JAMES RENNIE BEQUEST

REPORT ON EXPEDITION / PROJECT / CONFERENCE

Expedition/Project/ Conference Title: 1 Week Work Placement at Central Analytical Lab UTP

Travel Dates: 25th of December 2022 to 16th of January 2023

Location: University Technology Petronas

Group member(s): Nazmi Dzulkifli

Aims: To learn more about analytical devices

Photography consent form attached: *(please refer to your award letter)*

☐ Yes
☒ No

OUTCOME:-

Date	Time	Item	PIC	Location
9 Jan 2023 (Monday)	8.30 – 1.00	Intro, Safety briefing & CAL Lab Tour	Shila, Pn Naim, En Shairul	CAL Meeting Room
	2.00 – 5.30	Transmission Electron Microscopy	Shila	P-00-34
10 Jan 2023 (Tuesday)	8.30 – 1.00	UV-Visible Spectroscopy, Water Testing (pH, Turbidity & Total Suspended Solid)	Yusyawati	14-00-05
	2.00 – 5.30	Gas Chromatography Mass Spectroscopy & NMR	Pn Naim	P-00-27
11 Jan 2023 (Wednesday)	8.30 – 1.00	High Performance Liquid Chromatography	En Jailani	20-00-03
	2.00 – 5.30	Thermal Gravimetry Analyzer/Differential Scanning Calorimetry	En Shairul, Pn Faizah	P-00-39
12 Jan 2023 (Thursday)	8.30 – 1.00	Scanning Electron Microscopy & Field Emission Scanning Electron Microscopy/EDX	En Anuar, En Adam	P-00-33
	2.00 – 5.30	Fourier Transform Infrared Spectroscopy	En Jailani	04-02-09
13 Jan 2023 (Friday)	8.30 – 12.30	X-Ray Diffractometer	En Irwan	P-00-06
	2.30 – 5.30	Surface Area & Porosimetry Analyzer	En Omar	P-00-06

Figure 1 My timetable

Figure 2 Here I am pictured standing in front of my office

Over the course of 1 week, I learn 12 analytical devices (Transmission Electron Microscopy, UV-Visible Spectroscopy, Water Testing (pH, Turbidity & Total Suspended Solid), Gas Chromatography Mass Spectroscopy, NMR, High Performance Liquid Chromatography, Thermal Gravimetry Analyzer/Differential Scanning Calorimetry, Scanning Electron Microscopy & Field Emission Scanning Electron Microscopy/EDX, Fourier Transform Infrared Spectroscopy, X-Ray Diffractometer, Surface Area & Porosimetry Analyzer) at the Central Analytical Lab of University Technology Petronas. My supervisor was Mrs Hashila and she guided me through all the machines available at the facility with introductions to all the technicians. Here I outline three main outcomes I have achieved throughout my period at Central Analytical Lab:

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1) Learn Analytical Devices

Even though my work placement period was short, I learnt a total of 12 different machines from 8.30am to 5.30pm throughout the period. As I am from a biological background, learning about machines from technicians that specialises more on material and chemical knowledge allows me to understand the machines deeper. For example, in class I learn X-ray crystallography on how I can ascertain the structure of a protein from its crystal. With X-ray diffractometer, by using the same concept we can ascertain the compound composition inside a given sample. Every time I learn more machines that are outside my lectures in this work placement and even able to interact and operate it, I feel very excited. The excitement comes from the numerous ideas on how I can link it to my studies especially in synthetic biology as that is my passion.

Figure 3 X-ray diffractometer

2) Career guidance

Learning from different technicians, experts of their own machines was very eye opening and humbling. I am privilege to be able to access their help and utilise my placement to also enquire on career guidance. They have been working for decades in their field hence I find their tips to be very valuable. The topics that were discuss were:

- Job prospects of working in Malaysia
- Possible routes I could take to pursue my professional targets
- Advice on further education

By maximising their guidance, I was able to conduct a more informed meeting with a potential PhD supervisor at University Malaya.

3) Networking opportunity

I was able to utilise my work placement period to network extensively with University Technology Petronas students. This professional network would allow me to access more resources in my career.

I appreciate the help I have received from the James Rennie Bequest Fund and the Central Analytical Lab. From my perspective, £500 awarded to me was well utilised and is a good investment for my holistic development as a fellow University of Edinburgh student.