The 4th International Conference on Bioscience dan Biotechnology 2021

The 4th International Conference on Bioscience and Biotechnology (ICBB) 2021. The ICBB is an annual international conference since 2018 that was initiated by Prof Ir H Sunarpi PhD. This year we are lucky to collaborate with Postgraduate-studies (Pascasarjana) University of Mataram thanks to the director Prof. Ir. H Muhamad Sarjan, M.Agr., C.P. Ph.D and vice director Prof. Ir. Bambang Hari Kusumo, M.Agr.St., Ph.D. This meeting is hosted by Lab of Bioscience and Biotechnology Research, University of Mataram, Indonesia. It is held for three days, from 21 to 23 September 2021 by virtual conference with zoom platform due to COVID-19 pandemic. Interactive online.

presentations were arranged through Zoom Video Communications for the participants to present their ideas. The conference was divided into two main sessions: Main session for Keynote speakers and Panel Sessions for participants. A time of 30 minutes was given for Keynote speakers to present their fabulous work. For panel session, 10 minutes were given for participants to share their research and findings. A total of 204 participants (180 presenters and 24 non-presenters) from Universities, Research Institutes and also Government Departments joined the conference. All the selected papers were peer reviewed by expert reviewers in a double blind review system as per the review policy given by IOP Conference Series.



Earth and Environmental Science

Plenary Speaker



Prof. Mat Vander Klift, PhD.

Director of the IORA Indian Ocean Blue Carbon Hub

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Mat Vanderklift is a marine ecologist whose research primarily focuses on coastal ecosystems. His research has encompassed tropical and temperate ecosystems in Australia, the USA, France and the Indian Ocean. his research focusses on finding solutions to problems, and he works with managers to identify areas where his science can be useful. He is director of the IORA Indian Ocean Blue Carbon Hub, and leads research projects in the Indian Ocean, including Indonesia and Sri Lanka, that seek to provide the science to support development of policies for "blue carbon" – the organic carbon found in coastal mangrove, seagrass and tidal marsh ecosystems. He also leads the Ningaloo Outlook project, a 5-year \$5 million partnership between CSIRO and BHP Billiton that aims to provide science that will inform management of the Ningaloo Coast World Heritage Area. His other current research foci are developing a sustainable "blue economy" for Australia and the Indian Ocean, the ecology of coral reefs, seagrasses and seaweeds and the organisms that rely on them, working with indigenous ranger groups in the Kimberley to inform management of Indigenous Protected Areas, and the ecology of turtles.



Prof. Endang Semiarti, M.S., M.Sc.

Researcher at the Plant Tissue Culture and Plant Biotechnology, Faculty of Biology Gadjah Mada University, Indonesia

Prof. Dr. Endang Semiarti, M.S., M.Sc is a researcher at the Plant Tissue Culture and Plant Biotechnology, Faculty of Biology Gadjah Mada University, Indonesia. She is chairman in the Indonesian Orchid Association for the period 2013-2017 and the period 2019-2023. She started her career as a lecturer at the Faculty of Biology UGM in 1988 at the Plant Tissue Culture Laboratory. In 1995, she had the opportunity to further study at the Division of Biological Science, Faculty of Science, Nagoya University, Japan with a scholarship from the Japanese government, Monbugakusho G to G scheme. She studied the field of Molecular Genetics, especially the Basics of Molecular Genetics in Plant Development on the modal plant Arabidopsis thaliana. Throughout her career, she has produced many scientific works in the form of scientific journals, scientific books, popular books, and patents.



Prof. Lim Phaik Eem, Ph.D

Deputy Director of Institute of Ocean and Earth Sciences, University of Malaya | C B B 2 0 2 1 | **2**

She is one of the founder members and the current secretary of the Consortium of Southeast Asian Seaweed Taxonomy (SEASTax). She has published more than 150 publications. Her main research focus has been on algae since the 1990s. With the challenges facing in the carrageenan industries, especially lack of genetic diversity of cultivars of the eucheumatoids, she has initiated the study in Malaysia as well as in the Southeast Asian regions since the past 10 years and the research scope is expanded with her involvement in GCRF GlobalSeaweedSTAR programme, where problem-based multidisciplinary approach adopted to address several main issues affecting the seaweed cultivation and processing industries. These include detection of diseases and pests associated with the seaweed farming, farm management and legislation (biosecurity), conservation and exploration of genetically diverse seed stocks, and socio-economic resilience of the industry.



