lumbriculus toxicity test using spiked sediment, Earthworm acute toxicity test and bioaccumulation minimised fish test.

On the week 11 and week 12, I went to labs in ETRC to expose myself to more hands-on works.

SMBT
Bachelor of science (industrial biology)

Johor

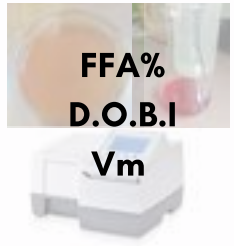
KSFBSM

KILANG SAWIT FELCRA BERHAD SG. MELIKAI

SUPERVISOR

Industry : Encik Mohd Bukhari bin Moktar &
En Firdaus bin Meor Muat
Faculty : Dr. Mohd Farizal Ahmad Kamaroddin

JOB SCOPE



Production quality analysis

Analysis of processing efficiency

Oil losses analysis

Boiler water test

TDS, Chloride, pH, Sulphite, Caustic alkalinity, Hardness

INTRODUCTION

Kilang Sawit Felcra Berhad Sg. Melikai, Mersing Johor.

Built in September 2011

Entire area of 50 hectares

Specializes in the production of crude palm oil & palm kernel

CONTACT

Kilang Sawit Felcra Berhad Sg. Melikai Peti Surat 24, Jalan Mersing-Nitar, 86800 Mersing Johor.

07-7998311

ksfb.sgmelikai@gmail.com

EXPERIENCES

- Gain new experience from real working environment
- Able to learn on how to do the quality analysis
- Able to learn about new instrument in laboratory
- Learn about the palm oil mill process

NAME **CLARINE HONG WAN LING (A17MB0028)**
FACULTY SUPERVISOR **DR. MOHD HELMI BIN SANI**
INDUSTRY SUPERVISOR **MS SAUNTARYA SUBRAMANIAN**

PRISMA LABORATORY

CONTACT US FOR MORE INFO

PRISMA LABORATORY (M) SDN BHD
No. 36-01 & 38-01,
Jalan Kempas Indah 1/1,
Taman Kempas Indah

info@prisma-lab.com.my
07-5565050

Mon-Sat
8:30AM-5:30PM

Here, We have:
- Chemistry Department
- Microbe Department
- Food Department

TSS, Turbidity, Temperature

TSS refer to the Total Suspended Solid in water.
Turbidity refer to the degree of transparency in water.
The turbidity or cloudiness of water is affected by the suspended particle in water. Water with higher suspended solid is cloudy and able to trap heat so it has higher temperature.

DO, COD

DO is the dissolve oxygen in water which measure in mg/L. COD is the Chemical Oxygen Demand in water. Clean water have lower COD while dirty water have high COD. High COD indicate that water have more chemical compound.

AN

AN is the ammoniacal nitrogen in water. It is a test used to measure the presence of ammonia in water. Ammonia is toxic and should not be present in potable water. Ammonia in water may affect disinfection process in water treatment process.

Salinity, Conductivity, pH

Salinity is the measure of the content of salt in water.
Conductivity is the measure of the ability of water to conduct electricity.
Water with higher salinity will have high conductivity as well.
Water with low pH is acidic as it carry more hydrogen ion.
It have higher conductivity and are able to conduct electricity.

Total Coliform

Total coliform counts give a general indication of the sanitary condition of a water supply. **Total coliforms** include **bacteria** that **are** found in the soil, water which has been influenced by surface water, and in human or animal waste.

Faecal Coliform

The presence of **faecal coliform** bacteria in water indicates that the **water** has been contaminated with **faecal coliform** bacteria. It also indicate the presence of sewage contamination in water.

E.coli

E.coli exist in intestine of human and other warm blooded animals. The presence of **E.coli** in potable water indicate a recent faecal contamination in water and there is greater risk that pathogen are present.

PRISMA LABORATORY

INDUSTRIAL TRAINING

Name: Desmond Tan Zhen Yang
Programme: 3 SMBT
Duration: 20/7-8/10/2020

Prisma Laboratory (M) Sdn. Bhd. is an ISO/IEC 17025 accredited laboratory which provides a wide range of laboratory testing and consultancy services.

Job Scope

1

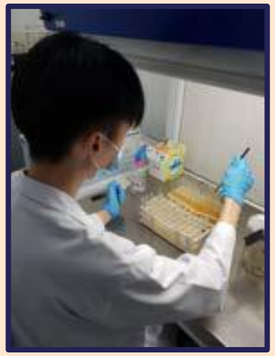
Analytical Chemistry Testing

Ammoniacal Nitrogen Test

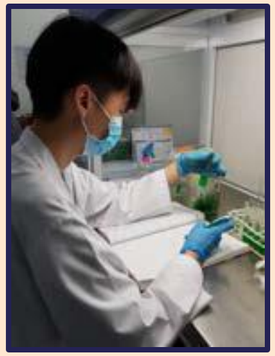
Chemical Oxygen Demand Test

2

Microbiological Testing



Confirmatory Test



Result Interpretation

3

Internship Project

Industrial Supervisors: Ms. Sauntarya & Ms. Satiya[187]

Faculty Supervisor: Dr. Helmi

Name: Foo Siew Suen
Matrix No: A17MB0038
Programme: 3 SMBT
Date: 20/7 - 8/10/2020

INTERNSHIP IN PRISMA LAB

UTM FACULTY OF SCIENCE
UNIVERSITI TEKNOLOGI MALAYSIA

FACULTY SUPERVISOR
DR MOHD HELMI BIN SANI

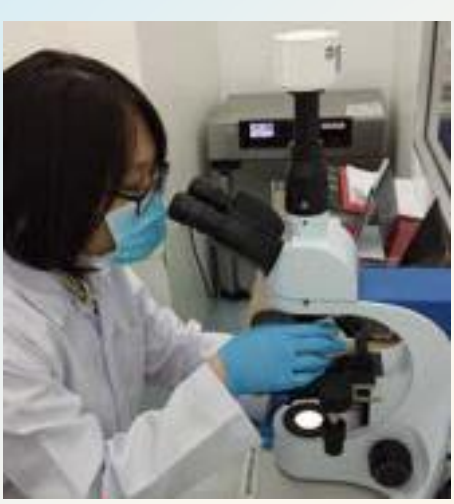
PRISMA LABORATORY

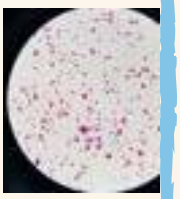
INDUSTRIAL SUPERVISOR
MR HAFIZ MUHAMMAD HAMIZ BIN ABU BAKAR
MS SAUNTARYA SUBRAMANIAN
MS SATIYAVANI SUPPIAH

