

Main Organiser:

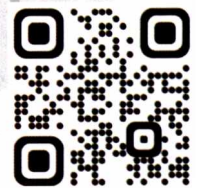
Co-organiser:



**2<sup>ND</sup> International Conference**  
 on INNOVATIVE SCIENCES AND TECHNOLOGIES  
 For Research And Education

**InnoSTRE 2022**

Probing The Societal Challenges Through A Unified Interdisciplinary Platform



**25<sup>th</sup> - 27<sup>th</sup> October 2022**  
 Borneo Convention Centre Kuching (BCCK)  
 Sarawak, Malaysia

Supported by:



## **INTERNATIONAL ORGANISING COMMITTEE**

2nd International Conference on Innovative Sciences and Technologies  
for Research and Education (InnoSTRE) 2022

*“Probing the societal challenges through a unified, interdisciplinary platform”*

<b>PATRON</b>	The Right Honourable Datuk Patinggi Tan Sri (Dr) Abang Haji Abdul Rahman Zohari Bin Tun Datuk Abang Haji Openg <i>Premier of Sarawak, Malaysia</i>
<b>ADVISOR</b>	Professor Dato Dr. Jamil Haji Hamali
<b>CHAIR</b>	Professor Dr. Firdaus Abdullah
<b>CO-CHAIR</b>	Professor Dr. Khong Heng Yen Professor Dr. Liang Chao-Zhao (China) Professor Drs. H. Sutrisno (Indonesia) Mr. Yang Cheng Cheng (ACEC)
<b>DEPUTY CHAIR</b>	Dr. Liew Chin Ying Associate Professor Dr. Tang Howe Eng
<b>ORGANISING SECRETARY</b>	Imelia Laura anak Daneil
<b>ORGANISING COMMITTEE</b>	Professor Dr. Abang Zainoreen Abang Abdurahman Associate Professor Dr. Mohammad Isa Mohamadin Dr. H. Junaidi (Indonesia) Professor Dr. Huang Xiao Hui (China) Associate Professor Dr. Ellen Chung Assistant Professor Dr. Korawinwich Boonpisuttinant (Thailand) Associate Professor Dr. Haryoto (Indonesia) Associate Professor Dr. Evizal Abdul Kadir (Indonesia) Associate Professor Dr. Leong Siow Hoo Dr. Isabel Fong Lim
<b>TECHNICAL COMMITTEE</b>	Associate Professor Dr. Robin Chang Yee Hui Professor Dr. Lorraine Pe Symaco (China) Professor Dr. Fitri Suraya Dr. GP Rao (India) Associate Professor Dr. Siti Rasidah

**InnoSTRE 2022**

25 - 27 October 2022

Borneo Convention Centre Kuching (BCCK), Sarawak, Malaysia

---

# 2<sup>nd</sup> International Conference on Innovative Sciences and Technologies for Research and Education (InnoSTRE) 2022

*Probing the societal challenges through a unified, interdisciplinary platform*

Editors:

Firdaus Abdullah

Khong Heng Yen

Robin Chang Yee Hui

Chiew Fei Ha

Lau Ung Hua

Widyani Darham

Ahmad Faiz Abdul Rashid

Joe Davylyn Nyuin

Universiti Teknologi MARA  
Cawangan Sarawak

Copyright © 2022 Universiti Teknologi MARA Cawangan Sarawak

All rights reserved. No part of this publication may be reproduced, distributed, or transmitted in any form or by any means, including photocopying, recording, or other electronic or mechanical methods, without the prior written permission of the publisher, except in the case of brief quotations embodied in critical reviews and certain other non-commercial uses permitted by copyright law. For permission requests, write to the publisher at the address below

Universiti Teknologi MARA Cawangan Sarawak,  
Kampus Samarahan, 94300 Kota Samarahan, Sarawak, Malaysia

Printed in Kuching, Sarawak, Malaysia

Published by Universiti Teknologi MARA Cawangan Sarawak, Kota Samarahan, Sarawak.  
ISBN: 978-967-26307-4-6

## Preface

### **2<sup>nd</sup> International Conference on Innovative Sciences and Technologies for Research and Education (InnoSTRE) 2022**

The 2nd International Conference on Innovative Sciences and Technologies for Research and Education (InnoSTRE) 2022 is organised at the Borneo Convention Centre Kuching (BCKK), Sarawak from the 25th to 27th October 2022. The objective of the conference is to provide a platform for local participants, from both academic and industrial, to present their most up-to-date research findings, and henceforth attracting original research papers of very high quality. This will inculcate innovative ideas and solutions to natural science, engineering and technology, education, humanities, and social science. The keynote addresses and invited talks provide productive ground for updates in the aforementioned areas. The turnout from the participants is encouraging, despite the previous coronavirus pandemic, with 140 papers submitted. The papers included in this volume are based on unbiased peer review procedures by at least two independent reviewers per paper. This event will not be successful without the hard work and dedication of the organising committee members. Special thanks are also reserved for the reviewers who have given immense efforts in providing sound comments to ensure the quality of papers published in the proceedings. Finally, we would like to thank the conference co-organisers, namely Anhui Medical University and Universitas Jambi (UNJA), with the support from the Sarawak Government, Business Events Sarawak, Malaysia Convention & Exhibition Bureau (MyCEB), Asean-China Education and Culture (ACEC) Association, Bai Shi Yin Organisation and East-Bio Systems Sdn Bhd.

## Table of Contents

International Organizing Committee	
Message .....	v
The Right Honourable Datuk Patinggi Tan Sri (Dr) Abang Haji Abdul Rahman Zohari Bin Tun Datuk Abang Haji Openg .....	v
Professor Datuk Ts Dr. Hajah Roziah Mohd Janor .....	vi
Professor Dato Dr. Jamil Haji Hamali .....	vii
Professor Dr. Firdaus Abdullah .....	viii
Program schedule .....	ix
Opening Ceremony .....	x
Forum schedule .....	xi
Closing Ceremony .....	xii
List of keynote speakers and topics .....	xiii
Parallel sessions topics .....	xvi
Day 1: 26 Oct 2022 / Wednesday .....	xvi
Day 2: 27 Oct 2022 / Thursday .....	xxvii
Contributed extended abstracts .....	1
Local InnoSTRE 2022 Committees .....	215

## FOREWORD

**The Right Honourable  
Datuk Patinggi Tan Sri (Dr) Abang Haji Abdul Rahman  
Zohari bin Tun Datuk Abang Haji Openg**  
*The Premier of Sarawak  
Patron, 2<sup>nd</sup> InnoSTRE 2022*



Greetings and a warm welcome to all the local and international participants from various countries attending the 2nd International Conference on Innovative Sciences and Technologies for Research and Education (InnoSTRE) 2022 conference, held here in the Land of the Hornbills, Sarawak.

This is the second time InnoSTRE2022 is being organised, with this year's theme "Probing the societal challenges through a unified, interdisciplinary platform". This conference is indeed a timely effort by Universiti Teknologi MARA Sarawak Branch, and it serves as an essential platform for academicians, researchers, and students of the unified, interdisciplinary fields to share and present their findings, as well as to exchange knowledge and expertise to contribute towards the sustainability of Sarawak. Congratulations to the organising committee for making this conference possible.

I believe InnoSTRE2022 is an auspicious platform for the advanced innovations, science, and technology. The advanced innovations, science, and technology theories presented in this conference will be developed through the deliberations and interactions among the researchers, technical experts, and policy-implementing agencies. The presence of esteemed experts around the globe will enrich our local knowledge and experiences in the pursuit of progress and advancement in Sarawak.

I am confident that InnoSTRE2022 will be a huge success and that the participants will have the opportunities to expand research connections, interact and exchange ideas and experiences for their personal development. We hope that Universiti Teknologi MARA will continue to organise international conferences as a platform to present breakthrough innovations and research findings in accomplishing our vision for a prosperous Sarawak.

Finally, we wish that you will have an enriching and rewarding conference experience in the City of Unity, Kuching, Sarawak. Have a pleasant stay here!

Thank you.

**THE RIGHT HONOURABLE  
DATUK PATINGGI TAN SRI (DR) ABANG HAJI ABDUL RAHMAN ZOHARI  
BIN TUN DATUK ABANG HAJI OPENG**

## FOREWORD

**Professor Datuk Ts. Dr Hajah Roziah Mohd Janor**

*Vice-Chancellor*

*Universiti Teknologi MARA*



*Alhamdulillah* and kudos to the organisers for finally and successfully hosting this event which was initially postponed due to the pandemic. This significant event would not have been possible without hard work and determination as well as contributions from all related parties. To all participants and delegates, I bid you *Selamat Datang* and welcome to the 2<sup>nd</sup> International Conference on Innovative Sciences and Technologies for Research and Education (InnoSTRE) 2022.

The conference theme "*Probing the societal challenges through a unified, interdisciplinary platform*" has been carefully chosen to mark such a milestone of our society. The theme resonates with the current global situation where we strive to adapt to unprecedented changes in the way we work, live, and learn. The recent pandemic has taught us that the global community can overcome extraordinary challenges through resilience and resourcefulness, and that knowledge is power. InnoSTRE (2022) provides the platform to express current concerns associated with innovative sciences and technologies from academics and industries. We are indeed privileged to organise such conference. There is no doubt that Universiti Teknologi MARA Sarawak Branch has made tremendous contributions in research, teaching, and practice resulting in impacts in many sectors of society. At this conference, let us celebrate what we as a professional community have achieved. Additionally, our future vision is to create even greater value to all corners of the globe. This conference will establish UiTM as a globally renowned university of science, technology, humanities, and entrepreneurship with the four distinguished conference tracks: (A) Natural Science, (B) Engineering and Technology, (C) Humanities and Social Science, and (D) Educational Innovation. This conference is a step towards achieving our vision in becoming a world-class academic and research institution to produce human capital with first class mentality.

It is a great pleasure to meet delegates and participants from near and far on this momentous occasion. Thank you to all academic partners who imparted their knowledge and thoughts through their excellently written papers, manuscripts, and research findings which are undisputedly the foundation of this conference. In addition, I would like to thank all sponsoring organisations for providing generous financial support. It is my aspiration that this conference will be a starting point for the growth of new ideas towards a better world. I also wish you a productive and fun-filled time at this very special conference.

**PROFESSOR DATUK Ts. DR HAJAH ROZIAH MOHD JANOR**



## FOREWORD

**Professor Dato Dr. Jamil Haji Hamali**

*Rector*

*Universiti Teknologi MARA Sarawak Branch*

*Advisor, InnoSTRE 2022*



Assalamualaikum warahmatullahi wabarakatuh, Peace be Upon You.

Alhamdulillah, all praise be to Allah, for his Grace in facilitating the organisation of this conference and giving us the opportunity to make this conference a success.

On behalf of Universiti Teknologi MARA Sarawak Branch and conference committee members, we cordially welcome you to the 2nd International Conference on Innovative Sciences and Technologies for Research and Education (InnoSTRE) 2022 held here in the Land of the Hornbills, Sarawak. We are very pleased with the positive responses to our invitation, from various local and international research institutions as well as institutions of higher learning. This conference is an impactful avenue to foster and transform our thoughts, ideas, and research in probing societal challenges through a unified, interdisciplinary platform for natural science, engineering and technology, education, humanities, and social science-related industries. Thank you to all the researchers from around the globe, who have accepted our invitation and to share their expertise and experiences here.

I would also like to put on record our gratitude to the Premier of Sarawak, The Right Honourable Datuk Patinggi (Dr) Abang Haji Abdul Rahman Zohari bin Tun Datuk Abang Haji Openg, for allowing us to organise and host this conference in Kuching, Sarawak. The commitment and concerted effort from both the international and local organising committees have made this conference possible. My deepest gratitude to our co-organisers, Anhui Medical University, China, and Universitas Jambi, Indonesia, and our supporters from the Sarawak Government, Business Events Sarawak, Malaysia Convention & Exhibition Bureau (MyCEB), ACEC Association, for their contribution and support in making this conference a success. We look forward to nurturing possibilities by creating more opportunities for research collaborations and networking for sustainable living.

Finally, it is hoped that the all-encompassing efforts to address sustainability in identifying the societal challenges will be expanded and advanced through the deliberations among the unified, interdisciplinary experts present at this conference. May this conference be characterized by fruitful thought-provoking discussions, which will lead to the betterment of our society. I wish all the international participants an enjoyable stay in Kuching, Sarawak.

Thank you.

**PROFESSOR DATO DR JAMIL HAJI HAMALI**

## FOREWORD

**Professor Dr. Firdaus Abdullah**

*Dean of Faculty of Business & Management  
Universiti Teknologi MARA Selangor Branch  
International Organising Chairperson, InnoSTRE 2022*



“Selamat Datang” and Welcome to InnoSTRE2022!