Prof Julian Heyes, Ph.D

Head of School of Food and Advanced Technology

Prof Julian Heyes is the inaugural Head of the School of Food and Advanced Technology. The new School resulted from a merger between the School of Engineering and Advanced Technology and the Massey Institute for Food Science and Technology. I am also Professor of Postharvest Technology. His strategic research interests lie in connecting science to growth of the New Zealand bioeconomy, based on high value food, fibre and fuel products and technologies. He also work on horticulture in developing countries and horticulture for health.



Assoc. Prof. Kato Yasuhiro, Ph.D

University Research Administrator (URA) at the Nagoya University

Kato Yasuhiro took Assoc. Prof. at the Tokyo University of Pharmacy and Life Sciences. he continued his research at the University of Nagoya, where he obtained his Ph.D. from the Graduate School of Bio-agricultural Sciences focusing on the salt tolerance (water stress) mechanisms of plants. Assoc. Prof. Kato conducted research on aquatic organisms (aquaporins: AQP) at Johns Hopkins University for a short time through the JSPS research fellowship. He also established a method of cell selection and enrichment utilizing the function of aquaporins while at Tokyo Dental College and Keio University, and was awarded

the Best Presentation Award from the Annual Meeting of the Japanese Society of Pharmacology. He went to Peking University to clarify the relationship between AQP which regulates the flow of water in organisms and poor health before the onset of symptoms. While there, he was able to witness firsthand the speed of social implementation and innovation in China. After returning to Japan, he is involved in the creation of industrial-academic collaborations as University Research Administrator (URA) at Nagoya University Academic Research & Industry-Academia-Government Collaboration Headquarters. he founded "Aqua Lab," a general association that aims to solve water-related problems at the local level as well as conduct experimental classes. Based on this experience, for the Keio Research Project 2040, he wants to promote the coordination of individual projects and build an "aquaplatform" to contribute to healthy longevity and the SDGs.



Dr. Rapeeporn Ruangchay

Researcher at Faculty of Food Industry Technology, Prince of Songkala University, Thailand

Rapeeporn Ruangchuay is an associate professor of the Faculty of Science and Technology, Prince of Songkla University, Mueang, Thailand since 1991-present. Rapeeporn obtained B.Sc. degree from Prince of Songkhla University, Pattani, Thaialnd in 1988 and obtained M.Sc. degree from Kasetsart University, Bangkok, Thailand in 1991. In 2003, she completed her Ph.D. from Tokyo University of Fisheries, Tokyo, Japan. most of her publications are about the growth and cultivation of seaweed. The latest publication is about Effect from Carbon Dioxide Concentration on Ulva intestinalis Growth in Photobioreactor.



Prof. Bambang Hari Kusumo

Deputy Director of Postgraduete Student University of Mataram and Researcher at the Department of Soil Science, Faculty of Agriculture, University of Mataram Indonesia.

Prof. Ir. Bambang Hari Kusumo, M.Agr.St., Ph.D currently serves as 1st vice director Postgraduate at the University of Mataram. In 1984-1991 Prof. Bambang took his undergraduate at the University of Mataram with a major in Agricultural Cultivation/Soil Science. Then in 1999-2000 he took his Masters at the University of Queensland, Australia with the field of Soil Science. Then in 2005-2009, he took his doctoral education at Massey University, New Zealand with the field of Soil Science. Prof. Bambang is also involved in organizations including the Indonesian Biochar Association in 2019-2022 as General Chair member of the New Zealand Society of Soil Science in 2005-2014 as a member and the Indonesian Soil Science Association since 1996 until now as a member. In 2014 as a speaker at the 27th Annual FLRC (Fertilizer and Lime Research Centre): Nutrient Management for the Farm, Catchment and Community, Massey University. He has also received some volunteer researches, one of them is socialization about specific location of Balance Fertilization for Corn Plants in Dompu Regency in 2019 given by MFAT, New Zealand.



Prof. Akihiro Hazama

Head of Dept. of Cellular and Integrative Physiology, Fukushima Medical University

Prof Hazama is a well known researcher in Japan and also a boardmember of the Japanese Society of Physiological Sciences. He obtained is medical doctor and PhD degree from Kyoto University. In addition, he previously was a visiting researcher in notable institutes such as Johns Hopkins University, UCLA, and Johann Wolfgang Goethe University. His currently research of interests are general physiology, cellular physiology, and ion channels.



