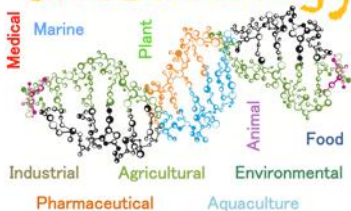


Biotechnology



الجامعة الإسلامية العالمية ماليزيا
INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA
يُونَيْتِي اِسْلَامِيَّةٌ اَنْتَارَاوَيْغِيَّةٌ مَلَيْسِيَا

Kulliyyah of Science

Frontiers in Biotechnology

iCAST
2015

INTERNATIONAL CONFERENCE ON
ADVANCEMENT IN SCIENCE AND TECHNOLOGY
10th – 12th AUGUST 2015

**INTERNATIONAL CONFERENCE ON
ADVANCEMENT IN SCIENCE AND TECHNOLOGY**

'Frontiers in Biotechnology'

10th - 12th August 2015

IMPIANA RESORT CHERATING PAHANG

Organised by

**KULLIYAH OF SCIENCE
INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA**

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**Foreword
Rector
International Islamic University Malaysia**

Assalamualaikum warahmatullah and greetings

Welcome to the 5th International Conference on Advancement in Science and Technology (iCAST 2015) organised by Kulliyah (Faculty) of Science, International Islamic University Malaysia. I am proud of the achievement of this Kulliyah that have made this conference a success, as it has been previously. My sincere gratitude to the organising committees who have worked tremendously and put lots of efforts for this conference.

The programmes in this conference feature multiple scientific approach and advancements from many geographical regions. Advancements do not only apply to the emergence of sophisticated instrumentations but also the applications of current biotechnology research findings in our everyday life. I encourage all participants and delegates to foster future network and collaborations to create more ideas for research.

I am very certain that all delegates and participants will enormously benefit from this conference. I would also hope you have a memorable stay in Malaysia.

Prof. Dato' Sri Dr. Zaleha Kamaruddin

The Rector of the International Islamic University Malaysia



**Foreword
Dean
Kulliyah of Science
International Islamic University Malaysia**

Assalamualaikum warahmatullah and good day

It is our great honour and pleasure to welcome all of you to the 5th International Conference on the Advancement in Science and Technology (iCAST 2015). This prestigious conference is being organised by Kulliyah of Science that brings researchers, students, academicians and institutions to share their research findings in pursuit of biotechnology advancements.

This year's theme of 'Frontiers in Biotechnology' will focus on significant areas of biotechnology that includes industrial biotechnology & bioprocess, medical biotechnology, plant, agriculture and food biotechnology, marine biotechnology, environmental biotechnology and bioethics. As it has always been, this conference will be a great opportunity to stay updated with recent advances in various biotechnology fields. Apart from exchanging ideas and advanced research findings, participants could identify effective networking for collaborations and develop some confidence about presentation.

I would like to extend my most sincere congratulations to all committee members for their dedication and hard work. I would also like to thank the key note speaker, plenary speakers and participants for their support, without them this conference will not be possible.

Last but not least, I wish all our guests and delegates a pleasant and valuable time in Cherating Pahang, Malaysia.

Prof. Dr. Kamaruzzaman Yunus

Dean

Kulliyah of Science, International Islamic University Malaysia



**Foreword
Chairman
International Conference on Advancement
in Science and Technology 2015**

Assalammualaikum and Salam Sejahtera

On behalf of the organising committee, it is my proud privilege and pleasure to welcome you all to the 5th International Conference on Advancement in Science and Technology (iCAST 2015) with the theme “Frontiers in Biotechnology”.

iCAST 2015 provides an excellent opportunity to all academicians, researchers and students from within and outside Malaysia to disseminate their valuable research at international level and develop collaborative research through effective networking. I hope this conference would be a platform for all participants to establish collaborations in exploring new and innovative biotechnology research.

Special thanks to Kulliyah of Science (IIUM) for the tremendous support in the organization of this conference. Also, to our sponsors, thank you very much for the financial support. Last but not least, my sincere thanks to the organizing committees for their commitment, time and hard work to ensure a successful conference. To all participants, speakers and session chairs, I wish you all a fruitful and truly inspiring conference.

Thank you.