MAIN TASK IN PRISMA LAB

- CHEMISTRY
- MICROBIOLOGY
- QA/QC

FAVOURITE TESTING





PARAMETER I HAVE LEARNT

MICROBE

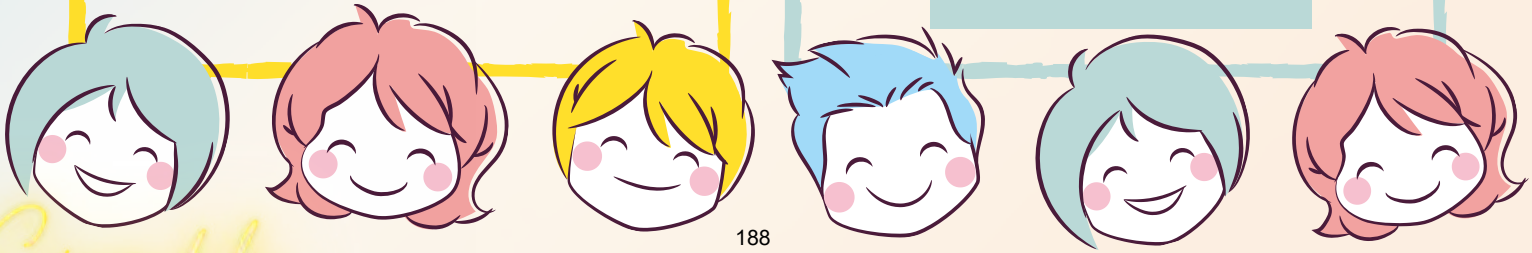
- TOTAL COLIFORM
- FAECAL COLIFORM
- *E.COLI*

CHEMISTRY

- COD
- TSS
- PH
- COLOUR

PRECIOUS MEMORIES

Thank you!



Sparkle

+607 5565050+607
info@prisma-lab.com.my

SternMaid
contract manufacturing service

"Understanding Needs. Aiming for Perfection. We are Stern"

WHAT YOU LEARN

- ❑ Become More Independence
- ❑ Making connections with a lot of people from others department.
- ❑ Enhance laboratory skills and communication skills

JOB SCOPE

Documentation

- Kosher raw material list
- MYeHALAL portal online

Laboratory Test

- Loss on Drying test
- Sieving test
- pH test
- Solution test
- Homogeneity test

COMPANY BACKGROUND

- ✓ SternMaid Asia Pacific Sdn Bhd is a wholly-owned subsidiary of Stern-Wywiol Gruppe Holding and this company was founded in 2017.
- ✓ SternMaid Asia Pacific is responsible to produce food products by using the latest technology in a modern laboratory .
- ✓ It has provided many services to their user including high quality and homogenous ingredient blending, quality control and analytical testing of finished goods, raw material sourcing from global supply pool, complete supply chain management and Halal and Kosher capabilities as well as strictest FSSC 22000 compliance.

INCENTIVE !!!!

- ❖ Free meal
- ❖ Allowance
- ❖ A lot of outdoor activities

How to apply:
Send your email and resume to :
skaliannan@sternmaid.com.my

Made by : Hazimah Izzati Binti Sazahly (A17MB0044)
Industry's Supervisor: Cik Siti Farizah Binti Wagimen
Faculty's Supervirsor: Dr. Huszalina Binti Hussin

JACOBS DOUWE EGBERTS

RESEARCH & DEVELOPMENT
INDUSTRIAL TRAINING EXPERIENCE

BELIEF : *It's amazing what can happen over a cup of coffee*

VISION : *Everyone deserves the coffee they love*

COMPANY OVERVIEW

JACOBS DOUWE EGBERTS (JDE) For more than 265 years, we have been inspired by the belief that it's amazing what can happen over a cup of coffee. Today our coffee & tea portfolio is available in over 100 countries around the world through iconic household names including Jacobs, Tassimo, Moccona, Senseo, L'OR, Douwe Egberts, TiÓra, Super, Kenco, Pilao & Gevalia.

JOB SCOPE

- Nutrient Claims & Criteria
- Health Indulgence Program
- Nutri-Grade Score System

PREPARED BY

Sarah Athirah binti Shaifulddin
tyra.sarah@gmail.com

CONTACT INFO

Lot 7648, Jalan Permas Barat,Taman Perindustrian Sri Plentong, 81750 Masai, Johor

super@superfood.com.my
(07) 388 6868

Internship
Jacobs Douwe Egberts (JDE)

SUPER FOOD TECHNOLOGY SDN BHD
20th July 2020 - 9th October 2020

Intern: Shareen Suzanna Wiji (A17mb0167)

Supervisor Industry: Ms Herdayu Binti Zanalibidin

Supervisor Faculty: Dr Saleha Binti Shahar

IT'S AMAZING WHAT CAN HAPPEN OVER A CUP OF COFFEE

SUPER FOOD TECHNOLOGY SDN BHD

Super Group was founded in 1984 and acquired by JDE in 2017. Now become leading company for 3 in 1 instant coffee, and supplier for ingredient business (coffee and tea).

JOB SCOPE (Analysis & Test)

My industrial Training was completed at Quality Department - Mixes Plant Laboratory.

Assisting and performing;

- Quality Inspection - Incoming Raw Materials & Packaging Materials
- Online Quality Inspection - In Process Premix & Finished Good Quality
- List of Test Conducted: Nitrogen Test, Leaking Test, Moisture Content Analysis, Density Test, pH Test, Colour Test, Visual Analysis, Sealing Integrity Test, Green Bean Analysis, Undersize Particle Analysis, Brimful Test, Weekly Salmonella Swab Test
- Calibration lab equipment: Moisture analyzer, pH meter, colourette meter

pHTest

SensoryTest

Nitrogen Test

Leaking Test

Moisture Content Analysis

Dimension Inspection

Packing Machine

Sanitation Tools Board

Hand Brush & Dustpan

PROJECT
(GMP & Sanitation Improvement)

To ensure Good manufacturing practice (GMP) and Sanitation in Model Line (Cereal Line) is implemented and improve from Day 1 to Day 60.