On behalf of the InnoSTRE2022 organizing committee, I would like to take this opportunity to extend my warmest welcome to the 2nd International Conference on Innovative Sciences and Technologies for Research and Education (InnoSTRE) 2022 to be held in Kuching, Sarawak. I believe we have chosen a venue that guarantees a successful conference amid the culture and scenery of Sarawak. InnoSTRE 2022 offers a strategic platform for knowledge sharing and experience in natural science, engineering and technology, humanities and social science, and educational innovation while providing new opportunities to others who are preparing to venture into innovative sciences and technologies. This conference will not be a mere scientific conference, but it will also cover other economic and societal challenges through a unified, interdisciplinary platform for designing sustainable living. This conference is rich and varied with four keynote speeches and more than 200 research papers split between a few parallel oral sessions to be conducted physically and virtually. Besides, there will also be a co-located workshop. We also expect to provide numerous opportunities for informal networking.

Our greatest appreciation to Anhui Medical University, China, and Universitas Jambi (UNJA), Indonesia for co-organising this event with us. My thanks to our academic partners, Universitas Muhammadiyah Surakarta (UMS), Indonesia, Riau Islamic Universitas, Indonesia, Rajamangala University of Technology Thanyaburi, Thailand, and Teacher Education Institute of Malaysia, Batu Lintang (IPGKBL). In addition, my gratitude to our supporters, Sarawak Government, Business Events Sarawak, Malaysia Convention & Exhibition Bureau (MyCEB), ACEC Association, for supporting us to organize this event. As a conference chair of InnoSTRE2022, recognition should go to the professionalism of the organising committee, authors, reviewers, and volunteers who deserve much credit for their collective efforts in ensuring the success of this conference. Kudos! Without their relentless efforts, this conference would not be possible. I also wish to express my appreciation to all the authors whose papers and presentations make the event a fascinating forum to add value to learn, discuss and exchange valuable ideas, meet many individuals from different countries, and interact with them.

I also would like to take this opportunity to thank all the international and local participants for their contributions and gracious presence at this conference. The organising committee also hopes that all of you will have fruitful discussions and deliberation during the two-day conference, and I hope that you will have a memorable time in Kuching City.

With warm regards,

**PROFESSOR DR. FIRDAUS ABDULLAH**

## Program Schedule

### TUESDAY (OCTOBER 25, 2022)

TIME	ACTIVITY	VENUE
1430 - 1630	Early Registration of Conference Participants	Secretariat Room, BCKK

### WEDNESDAY (OCTOBER 26, 2022)

0800 - 0900	Registration	Foyer GREAT HALL, BCKK
0800 - 0900	Morning Tea and Networking	Great Hall B, BCKK
0915 - 1000	<b>Chairperson:</b> Professor Dr. Voon Boo Ho <b>Keynote Lecture</b> by Professor Dr. Liang Chaozhao <i>Shaping of Futures in Higher Education through High Quality International Collaboration</i>	Great Hall A, BCKK
<b>1000 - 1200</b>	<b>OPENING CEREMONY*</b>  <b>Chairperson:</b> Professor Dr. Wong Tin Wui	Great Hall A, BCKK
1200 - 1245	<b>Keynote Lecture</b> by Dr. Amin Malik Shah bin Abdul Majid <i>Polymolecular Botanical Medicine, A New Class of Therapeutic Agent that Levels the Playing Field of Drug Discovery and Development</i>	Great Hall A, BCKK
1245 - 1400	Lunch and Networking	Great Hall B, BCKK
1415 - 1800	<b>FORUM*</b>	Great Hall A, BCKK
1415 - 1600	Parallel Session 1A – 1F	MR1, 2, 3, 4, 5 & 8
1600 - 1800	Parallel Session 2A - 2F	MR1, 2, 3, 4, 5 & 8
1730 - 1830	Refreshment and Networking	Great Hall B, BCKK
1830 - 2030	<i>Technical Committee Meeting</i>	Secretariat Room

### THURSDAY (OCTOBER 27, 2022)

0800 - 0845	Registration	Foyer GREAT HALL, BCKK
0900 - 1030	Parallel Session 3A - 3E	MR2, 3, 4, 5 & 8
1030 - 1100	Tea break and Networking	HALL C, BCKK
1100 - 1300	Parallel Session 4A - 4D	MR2, 3, 5 & 8
1300 - 1400	Lunch and Networking	Great Hall B, BCKK
1415 - 1500	<b>Chairperson:</b> Dr. Isabel Fong Lim <b>Keynote Lecture</b> by Professor Dr. David Parera <i>Virus surveillance in Sarawak, Borneo</i>	Great Hall A, BCKK
1500 - 1545	<b>Chairperson:</b> Professor Dr. Corina Joseph <b>Keynote Lecture</b> by Professor Dr. Firdaus Abdullah <i>Fundamental Transformation of Higher Education Post-Pandemic: Is it happening?</i>	Great Hall A, BCKK
1600 - 1730	<b>CLOSING CEREMONY/ AWARD PRESENTATION</b>	Great Hall A, BCKK
1730 - 1830	Refreshment and Networking	Great Hall B, BCKK

### FRIDAY (OCTOBER 28, 2022)

0800 - 1230	<b>Half-day Kuching Tour</b> (Optional) Gambier Street, India Street, China Town, Kuching South City Hall photo Gallery, Malay Village, Old State Mosque, Kuching Waterfront, Colonial Building in Kuching City, Cat Monument, Fort Margherita (excludes pay-per-entry Museum)	Refer to secretariat
-------------	---	----------------------

\*Live streaming/FB Live/Hybrid event MR3, 4, 5 & 8 - Hybrid, MR1 & 2 - F2F/Physical Presentation



## Opening Ceremony

### 2<sup>nd</sup> International Conference on Innovative Sciences and Technologies for Research and Education (InnoSTRE) 2022

*"Probing the societal challenges through a unified, interdisciplinary platform"*

**26 OCTOBER (WEDNESDAY)**

**Borneo Convention Centre Kuching (BCKK)**

- 0900** Arrival of Presenters/Participants
- 0905** Arrival of Invited Guests
- 0915** **Keynote Lecture by Professor Liang Chao-Zhao**
- 1020** Arrival of YBhg. Professor Datuk Ts. Dr. Hajah Roziah Mohd Janor  
*Vice Chancellor, Universiti Teknologi MARA*
- 1030** Arrival of The Right Honourable Datuk Patinggi Tan Sri (Dr) Abang Haji Abdul Rahman Zohari bin Tun Datuk Abang Haji Openg  
*Premier of Sarawak*  
*Patron, 2<sup>nd</sup> International Conference on Innovative Sciences and Technologies for Research and Education (InnoSTRE) 2022*
- National Anthem "Negaraku"  
Sarawak Anthem "Ibu Pertiwiku"
- Doa Recitation
- Welcoming Speech by  
YBhg. Professor Datuk Ts. Dr. Hajah Roziah Mohd Janor  
*Vice Chancellor, Universiti Teknologi MARA*
- Opening Speech by  
The Right Honourable Datuk Patinggi Tan Sri (Dr) Abang Haji Abdul Rahman Zohari bin Tun Datuk Abang Haji Openg  
*Premier of Sarawak*  
*Patron, 2<sup>nd</sup> International Conference on Innovative Sciences and Technologies for Research and Education (InnoSTRE) 2022*
- Montage Presentation
- Souvenir Giving & Photo Session
- 1200** **Keynote Lecture by Dr. Amin Malik Shah bin Abdul Majid**
- 1245** Lunch (VVIP and Invited Guests)

**InnoSTRE 2022 Forum  
Pharmaceutical and Nutraceutical Innovations**

**WEDNESDAY (OCTOBER 26, 2022)**

- 1330 – 1400 Registration
- 1400 – 1415 Arrival of Participants  
Arrival of Invited Guests
- 1415 - 1420 Introduction by Emcee
- 1420 - 1430 Opening Remark by YBhg. Professor Datuk Ts. Dr. Hajah Roziah Mohd Janor  
*Vice Chancellor, Universiti Teknologi MARA, Malaysia*
- 1430 -1440 Opening Remark by Professor Dr. Lv Xiongwen  
*Vice President, Anhui Medical University, China*
- Chair:** Professor Dr. Wong Tin Wui (*Universiti Teknologi MARA, Malaysia*)  
**Co-Chair:** Professor Dr. Meng Xiaoming (*Anhui Medical University, China*)
- 1445 -1505 **Discovery and Development of New Drug from Natural Medicines**  
Professor Dr. Wei Wei (*Anhui Medical University, China*)
- 1505 -1525 **Pharmacoproteomic: A Possible Alternative to Omics Technologies in Personalized Pharmacotherapy**  
Professor Dr. Vladimir Rafalskiy (*Immanuel Kant Baltic Federal University, Russia*)
- 1525 – 1545 **Biopharmaceutics Modeling in Pharmaceutical Innovation Development**  
Assoc. Professor Dr. Nikoletta Fotaki (*University of Bath, United Kingdom*)
- 1545 - 1555 **Break**
- 1600 – 1620 **Drug discovery of Novel Compounds: Bench to Bedside**  
Professor Dr. Yi Zhun Zhu (*Macau University of Science and Technology, China*)
- 1620 – 1640 **Chinese Medicine for Diabetic Kidney Diseases**  
Assistant Professor Dr. Chen. Haiyong (*University of Hong Kong, Hong Kong, China*)
- 1640 – 1700 **Precision Herbal Medicine for Primary Patient Care**  
Mr. Ken Lew Hon Kean (*Vitaiz Sdn Bhd, Malaysia*)
- 1700 - 1720 **Angiogenesis Targeted Botanical Drug Development: A Successful Platform in Botanical Medicine Drug Discovery**  
Dr. Amin Malik Shah bin Abdul Majid (*Eman Research Ltd, Australia*)
- 1720 - 1740 **Interactive Session**
- 1740 - 1745 Closing Remark by Professor Dato' Dr Jamil Haji Hamali  
*Rector, Universiti Teknologi MARA Sarawak Branch, Malaysia*
- 1745 -1750 Closing Remark by Professor Dr. Meng Xiaoming  
*Dean, School of Pharmacy, Anhui Medical University, China*
- 1800 -1830 Refreshments and Networking



## Closing Ceremony

### 2<sup>nd</sup> International Conference on Innovative Sciences and Technologies for Research and Education (InnoSTRE) 2022

*"Probing the societal challenges through a unified, interdisciplinary platform"*

**27 OCTOBER (THURSDAY)**  
**Borneo Convention Centre Kuching (BCCK)**

<b>TIME</b>	<b>PROGRAMME</b>
<b>1400</b>	Arrival of Presenters/Participants
<b>1410</b>	Arrival of Invited Guests
<b>1415</b>	<b>Keynote Lecture by Professor Dr. David Perera</b> <i>Virus surveillance in Sarawak, Borneo</i>
<b>1500</b>	<b>Keynote Lecture by Professor Dr. Firdaus Abdullah</b> <i>Fundamental Transformation of Higher Education Post-Pandemic: Is it happening?</i>
<b>1615</b>	Arrival of The Honourable Datuk Dr. Annuar Rapae <i>Deputy Minister for Education, Innovation and Talent Development I (Education and Innovation)</i>
	National Anthem Doa Recitation
	Closing Remarks by Professor Dr. Firdaus Abdullah <i>The Chair of InnoSTRE 2022</i> <i>Dean, Faculty of Business &amp; Management, Universiti Teknologi MARA Cawangan Selangor</i>
	Closing Speech by The Honourable Datuk Dr. Annuar Rapae <i>Deputy Minister for Education, Innovation and Talent Development I (Education and Innovation)</i>
	Best Awards & Grand Award Presentation
	Souvenir Giving and Photo Session
	Refreshments (VVIP and Invited Guests)



## Keynote Speakers

### Keynote 1

Chao-Zhao Liang  
Anhui Medical University  
81 Meishan Ave, Shushan District  
Hefei, Anhui, China



**Title:** Shaping Futures of Higher Education through High Quality International Collaboration

**Abstract** The report will discuss the positives of ASEAN China cooperation in education, as well as the prospects of how to strengthen cooperation in the future, and focus on the analysis of the current situation, problems and solutions of bi-directional overseas education.

**Biography** Prof. Liang is the vice president of Anhui Medical University, Chief physician and Tutor of Ph.D. & M.D. students in the Department of Urology, the First Affiliated Hospital of Anhui Medical University. Prof. Liang has been devoted to the clinical and basic scientific research of urologic diseases for several decades. Based on his great achievement in genitourinary diseases, he has won “Ten Million Talent Project of the New Century” and he is appointed to be the Director of Anhui Province Key Laboratory of Genitourinary Diseases, and the Institute of Urology of Anhui Medical University, the president-elect of the Male and Sexual Medicine Physician Branch of the Chinese Medical Doctor Association, the vice President of World Chinese Urologists Association and Asian Society of Andrology, the chairman of Anhui Medical Doctor Association, the vice President of Intelligent Equipment Technology Branch of Chinese Association for Medical Equipment and the Chinese Medical Doctor Association, the standing director of the Chinese Medical Doctor Association, and the Urological Branch of the Chinese Medical Doctor Association, the Chairman of Urological Branch of Anhui Medical Association, and the standing committee member of Anhui Science and Technology Association. Prof. Liang has published more than 600 papers, which include more than 200 publications in SCI journals as the first or corresponding author. Prof. Liang is the editorial board member of more than 19 high- impact academic journals, including the Asian Journal of Andrology. Prof. Liang held eight grants from the National Natural Science Foundation of China (NSFC), and he is also the invited referee of NSFC. He is awarded with “Chinese Famous Physician”, “Golden Cystoscope”, “Wu Jieping Urology Award”, “Guo Yinglu Andrology Award” and many others. Prof. Liang also serves as the associate editor or editorial board member of the Chinese Urological Association Guideline and the textbooks for medical undergraduate/graduate students. Up to now, he has mentored over 100 graduate students and postdoctoral fellows.