Asst. Prof. Dr. Zaima Azira Zainal Abidin
Department of Biotechnology, Kulliyah of Science

iCAST 2015 ORGANISING COMMITTEE

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iCAST 2015 CONFERENCE SCHEDULE

Time	Tuesday, 11 th August 2015 (Day 2)		
9.00–10.00	Plenary speaker 1 Prof. Lai Oi Ming, Universiti Putra Malaysia <i>“Designer lipids – fats of the future?”</i> Indra Sari Banquet Hall		
10.00–10.30	Morning tea		
PARALLEL SESSION 1			
11.15–13.00	Industrial Biotechnology <i>Venue: Indra Sari 1</i> <i>Dr. Mohd Faez Sharif</i>	Food & Marine Biotechnology <i>Venue: Indra Sari 2</i> <i>Dr. Tan Teng Ju</i>	Bioethics <i>Venue: Indah Sari</i> <i>Dr. Anil Azura Jalaludin</i>
11.15–11.35	I07	FO4	ETO1
11.35–11.55	I08	FO5	ETO2
11.55–12.15	I09	FO6	ETO3
13.00–14.30	Lunch		
PARALLEL SESSION 2			
14.30–16.30	Medical Biotechnology <i>Venue: Indra Sari 1</i> <i>Dr. Widya Abd Wahab</i>	Plant Biotechnology <i>Venue: Indra Sari 2</i> <i>Dr. Zarina Zainuddin</i>	Environment and others <i>Venue: Indah Sari</i> <i>Dr. Azzmer Azzar Abd Hamid</i>
14.30–14.50	ME07	PO1	OT06
14.50–15.10	ME08	PO2	OT07
15.10–15.30	ME09	PO3	OT08
15.30–15.50	ME010	PO4	
15.50–16.10	ME011	PO5	
16.10–16.30	ME012	PO6	
17.00–18.00	Evening tea and poster judging		
20.00–22.00	Grand dinner: Indra Sari Banquet Hall		

iCAST 2015 CONFERENCE SCHEDULE

Time	Wednesday, 12th August 2015 (Day 3)		
9.00–9.45	Plenary speaker II Prof. Yu Hao, National University of Singapore <i>“Regulation of flowering responses to environmental cues in Arabidopsis”</i> Indra Sari Banquet Hall		
9.45–10.30	Plenary speaker III Prof. Dr. Gires Usup, Universiti Kebangsaan Malaysia Indra Sari Banquet Hall		
10.30–11.00	Morning tea		
PARALLEL SESSION			
11.00–13.00	Environmental Biotechnology <i>Venue: Indra Sari 1</i> <i>Dr. Suhaila Mohd Omar</i>	Plant Biotechnology <i>Venue: Indra Sari 2</i> <i>Dr. Phang Ing Chia</i>	Marine Biotechnology <i>Venue: Indah Sari</i> <i>Dr. Mohd Azrul Naim Mohammad</i>
11.00–11.20	EO4	PO7	MO4
11.20–11.40	EO5	PO8	MO5
11.40–12.00	EO6	PO9	MO6
12.00–12.20	EO7		MO7
12.20–12.40			MO8
12.40–13.00			
13.00–14.30	Lunch		
14.30–17.00	Closing ceremony: Indra Sari Banquet Hall		
17.00–18.00	Evening tea and end of conference		

Note: The conference schedule is subjected to changes without prior notice.

KEYNOTE SPEAKER

Challenges that Impede Progress in Biotechnology

Stephen Andrew Bustin

Postgraduate Medical Institute, Faculty of Medical Science, Anglia Ruskin University,
Chelmsford, Essex, United Kingdom

The power to clone, modify and create new genes lies at the heart of the remarkable revolution that has characterised the development of biotechnology over the last four decades. Progress has been driven by a range of molecular techniques, foremost amongst which are ingenious inventions such as monoclonal antibodies, DNA sequencing techniques and, crucially, the polymerase chain reaction (PCR). The stunning achievements of molecular and cell biology in utilising these technologies to drive the many accomplishments in medicine, diagnostics, biotechnology and other areas of science are widely acknowledged. However, there is a much disregarded, yet disquieting, flip side to this success story. A combination of constant introduction of new technologies that are increasingly specialised and complex, absence of standardised reagents, protocols and analysis methods, lack of transparency of reporting as well as an increasing pressure to publish at all cost has resulted in a troubling lack of scrutiny accompanying the publication of many peer-reviewed papers. This has resulted in the calamitous situation where many publications report contradictory results and conclusions, where in some fields as many as 90% of published papers cannot be independently reproduced and where by some estimates up to 85% of research and development funding is wasted. This situation cannot improve until there is universal acceptance of this problem and a concerted effort is made by researchers, funders, editors and industry to institute practical steps to address this serious challenge to further advances. The presentation will highlight the challenges and suggest possible solutions aimed at restoring the integrity of the peer-reviewed scientific literature.

PLENARY SPEAKER I

Designer Lipids: Fats of the Future?