- Develop & Provide - Procedure (WI), OPL, Training for Cleaning Packing Machine.
- Hand Brush & Dustpan - Placement, Colour Coded, Labelling
- Designing Sanitation Tools Board - Mixes Plant

SPECIAL TASK

- **Assisting New Product Development Project** - Backup data, Plant Trial, Develop Weight Spec, Analysis (sensory, density, pH)
- **Food Safety Documentation** ; Develop, Revise, Adding Step - Work Instruction (WI), One Point Lesson (OPL)
- **Documentation for Packaging Reference** - according to SAP number & country; Allow QC refer before running product (ensure using correct packaging).
- **5S** – Sorting & Labelling Retention Sample According to FIFO (First in First out)

Packaging Reference

Retention Sample

WE BELIEVE IN BRINGING THE BEST IN YOU

Special Thanks to Super Food Technology Sdn Bhd, specifically to my manager Ms Chloe for giving me opportunity to experience not only in laboratory activities but also in production, training, meeting, audit, and new product development.

DISCOVER MORE AT WWW.SUPERGROUPLTD.COM

Lot 7648, Jalan Permas Barat, Taman Perindustrian Sri Plentong, 81750 Masai, Johor
muhamadhelmy.abubakar@jdecoffee.com
Tel: (607) 388 7878 ext. 238 Fax: (607) 388 7887

INDUSTRIAL TRAINING AT JDE COFFEE

SUPERVISOR : MS GOH KE PEI

Company Background

On June 2017, Super Group became an independent entity within the Jacobs Douwe Egberts (JDE) global coffee and tea portfolio. It has significant milestone for the coffee and tea industry and serve high quality products to customer and consumers in Asia. Given its illustrious success over the last 30 years as a leading Asian integrated instant food and beverage brand owner and manufacturer, Super Group play a key role expanding JDE's footprint throughout the Asia.

Incoming Quality Inspection

- checking of raw material (coffee bean & tea leaves)
- ingredients (sampling and moisture content)
- packaging material (check leaking, thickness etc of PE Bag)

Finished Good Quality Inspection Lab

- checking of coffee powder (moisture, pH, density, sediment etc)

Project Involment

- Sanitation improvement from Day 1 to Day 60.
- Sanitation tools arrangement
- Training for 5S and sanitation improvement
- Propose new cleaning solution

Research Studies

- Moisture content and calibration
- DOD Calibration & training
- Grinded Roasted Bean

JDE
A coffee for every cup

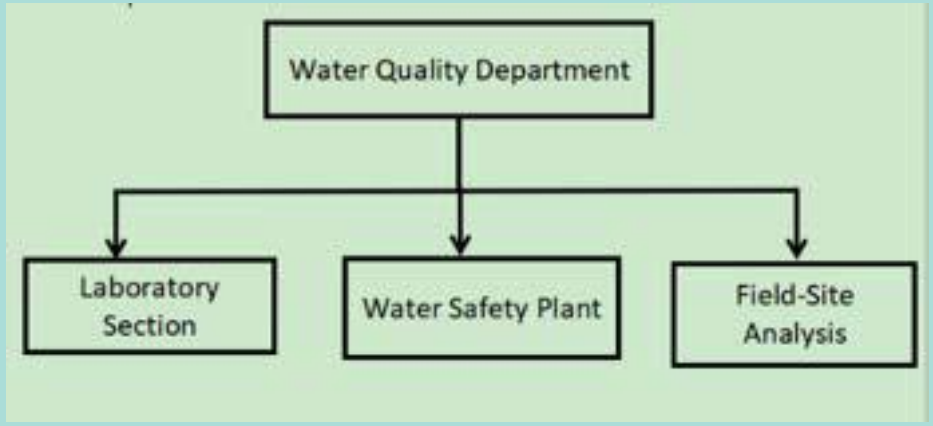
SHARIFAH HUMAIRAH BINTI SYED AMIN A17MB0168

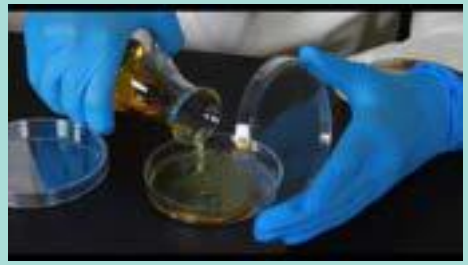
RANHILL SAJ

WATER QUALITY DEPARTMENT

Shazrina Izlyn Binti Satar
A17MB0169
Bachelor of Science (Industrial Biology)

Responsible to supply quality water from catchment to consumer





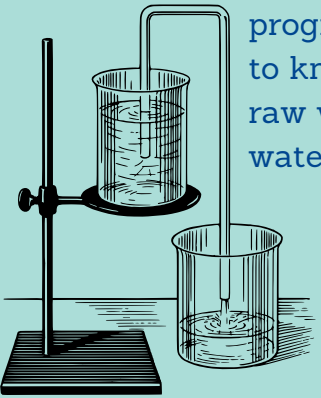
Preparation Agar Media

NA : cultivation of bacteria & enumeration of organism in water
PDA : cultivation of fungi, yeast & mold

Quanti Tray

quantify coliform, E. coli, Psedomonas aerugenosa, Enterococci,

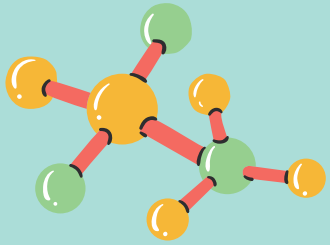
Water Quality Index

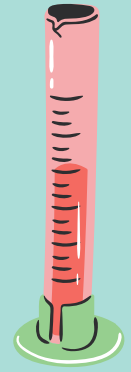


programme that has been held to know the condition of the raw water and and classify raw water into a few classes

Water Quality Analysis

testing for all parameter to raw, settled, filtered and treated water





Company's profile

PGEO
Edible Oils Sdn. Bhd.
(Packaging Division)
QC Department
PLO 338, Jalan Tembaga Dua, Kaw. Perindustrian Pasir Gudang,
81700, Pasir Gudang, Johor
Contact no.: 07-299782

Core values:
-Integrity
-Excellence
-Passion
-Innovation
-Teamwork

Policies:
-Sustainability
-Food Safety
-Human Right
-Health and Safety

Products:
-Processed palm oil
-Coconut oil
-Soybean oil
-Cocoa butter
-Biodiesel

Training scopes and objectives

Able to differentiate and know the types of oil

Learn and understand the chemical analysis for quality control

Able to calibrate instruments

Do data analysis and involve in anti-clouding agent project

Instruments

Gas chromatography

NMR analyzer

NIR 194 **analyzer**

Priceless experiences

Visit other labs' branch that have various instruments and analysis

Experiencing real-life working environment

Able to do many analysis and use many instruments

Mini Project

Study the effect of anti-clouding agent on the rate of oil's crystallizations at different temperatures.

