

**BOOK OF ABSTRACTS  
&  
PROGRAMME BOOK**



**THE 4<sup>th</sup> BIOSES 2022**

**SEMINAR ON  
BIOLOGICAL SECURITY &  
SUSTAINABILITY**

*28th - 29th June 2022*

**Universiti Malaysia Terengganu**



## FORWARD

A warm welcome to all keynote speakers, invited speakers and participants of the 4<sup>th</sup> BIOSES 2022 Seminar on Biological Security and Sustainability 2022 (BIOSES2022). This year, the seminar is conducted on a digital platform and the theme of 4<sup>th</sup> BIOSES 2022 is “Embracing Fundamental Science in Achieving Sustainable Development”. I am proud to share that the The 4<sup>th</sup> BIOSES 2022 Seminar is jointly organized by Biological Security and Sustainability (BioSES) research interest group (RIG) of the Faculty of Science and Marine Environment, Universiti Malaysia Terengganu in collaboration with well-known and globally recognized higher education institutions which includes Universiti Malaya, Malaysia; The University of Texas Medical Branch, USA; Bishop Herber College, India; Universiti Sains Malaysia, Malaysia; Universitas Jember, Indonesia; National University of Singapore, Singapore; and National Taiwan University, Taiwan.

I believe we can agree that research in fundamental science is the key to achieving sustainable development. Through significant findings and scientific breakthrough in fundamental research, we researchers can help our society as a whole, including individual firms to keep possible options, scenarios and choices of collaborations in relation with sustainable development. Therefore, continuous development of fundamental science is very crucial to ensure training in the sustainable development at the highest level. This framework may guarantee an access to free circulation of the most valuable information in the sustainable development goals (SDG). The fundamental research may contribute to a better structural link between science and society, especially in biosecurity that is relevance to the sustainability of agriculture, as well as other aspects of public health and protection of the environment, including biological diversity. The 4<sup>th</sup> BIOSES 2022 Seminar is aimed to gather researchers and experts worldwide to share the emerging and recent findings with regards to sustainability that is focusing on meeting and the needs of the present researches without compromising the ability and livelihood of future generations in order to meet their needs which is in conjunction with the theme of this seminar.

With the participation of speakers from academia, agencies and research institutions, the 4<sup>th</sup> BIOSES2022 will be a great platform for critical discussion and sharing of valuable knowledge and discoveries. Networking and collaboration opportunities across the multidisciplinary boundaries are also expected from this seminar. Lastly, I would like to express my highest appreciation to the Organising Committee of 4<sup>th</sup> BIOSES 2022 Seminar.

Thank you.

**Professor Dato’ Dr. Mazlan Abd Ghaffar, FASc**  
**Vice Chancellor**  
**Universiti Malaysia Terengganu**

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## TENTATIVE PROGRAMME

### BIOSES SEMINAR 2022 SEMINAR PROGRAMME & PRESENTATION SESSION

28 Jun 2022 (Tuesday)

TIME (MYT)	ACTIVITY		
8.30 am	Registration Webex Link: <a href="http://surl.li/cgovt">http://surl.li/cgovt</a>		
9.00 am	Opening by the Master of Ceremony		
9.10 am	Doa recitation		
9.15 am	Welcoming Speech by: <b>Professor Dato' Dr. Mazlan Abdul Ghaffar, FASc</b> <b>Vice -Chancellor of Universiti Malaysia Terengganu</b>		
9.35 am	Officiating Speech by:  <b>Prof. Emeritus Tan Sri Dr. Zakri Abdul Hamid</b>		
10.15 am	<b>Keynote I: Prof. Dr. Sazaly Abu Bakar, University of Malaya</b> Pandemic Preparedness: Lessons from COVID-19 Moderator: Associate Professor Ts. Dr. Vigneswari Sevakumaran		
	<b>Sub-theme 1: Food</b> <b>Webex Link:</b> <a href="http://surl.li/cgowq">http://surl.li/cgowq</a>	<b>Sub-theme II: Health</b> <b>Webex Link:</b> <a href="http://surl.li/cgowq">http://surl.li/cgowq</a>	<b>Sub-theme III: Environment</b> <b>Webex Link:</b> <a href="http://surl.li/cgowq">http://surl.li/cgowq</a>
	<b>Moderator: Associate Professor Dr Norhayati Yusof</b> <b>WA Link:</b> <a href="http://shorturl.at/jFPW5">shorturl.at/jFPW5</a>	<b>Moderator: Associate Professor Dr. Siti Nor Khadijah Addis</b> <b>WA Link:</b> <a href="http://shorturl.at/jvl19">http://shorturl.at/jvl19</a>	<b>Moderator: Dr. Maziah Mohd Ghazaly</b> <b>WA Link:</b> <a href="http://shorturl.at/ejoLY">http://shorturl.at/ejoLY</a>
11.00 am	<b>Invited Speaker I: Assoc. Prof Dr Jasmine Selvakumar (Bishop Heber College, India)</b> Gut microbiome, the major player in human health and food security	<b>Invited Speaker I: Dr. Ashok Kumar (India)</b> Sphingosine-1-phosphate lyase downregulation promotes colon carcinogenesis through STAT3-activated microRNA	<b>Invited Speaker I: Dr. Muaz Bin Mohd Zaini Makhtar (Universiti Sains Malaysia)</b> Microbial Fuel Cell (MFC): Simultaneous Waste Bioremediation and Energy Recovery
11.30 am	<b>Keynote II: Emritus Prof. Dr. Chou Loke Ming, National University of Singapore</b> <b>Webex Link:</b> <a href="http://surl.li/cgowq">http://surl.li/cgowq</a> Reclaiming marine biodiversity of the urban coast Moderator: Associate Professor Ts. Dr Vigneswari Sevakumaran		