Oi Ming Lai

Department of Bioprocess Technology,
Faculty of Biotechnology & Biomolecular Sciences,
Universiti Putra Malaysia

Malaysia is the fattest nation in South East Asia. A recent survey by Socso Malaysia on 308,039 Malaysian employees in 2013 showed that 36.94% were overweight, 17.63% were obese, 13.14% had hypertension, 61.76% had hypercholesterolemia and 8.45% had diabetes (The Star, 27 Feb 2015). Malaysian's present lifestyle and culture were among the reasons cited for the rise in these figures. This fat phenomenon has fuelled the current global anti-obesity market of over USD 240 billion/year. As consumers today become more aware of issues such as "trans fat," "hydrogenation" and "saturated fats", anti-obesity designer lipids such as diacylglycerol (DAG) oil and medium-and long-chain triacylglycerols (MLCT) becomes very appealing and is a very real possibility in meeting the challenges of the anti-obesity consumer market. Just as micronutrients were lauded to prevent disease, so too has designer lipids like DAG on obesity and weight-related disorders. The physiological effect of DAG is believed to be attributed to its metabolic pathway, which is different from the normal triacylglycerol (TAG) metabolism. With DAG, we can combine the different positive and nutritionally valuable FA in palm oil to produce a potent designer lipid with maximum benefits and minimum adverse effects. In this paper, various patented processes for DAG production using several reaction routes are discussed with emphasis on its application and animal trials involving palm oil. More intensive research is required before we can explore the commercial scale production of palm-based designer lipids, which may well be the "Fats of the Future."

PLENARY SPEAKER II

Regulation of Flowering Responses to Environmental Cues in *Arabidopsis*

Hao Yu

Department of Biological Sciences and Temasek Life Sciences Laboratory, National University of Singapore, 117543, Singapore

Plants adjust the timing of the transition to flowering to ensure their reproductive success in changing environments. Temperature and light are major environmental signals that affect flowering time through converging on the transcriptional regulation of *FLOWERING LOCUS T (FT)* encoding the florigen in *Arabidopsis*. In this talk, I will discuss a novel MYB transcription factor EARLY FLOWERING MYB PROTEIN (EFM) that plays an important role in directly repressing *FT* expression in the leaf vasculature. *EFM* mediates the effect of ambient temperature on flowering and is directly promoted by another major *FT* repressor, *SHORT VEGETATIVE PHASE*. *EFM* interacts with an H3K36me2 demethylase JM30, which forms a negative feedback regulatory loop with the light-responsive circadian clock, to specifically demethylate an active mark H3K36me2 at *FT*. Our findings suggest that *EFM* is an important convergence point that mediates plant responses to temperature and light to determine the timing of reproduction.

LIST OF ORAL PRESENTATIONS

Category	Code	Title and Author (*Presenting author)
ENV	E01	N. Jebun*, Abdullah Al Mamun, Md. Zahangir Alam, Mohamed Ismail Abdul Karim and Raha Ahmad Raus Evaluation of entrapment potentiality and turbidity removal efficiency of fungi
ENV	E02	Hizri A.*, Khadijah, H., Mohd Shukri, M.A., Noor Faizul Hadry, N. and Norhidayah, A. Indoor microbial contamination and its relation to physical indoor air quality characteristic at different types of library settings and location
ENV	E03	Muhammad Muhammad Nmaya*, Ishaq Aisha Gogoba , Mohammed Arif Agam, Hazel Monica Matias-Peralta, Nadiah Khaled, Jibrin Alhaji Yabagi and Muhammad Isa Kimpa Biosorption of heavy metals by <i>Scenedesmus sp.</i> isolated from the temporary waters of Endau rompin, Johor, Malaysia
ENV	E04	Maryam Z.*, Mohd Shukri, M.A., Rafiqah Azira, M.R., Noor Faizul Hadry, N. and Norhidayah, A. Indoor microbial contamination in serving food via water mist aerosol at public restaurants
ENV	E05	Noraishah A. Majid*, Nur Syazila Ramli and Ing Chia Phang <i>Pelargonium radula</i> as a plant bioindicator in monitoring Hg in drinking water
ENV	E06	Hazrin A. H.*, Anis Syazana, A.A., Mohd Shukri, M.A., Noor Faizul Hadry, N. and Norhidayah, A. Indoor microbial contamination and its relation to physical indoor air quality characteristic at different types of laboratory settings
ENV	E07	Mohd Fikri Akmal Khodzori*, Shahbudin Saad, Noor Faizul Hadry Nordin, Muhammad Faris Salleh, Normahwaty Mohamed Noor and Mohd Husaini Rani Diversity and distribution of Euphyllidae corals in Tioman Island: emphasis on the genetic variation of <i>Euphyllia cristata</i>