Results :
-Completed for 18°C and 20°C
-Still on-going for air-conditioned temperature

Normal oil

Crystallized oil

Student: Siti Farwizah binti Kamil, 3 SMBT
SV Faculty: Dr. Saleha Shahar, Senior Lecturer ,UTM
SV Industry: Ms. Tee Pin Pin, Lab Manager of QC Department

Kuala Lumpur

UNIVERSITY OF MALAYA

DEPARTMENT OF PARASITOLOGY, FACULTY OF MEDICINE,

ABOUT ORGANISATION

- Entomology research team with project objective to **identify vectors of *Plasmodium knowlesi*** (human malaria parasite)
- Study new **paradigms for dengue surveillance** to prevent spread of Malaria deadly disease
- Develop **mosquito capturing sticky traps** for randomized control studies
- **Mosquitoes breeding** in insectarium room for conduct infection experiments

INSTRUTMENT

Real-time PCR machine

Vertical laminar air flow cabinet

PCR machine

GelDoc

Centrifuge machine

JOB SCOPE

- LB agar pour plate
- Glycerol stock preparation
- Competent cell preparation
- Ligation
- Transformation
- Colony PCR, directional PCR
- DNA purification from gel
- Gel electrophoresis
- Nested PCR
- Protein induction using IPTG
- Protein purification
- SDS-PAGE
- Western blotting
- Plasmid extraction
- Laboratory cleaning

EXPERIENCE

- Communication skills
- Time management skills
- Critical thinking skills

Organizational supervisor:
DR. NORAHIM IBRAHIM
Lecturer of Department of Bioscience, Faculty of Science, UTM

Faculty supervisor:
ASSOC. PROF. DR. LAU YEE LING
Head of Department of Parasitology, Faculty of Medicine, UM

Department of Parasitology,
Blocks N & O, Level 5,
Faculty of Medicine,
University of Malaya,
50603 Kuala Lumpur, Malaysia
+603-7967 4745
lauyeeling@um.edu.my
https://medicine.um.edu.my/parasitology-department
www.facebook.com/parasiteum

UTM
UNIVERSITI TEKNOLOGI MALAYSIA

Prepared by: **GOH LIM YUE**_3SMBT

ARACHEM (M) SDN BHD

30TH ANNIVERSARY SINCE 1990 — Today's Innovation. Tomorrow's Technologies.

Arachem Since 1990

11, Persiaran Industri, Taman Perindustrian Sri Damansara,
52200 Bandar Sri Damansara, W.P.K.L.

603-6276 2323

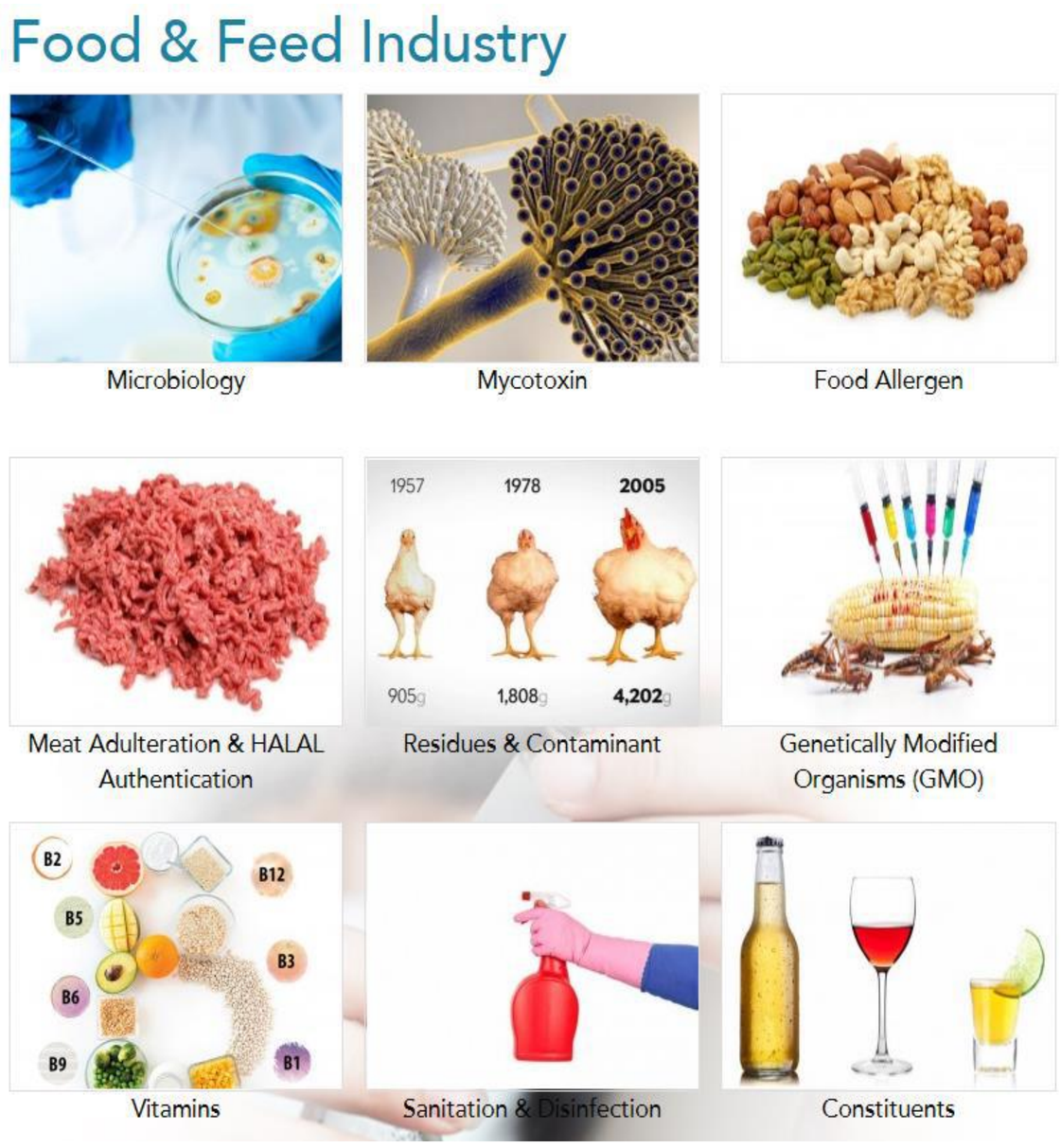
Introduction

A scientific and engineering company established since 1990 with emphasis on marketing, sales consultation and installations of only the world's proven and most advanced and innovative systems, equipment and services for water and water related industries i.e. water, waste-water treatment, food & beverages and fluid & liquid related industries.