12.10 pm	<b>AO-01-F</b> <b>Dr. Nurul Aliaa Idris</b> PHI thickenings in roots: Novel secondary cell wall structures induced by abiotic stress	<b>AO-17-H</b> <b>Ajibola Olaide Olawunmi</b> Physicochemical, nutritional and functional properties of <i>Canarium odontophyllum</i> (Dabai)	<b>AO-33-E</b> <b>Amelia Tan Suet May</b> Vector Potential of Polyhydroxyalkanoate Microparticles: Sorption and Bioaccumulation of Polycyclic Aromatic Hydrocarbons and Heavy Metals
12.30 pm	<b>AO-02-F</b> <b>Muhammad Faiz Bin Zakaria</b> Effects of Different Temperatures on the Growth Performance and Biomass of <i>Thalassiosira weissflogii</i>	<b>AO-18-H</b> <b>Sowmiya. S</b> Analysis of the gut microbiota of healthy CARI-Nirbheek (Aseel Cross) Chickens: A Metagenomic Approaches	<b>AO-34-E</b> <b>Dr. Melissa Beata Martin</b> The Diversity of Sponge Associated Fauna (SPA) In Four Selected Marine Sponges (Class: Demospongiae) At Coral Reefs of Pulau Batu Rusa, Terengganu
12.50 pm	<b>AO-03-F</b> <b>Aliffikri B. Ramlee</b> The Effect of Temperature on Biomass Production and Total Carotenoid content in <i>Isochrysis galbana</i>	<b>AO-19-H</b> <b>Nurrahmi Dewi Fajarningsih</b> Extraction, Partial Characterization and Bioactivity Spectrum of Red Macroalgal Lectins from Porok Beach, Jogjakarta	<b>AO-35-E</b> <b>Dr. Ummu Atiqah Mohd Roslan</b> A Mathematical Model on the Dynamics of Sea Turtle-Human Interaction
<b>Lunch break</b>			
	<b>Moderator: Ts. Dr Fazilah Ariffin</b> <b>WA Link:</b> <a href="http://shorturl.at/uwBEJ">http://shorturl.at/uwBEJ</a>	<b>Moderator: Dr Suzana Misbah</b> <b>WA Link:</b> <a href="http://shorturl.at/jnsEU">http://shorturl.at/jnsEU</a>	<b>Moderator: Associate Professor Dr. Fatimah Hashim</b> <b>WA Link:</b> <a href="http://shorturl.at/jtzUZ">http://shorturl.at/jtzUZ</a>
2:30 pm	<b>AO-04-F</b> <b>Dr. Ahmad Syafiq Ahmad Nasir</b> Sustainable Fishery and Aquaculture Development of Yellow Pufferfish from Sarawak, Malaysian Borneo	<b>AO-20-H</b> <b>Dr. Suvik Assaw</b> Anti-inflammatory and anti-nociception effect of lipid mediator Palmitoylethanolamide on TLR4-ligand induced acute inflammatory pain is associated with specific immune cells migration	<b>AO-36-E</b> <b>Dr. Melissa Beata Martin</b> An Overview of Caridean Shrimps (Crustacea: Malacostraca: Caridea) From Southeast Asia And Specimens from The South China Sea Repository and Reference Centre
2:50 pm	<b>AO-05-F</b> <b>Tiara Silva Khatulistiani</b> Chemical Ecology Study: Antifeedant and Ichthyotoxicity of Crude Extract from <i>Holothuria scabra</i>	<b>AO-21-H</b> <b>Dr. Aqilah Mohammad</b> A review on the indoor airborne fungal studies in Malaysia	<b>AO-37-E</b> <b>Dr. Zulkifli Yaakub</b> Conservation of <i>Elaeis Oleifera</i> germplasm: Phenotypic variability revealed by principal component and cluster analysis