### Keynote 2

Dr. Amin Malik Shah Abdul Majid  
Chairman Eman Research Ltd (Australia)  
Group CEO of NatureCeuticals (Malaysia, Australia, India)  
Chairman Eman Biodiscoveries Sdn. Bhd (Malaysia)



**Title:** Angiogenesis Targeted Botanical Drug Development: A Successful Platform in Botanical Medicine Drug Discovery.

**Abstract** Angiogenesis is the process of new blood vessel development from the existing vasculature. It occurs throughout life in both healthy and diseased individuals, from conception to old age. Angiogenesis is tightly regulated in the healthy adult human body. It is regulated by a variety of endogenous angiogenic and angiostatic factors. Unregulated angiogenesis plays critical in majority of human diseases. This can cause pathological conditions such as cancer, heart disease, chronic degenerative disorders such as Alzheimer disease, obesity, eye diseases and many more. Natural products have anti-oxidant and anti-inflammatory properties which can potentially modulate angiogenesis process making them useful in treating diseases which are angiogenesis dependent. Natural herbal medicines, which have the advantages of being multitarget and polymolecular with fewer side effects and lower in cost, are attracting increasing attention as therapeutic agents to treat or manage diseases which are angiogenesis dependent.

**Biography** Dr. Amin has served the academic field specializing in pharmaceutical sciences for the past 18 years while at the same time endeavoring in the industry arena. To date, he has supervised nearly 100 postgraduate students with more than 300 research publications. His research work stems from his collaboration between Malaysian and Australian universities in cancer-related areas. Most of his research work is in the field of botanical drugs targeting angiogenesis, particularly for cancer applications. This is a novel strategy, and the research product has entered phase 3 clinical studies for breast cancer, colon cancer, cancer asthenia, and diabetic retinopathy. This is poised to be the first botanical drug for cancer therapeutics. This has now become a national interest project for the Malaysian government that can help to spur economic growth and provide employment to the rural economy. To ensure the continuity and viability of the research work that has been carried out, he has established Eman Research Ltd, which is an international non-profit research organization that focuses on botanical medicine.

Eman Research Ltd has its own publishing house, and it owns Angiotherapy Journal, a Scopus-indexed international publication. Currently, he heads NatureCeuticals, which is a pharmaceutical company that produces and markets botanical medicine, and Eman Biodiscoveries Sdn. Bhd, is a drug discovery company that supports the research needs of Natureceuticals.

### **Keynote 3**

Professor Dr. David Perera  
Institute of Health and Community Medicine  
Universiti Malaysia Sarawak (UNIMAS)  
94300 Kota Samarahan  
Sarawak, Malaysia



**Title:** Virus Surveillance in Sarawak, Borneo

**Abstract** The Covid-19 pandemic has highlighted the importance of surveillance of emerging and re-emerging viruses that are threats to human health. The continued monitoring of endemic viral diseases and the preparedness to detect any emerging viral threats should be an important public health agenda. To this end, the Institute of Health and Community Medicine in UNIMAS has contributed towards this effort over the last 20 years. In this keynote presentation, we will highlight the viral surveillance work that we have done over the last 20 years and discuss its significance and impact towards public health management in Sarawak.

**Biography** Dr. Perera is a molecular biologist with a PhD in Medical Biotechnology. He is a Professor and Director of the Institute of Health & Community Medicine at Universiti Malaysia Sarawak (UNIMAS). His research interest is in the genetics, pathogenesis, and molecular



epidemiology of clinically important viruses in the Island of Borneo. Dr. Perera has published more than 70 scientific journal articles in peer-reviewed journals with more than 5000 citations of his work. He has also been the recipient of numerous research grants from local and international funding agencies including from the National Institute of Health, USA, and has extensive research collaborations both with local and international research partners.

#### **Keynote 4**

Professor Dr. Firdaus Abdullah  
Dean Faculty of Business and Management  
Universiti Teknologi MARA Selangor Branch  
Selangor, Malaysia



**Title:** Fundamental Transformation of Higher Education Post Pandemic: Is it happening?

**Abstract** What if the cost of learning is down to zero? What if the learning journeys are entirely flexible and customizable? What if higher education providers are accountable for results? What if technology could solve the global education supply-demand mismatch? The World Bank, UNESCO and UNICEF in May 2022 called the COVID-19 pandemic the 'worst education crisis on record'. Across the world, universities are still reeling from the global pandemic, and its impacts include significant demographic shifts, geopolitical challenges, changing workplace demands and student expectations for digital experience thus creating a tsunami of disruption. Apart from disrupting higher education, permanent changes were heightened during the pandemic namely the rise of the student-consumer and increased recognition of the mental and emotional needs of students. Universities must therefore catch up with the skills needed to thrive in a new post-pandemic economy. Instead of providing a 'stamp on the forehead' for graduates, universities need to redirect their focus towards lifelong learning and reskilling. However, the rapid return to face-to-face teaching and learning, and the stabilization of enrolment patterns suggest that the changes will not lead to a fundamental transformation of higher education as a face-to-face experience. We may eventually see a 'return to classroom' environment, but the blended learning model will prevail for the foreseeable future. Understanding these future scenarios are crucial in facilitating strategic change to be made by government decision-makers and other key stakeholders in higher education. Universities will need to build resilient strategies, be open to collaboration, and embrace digital transformation to carve out a transformed identity. As prescribed by open science, broad access to knowledge by overcoming linguistic, technological and financial barriers will be the norm of future higher education.

**Biography** Professor Dr Firdaus Abdullah currently holds the position of Dean for Faculty of Business Management, Universiti Teknologi MARA (UiTM). He obtained his DBA from the University of South Australia, MBA and Postgraduate Diploma from Bournemouth University, United Kingdom, Diplôme des Etudes Techniques Supérieures as well as Diplôme en Gestion des Entreprises from Université de Poitiers, France. In his combined 27 years of experience at both private and public sectors while holding key leadership positions, Professor Firdaus has completed more than 30 consultancy and research projects with a value close to RM10 million, authored 8 books, 25 refereed journal articles, 75 conference proceedings, has delivered seven keynote speeches and has presented at international conferences in ten different countries. As a recognition for his contributions, he was awarded Pingat Bintang Kenyalang and Pingat Pentadbiran Bakti by the Governor of Sarawak in 2022 and 2013, respectively. Hailed from Land of the Hornbills, Professor Firdaus has an approachable demeanor who is keen in making organisational changes for improvement.

Day 1: Afternoon Parallel Session / 2.15 – 6.00		
Time	(min)	Speaker and Paper title
<b>MR1</b>		Topic: Natural Sciences and Engineering <b>Chair:</b> Assoc. Prof. Dr. Hasmah Mohidin
2.15	30	<b>[Plenary 1]</b> Natural Sources As a Precursor to Synthesize Nanomaterials by Various Types of Customized Thermal Chemical Vapor Deposition (Thermal CVD) Methods for Optoelectronic Device Applications <i>Mohamad Rusop Bin Haji Mahmood</i>
2.45	15	<b>[ID065]</b> Activated Carbon derived from Bamboo ( <i>Gigantochloa albociliata</i> ) as a Promising Adsorbent in Wastewater Treatment <i>Siti Suhana Binti Hassan, Khong Heng Yen, Chang Robin Yee Hui</i>
3.00	15	<b>[ID083]</b> Superabsorbent Interpenetrating Polymer Networks for Organic Dyes Adsorption from Aqueous Solutions <i>Hikmat Hidayat Muhammad Rapaiee, Dzureen Julaihi, Heather Lambi Apong, Fui Kiew Liew, Yanti Yana Halid, Chel Ken Chiam, Leslie Thian Lung Than, Siong Fong Sim, Cindy Soo Yun Tan</i>
3.15	15	<b>[ID058]</b> Enriching Oil Palm Empty Fruit Bunch Compost using Swiftlet Guano and Effective Microorganisms for Lettuce ( <i>Lactuca sativa</i> ) cultivation <i>Cristmax Anak Arru, Margaret Chan Kit Yok</i>
3.30	15	<b>[ID059]</b> Response of Growth and Yield of Tomato ( <i>Solanum lycopersicum</i> ) to Empty Fruit Bunches (EFB) Compost Tea Enriched with Chicken Manure <i>Edwind Anak Lasum, Margaret Chan Kit Yok</i>
3.45	15	<b>[ID062]</b> Brinjal ( <i>Solanum melongena</i> L) Growth Performance and Yield Attribute in Response to <i>Trichoderma</i> Biofertilizer Planted in Empty Fruit Bunch (EFB) Compost Amended Medium <i>Jati Galau, Zubaidah Yusop, Suraiya Mahdian, Siti Sahmsiah Sahmat, Abdul Rahman Sali</i>
<b>Chair:</b> Dr. Rudy Tawie Ak Joseph Sipi		
4.00	15	<b>[ID028]</b> A Review on Stakeholder Capability Criteria of Green Procurement for Construction Project in Malaysia <i>Afiqah Iliyana Samsul Bahari, Asmah Alia Mohamad Bohari, Natasha Kahlil</i>

4.15	15	[ID138] Hepatoprotective Activity of Snakehead Fish ( <i>Channa striata</i> ) Extract on Wistar Rats Induced by Rifampicin-Isoniazid <i>Andi Suhendi, Arifah Sri Wahyuni, Yuni Prastyo Kurniati, Afif Galiizha Pradana</i>
4.30	15	[ID139] Inhibition of Alpha Amilase Ethanol Extract of Mareme leaf ( <i>Glochidion arborescens blume</i> ) <i>Haryoto Haryoto, Niati Ambarsari, Muhtadi Muhtadi</i>
4.45	15	[ID140] Activity of Avocado ( <i>Persea americana</i> ) Protein on Cancer Cell Lines <i>Peni Indrayudha, Sholikhah Rosvita Oktasari, Nobellia Rahmanda Imanni, Natasya Salmaa Arianti, Tiara Septiani, Khisan Antazula, Cita Hanif Muflihah, Riandini Aisyah</i>
5.00	15	[ID141] Literature Review: Anticancer potential of Sabrang Onion ( <i>Eleutherine bulbosa mill.</i> ) <i>Yunita Cahya Awalyani Lingga, Haryoto</i>
5.15	15	[ID094] Solar Tracking System <i>Aziz Bin Adam, Mohd Yazid Bin Mohd Anas Khan, Nur Farahiah Binti Ibrahim</i>
5.30	15	[ID150] Economic Analysis of Own Use Gas Pipeline Development Planning From Gas Compressor Stations to Gathering Stations in X Field <i>Muhammad Ariyon, Muhammad Setriya</i>
5.45	15	[ID054] Heat Stress and Thermal Perceptions on Personal Protective Equipment (PPE) amongst Healthcare Workers (HCWS) during the COVID-19 Pandemic in Brunei Darussalam <i>Zaidah Rizidah Murang, Alice Lai, Mohd Ayub Sadiq, Nik Ani Afiqah Tuah</i>

<b>MR2</b>	Topic: Natural Sciences and Engineering Chair: Dr. Ahmad Faiz Abdul Rashid	
2.15	30	[Invited 1] Collagen Biosynthesis Stimulation and Anti-Melanogenesis Activities of the Ethanolic Extracts from <i>Theobroma cacao</i> Shells <i>Korawinwich Boonpisuttinant</i>
2.45	15	[ID097] Feasibility Study of Hydropower Generation for Small Community Near High Water Source Area <i>Nur Farahiah Ibrahim, Mohd Yazid Mohd Anas Khan, Fatimatul Anis Bakri</i>
3.00	15	[ID147] Antioxidant properties of <i>Oryza sativa var Bajong</i> <i>Lam Xiu Qian, Isabel Fong Lim, Khong Heng Yen, Tay Siow Phing</i>