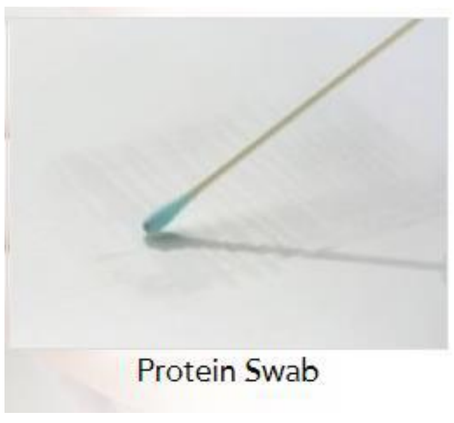
Biotechnology Division

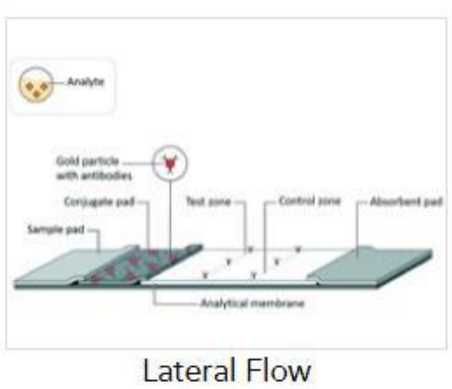
Representing innovative and advanced rapid diagnostic solutions in Food, Feed, Aquaculture, Animal Health Profiling, Pharmaceutical, Cosmetics & Toiletries

- ✓ Provide solutions in laboratory design, set-up
- ✓ Establishment of protocol related to:
  - Hygiene Monitoring
  - Quality Assurance
  - Pathogen Testing
  - Bioavailability
  - Bioequivalence
  - Toxicological studies

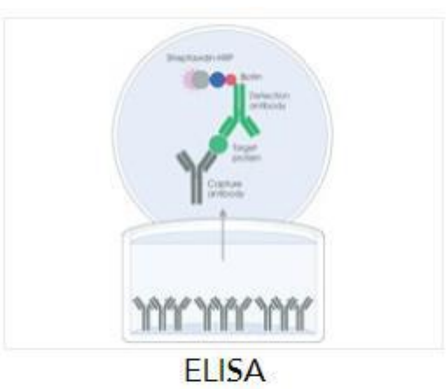


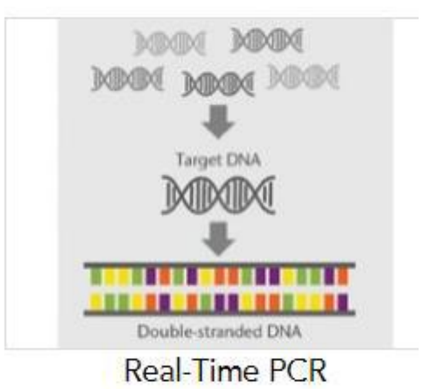
Analysing Methods


Protein Swab

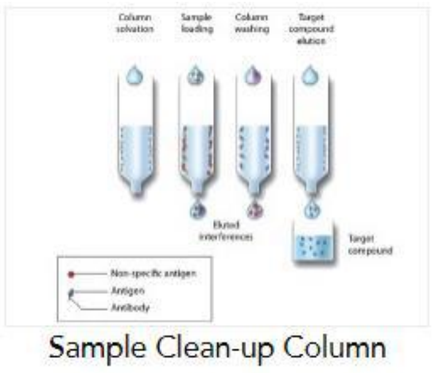


Lateral Flow

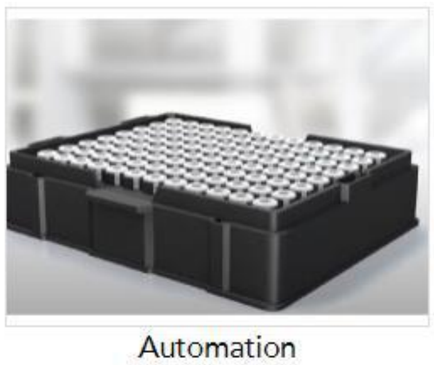

ELISA



Real-Time PCR



Sample Clean-up Column


Automation

Immunoaffinity Column


Microbiological Assay

Industrial Supervisor:

- Ms. Manida Chap Kiau (Sr. Technical Support & Training Executive)

Faculty Supervisor:

- Dr. Abdul Fatah A. Samad

Prepared by:

- Soo Kai Huan (A17MB0176)

Pahang

Universiti Malaysia PAHANG
Engineering • Technology • Creativity

FARANADIA BINTI SAHARUDIN (A17MB0034)
BACHELOR OF SCIENCE (INDUSTRIAL BIOLOGY)

SUPERVISORS (INDUSTRY)

MS. NURUL AZRA BINTI BAKARUDDIN
RESEARCH OFFICER
nurulazra@ump.edu.my

MR. AZINUDDIN ZULFAHMI BIN MEGAT
SCIENCE OFFICER
azinudin@ump.edu.my

SUPERVISOR (FACULTY)

DR. AZMAN ABD SAMAD
SENIOR LECTURER
azmansamad@utm.my

CARiFF

Center of Excellence for Advanced Research in Fluid Flow

Center of Excellence for Advanced Research in Fluid Flow (CARiFF) was established in December 2011 to perform research in fluid flow and chemical process engineering.

Aim :

- To support the university and surrounding community with state-of-the-art facilities and services.
- To produce high impact research by excellent researchers based on key areas with the support of properly trained staff and personnel.