FOO	F01	Nadiah Syuhada Abd Samad*, Azura Amid, Dzun Noraini Jimat, and Nurul Aqilah Ab. Shukor Isolation and identification of halophilic bacteria producing halotolerant protease
FOO	F02	Haswani Maisarah Mustafa*, Noor Azirah Segu Jalaludeen, Noriza Ahmad, Faridatul Ain Mohd Rosdan, Aida Safina Aridi, Zainal Abidin Mohd Yusof, Marmy Roshaidah Mohd Salleh and Nur Azimah Idris Antioxidant capacity of shoot, seed and peel of <i>Carica papaya</i> as a functional food ingredient
FOO	F03	Anida Aminudin*, Muhammad Shamsul, Ruhil Hayati Hamdan, Rumaizi Shaari, Mariam, Firdhaus Mad Nordin, Roselina Ahmad Saufi and Soon, Jan Mei Extraction and characterization of collagen extract from the skin of commercialized freshwater fish
FOO	F04	Aisha Ishaq Gogoba*, Hazel Monica Matias-Peralta, Hatijah Basri and Muhammad Muhammad Nmaya Inhibitory effect of pigment extract from <i>Scenedesmus</i> sp. on food spiked with foodborne <i>Staphylococcus aureus</i>
FOO	F05	Norizzah Abd Rashid*, Nur Azimah Kamarulzaman and Zaliha Omar Effects of chemical and enzymatic interesterification on the physicochemical properties of palm oil and palm kernel oil blends
FOO	F06	Muhamad Shafiq Abu Hassan*, Nik Nornadhirah Nik Ahmad Kamil, Nurul Ashima Hamdan, Shafida Abd Hamid, Noraslinda M Bunnori Proteomics study on meat quality of Malaysian broilers in comparison with indigenous chicken
MAR	MO1	Normawaty Mohammad-Noor*, Noraslinda Mohammad Bunnori, Nurul Ashima Hamdan, Po Teen Lim, Chui Pin Leaw, Azlan Md Noor and Norazizah Kemat Harmful algal bloom in Kuantan Port, Pahang Malaysia: The presence of paralytic shellfish poisoning (PSP) species, <i>Pyrodinium bahamense</i> var <i>compressum</i> and <i>Alexandrium tamiyavanichii</i>

MAR	M02	Shaidatul Nadia Waludin*, Ing Chia Phang and Yukinori Mukai Genetic variation of wild tiger grouper (<i>Epinephelus fuscoguttatus</i>) obtained from Kedah, Malaysia
MAR	M03	Muhammad Hamizan, Y.*, Shahbudin, S., Noor Faizul Hadry, Mahfuzah, Y. and Rafindde, R. Potential of artificial live rock as substrate for coral recruitment and macrobenthic organisms
MAR	M04	Nor Salamah Mohamad Hidayat*, Normawaty Mohammad-Noor, Deny Susanti, Shahbudin Saad and Yukinori Mukai The effects of different pH and salinities on Carrageenan yield of <i>Gracilaria manilaensis</i>
MAR	M05	M. Nor Najwa*, A. Muhd Danish Daniel, Mat Amin, K.A. and A.W.M. Effendy Detection of virulence genes in <i>Vibrio alginolyticus</i> isolated from green mussels; <i>Perna viridis</i>
MAR	M06	Mohd Husaini Rani*, Shahbudin Saad, and Mohd Fikri Akmal Khodzari Scleractinian coral recruitment density in coastal water of Balok, Pahang
MAR	M07	Nurul Ashima*, Siti Noor Hasmiza, Muhamad Shafiq and Noraslinda M Bunnori Fundamental studies of selected <i>Alexandrium</i> spp. at different growth phases and their effects on proteomics of shellfish
MAR	M08	Amira Yusoff *, Firdaus Sallehudin and Yukinori Mukai Survival and growth rates of Sutchi catfish Juveniles, <i>Pangasianodon hypophthalmus</i> under different light wavelengths and intensities
MED	MEO1	Nursyuwari Nayan*, Syamsiah Aini Shohaimi, Raha Ahmadi Raus, Afzan Mat Yusof and Ong Geok Huai Effect on immune response and virus shedding in the chicken vaccinated against inactivated local strain of Newcastle disease virus Genotype VII
MED	MEO2	Nurul Aqilah Ab. Shukor*, Azura Amid, Mohamed Ismail and Nadiah Syuhada Abd Samad Isolation of thermotolerant bacteria producing fibrinolytic enzyme