3.15	15	[ID106] Analysis of Frac Fluid and Proppant Variations on the Value of Fracture Conductivity Dimensionless and Fold of Increase Using Fracpro Simulator <i>Novrianti, Hendra Suarta, Adi Novriansyah</i>
3.30	15	[ID107] Laboratory Study on the Utilization of Hair Fruit Skin into Organic Inhibitors and Their Effect on the Corrosion Rate at the Flowline <i>Novrianti, Leni Anggraini, Adi Novriansyah, Idham Khalid</i>
3.45	15	[ID108] Analysis the Effect of Tannins from the Skin of Rambutan Fruit Extract on Scale in Oil and Gas Well Flowlines <i>Novrianti, Sukri Ramdhani</i>
<b>Chair:</b> Dr. Widyani binti Darham		
4.00	15	[ID110] Analysis of <i>Euचेuma cottonii</i> Seaweed Carrageenan Extraction and Green Cincau Leaf Pectin Extraction as an Alternative Material for Polymer Injection <i>Novia Rita, Arik Daniati, Gilang Palasara Syam</i>
4.15	15	[ID113] Risk Analysis of Dam Projects in Lima Puluh Kota Area Using Failure Mode and Effect Analysis <i>Sapitri, Sritika Afrilia</i>
4.30	15	[ID114] Transgenic Plants Learning Applications Using Augmented Reality <i>Mega Kumala Sari Hrp, Ana Yulianti, Mardaleni</i>
4.45	15	[ID115] Prediction Analysis of Polymer Degradation Due to High Temperature and High Salinity Reservoir on EOR Using Reservoir Simulation and Artificial Neural Network <i>Dewa Yudhististira Hoetapea, Tomi Erfando</i>
5.00	15	[ID117] Analysis of the Upstream Oil and Gas Industry Activities on the Sustainable Development of Indragiri Hulu Regency <i>Muhammad Ariyon, Putra Akbarsyah</i>
5.15	15	[ID145] Field Development Plant for Securing the Reserves of Energy Fosil Using Sector Modeling <i>Dike Fitriansyah Putra, Mohammad Zaidi, Toni Dwi Setiawan</i>
5.30	15	[ID142] Literature Review: Antidiabetic Activities of the Rutaceae Family <i>Listyana Dewi Prastiwi, Haryoto</i>
5.45	15	[ID143] Reproducibility of FlexAID Computations of Flavonoid against Protein Dipeptidyl Peptidase IV (DPP-4) <i>Broto Santoso, Ratna Yuliani</i>

<b>MR3</b>	Topic: Social Sciences and Education <b>Chair:</b> Joe Davylyn Nyuin	
2.15	30	<b>[Invited 2]</b> Small and Medium Enterprises (SMEs) in Phnom Penh: Challenges Hindering the Growth of Business <i>Sok Seang, Sau Lay, Soun Hong, Vuth David, Ly Sivmey, Rith Longdy, Kim Youheng</i>
2.45	15	<b>[ID120]</b> The Synergy of Achievement, Affiliation and Power Motives on Employee Performance and Commitment Career as Mediation: A Literature Examination <i>Agus Amperjal, Johannes Simatupang, Syahmardi Yacob, Syofia Amin</i>
3.00	15	<b>[ID125]</b> Study of Visiting Intention in Rural Tourism in COVID-19 Era: A Risk Knowledge Perspective with Risk Perception and Risk Avoiding Attitude as A Mediation Role in Kerinci District, Jambi Province, Indonesia <i>Syahmardi Yacob, Ade Titi Nifita, Ade Perdana Siregar</i>
3.15	15	<b>[ID096]</b> Innovative Approach to Enhance Active Learning during COVID-19 Pandemic: Engagement, Feedback and Classroom Environment <i>Chin Ying Liew, Li Li Voon, Siow Hoo Leong</i>
3.30	15	<b>[ID165]</b> Industry 4.0 Technologies in Sarawak Ship Design Industry: Statistics on Adoption, Success Factors and Challenges <i>Howe Eng Tang</i>
3.45	15	<b>[ID104]</b> Analysis of Influence Factors in Conducting Commuter Migration <i>Puji Astuti, Rigita Citra Hasana, Muhammad Sofwan, Ade Wahyudi</i>
<b>Chair:</b> Imelia Laura Anak Daneil		
4.00	15	<b>[ID112]</b> Simulation of Penetration Testing Center of E-Learning and Education for Students (Cerdas) Universitas Islam Riau <i>R. Merlang, Apri Siswanto</i>
4.15	15	<b>[ID118]</b> The Implementation of Online Learning in the Post COVID-19 Era: An Interview Study of EFL Lecturers in the Indonesia's Border Area <i>Muhammad Sabiqul Huda</i>
4.30	15	<b>[ID119]</b> Factors Affecting Tourism Components on Tourist Visit Using Factor Analysis (Case Study: Teluk Makmur Puak Beach, Dumai City) <i>Mira Hafizhah Tanjung, Agung Alviansyah, Puji Astuti</i>
4.45	15	<b>[ID027]</b> Impact of Online Instructor Scaffolding Strategies (OISS) Model on Students' Speaking Performance <i>Sandra Phek-Lin Sim, Hannah Phek-Khiok Sim, Cheng-Sim Quah</i>



5.00	15	<b>[ID121]</b> The Role of Collaborative Leadership in Moderating the Influence of Demotivational and Individual Behavior on Employee Performance: A Literature Study <i>Dian Yulistarini, Syahmardi Yacob, Johannes, Zulfina Andriani</i>
5.15	15	<b>[ID122]</b> Customer Loyalty Model: A Custom Product Innovation Adaptation, Brand Image, Lifestyle, and Trust in the Interior Furniture Industry as a Literature Review Approach <i>Feno Candri, Syahmardi Yacob, Johannes, Ade Octavia</i>
5.30	15	<b>[ID123]</b> Could Customer Value Support E-Commerce Practices in Indonesia <i>Roky Apriansyah, Johannes, Syahmardi Yacob, Junaidi</i>
5.45	15	<b>[ID130]</b> An Agent Role to Create e-Loyalty <i>Albetris, Johannes, Ade Octavia, Tona Aurora Lubis</i>

<b>MR4</b>	Topic: Social Sciences and Education Chair: Assoc. Prof. Dr. Abdul Rahman bin Saili	
2.15	30	<b>[Invited 3]</b> Exploring Innovated Education in Science for Rural Schools of Sarawak <i>Siong Fong Sim, Hooi Joo Tang</i>
2.45	15	<b>[ID126]</b> Indigenous Forest Management Towards a Conservation Tourism Destination <i>Johannes, Syahmardi Yacob, Edward, Robert Sibarani, Agus Purwoko</i>
3.00	15	<b>[ID128]</b> Effect of Political Will Perception and Executive Job Satisfaction Toward Managerial Performance <i>Ahmad Rifa'i, Syamsurijal Tan, Edward, Zulfina Adriani</i>
3.15	15	<b>[ID129]</b> Analysis of BPR's Financial Performance and the Impact on Micro, Small and Medium Business Loans <i>Iwan Eka Putra, Johannes, Afrizal, Tona Aurora Lubis</i>
3.30	15	<b>[ID131]</b> The Effects of Entrepreneurial Orientation on the Resilience of Tourism Actors with the Support of Government Policies on Rural Tourism in Jambi Province <i>Gampo Haryono, Johannes, Syahmardi Yacob, Junaidi</i>
3.45	15	<b>[ID132]</b> Analysis of Marketing Strategy on Financial Performance and Marketing Performance with Environmental Uncertainty as Moderating Variables in Sharia Banks in Jambi <i>Sumantri, Amri Amir, Tona Aurora Lubis, Rike Setiawati</i>

<b>Chair: Assoc. Prof. Dr. Ellen Chung</b>		
4.00	15	<b>[ID133]</b> The Model Mediation and Moderation of Innovative Behavior: Health and Administration Personnel in the COVID-19 Pandemic <i>Melisa A Putri, Johannes, Edward, Zulfina Adriani</i>
4.15	15	<b>[ID134]</b> The Commitment of the Leadership, Organizational Justice, Work Motivation, Innovation Capacity to Performance and Well-Being at Jambi Regional Police <i>Roza Milasari, Syahmardi Yacob, Edward</i>
4.30	15	<b>[ID135]</b> Islamic Financial Literacy as An Intervening Variable on Customers' Loyalty to Save in Mudharabah Savings at Bank Syariah Indonesia <i>Anzu Elvia Zahara Tobing, Johannes, Syahmardi Yacob, Ade Octavia</i>
4.45	15	<b>[ID136]</b> Analysis of Urbanization and Population Welfare in Jambi City <i>Enny Andriany, Syahmardi Yacob, Junaidi, Edward</i>
5.00	15	<b>[ID137]</b> The Mediation Role of Social Media Marketing on MSME Marketing Performance in Province of Jambi <i>Vivi Herlina, Syahmardi Yacob, Johannes, Edward</i>
5.15	15	<b>[ID144]</b> Model of Improving Employee Performance Through Organizational Commitment to Pulp Industry in Sumatera <i>Junaidi, Sihol Situngkir, Edward, Zulfina Adriani</i>
5.30	15	<b>[ID162]</b> Household Economic Coping Strategies for Informal Sector Workers in Dealing with the Impact of the COVID-19 Pandemic in Jambi City <i>Junaidi, Hardiani, Nyimas Dian Maisyarah, Al Parok</i>
5.45	15	<b>[ID163]</b> Social Economic Determination of Youth with NEET Status (Not in Employment, Education, or Training) in Jambi Province <i>Hardiani, Yulmardi, Nyimas Dian Maisyarah</i>
6.00	15	<b>[ID164]</b> Governance System and Digital Transformation Innovation Towards Excellent Public Services <i>Ilham Wahyudi, Shofia Amin, Yudi, Junaidi</i>

<b>MR5 Hybrid</b>	Topic: Social Sciences and Education <b>Chair: Assoc. Prof. Dr. Jati Kasuma bin Ali</b>	
2.15	15	<b>[ID051]</b> Ecological Environment Protection of Lijiang River Basin Based on Holistic Perspective <i>Yang Liuyi, Haijon Gunggut, Haidy Henry Dusim, Qin Fanhang</i>

2.30	15	<b>[ID077]</b> Impact of Occupational Stress on Quantity Surveyors' Productivity in Consultant Firms in Sarawak <i>Nur Hazierah Suhaimi, Mohammad Nabil Fikri Saaid, Mohd Asraf Ayob, Nurulhudaya Abdul Hadi, Mohd Khairul Fitri</i>
2.45	15	<b>[ID084]</b> Perceptions and Readiness to Use Telerehabilitation During the Covid-19 Pandemic Among Physiotherapists: A Review <i>Rabiatul Adawiah Abdul Rahman, Nurul Husna Mohd Nasir</i>
3.00	15	<b>[ID030]</b> A Review of Job Satisfaction Among University Teachers <i>Ting Bao, Zarizi Bin Ab Rahman, Sheikha Binti Majid</i>
3.15	15	<b>[ID031]</b> The Innovative Use of Traditional Graphic Elements in the Design of Museum Cultural and Creative Products <i>Chen Hong, Wahiza Abdul Wahid, Liu Wujiu</i>
3.30	15	<b>[ID032]</b> An Analysis of the Current Situation of College Students' Mental Health Problems and Campus Security Services <i>Geng Yao, Mohd Zulkifli Abdullah</i>
3.45	15	<b>[ID033]</b> A Research on the Application of the Combination of Bubble Map and Double Bubble Map in Teaching <i>Jin Ruixuan, Geethanjali Narayanan</i>
<b>Chair: Dr. Liew Chin Ying</b>		
4.00	15	<b>[ID034]</b> A Research on English Learning App Usage and Countermeasures among University Students <i>Li Qiuyan, Nazeera Binti Ahmed Bazari, Johan @ Eddy Luaran</i>
4.15	15	<b>[ID035]</b> Impacts of COVID-19 Pandemic on Chinese Tourists' Tourism Willingness and Behavior <i>Liao Fengling, Dayang Haryani Diana Binti Ag Damit, Cynthia Annamaria Robert Dawayan</i>
4.30	15	<b>[ID052]</b> Research on The Financial Informatization of Public Hospitals under the COVID-19: The Model of General Hospital of Ningxia Medical University <i>Zhang Tongtong, Jamaliah Bte Said, Yvonne Joseph Ason</i>
4.45	15	<b>[ID037]</b> Investigation on Knowledge, Belief and Behavior of Elderly Patients with Hypertension and Diabetes in Xinyu City <i>Liu Rong, Akehsan Dahlan, Zhan Xingxing</i>
5.00	15	<b>[ID038]</b> The Application of Communicative Language Teaching Method in English Classroom Teaching Among Medical Students in a Public University <i>Lu Wei, Wan Zumusni Wan Mustapha, Suryani Binti Awang</i>



5.15	15	[ID039] Comparison and Analysis of the Evaluation Indexes of Universities' Internationalization Level <i>Ma Aiping, Awang Rozaimie Awang Shuib, Yusman Yacob, Liu Wenjie</i>
5.30	15	[ID040] Exploring Distribution Characteristics of Microplastics in Yuehai Lake and Its Impact on the Population <i>Faeiza Bt Buyong, Jia Ren</i>
5.45	15	[ID041] A Study on the Relationship Between Media Use and Social Adaptation Among Chinese Urban Elderly <i>ShuaiZhi Shen, Ahlam Binti Abdul Aziz, Ireena Nasiha Ibnu</i>