Technical Services :

- Material Analysis
- Microfluidics Testing and Fabrication
- Velocity Measurement Analysis
- Analytical Chemistry

ROUTINE

1. Received sample
2. Register sample
3. Prepare sample
4. Sample analysis
5. Analyze data and save results
6. Send results to client
7. Clean the sample holder

JOB SCOPE

Equipment
- Create SOP for Needleless Electrospinning Machine
- Promotion brochure for all equipments
- Sample preparation for SEM, XRD, TEM, XPS analysis
- Sample analysis for SEM, XRD, TEM, XPS etc.

Management
- Register sample
- Manage Park Grant form
- Purchase item
- Report

UTM
UNIVERSITI TEKNOLOGI MALAYSIA

ADVANCED EQUIPMENTS

Scanning Electron Microscope with Energy Dispersive X-Ray Spectroscopy

BRAND : HITACHI
MODEL : TM3030PLUS

X-Ray Photoelectron Spectroscopy

BRAND : ULVAC-PHI
MODEL : VERSAPROBE II

Powder X-Ray Diffractometer

BRAND : PANalytical
MODEL : X'Pert³ Powder

WATERWORLD NETWORK SDN. BHD

BY: TAN CHIA CHYI A17MB0179 3SMBT

INTRODUCTION

Waterworld Network Sdn. Bhd. is a manufacturer for Reverse Osmosis (R.O) and Alkaline Drinking Water that established in year 2005 by Mr. Tan Boon Chan. It specialised in supplying top quality drinking water in various packaging. The product range includes famous brands such as Lucky Day, Fine Day and K1.

No. 6 & 8, Jalan Jaya Gading 2, Kawasan Industri Jaya Gading, Jaya Gading, 26070, Kuantan, Pahang, Malaysia

+609-539 8872/8471

www.waterworldnetwork.com

JOB SCOPE

Quality Control Monitoring

- Incoming inspection
- In Process inspection
- Finished Goods Inspection

Lab Testing

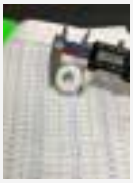
- pH & TDS
- Total Chlorine Test
- Calibration & Validation
- Colilert Test
- SimPlate

Other Activities

- Research & development on Tamarind Juice
- On site production plant inspection
- Handling product quality complaint

Quality Control Monitoring






Lab Testing




PRICELESS EXPERIENCE

This industrial training allows me to expose to the working environment and understand the operations of food & beverage industry, which will train us to apply the theoretical knowledge learned during the lecture in the work.

I feel fortunate to get experience in a food & beverage industry and this experience is helpful in improving my competence, personality development and soft skills.

SUPERVISOR DETAILS

Industrial Supervisor:

Ms. Nurul Zatil 'Amirah Binti Karim

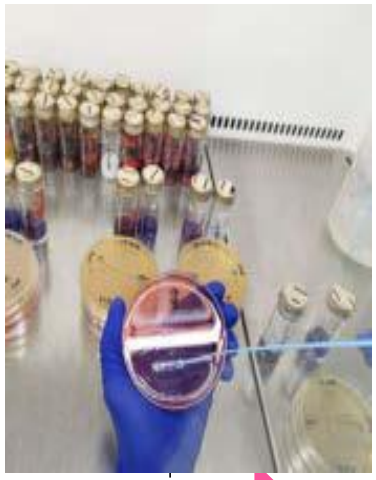
Faculty Supervisor:

Dr. Azman Abd Samad

Pulau Pinang

Eurofins NM Laboratory SDN BHD Pulau Pinang

By Hong Choon Keat
3SMBT



Supervisor details

- Ms. Vijayenthy Nadarajan (Industrial Supervisor)
- Dr. Nurriza Binti Ab Latif (Faculty Supervisor)

Instruments

- Electronic balance
- Incubators
- Laminar Flow cabinet
- Biosafety cabinet

Training

- Follow up testing for food and cosmetics products,
- Documentation and record
- General housekeeping

Experience

- Enhance laboratory technical skills
- Responsibilities
- Exposure to friendly laboratory working environment

Laboratory techniques

- Streak plate
- Pour plate
- Spread plate
- Serial Dilution
- Membrane filtration

CENTRE FOR DRUG RESEARCH, USM (PENANG)

SUBAHSSHINIEE A/P SUDDAKAR
3 -SMBT (INDUSTRIAL BIOLOGY)
subah975@gmail.com
A17MB0178

CDR mainly focuses on Neuroscience, Epidemiology and Behavioural Science, Biomedical Analysis and Drug Discovery and Development.

PROJECT TITLE :
'PHYTOCHEMICAL ANALYSIS OF *GARCINIA* SP'.

Objective of this project

To Extract Phytochemicals from the Stem bark of *Garcinia* sp.

Summary of our project

- ***Garcinia* stem bark is air-dried and ground into fine powder (2.5kg)**
- **Soxhlet Extraction**
- **Rotary Evaporation**
- **Liquid-liquid Extraction**
- **Thin Layer Chromatography (TLC)**
- **Column Chromatography**

Organisational Supervisor

Professor. Dr. Surash Ramanathan
Dr.Tan Wen Nee

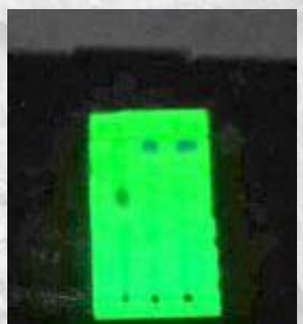
Faculty Supervisor

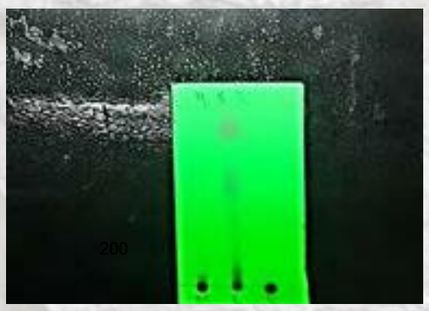
Dr. Nurriza binti Ab.Latif

What I Learned

- **Managed to understand the role of a researcher in the field of chemistry**
- **Realized that observation is the main element to find the cause of a problem**
- **Strengthened my communication skills as I tried to communicate with the postgraduate students and the staffs in the lab to clear some doubts**
- **Sharpened my hands-on skills in the lab by managing most of the equipments by myself**
- **Learned to think critical and analytical to organize the tasks and assignments**
- **Learned to manage time as things need to be done as planned**

CONTACT : +604-658 3444
EMAIL: dir_cdr@usm.my
Centre for Drug Research, Universiti Sains Malaysia, 11800 USM, Penang, Malaysia





Perak

Name : KEE WEI MIN
No. Matric : A17MB0054

Industrial Supervisor : Ms. Connie Wong
Faculty Supervisor : Dr. Razauden

ExcelVite

Your Preferred Partner in Palm Nutraceutical Excellence

Address :
Lot 56442, 7 ½ Mile,
Jalan Ipoh / chemor,
31200, Chemor,
Perak, Malaysia.

