

2017 HKCBEEES KUALA LUMPUR CONFERENCE ABSTRACT

April 24-26, 2017

International University of Malaya Wales Auditorium



Sponsored and Published by



INTERNATIONAL
UNIVERSITY OF
MALAYA-WALES

IOP Institute of Physics

ISSN 2301-3664
IJFE
International Journal
of Food Engineering



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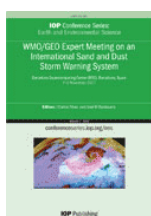
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2017 HKCBEEES Kuala Lumpur Conference Introductions

Welcome to CBEEES 2017 conference in Kuala Lumpur, Malaysia. The objective of the Kuala Lumpur conference is to provide a platform for researchers, engineers, academicians as well as industrial professionals from all over the world to present their research results and development activities in Food Engineering and Biotechnology, Environment and Industrial Innovation.

2017 7th International Conference on Environment and Industrial Innovation (ICEII 2017)

Papers will be published in one of the following journal:



IOP Conference Series: Earth and Environmental Science (EES) (ISSN: 1755-1315), which is indexed by EI Compendex, Scopus, Thomson Reuters (WoS), Inspec, et al.

Conference website and email: <http://www.iceii.org/>; iceii@cbees.org

2017 8th International Conference on Food Engineering and Biotechnology (ICFEB 2017)

Papers will be published in one of the following journals:



International Journal of Food Engineering (IJFE, ISSN: 2301-3664). Included in the Engineering & Technology Digital Library, and indexed by WorldCat, Google Scholar, Cross ref, ProQuest, CABI and sent to be reviewed by EI Compendex and ISI Proceedings;



International Journal of Life Sciences Biotechnology and Pharma Research (IJLBPR, ISSN:2250-3137), which will be included in the Engineering & Technology Digital Library, and indexed by Embase (Under elsevier), ProQuest, Google Scholar, Chemical Abstracts Services (CAS), Indian Science, ICMJE(International Committee Medical Journal Editors), HINARI(World Health Organization), and NYU(Health Sciences Library).

Conference website and email: <http://www.icfeb.org/>; icfeb@cbees.org

Presentation Instructions

Instructions for Oral Presentations

Devices Provided by the Conference Organizer:

Laptop Computer (MS Windows Operating System with MS PowerPoint and Adobe Acrobat Reader)

Digital Projectors and Screen

Laser Sticks

Materials Provided by the Presenters:

PowerPoint or PDF Files (Files should be copied to the Conference laptop at the beginning of each Session.)

Duration of each Presentation (Tentatively):

Regular Oral Presentation: about **12** Minutes of Presentation and **3** Minutes of Question and Answer

Keynote Speech: about **35** Minutes of Presentation and **5** Minutes of Question and Answer

Instructions for Poster Presentation

Materials Provided by the Conference Organizer:

The place to put poster

Materials Provided by the Presenters:

Home-made Posters

Maximum poster size is A1

Load Capacity: Holds up to 0.5 kg

Best Presentation Award

One Best Oral Presentation will be selected from each presentation session, and the Certificate for Best Oral Presentation will be awarded at the end of each session on April 25, 2017.

Dress code

Please wear formal clothes or national representative of clothing.

Keynote Speaker Introductions

Keynote Speaker I



Prof. Koh Hock Lye

Sunway University, Malaysia

H.L. Koh was born in Penang, Malaysia. He received his BSc from University of Malaya in 1970 and MA as well as PhD in mathematics in 1971 and 1976 respectively from University of Wisconsin, Madison, USA. He was the recipient of Oppenheim Prize of University of Malaysia and Fulbright Scholarship USA and DAAD Fellowship. He served as an Associate Member of the International Centre for Theoretical Physics (ICTP) from 1986 to 1992. He is currently a Professor at Sunway University Business School. He has served for 40 years in Universiti Sains Malaysia before continuing his research at Sunway University. His fields of specialization include environmental and ecological system modeling and simulations, integrated river basin management and modeling, numerical modeling of tsunami hazards and numerical simulation of dengue and H1N1 epidemics. Prof. Koh has many journal publications, notably in *Water Sciences & Technology*, *Environmental Monitoring and Assessment*, *Water Quality Research Journal of Canada*, *Pollution in the Urban Environment*, *Journal of Asian Earth Sciences*, *Ecosystems*, *Ecological Modelling*, *Landscape Ecology* and *Agricultural and Forest Meteorology*.