MED	MEO3	Waqar Al-Kubaisy*, Nor Aini M Noor, Nik Shamsidah NI and Usama Al-Nasirie Prevalence and risk factors of hepatitis C virus infection in haemodialysis patients: Testing Antibodies, RNA & genotypes
MED	MEO4	Norazurashima Jamaludin*, Syawal Shafie Abdul Razak, Farah Hanan Fathihah Jaffar, Khairul Osman and Siti Fatimah Ibrahim Does time of exposure from smart phone affect severity of sperm DNA damage?
MED	MEO5	Tee Jong Huat*, Amir Ali Khan, Jafri Malin Abdullah, Fauziah Mohamad Idris and Hasnan Jaafar MicroRNA expression profiling and functional network analysis upon enhanced neurogenic differentiation of Mesenchymal stem cells suggest MiR-22 as important regulator
MED	MEO6	Noraina Mohd Bakri*, Khairul Osman, Nurul Atikah Osman, Nurhaslina Hasan, Farah Hanan Fathihah Jaffar, Zulaiha Abdul Rahman and Siti Fatimah Ibrahim Embryo apoptosis identification: oocyte grade or cleavage stage?
MED	MEO7	Marmy Roshaidah Mohd Salleh*, Izyan Izzatie Binti Abdul Razak, Faridah Ghafar, Norulakmal Nor Hadi, Azimah Idris, Zainal Abidin, Haswani Maisarah, Norhayati Saharudin and Asimi Ana Ahmad Formulation of herb soap from <i>Moringa oleifera</i> seeds extract
MED	MEO8	Nur Farahiah Zakaria *, Mohammed Arifullah, Shamsul Muhammad and Seri Intan Mokhtar Study of extraction procedure for allergenic protein analysis of common Kelantan's fruit flower from genus <i>Mangifera</i>, <i>Durio</i> and <i>Syzygium</i>
MED	MEO9	Muhammad Zaki Ramli*, Norra Harun, Suhaila Abdullah, Norlelawati A. Talib and Naznin Muhammad Preliminary analyses on the histopathological interpretation of gastrointestinal stromal tumour (GIST) in HTAA, Kuantan, Pahang
MED	MEO10	Nur Amalina Ahmad*, Suzanah Abdul Rahman, Chan Kit-Lam, Nadia Hanis Abdul Samat, Syazana Mohamad Zahri and 'Afif Raihan binti Abdullah Short-term effects of TAF 273 on oestrous cycle and reproductive hormones of normal rats

MED	MEO1 1	Nur Amirah Md Sungif*, Ramlah Zainudin, Dayangku Norlida Awang Ojep, and Ahmad Hata Rasit Study of wound healing in rats treated with skin of poisonous frog, <i>Odorrana hosii</i>
MED	MEO1 2	Nurshamimi Nor Rashid*, Rohana Yusof, and Roger J. Watson The relationship of mammalian DREAM complex with human papillomavirus E7 proteins
IND	I01	Nurul Hazwani Shamsudin, Chee Fah Wong*, Raja Noor Zaliha Raja Abd. Rahman and Mohd Shukuri Mohamad Ali Tight repression of elastase strain K overexpression by <i>P_{T7}</i> (<i>A1/04/03</i>) shuttle expression system
IND	I02	Zubainatu Abba * and Hazel Monica Matias-Peralta Exploring carbohydrates of <i>Botryococcus</i> spp. as a potential raw material for biofuel production: A brief review
IND	I03	Hawa Mas Azmar Ahmad*, Hazrina Ab Hadi and Norazian Mohd Hassan Preparation of natural chitosan from pens of squid <i>Loligo</i> spp.
IND	I04	Siti Marhamah Binti Drahaman* and Aisyah Binti Mohamed Rehan Analysis on the impurities level of purified plasmid DNA using commercial purification kit and conventional alkaline lysis method
IND	I05	Raina J.Awale, Mohamed Elwathig Saeed Mirghani, Hazleen Anuar, Norasikin Samat and Fathilah binti Ali Preparation and characterizations of plasticized Polylactic Acid/Starch blend
IND	I06	Hazwani Binti Husain*, Ahmad Yazid Bin Rahman, Norshazila Binti Senawi, Yamunasri A/P Kuthiah, Syaliyana Binti Khairudin and Thivya A/P Nadarajah Development of Biodegradable Film From <i>Pleurotus Sajor-caju</i> Waste
IND	I07	Nor Farhana Hamid* and Farhan M. Said Factorial design on screening factors for red pigment by <i>Monascus purpureus</i> FTC 5356

IND	I08	Mohamad Al Aamin B. Razali* and Farhan M. Sai Red pigment production by <i>Monascus purpureus</i> in stirred-drum bioreactor
IND	I09	Claira Arul Aruldassa*, Chidambram Kulandaisamy Venil, Vikneswaran Murugaiyah and Wan Azlina Ahmad Production of violet pigment from <i>Chromobacterium violaceum</i> UTM5 grown in liquid pineapple waste
ETH	ETO1	Abdul Haseeb Ansari* Ethical and islamic aspects of biotechnology researches and human consumption of GMOs
ETH	ETO2	Auwalu Abdullahi*, Azmi Hassan, Norizhar Kadarman and Ahmadu Saleh Public health hazards due to poor abattoir management in Cinderin residential neighbourhoods, Kuala Terengganu, Malaysia
ETH	ETO3	Muhammad Aa'zamuddin Ahmad Radzi*, Abdurezak Abdulahi Hashi, Zainul Ibrahim Zainuddin, Rozlin Abdul Rahman, Norhamiza Mohamad Sukri, Mohd Yusof Mohamad, Noorhidayah Md Nazir, Wan Ahmad Dzulkarnain Razali and Munirah Sha'ban Human animal chimerical transplantation in tissue engineering experimentation: Exploring the ethical issues
PLA/AGR	PO1	Seri Intan Mokhtar* and Nur Ain Abd Aziz Changes in physicochemical characteristics and organic acids during ripening of five tropical fruit species in Malaysia
PLA/AGR	PO2	Parveen Jamala*, Olorunnisola Kola Saheeda, Irwandi Jaswir and Tijani I.D. Ruqayyah Bioconversion of seaweed with white rot fungi for production of protein enriched fish feedstock
PLA/AGR	PO3	Abdul Fatah A. Samad*, Ismanizan Ismail and Munir Abdul Murad Deep sequencing analysis of miRNA in <i>Persicaria minor</i> leaves induced by <i>Fusarium oxysporum</i>