3:10 pm	<b>AO-06-F</b> <b>Associate Prof. Dr. Norhayati binti Yusuf</b> Growth and antioxidative responses of <i>Chlorella vulgaris</i> under different growth phases	<b>AO-22-H</b> <b>Dr. Siti Aisyah Razali</b> In silico designing of epitope-based vaccine against Grouper Iridovirus (GIV)	<b>AO-38-E</b> <b>Muhammad Syahmi bin Idris</b> Meta-analysis of palm oil grievance supply chain
3:30 pm	<b>AO-07-F</b> <b>Wan Nor Salmiah Binti Tun Mohd Salim</b> Genetic variability of MPOB-Cameroon oil palm germplasm based on morphological traits using multivariate analysis	<b>AO-23-H</b> <b>Dr. Shahidee Zainal Abidin</b> Characterisation of novel miRNA derived from pregnancy induced hypertension patient and its association with brain development via in silico analysis	<b>AO-39-E</b> <b>Teo Han Meng</b> Distribution of potential halophytes associated HT-PGPB from the mangroves of Terengganu
3:50 pm	<b>AO-08-F</b> <b>Dr. Asma' Ali</b> Socio-demographic determinants of maternal nutritional status & its relationship towards their children nutritional status among selected fishermen household in Terengganu	<b>AO-24-H</b> <b>Dr. Maziah Mohd Ghazaly</b> Short Chain Free Fatty Acid-Acetate Attenuates Hyperglycaemic-Induced Oxidative Stress Endothelial Dysfunction	<b>AO-40-E</b> <b>Associate Professor Dr. Chong Ju Lian</b> The Curious Case of Pangolin Farming: An alternative to illegal trafficked pangolins?
4:10 pm	<b>AO-09-F</b> <b>Nurul Afza Karim</b> Transcriptomic and comprehensive analysis of selected cultivated sweet potato genotype in Malaysia	<b>AO-25-H</b> <b>Dr. Nurul Huda Abd Kadir</b> The selective in vitro toxicology assessment of Benzyl isothiocyanate and its presence in Miswak ( <i>Salvadora persica</i> L.) extract	<b>AO-41-E</b> <b>Associate Professor Dr. Mariam Taib</b> Metabolite profiling of cadmium-tolerant mangrove fungus <i>Trichoderma troviride</i> using different GC-MS derivatization agents
4:30 pm	<b>End of First Day of Seminar</b>		

## 29 Jun 2022 (Wednesday)

TIME (MYT)	ACTIVITY		
8.00 am	Registration Webex Link: <a href="http://surl.li/cgowq">http://surl.li/cgowq</a>		
8.30 am	<b>Keynote III: Prof. Ts. Dr. Mohd Effendy Abd Wahid, Universiti Malaysia Terengganu</b> New Approach for Animal Vaccine Delivery System Moderator: Dr Nor Omaima Harun		
9.15 am	<b>Keynote IV: Prof. Dr. Micheal P. Sheetz, University of Texas Medical Branch</b> Fundamental Discoveries in Mechanobiology Research for Improved Performance Moderator: Associate Professor Ts. Dr. Ma Nyuk Ling		
10.00 am	e-Poster evaluation: <a href="http://shorturl.at/amGTV">http://shorturl.at/amGTV</a>  Industry Talk: Dr. Federica Tomay (Agilent Technologies) Real Time Cell analysis of Bacterial Biofilms with Agilent xCELLigence platforms Moderator: Dr Malinna Jusoh		
	<b>Sub-theme 1: Food</b> Webex Link: <a href="http://surl.li/cgowq">http://surl.li/cgowq</a>	<b>Sub-theme II: Health</b> Webex Link: <a href="http://surl.li/cgowq">http://surl.li/cgowq</a>	<b>Sub-theme III: Environment</b> Webex Link: <a href="http://surl.li/cgowq">http://surl.li/cgowq</a>
	Moderator: Dr Razifah Mohd Razali WA Link: <a href="http://shorturl.at/eqxQW">http://shorturl.at/eqxQW</a>	Moderator: Associate Professor Dr. Mariam Taib WA Link: <a href="http://shorturl.at/ovEO7">http://shorturl.at/ovEO7</a>	Moderator: Associate Professor Ts. Dr. Ma Nyuk Ling WA Link: <a href="http://shorturl.at/cCY35">http://shorturl.at/cCY35</a>
11.00 am	<b>Invited Speaker II (Food) - Prof Dr Yuli Witono (Universitas Jember Indonesia)</b> Development of fish-sourced smart flavor technology to support availability of sustainable food ingredients	<b>Invited Speaker II (Health) - Assoc. Prof. Dr. Ernieda Binti Md Hatah (Universiti Kebangsaan Malaysia)</b> Medicine price transparency initiative for sustainable health care system	<b>Invited Speaker II (Environment) - Assoc Prof Dr Yi Ta Shao (National University of Taiwan)</b> Malformed fish under thermal population
11.30 am	<b>AO-10-F</b> <b>Dr. Faridah binti Yahya</b> Carrot residue powder as a fat replacer in tomato ice cream and its influence on physicochemical properties and sensory acceptability	<b>AO-26-H</b> <b>Dr. Kamalavarshini</b> Green synthesis of biogenic silver nanoparticle from Thespesia populnea leaf extract and determination of their antibacterial activity	<b>AO-42-E</b> <b>Keisheni Ganeson</b> Biosynthesis of poly(3-hydroxybutyrate-co-4-hydroxybutyrate) bioplastics through microbial fermentation using locally isolated <i>Cupriavidus malaysiensis</i> USMAA1020