Topic: “Sustainability of Water and Food Security under Climate Change”

Prof. Koh Hock Lye

Sunway University, Malaysia

Abstract—Global climate change (GCC) has the potential of causing precipitation changes and sea level rise (SLR) in vast extents of coastal regions worldwide. Precipitation changes and SLR will have adverse impact on water resources, agriculture production and soil salinization, leading to issues of crop failures, water and food security. The adverse impact can be severe for low lying coastal areas in the Asean region, South and Southeast Asia. Regions in the Sub-Sahara Africa are particularly vulnerable, as the current water stressed environment may get worse. Reduced precipitation and SLR will curtail the availability of surface and subsurface water needed to sustain agriculture, human habitation and wildlife. Moreover, interaction between coastal vegetation, groundwater salinity, SLR and increased tidal intrusion induced by SLS may lead to positive feedback loops to further limit the availability of traditional freshwater lens in coastal regions. Reduced freshwater lens thickness will have adverse consequences for groundwater resources critical to agriculture, industry and human settlements in many regions. We will demonstrate by MANTRA model simulations the dynamic interaction between coastal vegetation and groundwater hydrology in response to SLR in typical coastal marshlands in USA to infer insights on wider impacts of GCC. We then discuss implications on and adaptation to GCC impacts on agriculture, water and food security in impacted regions, including Malaysia, South East Asia, the lower Mekong Delta and China to highlight the potential of catastrophic events of droughts, famine and social-economic crisis.

Keynote Speaker II



Prof. Gordon Huang

Institute for Energy, Environment and Sustainable Communities, University of Regina,
Canada

Dr. Gordon Huang is a Tier 1 Canada Research Chair in Energy and Environment, and Executive Director of the Institute for Energy, Environment and Sustainable Communities at the University of Regina, Canada. He holds BSc from Peking University (China), MSc from Simon Fraser University (Canada) and PhD from McMaster University (Canada). Since the 1990s, Huang has led over 150 research projects, produced over 800 peer-refereed international journal papers (with an SCI-based H-index of 51 in Science Citation Index under Thomson Reuters' Web of Science), and supervised over 100 Master/PhD students (with degrees awarded). Over 20 Huang's PhD graduates were appointed as faculty members at universities in Canada, USA, China and Singapore. He is a Fellow of the Canadian Academy of Engineering, and the President of the International Society for Environmental Information Sciences. He also acts as editor-in-chief for Journal of Environmental Informatics (<http://www.iseis.org/JEI/>), and served the United Nations Development Programme as Chief Scientist for a program of Rural Water Resources Management and Drinking Water Safety. His pioneering work in environmental risk management has been recognized as a significant innovation, and has influenced government and business approaches for tackling environmental challenges and formulating related policies.

Topic: “Innovations for Analyzing and Managing Risks in Environmental Systems”

Prof. Gordon Huang

Institute for Energy, Environment and Sustainable Communities, University of Regina,
Canada

Abstract—In recent years, there has been an increasing concern about multiple risks in watershed system, which are mainly related to flooding, water shortage, ecological deterioration and water pollution. Management of such multiple risks relies on robust techniques for dealing with extensive uncertainties in various components in watershed systems, and relevant modeling methodologies for simulating various processes and providing effective decision support under such uncertainties and the associated interactions. In this study, an integrated approach is proposed for managing environmental risks in watershed environmental systems. Such an approach involves modules of hydrological models for rainfall-runoff simulation, soil erosion and sediment transport models for water quality prediction, flood frequency analysis for hydrologic risk assessment, and inexact optimization for environmental risk management. These modules are integrated into a general decision support framework for facilitating sustainable watershed development and management (DRSD). The developed DRSD was applied to a typical watershed in China to demonstrate its applicability. The results indicate that the developed system can effectively characterize and analyze multiple risks in watershed systems and generate desired risk management plans.