Tel : +60 (05) 2014 192
Fax : +60 (05) 2014 213
Website: www.excelvite.com

Daily Tasks :

- Shipment, Cleanliness & Plant Inspection
- Prepare Product Label Sticker
- Documentation & Filing
- Inventory & Stock Check

QA Department :

- Documentation
  - ✓ Master Document Registration List
  - ✓ Safety Data Sheet (SDS)
- SOP Amendment
  - ✓ Documentation System
  - ✓ Calibration & Verification of Instruments / Equipment
  - ✓ Internal Audit Guide (GMP & ISO/IEC 17025:2017)

QC Department :

- HPLC
- GC
- UV-Vis
- NIR
- OS Analyzer
- Karl Fischer Titrator

Sabah

SABAH BIODIVERSITY CENTRE

- ESTABLISHED AS THE STATE'S (SABAH) STRATEGY TO ENHANCE THE GOVERNMENT OF THE STATE BIODIVERSITY
- FUNCTION OF SABAH BIODIVERSITY CENTRE :
  - MANAGING AND SUSTAINING UTILISATION OF THE BIODIVERSITY OF THE STATE
  - DETERMINING POLICIES AND GUIDELINES FOR SCIENTIFIC RESEARCH OR EXPERIMENT RELATED TO THE ACCESS TO AND USE OF BIOLOGICAL RESOURCES OR ASSOCIATED RELEVANT KNOWLEDGE IN THE STATE

DAY TO DAY TASK

- Assist in the management of access and export licenses
- Preparation and organizing of files for Evaluation of Access and Export License Committee Meeting, Pre-Sabah Biodiversity Council meeting and Sabah Biodiversity Council meeting

OUTDOOR ACTIVITIES

Educational visit To Institute For Tropical Biology And Conservation, Universiti Malaysia Sabah

- Borneensis gallery
- Mycology lab

Selangor

INTERNSHIP INFOGRAPHIC

Biotechnology and Nanotechnology Center,Malaysian Agricultural Research and Development Institute (MARDI)

BIODATA

AMIRA SYARINA BT ABD AZIZ
A17MB0013
3SMBT

PLANT TISSUE CULTURE LAB

INTRODUCTION

ESTABLISHED ON 28 OCTOBER 1969
STARTED OPERATIONS IN MARCH 1971
HEADQUARTER AT SERDANG,SELANGOR
AGRICULTURE, FOOD AND AGRO-BASED INDUSTRIES

INDUSTRIAL SUPERVISOR

DR. ROGAYAH SEKELI
LYNN@MARDI.GOV.MY

UTM SUPERVISOR

DR. SITI PAULIENA MOHD BOHARI
PAULIENA@UTM.MY

EXPERIENCES:

- Plant tissue culture using rice paddy plants
- Real experience in exposure of working environment
- Improve knowledge and laboratory skills
- Able to do DNA extraction, gel electrophoresis and PCR

Job Scope:

Chemicals, apparatus, materials and equipmment handling
Callus induction
Subculture callus
Genetic engineering
DNA extraction
Gel electrophoresis
PCR

CH'NG HAN SHENG A17MB0026

PERMULAB BVAQ

A Bureau Veritas AsureQuality Joint Venture

- Permulab Sdn. Bhd. was established in **1996**.
- One of the diversified laboratories which play a major role in the laboratory analysis in **water, food, pharmaceutical, palm oil, cosmetics, toiletries, microbiological and environmental monitoring** related activities in Malaysia.

Address: A-G-16, Merchant Square, Jalan Tropicana Selatan 1, PJU3 47410 Petaling Jaya, Selangor, Malaysia

Tel: 03 – 7883 0068

Website: www.permulab.com.my

JOB SCOPES

Preparation works

- Media
- Sample bottles
- Laboratory needs

Assist in checking result

Proceed samples testing

Confirmation tests

Eric Ng Zhen Xiang
3 SMBT
Industrial Biology

UTM
UNIVERSITI TEKNOLOGI MALAYSIA

Sime Darby Plantation
Developing Sustainable Futures

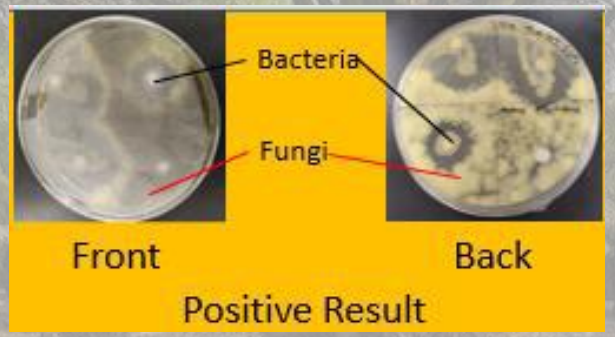
1st Floor, Block B, UPM-MTDC Technology Centre III Malaysia, Lebuh Silikon, Putra Square, 43400 Serdang, Selangor

Personal Profile:
I had completed my 12 weeks internship at Sime Darby Plantation Technology Centre. I was placed in the Integrated Applied Biology Laboratory with the project on application of the biotechnology into the upstream and downstream of the oil palm plant.

1. Mung Bean Phytotoxicity Mini Experiment

2. Palm Oil Tissue Culture inoculated with bacteria strain

3. Antagonistic test of selected bacteria towards selected fung



Contact details
Industrial Supervisor :
Dr. Teh Huey Fang
Faculty Supervisor :
Dr. Siti Paulena Mohd Bohari

Learning outcomes

1. Opportunity to handle several project and tasks on biotechnology and molecular
2. Gain valuable working experiences
3. Netwoking with the professionals in the industry
4. Developed analytical, laboratory and critical thinking skills
5. Established appropriate experimental procedures

PERMULAB SDN. BHD.