<b>MR8 Hybrid</b>	Topic: Social Sciences and Education <b>Chair:</b> Dr. Lau Ung Hua	
2.15	15	[ID042] Discussion on the Improvement of Cross-Cultural Communication Ability of International Education Teachers in China - Taking N-M University as an Example <i>Song Yu, Badrul Isa, Muhammad Faiz Sabri</i>
2.30	15	[ID043] The Influence of Intelligent Media Era on Urban Image Communication <i>Sun Qi</i>
2.45	15	[ID060] Research on the Relationship between Government Institutional Pressure, Moral Effectiveness, and Corporate Social Responsibility in the Post-COVID-19 Era <i>Zhang Ye, Dewi Binti Tajuddin</i>
3.00	15	[ID045] Examining the Social Expressions of Chinese University Students With Native English-Speaking Foreigners <i>Wang Ningfang, Caesar Dealwis, John Francis Anak Noyan</i>
3.15	15	[ID046] The Status and Influencing Factors of Hypertension Among Floating Population in Ningxia <i>Wang Yapeng, Ajau Danis, Wang Ruixiao, Li Zhaojun, Tian SiQiong, Ma Long, Zhang Di</i>
3.30	15	[ID047] The Application of Strategic Management in the Public Health System: A Financial Operation Case Evaluation for University Hospital <i>Luo Jiexiang, Fadilah Binti Puteh, Sarina Binti Othman</i>
3.45	15	[ID048] Functional Movement Screening and Training for Junior Tennis Players in Xi'an <i>Xu Ting, Mohamad Rahizam Abdul Rahim, Duan Judong</i>

Topic: Natural Sciences and Engineering Chair: Dr. Chiew Fei Ha		
4.00	15	<b>[ID049]</b> Evolution of Video Object Detection Algorithm <i>Zhaosheng Xu, Suzana Binti Ahmad</i>
4.15	15	<b>[ID050]</b> Video Object Detection Algorithm Based on Improved Spatiotemporal Feature Fusion <i>Zhaosheng Xu, Suzana Binti Ahmad</i>
4.30	15	<b>[ID056]</b> Preparation and Characterization of Effervescent Facial Cleansing Tablets Containing Asiatic Acid-Loaded Solid Lipid Microparticles <i>Lucy Mang Sung Thluai, Varin Titapiwatanakun, Romchat Chutoprapat</i>
4.45	15	<b>[ID036]</b> A Review of Visual Target Tracking Algorithms for Basic Deep Learning <i>ZhongMing Liao, Azlan Ismail</i>
5.00	15	<b>[ID053]</b> How to Improve Android Application Development Cycle? <i>Zou Donglan, Mohamad Yusof Darus, Wu Guangsheng</i>
5.15	15	<b>[ID044]</b> Development of GSM Based Multi-Sensory System for Smart Vegetation Monitoring <i>Wang Xuan, Juliana Johari</i>
5.30	15	<b>[ID072]</b> BP Neural Network Algorithm Based on Improved Conjugate Gradient Method and Its Application <i>Tao Sijun, Mohd Rivaie Bin Mohd Ali, Nur Hamizah Binti Abdul Ghani</i>
5.45	15	<b>[ID063]</b> Clinical Efficacy of Autogenous Vertebrae-filled PEEK Cage in Anterior Cervical Discectomy and Fusion with Instrumentation <i>Xusheng Li, Ahmad Nazrun Bin Shuid, Mohd Fairudz Bin Mohd Miswan, Xuehua Zhan, Wenqi Yuan, Haifeng Yuan</i>

**Day 2 Morning**

Day 2: Morning Parallel Session / 9.00 – 10.30		
Time	(min)	Speaker and Paper title

Topic: Natural Sciences and Engineering Chair: Assoc. Prof. Dr. Robin Chang Yee Hui		
<b>MR2</b>		
9.00	30	<b>[Plenary 2]</b> Precision Nanomedicine Design and Advances <i>Wong Tin Wui</i>

9.30	15	<b>[ID098]</b> Automated Fertigation System <i>Emiliany Lavinia Anak Drunny, Mohd Yazid Bin Mohd Anas Khan</i>
9.45	15	<b>[ID102]</b> Biometric Attendance System Based on Fingerprint <i>Miguel Warren Anak Mathew, Aaron Brayen Jussil, Fatimatul Anis Bakri, Mazlina Mansor Hassan, Nur Adilla Fitriyani Jeffery Mohd Amin</i>
10.00	15	<b>[ID116]</b> Effectiveness of Non-Immersive Virtual Reality X-Ray Quality Control <i>Mazlyfarina Mohamad, Koo Lui Quan, Dzarif Faizal Zainol Abidin, Abdul Khaliq Mohd Saparudin, Nur Farhana Ab Kadir, Khadijah Mohamad Nassir, Mohd Izuan Ibrahim</i>
10.15	15	<b>[ID155]</b> A Prototype of Magnetizing Lock Emergency Exit (Maglee) <i>Aiman Hilmi, Mohammad Eizlan Safwan Matheus, Greadly Luccas Pinky Gerald Mackenzie, Hadi Jumaat, Muhd Firdaus Muhd Yusoff</i>

<b>MR3</b>	Topic: Natural Sciences and Engineering <b>Chair:</b> Dr. Nyotia ak Nyokat	
9.00	30	<b>[Invited 4]</b> Structure-function Relationship of Phytochemicals as Chemopreventive Agents Against Colorectal Cancer <i>Isabel Fong Lim</i>
9.30	15	<b>[ID149]</b> Measuring Angular Displacement as Base Quantity Using Raspberry Pi Microcomputer for Rotational Motion Experiments <i>Nabella Holling, Muhammad Afif Abdul Rani, Esther Rachel Beruin, Rafiq Tamin</i>
9.45	15	<b>[ID151]</b> Behaviour of Mortar Filled Double Skin Hollow Steel and PVC tubes <i>Clotilda Petrus, Goh Lyn Dee, Zulaikha Let</i>
10.00	15	<b>[ID160]</b> A Preliminary Study of the Domestic Rearing of Sago Worms ( <i>Rhynchophorus vulneratus</i> ) <i>Josephine Tening Pahang, Ivy Bisterino, Margaret Chan Kit Yok</i>
10.15	15	<b>[ID148]</b> Water Surface Cleaner Robot <i>Mohamed Yusuf Hassan Roslan, Muhammad Haider Arif Nasahrudin, Dzufi Iszura Binti Ispawi, Nur Atiqah Abdul Rahman, Aniq Syamil Bin Syafik Affendi</i>

<b>MR4</b>	Topic: Social Sciences and Education <b>Chair:</b> Prof. Dr. Corina Joseph	
9.00	15	<b>[ID081]</b> Public Confidence in Public Institutions in Sarawak <i>Kuldip Singh, Zalina Binti Mohd Desa, Arenawati Sehat Binti Omar</i>
9.15	15	<b>[ID082]</b> University Students' Knowledge, Perception and Attitude Towards Artificial Intelligence (AI) in Higher Education <i>Kuldip Singh, Nur Aida Kipli, Elizabeth Caroline Augustine</i>
9.30	15	<b>[ID074]</b> Credit Ratings and Its Impact on Banks' Stock Returns and Risk: The Asset Pricing Model Perspective <i>Azilawati Banchit, Sazali Abidin, Sophyafadeth Lim, Wan Liza Md Amin</i>
9.45	15	<b>[ID095]</b> Utaut Model: Use of Multimedia in Explaining Economic Concepts <i>Siew King Ting, Tze Wee Lai</i>
10.00	15	<b>[ID124]</b> Face-to-face Learning Readiness Among University Students in Malaysia Post COVID-19 <i>Ellen Chung</i>
10.15	15	<b>[ID127]</b> Students' Perception Towards Integration between Architecture Design Studio Project with Structural and Technological-based Subjects in Assignment <i>Ruzanah Abu Bakar, Atta Idrawani Zaini, Siti Syariazulfa Kamaruddin, Raja Nur Syaheeza Raja Mohd Yazit</i>

<b>MR5 Hybrid</b>	Topic: Social Sciences and Education <b>Chair:</b> Assoc. Prof. Dr. Caesar Delwis	
9.00	15	<b>[ID064]</b> Exploration on the Innovation and Entrepreneurship of Chinese University Students for Rural Revitalization <i>Chen Yuanrui, Jacqueline Koh, Nabila Azwa Binti Ambad</i>
9.15	15	<b>[ID066]</b> Research on Business Model Innovation of Mugwort Industry based on Rooting Theory <i>Ding Yali, Muhammad Azman Bin Ibrahim</i>
9.30	15	<b>[ID067]</b> The Macroeconomic and Cross-Border e-Commerce Impact on China's International Trade: A Review <i>Lanlan Yang, Jain Yassin</i>
9.45	15	<b>[ID069]</b> Translation and Standardization of Diagnostic Method Terminology in Traditional Chinese Medicine <i>Feng Hongli, Hoe Foo Terng, Goh Chin Shuang</i>

10.00	15	[ID070] Research on the Competency of Clinicians based on Spiritual Motivation after COVID-19 <i>Lu Qi, Nurhani Aba Ibrahim, Shan Bin</i>
10.15	15	[ID071] Exploring the Concept of 'Full Students Development' in Higher Education Sector in China <i>Liu Feifei, Ida Izumi, Firdaus Abdullah</i>

<b>MR8 Hybrid</b>	Topic: Social Sciences and Education <b>Chair:</b> Prof. Dr. Ling Siew Eng	
9.00	15	[ID061] Management Optimization Strategy of Small and Medium-Sized Enterprises in the Initial Stage <i>Bu Xiaoli, Dewi Binti Tajuddin</i>
9.15	15	[ID073] Research on Modernization of University Governance Capacity from the Perspective of Cultural Institution <i>Mei Jie, Azlan Ahmad Kamal, Hamidah Mohd Ismail</i>
9.30	15	[ID075] Research on Performance Appraisal System of R & D Personnel in Software Development Enterprises <i>Dong Yunzhou, Dewi Tajuddin</i>
9.45	15	[ID079] Implementation and Application of "One Network, Unlimited" Medical Internet of Things <i>Dou Huan, Mohd Rafiz Bin Salji</i>
10.00	15	[ID099] Rural Ecological Environmental Governance in China in the Context of Rural Revitalization - Take Guilin in Guangxi as An Example <i>Fengmao Luo, Haijon Gunggut, Haidy Henry Dusim</i>
10.15	15	[ID103] Overview of the Current Situation of Internationalisation and Research on Counter Countermeasures of Higher Education in Guangxi, China <i>Xiangbin Li, Norazah Abdul Aziz</i>

**Day 2 Morning - Afternoon**

Day 2: Afternoon Parallel Session / 11.00 – 1.00		
Time	(min)	Speaker and Paper title

<b>MR5 Hybrid</b>	Topic: Social Sciences and Education <b>Chair:</b> Assoc. Prof. Dr. Kuldip Singh	
-----------------------	---	--

11.00	15	<b>[ID024]</b> The Virtual Meets: An Autoethnography Approach <i>Kavitha Subaramaniam, Swagata Sinha Roy</i>
11.15	15	<b>[ID026]</b> 'Virtually' Gathering – Noting Verbal and Non Verbal Prompts <i>Swagata Sinha Roy, Kavitha Subaramaniam</i>
11.30	15	<b>[ID029]</b> Pembangunan Kerangka Modul Matematik Tulen bagi Pelajar Pintar dan Berbakat <i>Nur Nadiyah Lani</i>
11.45	15	<b>[ID100]</b> Underlying Familial Factors for Aggressive Behavior in Romantic Relationships: A Systematic Review <i>Shalini Munusamy, Sobana Jeyagobi, Isa Naina Mohamed, Jaya Kumar Murthy, Sheau Tsuey Chong, Hilwa Abdullah, Mohamamad Rahim Kamaluddin</i>
12.00	15	<b>[ID105]</b> Virtual Clinical Radiotherapy Learning Application Prototype: Games On! <i>Lee Zi Xuan, Som Khid A/L Som Chit, Saiful Izzuan Hussain, Liyana Shuib, Noorazrul Yahya, Nor Aniza Azmi</i>

<b>MR8 Hybrid</b>	Topic: Natural Sciences and Engineering Chair: Assoc. Prof. Dr. Clotilda Petrus	
11.00	30	<b>[Plenary 3]</b> Innovative Agriculture Light Technology - Preliminary Experimental Results of Application in Paddy Cultivation <i>Bai Shi Yin</i>
11.30	15	<b>[ID068]</b> The History, Development and Prospect of Standardization in English Translation of Traditional Chinese Medicine Terminology <i>Feng Hongli, Hoe Foo Terng, Goh Chin Shuang</i>
11.45	15	<b>[ID161]</b> Feasibility, Challenges and Countermeasures of Tik-Tok's Integration into College Students' Values Education <i>Rui Liu</i>

<b>MR3</b>	Topic: Social Sciences and Education Chair: Dr. Azilawati Banchit	
11.00	15	<b>[ID025]</b> Kids Save Lives Malaysia: Compression-Only Cardiopulmonary Resuscitation and Automated External Defibrillator (Coaed) Course for Primary School Students in Malaysia <i>Muhamad Nur Fariduddin, Mawarni Mohamed, Mohd Johar Jaafar</i>