Keynote Speaker III



Prof. Somchart Chantasiriwan

Faculty of Engineering, Thammasat University, Thailand

Prof. Somchart Chantasiriwan received Ph.D. in mechanical engineering from the University of California, Santa Barbara. He is currently a professor at Thammasat University, Thailand. His previous research interests include atomistic simulation, inverse problems, and innovative numerical methods. In addition to his teaching and research duties in the university, he is a technical consultant to a sugar factory in Thailand. His recent research interest concerns raw sugar manufacturing process and the associated cogeneration system. Prof. Chantasiriwan has published more than 30 papers in research journals, and his papers have received more than 400 citations.

Topic: “Mathematical Model of Sugar Juice Evaporation Process for Optimizing Heat Transfer Surface Distributions”

Prof. Somchart Chantasiriwan

Faculty of Engineering, Thammasat University, Thailand

Abstract—Removing water content from a diluted solution using latent heat of condensation from saturated steam is known as the evaporation process. Many food industries, including milk, fruit juice, and sugar industries, require this process. Energy efficiency of the process can be achieved by using multiple-effect evaporator, in which saturated steam is supplied to the first effect, and vapor leaving each effect except the last effect is used for evaporation in the next effect. Although it has been demonstrated that increasing the number of effects leads to better performance of the process, which is measured in terms of the amount of processed solution and the ratio of required steam to processed solution, there is a practical limit to this number. With a fixed number of effects, it can also be shown that increasing the evaporator surface leads to better performance. However, additional surface means additional investment. Therefore, there is also a limit to how large the evaporator surface is. In this presentation, an investigation is made into the optimization of the evaporation process in raw sugar manufacturing subjected to a fixed number of effects and a fixed evaporator surface by distributing the surface optimally among the effects of the evaporator. A mathematical model is developed for this purpose. This model takes into account interactions between the three components of the evaporation process, which are of juice heater, multiple-effect evaporator, and crystallizer, through mass and energy balances. Results show that the optimum evaporator surface distribution corresponding to the maximum amount of processed sugar juice is different from the optimum evaporator surface distribution corresponding to the maximum steam economy, defined as the ratio of required steam to processed sugar juice.

Plenary Speaker



Assoc. Prof. Md. Aminur Rahman

Laboratory of Marine Biotechnology, Institute of Bioscience, Universiti Putra Malaysia
(UPM), Malaysia

Md. Aminur Rahman has completed Doctoral degree in Marine and Environmental Sciences from the University of the Ryukyus, Japan in 2001 and Post-doctoral researches from the same University in Japan (2003-2005) and the Smithsonian Tropical Research Institute, USA (2007-2009). He also worked as a Chief Researcher in the Ocean Critters Ranch, Inc. Texas, USA. Currently, he is working as a Senior Research Fellow (Senior Associate Professor Position) and has been involved in teaching/supervising undergraduate and postgraduate students in Universiti Putra Malaysia (UPM). Moreover, he worked as a Senior Scientist in Bangladesh Fisheries Research Institute during 1988 to 2007. His expertise areas broadly lie in Marine and Freshwater Biology, Limnology and Aquatic Ecology, Reproductive Biology and Fertilization kinetics, Population dynamics, Breeding and Seed Production, Aquaculture and Conservation, and Taxonomy and Evolution. Meanwhile, he is involved in some international collaborative research work on marine biology, fisheries and aquaculture with scientists of different institutes, including Smithsonian Institution (USA), Australian Nuclear Science and Technology Organization (Australia), Australian Institute of Marine Science, King Abdulaziz University (Saudi Arabia), Kindai University (Japan) and Mejo University (Japan). He supervised more than 10 undergraduate and postgraduate students, and around 30 national and international research projects in the above fields of his specializations. Through his research works, Dr. Rahman has published 115 scientific papers in international and nationally reputed high impact journals, 26 referred proceedings, 2 books and 14 book chapters. A good number (50) of scientific papers have also been presented and published in international conferences, symposia and workshops. He has not only been serving as editors and editorial board members of some reputed International journals and proceedings but also presenting keynote, public and invited lectures in some reputed international conferences.