11.50 am	<b>AO-11-F</b> <b>Dr. Malinna Jusoh</b> Stress-based strategies for enhancing lipids production in selected microalgae species	<b>AO-27-H</b> <b>Dr. Roswati Md Amin</b> Microplastic ingestion in zooplankton. A case study from Terengganu waters	<b>AO-43-E</b> <b>Wan Syahiidah Binti Wan Abd Aziz</b> Reactor Parameters: Their Influence on Bacterial Cellulose Production
12.10 pm	<b>AO-12-F</b> <b>Nurfarha Binti Muhamad Zalan</b> Elucidating the Effects of Silica Nanoparticle Concentrations on Sweet Potato Genotype 'V3-Pejabat' Cultivated on Ultisol Soil	<b>AO-28-H</b> <b>Dr. Suzana Misbah</b> Evaluation of Cytotoxicity Level of Ganoderma lucidum in African Green Monkey Kidney (Vero) Cells	<b>AO-44-E</b> <b>Nur Azzah Binti Osman</b> Identification of Soil Bacterial Community in a Rubber Farm and Forest
<b>Lunch break</b>			
	<b>Moderator: Dr Siti Aisyah Razali</b> <b>WA Link:</b> <a href="http://shorturl.at/ayFIL">http://shorturl.at/ayFIL</a>	<b>Moderator: Dr Rameshkumar Santhanam</b> <b>WA Link:</b> <a href="http://shorturl.at/awzCY">http://shorturl.at/awzCY</a>	<b>Moderator: Dr Nurul Huda Abd Kadir</b> <b>WA Link:</b> <a href="http://shorturl.at/adjDO">http://shorturl.at/adjDO</a>
2:30 pm	<b>AO-13-F</b> <b>Dr. Shuhaila binti Mat Sharani</b> Structure Flexibility of Alpha-galactosidase from a Marine Psychrophilic Yeast, <i>Glaciozyma antarctica</i> PI12	<b>AO-29-H</b> <b>Associate Prof. Dr. Fatimah Hashim</b> Cytotoxicity Investigation of Highly Fused-Rings Conjugated Chalcones towards <i>Acanthamoeba</i> sp.	<b>AO-45-E</b> <b>Ts. Dr. Fazilah Ariffin</b> Preliminary study of Cypermethrin degrading bacteria isolated from agricultural soil
2:50 pm	<b>AO-14-F</b> <b>Dr. Wan Zaliha Wan Sembok</b> The Quality Performances of Melon Manis Terengganu ( <i>Cucumis melo</i> var. <i>Inoduros</i> cv Manis Terengganu 1) in Relation to Nodes Position	<b>AO-30-H</b> <b>Dr. Sowndhararajan Kandhasamy</b> Effect of Water Cooking on Phytochemical Composition and Antioxidant Potential of Certain Leafy Vegetables	<b>AO-46-E</b> <b>Associate Prof. Dr. Tan Min Pau</b> DNA barcoding of the marine gastropods in the intertidal coasts of Terengganu, Malaysia
3:10 pm	<b>AO-15-F</b> <b>Tay Karh Yan</b> Antifeedant Activity of Four Plant Essential Oils against Adult Red Palm Weevil, <i>Rhynchophorus ferrugineus</i>	<b>AO-31-H</b> <b>Dr. Hidayatul Aini Zakaria</b> Terahertz Spectroscopy Analysis of Amyloid Fibrils Derived from Human Serum Albumin	<b>AO-47-E</b> <b>Ching Xin Li</b> Metagenomics Study of Gut Microbiota Functions of Sea Turtle from Turtle Rehabilitation Pools and Tanks in Sea Turtle Sanctuaries