11.15	15	<b>[ID154]</b> Investigation of second language writing anxiety among ESL students in public university <i>Nur Aziela Aidit, Sheela Faizura Nik Fauzi, Esther John Perry</i>
11.30	15	<b>[ID156]</b> Engaging Mixed Methodology to Gauge Industrial Relations Quality Determinants <i>Elizabeth Caroline Augustine, Nur Aida Kipli, Kuldip Singh</i>
11.45	15	<b>[ID158]</b> Willingness to Pay for Bornean Orangutan Conservation in Sarawak, Malaysia <i>Nor Afiza Abu Bakar, Nur Rasyiqah Adam, Dayang Affizzah Awang Marikan</i>
12.00	15	<b>[ID157]</b> Awareness and Motivation Towards Graduate on Time (GOT): A Case Study of Diploma in Computer Science (CS110) Students in UiTM Sarawak Branch <i>Ismariani Ismail, Abdul Hadi Abdul Talip, Zubaidah Bohari, Siti Nursarjana Malim, Sulastri Putit, Lee Yee Ann, Ketty Chachil, Rumaizah Che Md Nor</i>

<b>MR4</b>	Topic: Social Sciences and Education <b>Chair:</b> Dr. Lee Beng Yong	
11.00	15	<b>[ID078]</b> "Belt & Road" International Education and Cultural Exchange in Higher Education in Malaysia among Mainland Chinese Students <i>Yang Chengcheng, Caesar Delwis, John Francis ak Noyan</i>
11.15	15	<b>[ID057]</b> A Study on Assessing Students' Conceptual Understanding, Their Attitudes and Perception Towards Statistics Subject <i>Siti Hasma Hajar Binti Mat Zin, Rumaizah Che Md Nor, Siti Haslini Zakaria</i>
11.30	15	<b>[ID055]</b> Knowledge Sharing in PFI Project in Sarawak <i>Kumalasari Kipli, Noremiza Mohd Shamsul, Favilla Zaini, Fara Diva Mustapa, Dzuliqyan</i>
11.45	15	<b>[ID085]</b> Using IVE-Snap Card Game to Improve Year 4 Pupils' Use of Past Simple Irregular Verbs <i>Sudipa Chakraverty, Hannah Phek-Khiok Sim, Chung-Wei Kho, Sandra Phek-Lin Sim</i>
12.00	15	<b>[ID076]</b> The Conflicts between Large, Minority Shareholders and Managers: Evidence from Malaysian Shariah Public Listed Companies <i>Dayang Ernie Nurfarah'ain Awang Ahmad, Azilawati Banchit</i>

**Natural Sources as a Precursor to Synthesize Nanomaterials by Various Types of Customized Thermal Chemical Vapor Deposition (Thermal CVD) Methods for Optoelectronic Device Applications**

M.S. Shamsudin<sup>1</sup>, Ishak Annuar<sup>2</sup>, M.J. Salifairus<sup>1</sup>, M. Rusop<sup>1,2\*</sup>

<sup>1</sup>*NANO-SciTech (NST) Lab, Center for Functional Materials & Nanotechnology (CFMN), Institute of Science, Universiti Teknologi MARA (UiTM), Shah Alam, Selangor, Malaysia*

<sup>2</sup>*NANO-ElecTronic Centre (NET), School of Electrical Engineering, College of Engineering, Universiti Teknologi MARA (UiTM), Shah Alam, Selangor, Malaysia*

*\*Corresponding author: rusop@uitm.edu.my*

The results showed the higher synthesis temperatures favor the formation of carbon nanotubes (CNT), graphene, and amorphous carbon (a-C) prepared by various types of customized Thermal Chemical Vapor Deposition (Thermal CVD) methods using palm oil and camphor oil as a precursor. In the case of using palm oil as a precursor, deposited by self-customized double furnace Thermal CVD method, the form of CNT was found to grow at higher temperature (~900°C), with good dimension which showed unique lateral alignment, uniform nanotubes diameter within 10 to 40 nm, and distribution within the bundle when compared to other samples at lower synthesis temperature. In the same context, the production of TiO<sub>2</sub> solution plays an important role as a catalyst to be used in a custom-made two-stage floated-catalytic CVD. Hence, it is a good idea to grow CNT for laboratory commercialization. The synthesis process using this method does not require the substrates. This method can perform easily the nanocarbon in the laboratory and can be upscaled up for mass production of aligned CNT. The Surface morphology, micro-Raman, and Thermogravimetric analyses (TGA) of aligned CNT using FESEM, micro-Raman spectrometer, and TG analyser have been discussed in this paper, respectively. Based on the result, the formation of aligned CNT has been optimized at 800°C synthesis temperature, which is in good agreement with FESEM, micro-Raman, and TG analyses. The experiment has succeeded in minimizing diameter distribution of nanotubes in the range from 0.5 to 2.5 nm and lowest ID/IG ratio (~0.5239) (Raman). The highest yield of CNT (~99.99%) was obtained for 900°C synthesis temperature. As a result, synthesis temperatures were strongly affected by the growth of aligned CNT. This method may be favorable for promoting the enhancement properties factor in the growth of aligned CNT. Within this scope, it is expected that the possibility of growing large yield of CNT. The synthesis time was found to be the essential parameters that strongly affected the growth of aligned CNT synthesized by this method using palm oil as a precursor. The synthesized of nanocarbon using camphor as a precursor by customized two-stage floated-catalytic CVD for various synthesis process is also reported. The formation of aligned CNT has been at the 60 min was found to be having better characteristic properties and the low cost, non-toxic camphor oil can be a good source for large scale aligned CNT production. It is shown that the 60 minutes is the ideal synthesis time in controlling phase of graphitization structure, highest aspect ratio, lowest integrated intensity (ID/IG) ratio (Raman) and diameter size distribution, excellent purity, and thermal stability of CNT. It has been shown that it is reasonable to believe that growing high quality CNT using two-stage floated-catalytic CVD has great promises which are more economical, have simple operating conditions and reproducibility. Camphor oil showed the most suitable candidate as a source of aligned CNT production. From the results, weight percentage of catalyst was selected as an essential parameter that strongly affected the growth of aligned CNT by this method using camphor oil as a precursor. However, to understand actual growth mechanism inside the system, a future investigation is needed with optimizing of growth parameters. In this research, the properties of CNT and amorphous carbon deposited by various self-customized methods will be



presented and discussed. Through this, it is hoped that these desirable properties of CNT are recommended for existing and wide range of new applications such as in optoelectronics.

## Plenary 2

### Precision Nanomedicine Design and Advances

Tin Wui Wong<sup>1,2\*</sup>

<sup>1</sup> *Integrative Pharmacogenomics Institute (iPROMISE), Universiti Teknologi MARA, 42300 Puncak Alam, Selangor, Malaysia*

<sup>2</sup> *Particle Design Research Group, Faculty of Pharmacy, Universiti Teknologi MARA, 42300 Puncak Alam, Selangor, Malaysia*

\*Corresponding author: [wongtinwui@uitm.edu.my](mailto:wongtinwui@uitm.edu.my)

The personalised perspective of precision medicine involves analysis of patient's health/omics profile and customization of the required therapy. Appropriate drug choice and dosage regimen are provided to derive the best healthcare outcome. The delivery of a personalized therapy requires the selected drugs (single or polypharmacy) to be delivered in variable doses of specific delivery kinetics to the intended target sites of action in accordance with the health requirement of the patients. On this note, an ideal dosage form is preferably can be mixed and matched to provide the required drug dose of which is specific to a patient. It is able to carry two or more drugs in a single dosage form, deliver the drugs with the desired kinetics, can possess same or different drug release kinetics, and may engage different drug-specific delivery strategies. The dosage form should ideally provide 100 % drug bioavailability. This presentation highlights the recent drug delivery innovations specifically at nanoscale for skin, lung, and oral applications. Innovative approaches in material design, dosage form development, and technology device application to realize the true meaning of personalized therapy and precision medicine will be discussed. Specifically, critical clinical gaps in cancer omics analysis for precision medicine development will be highlighted from the perspective of nanomedicine design against the profiles of cell target and metabolizing enzyme.

## Plenary 3

### Innovative Agriculture Light Technology - Preliminary Experimental Results of Application in Paddy Cultivation

Bai Shi Yin<sup>1</sup>

<sup>1</sup>*Bai Shi Yin Organisation, Singapore*

[baishiyin@baishiyin.sg](mailto:baishiyin@baishiyin.sg)

Keywords: Innovative Agriculture Light Technology, *Er Shu Zi*, paddy cultivation, Light-transmuting, pests, food security

#### 1.0 Introduction

The world is facing a crisis of food security and disruptions to supply chain that raises prices on most global commodities and products from the twin impacts of COVID-19 pandemic and the Ukraine-Russia war. Food prices have spiked from supply and rising cost of operations, including the increasing costs of agricultural chemicals and fertilisers. In light of these developments, it is heartening to note that there is a timely avenue for increased agricultural yields, a simple and easy cultivational method that obviates the need for an army of workers, and the attainment of

agricultural produce that is devoid of chemical residues. Additionally, it is a welcoming news for those who are concerned about the rising costs as this method is relatively price stable. This Technology is the Innovative Agriculture Light Technology, utilizing the application of positive energy to Light-transmute Er Shu Zi or negative energy of the land and plants, revitalising the soil and strengthening growing plants to achieve high yields with pesticide-free paddy.

## 2.0 Methods

The Technology is pioneered and invented by Bai Shi Yin Guang Bo. She believes that most plant ailments, pest infestations and low yields all have different outward manifestations but have a common root cause, which is Er Shu Zi or negative energy. The best way to treat such plant ailments is to Light-transmute, or infuse positive energy to, the plants and the soil, resolving the root cause. The experimental research method is based on the comparison of paddy grown with the application of Innovative Agriculture Light Technology to conventionally cultivated paddy. It was carried out in the paddy fields at Langkap, Perak, Malaysia, where the area of each lot of field measures 7152 square metres. One of the plots is dedicated to the application of the Technology while several other plots retain the conventional method of cultivation, using pesticides and chemical fertilisers. The core of the Light Technology consists of the Light package comprising Light-transmuting Agents for plants and soil, Light-derived Plant Nourishments, and other Light-transmuting instruments such as Light Stickers. All the raw materials are natural or plant based. The initial stage was to revitalise the soil that had been severely damaged by pesticide residues in previous cultivations before the seeding process. This was attained through weekly Light-transmuting of the Er Shu Zi and negative energy of the soil over 7 weeks. This was then followed by the application of Light-derived Plant Nourishments to the paddy plants, every ten days in conjunction with their periodical Light-transmuting until harvest, using Light-energised water. Comparison of results were recorded by examining the paddy tillers, rice panicles and root systems between Light-cultivated and conventionally cultivated plants. Finally, at harvesting, the harvested tonnage of the two types of cultivation were also compared.

## 3.0 Findings

The key findings are:

- During the paddy field preparations, it was found that the Light-transmuted field had very little wild rice species. These are weeds that compete with cultivated paddy for nutrients and do not yield rice panicles, thus affecting yield. To prevent such yield loss in conventionally cultivated fields, it is essential to weed out the wild species, which necessitates the expending of intensive labour.
- During the vegetative period, a comparative study reveals that rice tillers and the root system of paddy plants grown using the Light Technology were more developed and robust compared to the conventionally cultivated paddy.
- The rice panicles bearing the spikelets or rice grains in Light-cultivated paddy plants were more robust and better developed compared with conventionally cultivated plants.
- The spikelets in Light-cultivated paddy plants were vibrant, with lustrous colours and had markedly reduced pest and disease infestations.
- In severe thunderstorms with strong gales, it was found that large areas of paddy plants in conventionally cultivated fields were flattened, leading to severe damage. The Light-cultivated paddy field was largely intact, attesting to the strength and tautness of the rice tillers.
- Light-cultivated paddy yield was 3220 kg from the 7152 square metres field plot, 1065 kg more than similar-sized conventionally cultivated plots or about 49.4% higher, translating to an increased tonnage of nearly 1.5 tonne per 10,000 square metre of cultivated land.

biosynthesis and the anti-melanogenesis activities were investigated by Sirius-Red and the melanin content assay.

### 3.0 Findings

The cacao shell extract gave the total phenolic compound (TPC) of 71.75 mgGAE/g extracts, and also the free radical scavenging activity by DPPH assay with the  $SC_{50}$  value of  $0.57 \pm 0.02$  mg/ml, which was lower than vitamin C ( $SC_{50}$  of  $0.047 \pm 0.01$  mg/ml). The cacao shell extract showed the anti-melanogenesis activity of  $3.89 \pm 1.33\%$  on B16F10 cells and the tyrosinase inhibition activity with the  $IC_{50}$  value of  $1.59 \pm 0.14$  mg/ml, respectively. Moreover, the cacao shell extract exhibited the collagen biosynthesis stimulation on human dermal fibroblasts of  $8.59 \pm 2.04\%$ , which was lower than vitamin C ( $15.72 \pm 5.46\%$ ) ( $p < 0.05$ ). Finally, the cacao shell extract at 0.1 mg/ml showed no cytotoxicity on human dermal fibroblasts determined by MTT assay.