PLA/AGR	P04	Febri Doni*, Anizan Isahak, Che Radziah Che Mohd Zain, Norela Sulaiman, F Fathurahman, Wan Nur Syazana Wan Mohd. Zain, Ahsan A. Kadhimi, Arshad Naji Alhasnawi, Abidah Ashari, Norman Uphoff and Wan Mohtar Wan Yusoff Increasing Fitness of Rice Plants by Microbes
PLA/AGR	P05	Md. Anowar Hossain* and Hairul Azman Roslan Molecular characterization and functional analysis of GH18 chitinases from sagu palm (<i>Metroxylon sagu</i>)
PLA/AGR	P06	Maria Nejari*, Renlin Xu and James T. Tambong Detection, identification and differentiation of corn pathogen <i>Pantoea stewartii</i> subspecies by membrane-based multi-gene oligonucleotide array
PLA/AGR	P07	Sharmilla Ashokhan*, Jamilah Syafawati Yaacob and Saiful Anuar Karsani Effect of plant growth regulators on production of callus in <i>Azadirachta indica</i> and characterization of resulting calli
PLA/AGR	P08	Hanisah Ali*, Jamilah Syafawati Yaacob and Saiful Anuar Karsani Organogenesis induction from <i>Orthosiphon stamineus</i> (Misai Kucing) supplemented with IAA and Kinetin
PLA/AGR	P09	Nur Shuhada Tajudin*, Mohamed Hanafi Musa, Idris Abu Seman and Sivakumar Balasundram Variability of copper and zinc in oil palm planted on acid soil using geospatial information system technology
OTH	OT01	Deny Susanti*, Anis Fadhlina Izyani Binti Awang, Muhammad Taher Bakhtiar The mode of antimicrobial action of <i>Cinnamomum burmannii</i>'s essential oil & cinnamaldehyde
OTH	OT02	Faridah Ghafar*, Tengku Nur Naadzirah Tengku Nazrin, Marmy Roshaidah Mohd Salleh, Norulakmal Nor Hadi, Nazerah Ahmad, Ahmad Azahari Hamzah, Zainal Abidin Mohd Yusof, and Intan Nurjahan Azman Extraction and evaluation of total phenolic content and total flavanoid content in <i>Moringa oleifera</i> seed oil

OTH	OTO3	Fatimatul Akmal Sulaiman*, Nurfarahin Fuad, Farawahida Rahman, Anwar Iqbal and Deny Susanti Darnis Antioxidant and antimicrobial properties of <i>Tinospora crispa</i> stems methanolic extract
OTH	OTO4	Zatul Iffah Mohd Arshad*, Azura Amid, Mohd Ezza Faiez Othman Comparison of cell disruption for <i>E. coli</i> BL21-AI Expressing Recombinant Bromelain
OTH	OTO5	Raha Ahmad Raus, Norhayati Abdullah, Nurul Fakhriah Ismail and Munira Shahbuddin Extraction and evaluation of anti inflammatory activity of <i>Spathiphyllum cannifolium</i>
OTH	OTO6	Nur Azfa Shuib*, Anwar Iqbal, Fatimatul Akmal Sulaiman, Izzatie Razak and Deny Susanti Antioxidant and antibacterial activities of <i>Ruta angustifolia</i> extract
OTH	OTO7	Ahmadu Saleh*, Rokiah Zainuddin, Auwalu Abdllahi and Yusha' u Shu'aibu Baraya 2,2-diphenyl-1-picryal-hydrazyl free radical scavenging activity and estimation of total phenolic and flavonoid content of leaves, bark and stem of <i>Trema orientalis</i> linn. Blume. Extracts
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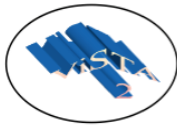
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RICE HUSK ASH AS A POTENTIAL DRUG CARRIER

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CODE:MEP5

ABSTRACT

Rice husk is a by-product from rice mills that are often regarded as an agricultural waste and practically has no commercial value. Rice husk ash (RHA) obtained from the calcinations of rice husk at elevated temperature offers a greener, safer and cheaper source of silica precursor compared to tetraethyl orthosilicate (TEOS). RHA also has been used widely as a silica support in heterogeneous catalysis. To our best knowledge, its potential as drug carrier has yet to be explored. Thus, the objective of this study is to investigate the properties of RHA-silica prepared via sol-gel as a potential drug carrier. Based on nitrogen adsorption analysis, the surface area of RHA-silica is 589 m²/g and the 5.1 nm of pore diameter was obtained. The X-ray powder diffraction (XRD) result showed the amorphous nature of RHA-silica. The preliminary results of the RHA-silica exhibit as a potential drug carrier for α -mangostin.