Fua Yung Yung 3SMBT

A Bureau Veritas AsureQuality Joint Venture

Company Background

- Diversified laboratories providing analysis in water, food, pharmaceutical, palm oil, cosmetics, toiletries, microbiological and environmental monitoring related activities in Malaysia

- Accredited under Laboratory Accreditation Scheme of Malaysia (SAMM) meeting the requirements of MS ISO/ISE 17025: 2017

Job Scope (Environmental department; Microbiology division)

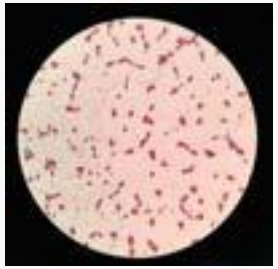
- Site sampling
- Preparation works (media / sampling material)
- Proceeding sample testing
- Confirmation test

Additional tasks

- Non-halal food sample testing
- Molecular work training
- Internal QC








Personal Information

- Name: Hoo Wei Qi
- Year/Course: 3/SMBT

Organizational Supervisor

Miss Tan Yui Ching
Quality Executive

Faculty Supervisor

Dr. Goh Kian Mau
Lecturer of Faculty Science

UTM
Industrial Training Program

SG GLOBAL BIOTECH SDN .BHD.

pharma@hai-o.com.my
Lot 1388 Blok A, Jalan Kapar, Batu 2 1/2, 41400 Klang, Selangor
03-33410713

INTRODUCTION

- Formally known as Hai-O Pharma
- Founded in the year 1994
- Traditional herbal medicine manufacturer

JOB SCOPE

- Quality Control Monitoring
- Environmental Monitoring
- Laboratory Test
- Sampling for analytical test
- Stability Study
- Calibration of Equipment

Laboratory Test

Physical Test

- Friability test
- Uniformity of Weight
- Thickness, diameter and hardness anaysis
- Moisture test
- Disintegration test

Analytical test

- Microbe Test
- Heavy Metal Test

Instruments

Moisture Analyzer

Thickness, Diameter, and Hardness Tester

Triple Basket Tablet Disintegration Tester

Oven Thermometer

Lesson Learnt

- Multitasking
- Communication Skills
- Time management Skills
- Problem-Solving Skills

MERIEUX NutriSciences

Industrial Training at Acumen Scientific Sdn. Bhd.

WISMA TEXCHEM,
LOT 808 & 809,
Jalan Subang 5,
Taman Perindustrian
Subang, 47610 Subang
Jaya, Selangor

03-5634 5618

Student's Name:
LEE WEI QI
Matrics No.:
A17MB0065

Faculty Supervisor:
Dr. Abdul Fatah A.
Samad

Industry Supervisor:
Ms. Cheng Pui Wah

Introduction

Acumen Scientific consist of 3 different departments which is:

- Water Testing
- Food Safety and Quality
- Microbiology Testing

Job Scope

Job scope at Water Testing Department involves conduct analytical test on different water samples based on Standard Methods (APHA).

Experience

- Using apparatus related to analytical chemistry
- Involved in environmental test like Phenol, Free Chlorine, BOD and others.

Instruments

pH meter

UV Spectrophotometer

Dissolved Oxygen Meter

Industrial Training at CPDRL, UiTMMSC under Faculty of Medicine, UiTM Sg. Buloh

Siti Nur Amirah Binti Munshee 3SMBT

INTRODUCTION

The Faculty of Medicine, UiTM was first established in 2002 by the MOE in Petaling Jaya, Selangor. Currently, all of their administrative and residents are located at Sungai Buloh campus where the Clinical Training Centre (CTC) was opened and offers services for the communities in Sungai Buloh which now known as UiTM Medical Specialist Centre.

UiTMMSC has the Center of Pathology Diagnostics & Research Laboratories (CPDRL) which is an accredited medical laboratory that comprised of five pathology disciplines, namely **Anatomic Pathology, Chemical Pathology, Haematology & Transfusion, Medical Microbiology and Forensic Medicine.**

JOB SCOPE

- Data entry and reporting for antibiotic resistance in UiTMMSC.
- Laboratory rotation at different department & assisted them with diagnostic tests and screenings such as microbiology diagnosis, blood & urine samples tests, organs tissues processing for diagnosis of diseases and a lot more.

How to apply?
Send your resume to
norazura@uitm.edu.my
Tel No : 03-61267006

THINGS LEARNT

- ✓ I was able to improve my laboratory skills tremendously.
- ✓ I upgraded my social and soft skills during laboratory rotation.
- ✓ I was exposed and learnt a lot on medical understandings & skills.

PRICELESS EXPERIENCE.

- I joined in on the observation of COVID-19 processing samples and get to watch how they processed & produced COVID-19 results.
- Being exposed to all sort of sample specimens coming from patients such as urine, stool, sputum, tissue organs and a lot more.

UNIVERSITI TEKNOLOGI MALAYSIA

SMBU 3915 INDUSTRIAL TRAINING (Section 02)

Student's Name	Industrial Supervisor	Faculty Supervisor
TEOH YEE JING	**DR. VIJAYENDRAN GOVINDASAMY**	**DR. ABDUL FATAH BIN A. SAMAD**

cryocord 凯儿库
premier stem cell bank

Suite 1 -1, 1st Floor, Bio – X Centre,
Persiaran Cyberpoint Selatan,
Cyber 8, 63000 Cyberjaya, Selangor,
Malaysia.

Tel: +6 03 8689 8888

Established in 2002, CryoCord is one of the largest and most comprehensive private stem cell facilities in Southeast Asia, specialising in long-term human stem cell, tissue cryopreservation and research.

Research & Development (R&D)Department

Duties

- Validation of culture media
- Classification of reagents
- Renewal of equipment list
- Creation of laboratory instruction posters
- Assisted colleague in their projects
- Laboratory cleaning

Summary of Main Project

Validation of Culture Media

Mesenchymal Stem Cells (MSC)

↓

culture in different brands of culture media

↓

allowed to achieve 80-90% confluency

↓

harvest cells

↓

validated the quality of cells in each media

↓

growth kinetics; *CFU-fibroblast assay*; *differentiation assay*; *senescence assay*

Skills Learnt

- Aseptic technique
- Media preparation
- Cell culture
- Manual cell counting
- Harvesting of adherent cells
- Performed MSC validation
- Interpersonal skills
- Take ownership of own work