### 4.0 Conclusion

This study has suggested that the cacao shell extract might be beneficial to be developed as a bioactive for cosmetics.

Invited 2

## Small and Medium Enterprises (SMEs) in Phnom Penh: Challenges Hindering the Growth of Business

Sok Seang<sup>1\*</sup>, Sau Lay<sup>2</sup>, Soun Hong<sup>3</sup>, Vuth David<sup>1</sup>, Ly Sivmey<sup>1</sup>, Rith Longdy<sup>1</sup>, Kim Youheng<sup>1</sup>

<sup>1</sup>NUM International College, National University of Management, Cambodia

<sup>2</sup>Faculty of Law, National University of Management, Cambodia

<sup>3</sup>School of Graduate Studies, National University of Management, Cambodia

\*Corresponding author: sokseang@num.edu.kh

Keywords: Challenge, Growth, SMEs

### 1.0 Introduction

Small and medium enterprises (SMEs) are a noteworthy driver of economic development (Obi et al., 2018), being vital to most economies across the world, particularly in developing and emerging nations (Ndiaye et al., 2018). Like other developing countries, small and medium enterprises (SMEs) are a crucial part of the Cambodian economy, contributing to both economic and social development (World Bank, 2020). In the recent decade, Cambodia's economy has grown at an average of 7.7 percent annually between 1998 and 2019, which is known as one of the fastest growing economies in the world (World Bank, 2021). However, the global pandemic COVID-19 has had a negative impact on the economy, causing numerous serious challenges to the kingdom's core sectors, and the economic growth rate has shifted from positive to negative (-3.1% in 2020, 1.9% in 2021). However, it is expected to rebound favorably in 2022, with an economic growth rate of 5.5 percent, according to the Asian Development Bank (Thy, 2021). Back to the late 1980s, Cambodia marked a turning of a central planning economy to a market economy in April 1989 (Diep, 2005). Over the past two decades, Cambodia has undergone a significant transition, reaching lower middle-income status in 2015 (World Bank, 2016a). The number of Cambodian manufacturing SMEs has increased steadily since the late 1980s. Cambodia counted 513,759 enterprises in 2014, according to the last economic census, of which 99.8% were MSMEs, mainly micro enterprises (97.6%). SMEs provide a similar structural contribution to the economy as in OECD countries, accounting for around 71.7% of employment,

with micro enterprises accounting for 58.3% of employment (NIS, 2015). SME support from the government is dispersed across several ministries. The main ones involved are the Ministry of Industry, Science, Technology and Innovation (MISTI ex-MIH), the Ministry of Commerce (MOC), the Ministry of Posts and Telecommunication (MPTC) for the startups, the Ministry of Economy and Finance (MEF) and the Ministry of Labor and Vocational Training (MOLVT) (Ratana, 2020). The government of Cambodia has few instruments in place to stimulate bank lending to SMEs. Its main instrument, the government-owned Rural Development Bank, was created in 1998 to address the missing market (Country Profile: Cambodia, 2022). Although the Cambodian government has supported SMEs through various measures, many recent studies indicate that SMEs confront numerous obstacles that prevent them from scaling up their business. The impact of the pandemic COVID-19 has caused many challenges for SMEs in Cambodia. It is reported that some SMEs have suspended some parts of their operations, whereas some end up in bankruptcy, especially those in the tourism sector (Thy, 2021). Based on these issues, this study aims to identify the key challenges hindering the growth of SMEs in Phnom Penh after the pandemic COVID-19.

## 2.0 Methods

The design of this study is a quantitative approach. Convenient sampling method was chosen for data collection. Data for this research were collected from SME owners from May to June 2022 in Phnom Penh using Khmer questionnaire, which was translated by the researchers. 350 surveys were used for collecting data through interview and Google form. After checking data in the polls, 150 cases were not usable. As a result, a sample of 200 SMEs was used for data analysis in this study. The coded data obtained were analyzed using the Statistical Package for Social Sciences (SPSS) version 21. Descriptive statistics are employed as an analysis method in this study. Cambodia counted 513,759 enterprises in 2014, according to the last economic census, of which 99.8% were MSMEs, mainly micro enterprises (97.6%) (NIS, 2015). The majority of SMEs can be seen in Phnom Penh (23 percent) (International Finance Corporation, 2019). Therefore, the population of current study is about 11,302 and the sample frame was 2,599. To determine the sample size for this survey research, a formula of *Cochran's (1977)* (as cited in Kotrlik & Higgins, 2001) is used.

$$n = \frac{(t^2) * (s^2)}{d^2}$$

- where t = value for selected alpha level of .025 in each tail = 1.96  
s = estimate of standard deviation in the population  
= 5 (number of points on the scale) / 4 (number of standard deviations)  
= 1.25  
d = acceptable margin of error for mean being estimated  
= 0.15 (number of points on primary scale \* acceptable margin of error; points on primary scale)  
= 5; acceptable margin of error = 0.035 [error researcher is willing to except]).

For the current research, the minimum sample size,  $n = [(1.96^2) * (1.25^2)] / (5 * 0.035)^2 = 196$ . Therefore, a sample of 200 SMEs used for data analysis is sufficient for this study. The self-administered questionnaire was divided into two sections. The first section consists of eight facesheet questions required respondents to provide their demographic characteristics and the characteristics of their SMEs. The second section consists of seventeen items to measure the challenges hindering the growth of SMEs. All items in this section were measured on a Five-point Likert-scale, with 1 = "Not at all"; 2 = "To small extent"; 3 = "To moderate extent"; 4 = "To large extent"; and 5 = "To very large extent". All items were adopted from previous findings, and scale was developed by the researchers.



### 3.0 Findings

To evaluate the current challenges facing by SMEs in Phnom Penh, seventeen items or challenges were measured. Table 5 provides the mean score and standard deviation of challenges facing 200 SMEs in the sample. "High Competition" received the highest score of 3.8800 among the twelve, followed by "Access to Market" received a score of 3.6750. Next, "Access to Finance", was received a score of 3.6150. Meanwhile, "Poor Costing and Pricing", "Lack of Management Skills", "Networking", "Mismanagement of Resources", "Lack of Resources", "Operational Management", "Supply Chain Management", "Lack of Training and Education" and "Managerial Incompetence", which were received scores of 3.5200, 3.4650, 3.4600, 3.3650, 3.3050, 3.2600, 3.2150, 3.2050, and 3.2000 respectively. These 12 items or challenges received higher score than midpoint or average of three. However, five other challenges: "Labour and Regulations", "Lack of Government Support", "Modern Equipment", "High Taxes", and "Crime and Corruption" received lower scores than midpoint. The table gives a clear picture of most to least affecting challenges to the growth of SMEs. These results are consistent with other previous research findings. Such challenges not only adversely affect the growth of SMEs in the sampled area, but also undermine the morale of SME owners. The least ranked challenges do not mean that they exert less adverse effects on SMEs, in fact these challenges are considered less contributory to the impediments to SME growth.

### 4.0 Conclusion

The results of this study found twelve challenges identified as impediments to SME growth in the sampled area. These challenges in their order of importance include high competition, access to market, access to finance, poor costing and pricing, lack of management skills, networking, mismanagement of resources, lack of resources, operational management, supply chain management, lack of training and education, and managerial incompetence. These results are consistent with other previous research findings. They are believed to provoke many obstacles that hamper the growth of SMEs in Phnom Penh. The results provide some insight into the challenges and some remedies for mitigating them that may be used as guidance for actions to improve other SMEs in Cambodia.

Invited 3

#### Exploring Innovated Education in Science for Rural Schools of Sarawak

Siong Fong Sim<sup>1</sup>, Hooi Joo Tang<sup>2</sup>

<sup>1</sup>Universiti Malaysia Sarawak

<sup>2</sup>Pejabat Pendidikan Daerah Baram

*sfsim@unimas.my*

Keywords: Challenges, Teaching and learning, Science, Rural schools, Sarawak

It has been perceived that the performance of students from rural schools are less competitive than those from the town for the reasons that rural schools are lacking in infrastructure and teaching resources. In Sarawak, this is a very unique problem. The schools are very far from the cities where electricity, water supply and internet accessibility that we often take for granted, are luxurious to the rural. This paper reveals the obstacles of education in Science for rural schools in Sarawak, reviews the initiatives endeavored and evaluate the gaps yet to close. Through this paper, it is hoped that educators and stakeholders can be aspired to drive innovation in science education for the rural schools.

## Structure-function Relationship of Phytochemicals as Chemopreventive Agents against Colorectal Cancer

Isabel Fong Lim<sup>1\*</sup>

<sup>1</sup>Faculty of Medicine and Health Sciences, Universiti Malaysia Sarawak, Malaysia

\*Corresponding author: flisabel@unimas.my

Keywords: flavones, apigenin, tricetin, pentamethoxyflavone, colorectal cancer, APC10.1 cell line

### 1.0 Introduction

Cancer is one of the leading causes of non-communicable disease mortality with approximately 10 million mortalities worldwide in 2020 (WHO, 2022). In Malaysia, colorectal cancer was the most common cancer in males and second most common cancer in females as stated in the Malaysia National Cancer Registry Report 2012-2016 (Azizah et al., 2019). It causes high mortality as it is hardly detected during the early stage. Hence, the discovery of chemoprevention method is important to delay the carcinogenesis and to prevent the recurrence of cancer. Three different flavones, apigenin, tricetin and pentamethoxyflavone (PMF) were assessed for their efficacies to induce growth inhibition, arrest cell cycle, trigger apoptosis and modulate chemopreventive mechanisms at the genomic level.

### 2.0 Methods

Several *in vitro* and *in vivo* assays had been conducted to delineate the structure-function relationship of these flavones. Growth inhibition, cell cycle and apoptosis assays were conducted on APC10.1 cells derived from *Apc<sup>Min/+</sup>* mice. The latter 2 assays were analysed using fluorescent-activated cell sorter (FACS). Microarray and RT-PCR were performed to delineate the different genes and pathways modulated by these flavones. The end-point results of genomic modulation were determined via Western Blot. The most efficacious flavone, PMF was tested on *Apc<sup>Min/+</sup>* mouse, an *in vivo* model of gastrointestinal cancer. The potential of inhibition on adenoma development and burden were assessed using immunohistochemistry (IHC).

### 3.0 Findings

All three flavones demonstrated dose-dependent growth inhibition. Overall, PMF exhibited the strongest growth inhibition followed by tricetin and apigenin. In APC10.1 cells, apigenin at 20  $\mu\text{M}$  induced cell cycle arrest in G1 and G2/M at 48 h while at 72 h, G1 arrest. When APC10.1 cells were exposed to tricetin, cell cycle arrest was observed at 24 h, 48 h and 72 h but not at 96 h. At the 24 h time point, tricetin at 5  $\mu\text{M}$  induced G2/M arrest. At 48 h and 72 h, tricetin induced G2/M arrest at 5, 10 and 20  $\mu\text{M}$ . When APC10.1 cells were exposed to 10  $\mu\text{M}$  PMF, G1 cell cycle arrest was observed at all time points. At 48 h, G2/M arrest was observed at 5 and 10  $\mu\text{M}$ . At 72 h and 96 h, 10  $\mu\text{M}$  of PMF induced G2/M arrest. In addition, PMF was found to be more superior to tricetin and apigenin in its abilities to elicit apoptosis in APC10.1 cells. When APC10.1 cells were exposed to apigenin at concentrations of 5  $\mu\text{M}$  to 20  $\mu\text{M}$  for 48 h, the percentage of apoptosis (of control) doubled from 1.28-fold to 2.6-fold. At 72 h and 96 h, this pro-apoptotic potency was 1.9-fold of control before it slightly plateaued at 1.5-fold at 20  $\mu\text{M}$ . When the APC10.1 cells were exposed to tricetin up to 20  $\mu\text{M}$ , the percentage of apoptosis was also increased. A significant drop in live cells at 72 h was observed. At 72 h and 20  $\mu\text{M}$ , tricetin exhibited an increase of 1.7-fold potency in triggering apoptosis as compared to unexposed cells. At 96 h, this potency levelled at 1.6-fold of control. When the APC10.1 cells were exposed to increasing concentrations of PMF up to 10  $\mu\text{M}$ , the percentage of apoptosis was also elevated. At 48 h,