OBJECTIVES

1. To synthesize RHA-silica as a potential drug carrier for α -mangostin.
2. To characterize the physiochemical properties of RHA-silica using FTIR, XRD, TGA and BET.

METHODOLOGY

1. Rice husk (RH) washing and acid treatment

- The rice husk was treated with nitric acid for 24 hours at room temperature and washed with distilled water. The dried RH was calcined at 600 °C for 6 h (Adam et al.,2011).

2. Preparation of potential mesoporous drug carrier

- RHA was stirred using sodium hydroxide (NaOH) for 24 hours.
- The solution was titrated slowly with 3.0 M hydrochloric acid until the pH 10. During the titration, mesitylene and Pluronic 123 were added into the solution. The dried gel was grounded and labelled as RHA-C (Adam et al.,2009)

3. Immobilized of α -mangostin on the drug carrier

- α -mangostin was loaded using ethanol and stir for 24 hours.
- The solvent was allowed to evaporate at room temperature (Zhu et al.,2014).

RESULTS

1. Thermogravimetric analysis (TGA)

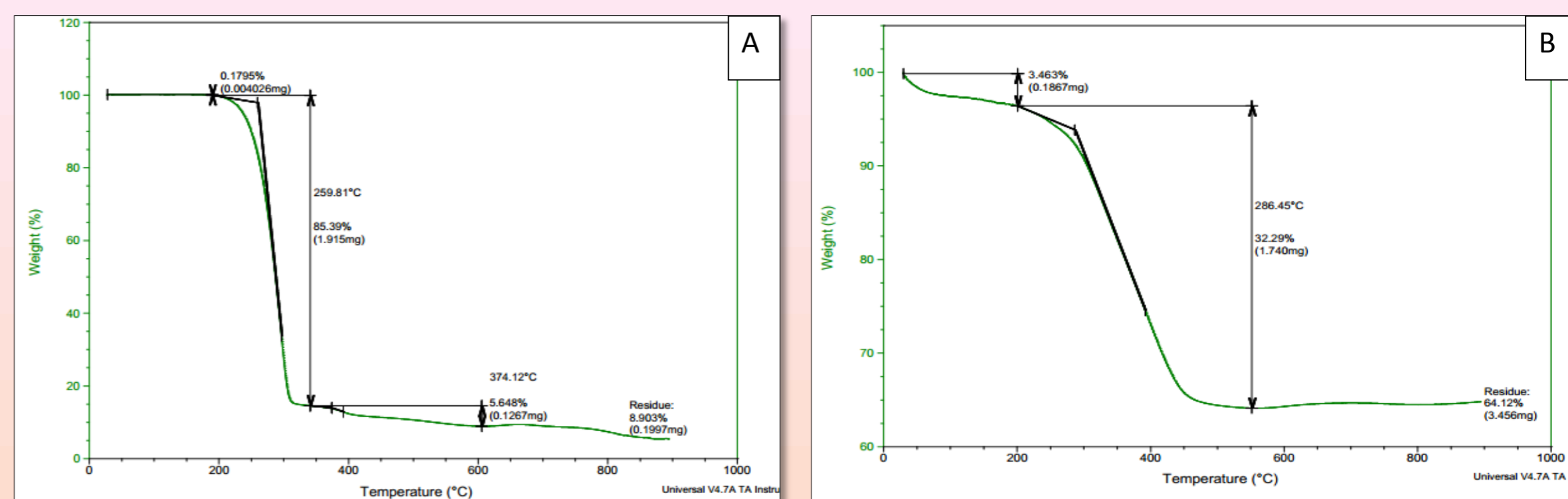


Figure: A) TGA for α -mangostin B) TGA for RHAC- α

2. Fourier transformed Infrared spectroscopy (FT-IR) and X-ray Diffraction (XRD) analysis

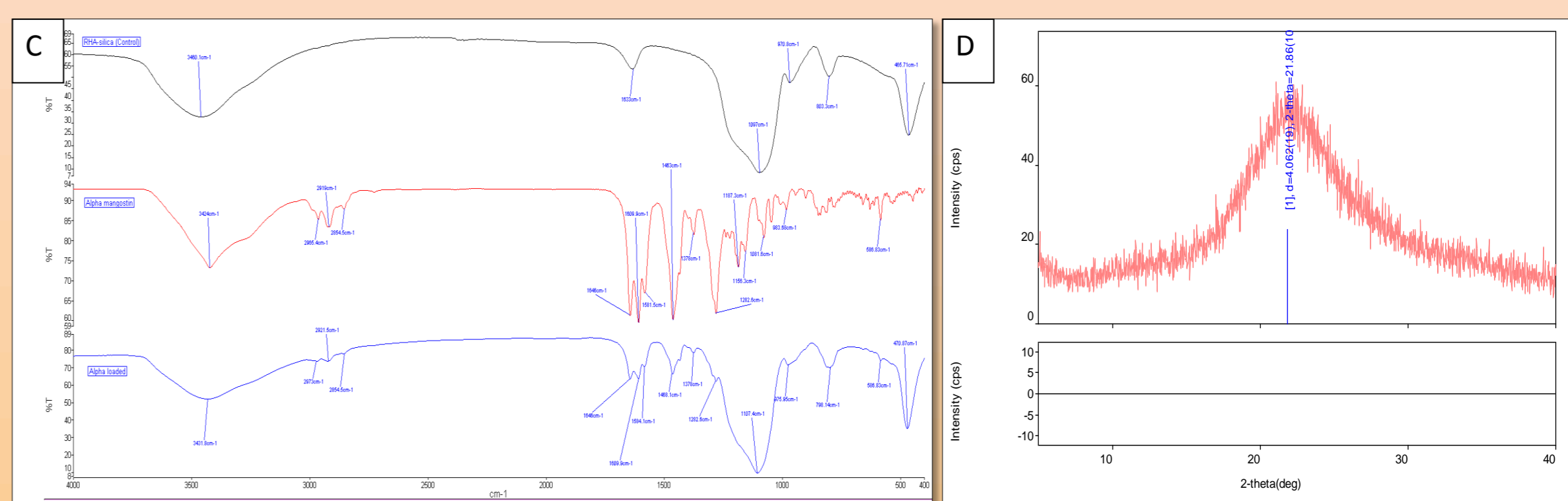


Figure: C) FT-IR for RHA-C, α -mangostin and RHAC- α D) XRD RHA-C

3. Nitrogen adsorption analysis

Type	Hysteresis loop	Surface area (m ² /g)	Pore volume (cm ³ /g)	Pore size distribution (Å)
RHA-C	H2	589	0.75	51.0
RHAC- α	H1	110	0.67	243

Table 1: The nitrogen sorption properties comparison between RHA-C and RHAC- α

REFERENCES

Adam, F., H. Osman, and K.M Hello (2011). The synthesis of heterogenous 7-amino-1-naphthalene sulfonic acid immobilized silica nano particles and its catalytic activity. *Journal of Taiwan Institute of Chemical Engineers*.42.843-851.

Zhu, W., Wan L., Zhang C., Gao, Y., Zheng, X., Jiang, T., and Wang, S (2014). Exploitation of 3D face-centered cubic mesoporous silica as a carrier for poorly water soluble drug: Influence of pore size on release rate. *Materials Science and Engineering*.34.78-85.