Dr.rer.nat. Andri Frediansyah

Researcher at the Research Division for Natural Product Technology, Indonesian Institute of Science

Dr. rer. nat. Andri Frediansyah is a researcher at the Research Division for Natural Product Technology, Indonesian Institute of Science. His permanent position at the Indonesian Institute of Sciences was starting in 2010 up to the present. His groups worked on natural products related to food and health, from basic research to applied sciences. Dr. Frediansyah obtained a Biology B.Sc. (Gadjah Mada University, Indonesia in 2010) and applied Biological Science M.Sc. (Chulabhorn Graduate Institute, Thailand in 2015. In 2020, he completed his Ph.D. in 3,5 years from Pharmaceutical Biology, University of Tuebingen, Germany, with a Magna Cum Laude predicate. Additionally, he is a prolific writer with many scientific publications. He also got many awards during his career as a scientist.

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Eka Sunarwidhi Prasedya, Ph.D.

Lecturer and Biotechnology Researcher from The University of Mataram

Dr Eka Sunarwidhi Prasedya is from The University of Mataram Lombok in Indonesia. He obtained his Bachelor degree from Biology Faculty University of Gadjah Mada and Masters from Malaya University. After finishing his Ph.D. in Fukushima Medical University in 2017. He received his first grant from Indonesia Toray Science Foundation (ITSF) in 2018. Dr. Eka is currently investigating the bioprospecting of seaweeds supported by the grant achieved in 2019 from Ristek-DIKTI and the current Prioritas Riset Nasional (PRN) grant in 2021 from Kemendikbud-Ristek

The 4th International Conference on Bioscience and (ICBB) Biotechnology 2021

Time (GMT	21 st September 2021		
+8; AM)			
08.30 - 09.00	Registration / Opening remarks	MC (Hilda Astriana, S.Si.,	
		M.Sc.)	
09.05 - 09.10	Dua/Praying Khairul Umam, SH., 1		
09.10 - 09.15	Opening Ceremony	All Participant	
	"Indonesia Raya"		
09.15 - 09.25	Opening speech	Rector University of Mataram	
	(Prof. Dr. Lalu Husni, S.H., M.Hum)		
09.25 - 09.40	Opening speech Postgraduate-studies Director		
	(Prof. Ir. M. Sarjan, M.Agr.CP., Ph.D.)		
09.40 - 09.55	Opening speech Chairman of ICBB 2021		
	(Éka Sunarwidhi Prasedya, M.Sc., Ph.D)		
09.55 - 10.00	ICBB video presentation (in memoriam of Prof.Ir.H Sunarpi,		
	Ph.D.)		
Plenary	Moderator · Prof In Sri Widvostuti M Ann S	D D D	
session day 1	ivioderator: Prof. Ir. Sri vvidyastuti, Ivi. App.Sc., Ph.D		
10.00 - 10.30	Keynote Speaker 1	Deriving Value from Elite Indigenous Fruit	
	(Prof. Julian Heyes, Ph.D.)	and Vegetable Species	
10.30 - 11.00	Keynote Speaker 2	Rapid Measurement of Soil Carbon using	
	Prof. Bambang Hari Kusumo, M.Agr.St.,	Near Infrared Technology	
	Ph.D.)		

PROGRAM OVERVIEW

11.00 - 11.30	Keynote Speaker 3	Biotechnology Approach to Improve the	
	(Prof. Dr. Endang Semiarti, M.S., M.Sc.)	Quality and Quantity of Orchids as	
		Potential Agricultural Commodities in	
		Indonesia	
11.30 - 12.30	Discussion session		
12.30 - 13.30	Breakout Session		

<u>Day 2</u>

Time (GMT +8; AM)	22 nd September 2021		
08.30 – 09.00	Registration/ Opening remarks	MC (Niswatun Khair, S.Pd., M.Pd.)	
Plenary Session	Moderator : Eka Sunarwidhi Prasedya, M.Sc., Ph.D.		
09.00 -	Keynote Speaker 4	Importance of Marine Habitat Conservation for	
09.30	(Prof. Lim Phaik Eem, Ph.D)	Utilization and Discovery of New Bioresources of Seaweeds	
09.30 -	Keynote Speaker 5	Opportunities for Sustainable use of	
10.00	(Prof. Mat Vanderklift, Ph.D.)	Coastal Ecosystems	
10.00 – 10.30	Keynote Speaker 6 (Assoc.Prof. Dr. Rapeeporn Ruangchuay)	Seaweed Resources in Thailand: Cultivation and Utilization	
10.30 -	Keynote Speaker 7	Microbial Natural Products: A Discovery Strategy	
11.00	(Dr.rer.nat. Andri Frediansyah, M.Sc.)		
11.00 – 12.30	Discussion session		
12.30 – 13.00	Lunch Break		