3:30 pm	<b>AO-16-F</b> <b>Dr. Razifah Mohd Razali</b> Use of spent mushroom blocks in combination of various food waste in vegetable growing	<b>AO-32-H</b> <b>Sia Siew Chuiang</b> Characterizations of Bacterial Pathogens Isolated from Internal Organ of Infected Farmed Freshwater Fish	<b>AO-48-E</b> <b>Associate Prof. Dr. Wan Bayani Wan Omar</b> Baseline Study of <i>Brotia</i> sp. (Freshwater Snail) in Kemaman and Setiu, Terengganu
4:30 pm	Closing Remarks by the Master of Ceremony Webex Link: <a href="http://surl.li/cgowq">http://surl.li/cgowq</a> Moderator: Dr Malinna Jusoh		
4:45 pm	Closing Speech by: <b>Prof. Dr. Marinah Mohd Ariffin</b> <b>Deputy Vice Chancellor (Research and Innovation)</b>  Best Oral and e-poster Presentation Announcement		

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## ***KEYNOTE SPEAKER I***



### ***Prof. Dr. Sazaly Abu Bakar, TIDREC, Universiti Malaya***

Professor Dr. Sazaly Abu Bakar received his PhD and training in virology at the University of Texas Medical Branch, Galveston, Texas, USA. Currently, he is the Director of the Tropical Infectious Diseases Research and Education Centre (TIDREC) and the WHO Collaborating Centre for Arbovirus Research and Reference (Dengue and Severe Dengue) at the University of Malaya, Kuala Lumpur, Malaysia. He was appointed as a senior professor at the University of Malaya in 2012. He has over twenty-five years of research experience in emerging infectious diseases especially in dengue and other arbovirus infections. he has published over two hundred papers in prestigious journals in his field and graduated over thirty post-graduate students including Masters and PhD students. He was a work package leader in the EU FP7 Integrated Chikungunya Research (ICRES) and DengueTools research consortia and held numerous other national and international research grants. He was the Editor and Chairperson of the subcommittee for the drafting of the Malaysia Biosafety and Biosecurity Policy and Guidelines. He was instrumental in establishing Malaysia first fully certified modular biocontainment level 3 laboratory (BSL3) and more recently the country's first fully certified mobile BSL3. Professor Sazaly maintained strong research interest in emerging infectious diseases especially focusing on vector-borne diseases.

AO-32-H

## CHARACTERIZATIONS OF BACTERIAL PATHOGENS ISOLATED FROM INTERNAL ORGAN OF INFECTED FARMED FRESHWATER FISH

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The purpose of this study was to determine the prevalence pathogenic bacteria from various species of farmed freshwater fish and their antibiotic resistance patterns. Identification of the bacterial isolates was performed by GTG-PCR pattern analysis followed by 16S rRNA PCR sequencing. The antibiotic susceptibility test was performed by using the Kirby Bauer Disk Diffusion Method. In this study, the bacteria was randomly isolated from internal organ (liver, heart, kidney, internal organ fluid, eyeball fluid, and bile salt) of red tilapia (*Oreochromis* spp.), lampam (*Puntius gonionotus*), sultan fish (*Leptobarbus hoevenii*), patin (*Pangasius* spp.), and empurau (*Tor tambroides*). The bacteria acquired from the fishes were *Aeromonas* spp., *Pseudomonas*, *Enterobacter*, *Citrobacter*, *Klebsiella*, *Plesiomonas*, *Enterococcus*, and others. A total of 21 types of antibiotic were used in the susceptibility test and almost all of the bacteria strains were found to be resistant to two or three types of the antibiotics tested. The highest resistance was observed against Meropenem, Ertapenem, Ticarcillin and Imipenem among the tested bacteria. This indirectly showed the emerging multidrug resistant bacteria present in aquaculture of Borneo. In the future percept, the rapid diagnostic and treatment are essential as the view of the presence of the emerging multiantibiotic resistance bacteria.

Keywords: Farmed freshwater Fish; Pathogenic Bacteria; Antibiotic Susceptibility



**THANK YOU**