PMF increased apoptosis from 1.5- to 1.7-fold as compared to control. At 72 h, this trend was also observed from 1.2- to 1.9-fold. As with apigenin and tricetin, at 96 h, the apoptotic potential of PMF dropped as compared to control. In microarray assay and validation via RT-PCR, a list of genes closely associated with colorectal cancer were highlighted. These included genes associated with the signalling pathways of Wnt, Toll-like receptor, STATs, apoptosis and cell cycle. When PMF was administered to ApcMin/+ mice, the total number of adenomas in the PMF-treated group was significantly lower than that in the control group. The average number of adenomas per mouse was 28 in the control group and 15 in the PMF group. Additionally, PMF significantly reduced the number of adenomas per mouse in the proximal and distal sections of the small intestine. Adenoma burden per mouse was 59.13 mm<sup>3</sup> in the control group and 32.60 mm<sup>3</sup> in the PMF group. This reduction was significant in the medial and distal sections in the small intestines of the mice. All three flavones demonstrated dose-dependent growth inhibition. Overall, PMF exhibited the strongest growth inhibition followed by tricetin and apigenin. In APC10.1 cells, apigenin at 20 µM induced cell cycle arrest in G1 and G2/M at 48 h while at 72 h, G1 arrest. When APC10.1 cells were exposed to tricetin, cell cycle arrest was observed at 24 h, 48 h and 72 h but not at 96 h. At the 24 h time point, tricetin at 5 µM induced G2/M arrest. At 48 h and 72 h, tricetin induced G2/M arrest at 5, 10 and 20 µM. When APC10.1 cells were exposed to 10 µM PMF, G1 cell cycle arrest was observed at all time points. At 48 h, G2/M arrest was observed at 5 and 10 µM. At 72 h and 96 h, 10 µM of PMF induced G2/M arrest. In addition, PMF was found to be more superior to tricetin and apigenin in its abilities to elicit apoptosis in APC10.1 cells. When APC10.1 cells were exposed to apigenin at concentrations of 5 µM to 20 µM for 48 h, the percentage of apoptosis (of control) doubled from 1.28-fold to 2.6-fold. At 72 h and 96 h, this pro-apoptotic potency was 1.9-fold of control before it slightly plateaued at 1.5-fold at 20 µM. When the APC10.1 cells were exposed to tricetin up to 20 µM, the percentage of apoptosis was also increased. A significant drop in live cells at 72 h was observed. At 72 h and 20 µM, tricetin exhibited an increase of 1.7-fold potency in triggering apoptosis as compared to unexposed cells. At 96 h, this potency levelled at 1.6-fold of control. When the APC10.1 cells were exposed to increasing concentrations of PMF up to 10 µM, the percentage of apoptosis was also elevated. At 48 h, PMF increased apoptosis from 1.5- to 1.7-fold as compared to control. At 72 h, this trend was also observed from 1.2- to 1.9-fold. As with apigenin and tricetin, at 96 h, the apoptotic potential of PMF dropped as compared to control. In microarray assay and validation via RT-PCR, a list of genes closely associated with colorectal cancer were highlighted. These included genes associated with the signalling pathways of Wnt, Toll-like receptor, STATs, apoptosis and cell cycle. When PMF was administered to ApcMin/+ mice, the total number of adenomas in the PMF-treated group was significantly lower than that in the control group. The average number of adenomas per mouse was 28 in the control group and 15 in the PMF group. Additionally, PMF significantly reduced the number of adenomas per mouse in the proximal and distal sections of the small intestine. Adenoma burden per mouse was 59.13 mm<sup>3</sup> in the control group and 32.60 mm<sup>3</sup> in the PMF group. This reduction was significant in the medial and distal sections in the small intestines of the mice.

#### 4.0 Conclusion

The results demonstrated the differential structure-function potencies of the flavones in terms of growth inhibition, cell cycle arrest and pro-apoptotic properties. The effects of the compounds were dose-dependent as well as time-dependent. In mice *in vivo* PMF, at a dietary dose which significantly reduced adenoma development, altered only β-catenin and MCM7 protein levels. These differences were only observed in the adenomas and not the normal mucosa. GSK3β, β-Catenin and MCM7 may play a role in the colorectal cancer chemopreventive activity of PMF. Overall, PMF exhibited a promising chemopreventive effect in *in vivo* and warranted a more in-depth study of this compound.

## The Virtual Meets: An Autoethnography Approach

Kavitha Subaramaniam<sup>1</sup>\*, Swagata Sinha Roy<sup>1</sup>

<sup>1</sup>*Faculty of Creative Industries, Universiti Tunku Abdul Rahman, Malaysia*

*\*Corresponding author: kavitha@utar.edu.my*

Keywords: Autoethnography; Qualitative methodology; Higher education; Virtual meets

### 1.0 Introduction

The COVID-19 had brought immense innovative technology in the academia world. One of the most progressive approaches is the virtual meets (Sarabipour, 2020). It encompasses intellectual discourse via internet as the lecturers were under the Movement Control Order (MCO). It had prevented them to leave their homes. The lockdowns had to take place as the number of COVID cases escalated, alarming the nation's health security. This deadly virus 'swept' millions of lives globally. Despite having vaccines, it still could not stop the spread of this virus as new mutations were not responsive to the vaccination. However, life has to move on and cutting-edge methods were developed to assist our needs during the pandemic. Teleconferencing modes managed to help avail our learning process (Sá & Serpa, 2019). Various information could still reach the educators regardless of not being present in the campus. Hence, the academic activities still took place but on stream.

### 2.0 Methods

Qualitative inquiry (Creswell, 2007) was employed for this study. It delves into one's experiences, depths and insights in a specific event or case. It discusses the intensity of an issue that is being observed. Enormous information can be sourced out just by a single participant for the rich personal accounts. Autoethnography was selected by the researchers as it was deemed appropriate in the context of virtual meets. The first author's interpretation will be taken into account to narrate personal encounters by reflecting the recollection of memories (Poulos, 2021). Therefore, the sole participant's trail began by engaging in more than 70 online academic discourses that comprises conferences to talks. These took place from the year 2020 to 2021 with not less than 150 hours of attendance. This vast experience gave opportunity to understand and reflect the phenomena (Méndez, 2013) based on personal insights. Moreover, the information provided for this research was carefully scrutinized to ensure it is credible and trustworthy. The second author (who has similar experience of virtual meets) cross checked the details to detect bias to keep it objective.

### 3.0 Findings

#### Virtual meets a tool of knowledge?

Virtual meetings have existed since more than two decades ago. This unconventional approach had obstacles due to the accessibility of internet. However, the present scenario differs as almost everyone possesses a computer, laptop, tablet, or smartphone. Moreover, most areas are equipped with Wi-Fi. The virtual platforms were sought-after especially during the COVID-19 pandemic. The lockdowns that were imposed confined us to be at home for our own safety. As such, it disrupted our daily routine and we had to find other alternatives to do our work. So, in terms of the education domain the learning process cannot be stagnant. The university needs



to be avant-garde in enriching the academician's knowledge and skills. The scholarly dialogues must take place and the only option left was the virtual platforms such as Microsoft Teams, Zoom, WebEx, and Google Meets. From this avenue various speakers around the globe were able to give seminars and talks despite many countries having closed their international borders. Therefore, the 'borderless world' was a turning point for most of the educators to continue to impart knowledge for themselves and to the students.

#### Virtual meets in higher education?

The universities require their staff to meet the yearly key performance index (KPI). Thus, the lecturers must partake in academic activities to be evaluated for their performances. It includes presenting in conferences, seminars, and symposiums. In addition, they need to deliver talks and conduct workshops depending on the departments' and faculty's criteria. Continuous professional development (CPD) also obliges the academics to upgrade their knowledge on latest literature in their discipline. Due to the COVID plights, our lives turned topsy-turvy and deterred us from travelling to participate in academic sessions. The conferences gave presenters and participants a choice, attending virtually or physically. The hybrid mode made tremendous impact in the academia industry. Of course, there was a considerable contrast in cost aspects. The registration fees were reduced, there was no travelling expenditure and no accommodation expenses. On top of that, we could be anywhere in our comfort zone as long as we were plugged into online network. This revolution brought a plethora of privileges to those who could not afford attending intellectual discourses abroad even before the coronavirus era.

#### **4.0 Conclusion**

The research paper was based on the first author's autoethnography perspective of virtual meetings. It illustrated the reasons behind the online approach that was conducted by the university. The interactive communication platforms facilitated the scholastic outcomes for the lecturers' professional activities. Hence, the learning process flourished and accelerated as the discussions were able to connect people from all over the world. Moreover, this virtual platform software enabled the lecturers to fulfil their annual performance appraisal despite working remotely. These unconventional methods proved to be ideal because of its hybrid system that provided options for the educators. Therefore, the author's encounter revealed the boon of resorting to technology in the education profession during the pandemic.

ID025

#### **Kids Save Lives Malaysia: Compression-Only Cardiopulmonary Resuscitation and Automated External Defibrillator (Coaed) Course for Primary School Students in Malaysia**

Muhamad Nur Fariduddin<sup>1</sup>\*, Mawarni Mohamed<sup>1</sup>, Mohd Johar Jaafar<sup>2</sup>

<sup>1</sup>*Faculty of Education, Universiti Teknologi MARA Cawangan Selangor, Kampus Puncak Alam, Malaysia*

<sup>2</sup>*Faculty of Medicine, Universiti Kebangsaan Malaysia (UKM), Jalan Yaacob Latif, Bandar Tun Razak, 56000 Cheras, Wilayah Persekutuan Kuala Lumpur, Malaysia*

\*Corresponding author: fariduddin@uitm.edu.my

Keywords: Automated External Defibrillator, Cardiopulmonary Resuscitation, Resuscitation Training, School Student

## 1.0 Introduction

Out of hospital cardiac arrest (OHCA) is the third common cause of death worldwide after cancer and cardiovascular disease (Taniguchi, Baerstein & Nichol, 2012). Studies predicted that at least 15 % of the population is expected to have undergone training in yielding public resuscitators which cannot be done by voluntary courses. Integrating CPR training into the school's training activities would potentially increase the number of trained resuscitators among school children and subsequently the population (Bottiger & Van Aken, 2015). In 2020, the British curriculum effectively incorporated CPR training into the national curriculum ("School CPR," 2021), and the United States has successfully incorporated CPR training into secondary and high school curricula in 35 states (Watanabe et al., 2017). In Europe, KIDS SAVE LIVES (KSL) proposed that children can do CPR according to age and physical characteristics and be potential multipliers of the CPR principles and competencies in the communities. KSL was recently incorporated in the 'Systems Saving Lives' of the ERC Guidelines 2021 (Semeraro et al., 2021). Over the years, CPR training has been offered in Malaysian schools as part of co-curricular activities by professionals, including doctors, firefighters, medical students, and paramedics (Tanaka et al., 2011). However, the enforcement of CPR in Malaysian national school curriculum is currently still lacking (Free Malaysia Today, 2019). Students learned CPR in the Physical Education period through limited content within the secondary Physical Education textbook. In addition, the exposure to these topics varies according to the level of education together with the gaps in techniques and procedures among teachers. This does not fulfill the requirement of WHO policy which enforces at least two hours of annual training which includes theory and practical training at all levels. The enforcement of CPR and AED training towards primary school children remain sparse in the literature, especially in the context of Malaysian primary school children. To address the limited availability, this study was conducted to assess the efficacy of Compression-Only Cardiopulmonary Resuscitation and Automated External Defibrillator (COAED) course on students' knowledge, technical skills, and attitude.

## 2.0 Methods

We developed the handbook called KSLM – Panduan Resusitasi Kardiopulmonari in Bahasa Melayu (national language) which includes lesson plan (compression-only CPR & usage of AED), knowledge test, practical skills testing checklist, and teaching videos which were incorporated via the application of Virtual Reality (VR). The study protocol was approved by the research ethics committee (UiTM) from November 2021 – June 2022 with ethic approval number REC/11/2021(MR/886). We obtained written informed consent for the study from the school principal and parents. Three teachers were selected to conduct the CPR and AED teaching using the KSLM handbook at a selected international private primary school in Malaysia. These teachers have attended BLS training independently as part of their teacher training and were deemed to be sufficient to conduct the KSLM handbook teaching as per guidelines. A 90-minute session was held with 38 students (Malaysian, age 10-12, fluency in Bahasa Melayu with no physical disabilities) from each class with a combination of CPR and AED teaching. The session was conducted during physical education time slot upon the approval from the administration and the principal, with the assistance of class teachers. The first session (45 minutes) included CPR teaching, including theory and practical steps focusing primarily on effective adult chest compression and multiple video presentations to help deliver content, followed by AED teaching with a similar concept. In the following sessions (45-minutes), the teacher demonstrated for about 15 minutes each practical task using the Quality-CPR (QCPR) mannequin (Laerdal Little Family Pack). Lastly, all students were divided into smaller groups, with five participants per mannequin allowing individual exposure to the practical task of each mannequin while anonymously evaluating the schoolchildren for the practical skills assessment using the 10-point skills assessment rubric questions (Fariduddin & Mohd Johar, 2021; Fariduddin & Siau, 2021). The session ended with an evaluation of CPR knowledge through 10-item multiple-choice questions (Fariduddin & Mohd Johar, 2021; Fariduddin & Siau, 2021) and attitude in performing CPR through 10 statements using 5-point Likert scale responses ranging from 1 (strongly