Topic: “The High-valued Mahseer Fisheries: A Review with Focus on Their Current Status, Aquaculture Practices, Management Strategies and Conservation Measures”

Assoc. Prof. Md. Aminur Rahman

Laboratory of Marine Biotechnology, Institute of Bioscience, Universiti Putra Malaysia (UPM), Malaysia

Abstract—The high-valued Mahseer belonging to the genus *Tor*, are large cyprinid sport fishes endemic to Asia with a distribution ranging from Afghanistan, Pakistan, India, Bangladesh, Sri Lanka, Nepal, Bhutan, Myanmar, Thailand, China, Laos, Cambodia, Vietnam, Indonesia and Malaysia. The habitats of *Tor* species range from mountainous streams and rivers to fast flowing rivers in the plains; often preferring clear, swift-flowing waters with stony, pebbly or rocky bottoms. They are considered as one of the important food fish due to their high market demand and excellent taste qualities. Traditional people have been using the blood of mahseer fish in foot and mouth disease; it is also applied on sore wounds in legs as well as to cure the white spots on the skin. Mahseers fetch high price, and are popular cultural icons of economic, recreational and conservation interest in many of these countries and more importantly serve as a ‘freshwater flagship’. Currently around 17 species of *Tor* are recognized as being valid, many of which are of significant conservation concern due to various anthropogenic threats they face in the wild. Of the 17 species, 14 have been assessed for their conservation status by the International Union for Conservation of Nature (IUCN) in their Red List of Threatened Species. In general all *Tor* species throughout Asia are threatened by overfishing (often using destructive gears), loss of habitats including migratory routes, deterioration and alteration of habitats as a result of both agro-based and sewage pollution and introduction of exotic species. Studies on the feeding and spawning habits, eggs, larval development and especially the methods of artificial propagation of some mahseer species (e.g., the Malaysian mahseers, *T. tambroides* and *T. douronensis*) have progressed in recent years. Seed production through breeding of four major species of mahseer, *T. khudree*, *T. mussullah*, *T. tor* and *T. putitora*, by collecting the brooders from the breeding grounds and then stripping them is possible. Mahseer breeding is no longer in its infancy but the commercial culture is yet to be developed. The breeding successes have raised new hopes for the prospects of mahseer fishery. However there exists the need to intensify these efforts by undertaking large-scale regular pond and cage culture, and a mahseer seed ranching programme. Efforts have also been made to understand the nutritional requirements of these species and to culture these species along with other carps. Though the conventional farming of this fish is not promising because of the slow growth compared to the Indian and Chinese carps, however, by formulating practical diets and appropriate technologies, there is scope to harness the potential of this group of fishes. The culture of mahseers has to be undertaken with a multifaceted approach considering their value in sport, food, medicine and aim at their conservation and sustainable management. In this review, an effort is made to assess the progress on various aspects of biology, ecology, reproduction, aquaculture and conservation of mahseers and the difficulties encountered by the farmers and farm-entrepreneurs in mahseer farming are briefly discussed and suggestions to overcome the problems are highlighted.

Brief Schedule for Conference

Day 1	April 24, 2017 (Monday)		
	Venue: 401		
	Arrival Registration	10:00~17:00	
Day 2	April 25, 2017 (Tuesday)		
	Venue: 402		
	Arrival Registration, Plenary Speech, and Conference Presentation		
	Morning Conference		
		Opening Remarks	8:50~9:00
		Keynote Speech I	9:00~9:40
		Topic: "Sustainability of Water and Food Security under Climate Change" (Prof. Koh Hock Lye, Sunway University, Malaysia)	
		Keynote Speech II	9:40~10:20
		Topic: "Innovations for Analyzing and Managing Risks in Environmental Systems" (Prof. Gordon Huang, Institute for Energy, Environment and Sustainable Communities, University of Regina, Canada)	
		Coffee Break & Group Photo Taking	10:20~10:50
		Keynote Speech III	10:50~11:30
		Topic: "Mathematical Model of Sugar Juice Evaporation Process for Optimizing Heat Transfer Surface Distributions" (Prof. Somchart Chantasiriwan, Thammasat University, Thailand)	
		Plenary Speaker	11:30~12:00
		Topic: "The High-valued Mahseer Fisheries: A Review with Focus on Their Current Status, Aquaculture Practices, Management Strategies and Conservation Measures" (Assoc. Prof. Md. Aminur Rahman, Universiti Putra Malaysia (UPM), Malaysia)	
		Lunch 12:00~13:00	401
		Afternoon Conference	
		Session 1: 13:00~15:45	
	Venue: 402		
	11 presentations-Topic: "Food Engineering and Biotechnology"		
	Session 2: 16:00~19:15		
	Venue: 402		
	13 presentations-Topic: "Environmental Engineering and Industrial Innovation"		
	Coffee Break 15:45~16:00		
	Poster session 8:30~19:15	Venue: 402	
	Dinner 19:30	401	
Day 3	April 26, 2017 (Wednesday) 9:00~17:00		
		One Day Visit	