<u>Day 3</u>

Time (GMT	23 rd September		
+8; AM)	2021		
08.30 -	Registration/ Opening remarks	MC (Hilda Astriana, S.Si., M.Sc.)	
09.00			
Plenary	Moderator : Apt. Anggit L. Sunarwidhi, M.Sc., Ph.D.		
Session			
09.00 -	Keynote Speaker 8	Investigation of Cigarette Smoke-Induced Cell	
09.30	(Prof. Akihiro Hazama, Ph.D.)	Hyperplasia Mechanism using Induced	
		Pluripotent	
		Stem Cell (IPSCs)	
09.30 -	Keynote Speaker 9	Water Circulation of the Earth and Life	
10.00	(Assoc. Prof. Kato Yasuhiro, Ph.D.)		
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10.00 – K	eynote Speaker 10	Microbiome Implications for Bioprospecting of
11.30 (E	Eka Sunarwidhi Prasedya, Ph.D.)	Seaweeds
10.30 – D	iscussion Session	
11.30		
11.30 – Po	Poster viewing session (Questions addressed through Exhibition Hall)	
12.30		

		Panel room Segare Anak	
	Na	tural Resources Conservation And Management-2	
		Code : NRCM-2	
		Moderator : Dr. Islamul Hadi, S.Si., M.Si	
13.00 -	OR-001	The Future of Wallacean Region in Lombok: The Pristine	University
13.15		Natural Resource under Climatic and Anthropogenic	of
		Threat	Mataram
		Mahrup Warige	
13.15 –	OR-002	The Improvement of Mollusc Population: As a Parameter	University
13.30		of Success of Local Scale Mangrove Conservation on the	of
		South Coast of Lombok	Mataram
		Abdul Syukur, Baiq Nunung Hidayati, Erna Ajizah,	
		Wahyu Bintang Ilahi, and Agil Al Idrus	
13.30 -	OR-003	The Evidence of Seagrass Environmental Support for	University
14.00		Local People's Economic Resilience from Climate	of
		Change on the South Coast of Lombok Island	Mataram
		Abdul Syukur, Agil Al Idrus, Kumala Ratna Dewi,	
		Norma Juniati, and Irmayani	
	OR-004	Application of the Limits of Acceptable Change Process	Duta
14.00 -		for Sustainable Management of the Pelawan Biodiversity	Wacana
14.15		Park, Bangka Belitung Islands	Christian
		Matthew Raphael Benedictus Boentoro, Kisworo, and	University
		Timothy C. Wherrett	
1.4.1.5	OR-005	The Mitigation of Local-Scale Climate Change through	University
14.15 -		Mangrove Revegetation on the South East Coast of	of
14.30		Lombok Island	Mataram
		Agil Al Idrus, Abdul Syukur, Lalu Hasan, Zulhalifah,	
		and Jamiatul Aulia	** • •
14.20	OR-006	The Resilience of Fauna Diversity Associated with	University
14.30 - 14.45		Seagrass through Ecotourism (Ecotourism) in Kuta	of
14.45		Mandalika SEZ Area, Lombok Island, Indonesia Lalu	Mataram
		Zulkifli, Lalu Raftha Patech, Ayudya Lestari,	
	OD 007	Fidiani Fidiantara, Agli Al Idrus, and Abdul Syukur	DI N. Constant
14 45	OR-007	The effectiveness of the New PLN Mobile Application in	PLN Sumatera
14.43 - 15.00		Improving customer service and satisfaction during the	
13.00		New Normal period in Tanjung pandan City	
		Mario Hadi Kusuma and Proi. Dr. Supil Ellendi Dahim	
	OP 012	Kallilli The Easthealt of Marine Cultivation towards Second	University
15.00 -	OK-012	Conservation in the South Designable of Lombely Island	of
15.00 -		Indonesia	01 Mataram
13.13		Abdul Svukur Agil Al-Idrus and I alu Zulkifli	1 v1 ata1 a111
1		Asuu Syuku, Agn Artu us, anu Daiu Zukiin	

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	OR-009	Relative Abundance and Diversity of Dragonflies	University
15.15 –		(Odonata) In Suranadi Natural Tourism Park (SNTP),	of
15.30		West Lombok	Mataram
		Mohammad Liwa Ilhamdi, Didik Santoso, and Agil Al	
		Idrus	
	OR-011	Economic and Environmental Studies of Conservation	University
15.30 -		Agriculture on Dry Land in Central Lombok	of
15.45		Eliza Lastariningsih, Taslim Sjah, and I Gusti Lanang	Mataram
		Parta Tanaya	
	OR-015	Optimization of Curcumin Temulawak (Curcuma	Brawija
15.45 –		xanthorrizha Roxb.) on Calcareous Marginal Land Under	ya
16.00		Teak	Universi
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