CONCLUSIONS

In summary, RHA can be used as a replacement of TEOS for the silica sources. The mesoporous silica of RHA was successfully synthesized with a surface area 589 m²/g. A reduction of the surface area was observed after immobilized α -mangostin onto the RHA-C. Characterization using FT-IR and TGA showed the successful incorporation of α -mangostin into the RHA-C samples. We believed that our study will open up new opportunities for using mesoporous RHA as the drug carrier in the future.

Rice husk ash silica as a potential drug carrier

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Rice husk is a by-product from rice mills that are often regarded as an agricultural waste and practically has no commercial value. However, rice husk ash (RHA) obtained from the calcination of rice husk at elevated temperature offers a greener, safer and cheaper source of silica precursor. Currently used silica precursor such as tetraethyl ortosilicate (TEOS) and sodium silicate are relative expensive and dangerous to human and environmental. RHA has been widely used as a silica support in heterogeneous catalysis but its capability as a drug carrier has not been explored. Thus, in this study we intended to investigate the properties of RHA-silica prepared via sol-gel as a potential drug carrier. The BET surface analysis measured the surface area to be 589 m²/g and the pore diameter as 5.1 nm. Based on the pore diameter, the RHA-silica is classified as mesoporous. The X-ray powder diffraction (XRD) showed that the RHA-silica is in amorphous form. The Fourier Transform Infrared Spectroscopy did not detect the presence of any organic moieties that are not related to silica which indicated the RHA-silica obtained is a pure silica. Based on these preliminary results, it can be said that the RHA-silica has potential to be used as a drug carrier.

Keywords:

Rice husk, Rice husk ash, sol-gel, drug carrier, silica