Tips: Please arrive at the conference room 10 minutes before the session begins to upload PPT into the laptop.

Detailed Schedule for Conference

Afternoon, April 25, 2017 (Tuesday)

Venue: 402

9:00~9:40	<p>Keynote Speech I Prof. Koh Hock Lye Sunway University, Malaysia</p>
9:40~10:20	<p>Keynote Speech II Prof. Gordon Huang Faculty of Engineering and Applied Science, University of Regina, Canada</p>
10:20~10:50	<p>Coffee Break & Group Photo Taking</p>
10:50~11:30	<p>Keynote Speech III Prof. Somchart Chantasiriwan Thammasat University, Thailand</p>
11:30~12:00	<p>Plenary Speaker Assoc. Prof. Md. Aminur Rahman Universiti Putra Malaysia (UPM), Malaysia</p>
12:00~13:00	<p>Lunch-----401</p>
13:00~15:45	<p>Session 1 11 presentations-Topic: "Food Engineering and Biotechnology"</p>
15:45~16:00	<p>Coffee Break & Group Photo Taking</p>
16:00~19:15	<p>Session 2 13 presentations-Topic: "Environmental Engineering and Industrial Innovation"</p>
19:30	<p>Dinner-----401</p>

- Note: (1) The registration can also be done at any time during the conference.
 (2) The organizer doesn't provide accommodation, and we suggest you make an early reservation.
 (3) One Best Oral Presentation will be selected from each oral presentation session, and the Certificate for Best Oral Presentation will be awarded at the end of each session on April 25, 2017.

Session 1

Tips: The schedule for each presentation is for reference only. In case of missing your presentation, we strongly suggest that you attend the whole session.

Afternoon, April 25, 2017 (Tuesday)

Time: 13:00~15:45

Venue: 402

Session 1: 11 presentations- Topic: “Food Engineering and Biotechnology”

Session Chair: Prof. Somchart Chantasiriwan

L0002 Presentation 1 (13:00~13:15)

Effect of Açai powder and chitosan incorporation on bread quality

Rafael Audino Zambelli, Doras Ívia Ferreira Pontes, Luciana Gama de Mendonça, Samuel Veloso Carneiro and Bárbara Guerra Rodrigues
Federal University of Ceará Brazil

Abstract—The food industry trend is to produce foods with better nutritional quality. Within this proposal, the objective of this work was to study the inclusion of açai powder and chitosan in bread formulations and to evaluate their quality. For the development of the bread formulations, the central rotational design was used putting the açai powder and chitosan as independent variables. Flour quality analyzes were performed (water hydration properties), dough and bread quality analyzes (fermentation time optimization, maximum expansion factor, crumb structure, crust and crumb color and specific volume). The quality analyzes were studied through regression and correlation analysis and response surface methodology at the 5% level of significance. After the determination of the optimized condition of açai powder and chitosan was carried out the evaluation of the centesimal composition and scanning electron microscopy. The results showed that both açai powder and chitosan significantly influence the flour properties. It was verified that the açai powder promotes greater modifications in the physical parameters of the dough and the bread than the chitosan, which was confirmed by correlation analysis. The optimum conditions the inclusion of açai powder and chitosan was of 8.5 g and 0.75 g respectively. There was a improvement in the nutritional quality of the bread optimized, in comparison to the control, with the increase of the protein content and ashes. Microscopy showed an interaction between starch and chitosan, as well as the harmful effect of açai powder on gluten network.

Afternoon, April 25, 2017 (Tuesday)

Time: 13:00~15:45

Venue: 402

Session 1: 11 presentations- Topic: “Food Engineering and Biotechnology”

Session Chair: Prof. Somchart Chantasiriwan

L0003 Presentation 2 (13:15~13:30)

Effect of Fungal and bacterial proteases on the cracker quality properties

Rafael Audino Zambelli, Luciana Gama de Mendonça, Evellheyn Rebouças Pontes, **Bárbara G. Rodrigues** and Doras Ívia F. Pontes

Fortaleza University, Brazil

Abstract—Crackers are an important part of baking industry as they are consumed by people of all age group, however, is a product that needs special conditions of gluten strength, which are often not provided by the wheat cultivar. Thus, it is necessary to use enzymes to modify the protein network. The objective of this work was to study the effect of fungal and bacterial protease addition on the cracker rheological and quality properties. The design the completely randomized was used, varying the amounts of fungal and bacterial proteases. The design gave rise to 5 treatments: control (without proteases), FP1 (400 ppm fungal protease), FP2 (500 ppm fungal protease), BP1 (200 ppm bacterial protease) and BP2 (250 ppm bacterial protease), and studied for 18 hours of dough fermentation time. The following analyzes were carried out: rheological properties of cracker dough, physical and color crackers, fermented dough protein solubility and viscosity. Quality analyzes were studied through ANOVA, tukey test and regression analysis. The Extension strength, Maximum resistance and extensibility were influenced by fermentation time and proteases addition, with significantly reduction. Protein viscosity presented behavior of pseudoplastic fluid for all treatments; bacterial proteases presented a higher rate of viscosity reduction. The addition of the proteases promoted significant modifications in the color parameters and volume of crackers. The addition of the proteases was efficient in the reduction of the gluten strength and the fermentation time of the cracker dough influences the quality parameters.

Afternoon, April 25, 2017 (Tuesday)

Time: 13:00~15:45

Venue: 402

Session 1: 11 presentations- Topic: “Food Engineering and Biotechnology”

Session Chair: Prof. Somchart Chantasiriwan

L0004 Presentation 3 (13:30~13:45)

Effect of temperature on the physicochemical properties of tamarind (*Tamarindus indica*) powder

Nartchanok Prangpru, Tawarat Treeamnuk, Kaittisak Jaito, Benjawan Vanmontree and Krawee Treeamnuk

Suranaree University of Technology, Thailand

Abstract—The aim of the present investigation is to study the effect of temperature on the physicochemical properties of tamarind powder that produced by a double drum dryer. The temperatures varied from 120 to 140 °C, whereas other parameters like drum clearance (0.0254 mm) and drum rotation speed (0.75 rpm) were kept constant. Drying yield, moisture content, pH value, total acidity, bulk density and solubility were analyzed for the powder samples. Higher temperature decreased the moisture content of the powder, but help to the drying yield increased. While the pH values and the bulk density decreases as temperatures rise. Contrary to the total acidity and the solubility increases as temperatures rise.

Afternoon, April 25, 2017 (Tuesday)

Time: 13:00~15:45

Venue: 402

Session 1: 11 presentations- Topic: “Food Engineering and Biotechnology”

Session Chair: Prof. Somchart Chantasiriwan

L0007 Presentation 4 (13:45~14:00)

Control of *Shigella sonnei* and *Shigella flexneri* in hummus (Chickpea dip) using citric acid and garlic extract

Amin Olaimat -Eleimat-, Murad Al-Holy, Mahmoud Abu-Ghoush, Anas Al-Nabulsi and Tareq Osaili

Hashemite University, Jordan

Abstract—Studies on the prevalence and inhibition of *Shigella* spp. in food are scarce. This study investigated the growth pattern of *Sh. sonnei* and *Sh. flexneri* in hummus at different temperatures (4, 10, and 24 °C). Additionally, the inhibitory activity of different concentrations of citric acid (CA) (0.5, 1.0, and 2.0%) and garlic extract (GE) (1.0, 2.0 and 3.0%) against *Sh. sonnei* and *Sh. flexneri* inoculated in hummus and stored at 4 and 10 °C was investigated. Both *Sh. sonnei* and *Sh. flexneri* survived well at 4 °C, where the numbers remained stable during the storage period of 10 d, while at 10 °C, both *Sh. sonnei* and *Sh. flexneri* grew to > 7.0 log₁₀ CFU/g after 4 d of storage. Whereas at 24 °C, *Sh. sonnei* and *Sh. flexneri* reached to >8.0 log₁₀ CFU/g and > 7.0 log₁₀ CFU/g, respectively. At 4 °C, CA at 0.5 and 1.0% levels resulted in a slight reduction in the count (~ 1.0 log₁₀ CFU/g); however, a complete elimination of *Sh. sonnei* was attained by using 2.0% CA. In comparison at 10 °C, about 3.0 log₁₀ CFU/g reduction in *Sh. sonnei* was obtained. For *Sh. flexneri*, CA at 0.5 and 1.0% concentrations resulted in a bacteriostatic effect and the extent of inhibition ranged from ca. 1.0 log₁₀ CFU/g to ca. 1.5 log₁₀ CFU/g reductions at 10 and 4 °C, respectively. GE at 1.0 and 2.0% levels resulted in ca. 1.0-2.0 log₁₀ CFU/g reduction in *Sh. sonnei* count at 4 °C, while at 3.0% GE, ca 4.0 and 3.0 log₁₀ CFU/g reductions were obtained at 4 and 10 °C, respectively. In comparison, the 2.0% and 3.0% GE resulted in a bacteriostatic effect against *Sh. flexneri* at 4 and 10 °C. Yet, at 1.0% GE, the number of *Sh. flexneri* increased slightly in hummus stored at 10 °C. The combined effect of 1.0% CA and 2.0% GE did not result in an additional inhibitory effect against either *Sh. sonnei* or *Sh. flexneri* compared to the single treatment alone. This study indicates that *Sh. sonnei* and *Sh. flexneri* can survive at 4 °C and can grow well in hummus at abused storage temperature (10 °C). CA and GE posed a noticeable inhibitory activity against *Shigella* spp. and can be used as natural antimicrobial substances to preclude or restrict the growth of *Shigella* spp. in hummus.

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Venue: 402

Session 1: 11 presentations- Topic: “Food Engineering and Biotechnology”

Session Chair: Prof. Somchart Chantasiriwan

L0009 Presentation 5 (14:00~14:15)

Microwave Assisted Extraction (MAE) and Microwave-ultrasound Assisted Extraction (MUAE) of Pectin from Pomelo Peels

Shan Qin Liew, Gek Cheng Ngoh, Rozita Yusoff and Wen Hui Teoh

University of Malaya, Malaysia

Abstract—In the present study, microwave assisted extraction (MAE) and microwave-ultrasound assisted extraction (MUAE) were employed to recover pectin from pomelo peel. The effects of pH, irradiation time, microwave power, sonication time (only for MUAE) were investigated using Box–Behnken design (BBD) and the extraction condition was optimized. The highest validation experimental yield were $30.24 \pm 0.97\%$ for MAE (irradiation time = 11.97 min) and $31.57 \pm 0.77\%$ for MUAE (irradiation time = 10.11 min, sonication time = 17.72 min). The findings are agreeable with the predicted yield of 29.37% and 31.11% respectively for MAE and MUAE. It was observed that pH and microwave power have greater effect on extraction of pectin and the microwave irradiation time has slightly been reduced if ultrasound is incorporated. Considering the yield performance, shorter extraction time and less energy intensiveness, MAE is preferred to MUAE for the extraction of pectin from pomelo peel.

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Session 1: 11 presentations- Topic: “Food Engineering and Biotechnology”

Session Chair: Prof. Somchart Chantasiriwan

L0011 Presentation 6 (14:15~14:30)

Effect of Hydrostatic Pressure and Vacuum on characteristics of century egg.

Benjawan Vanmontree, Tawarat Treeamnuk, Krawee Treeamnuk, Kaittisak Jaito and Nartchanok Prangpru

Suranaree University of Technology, Thailand

Abstract—The objective of this research was to investigate the internal change of century egg in production process under hydrostatic pressure and vacuum conditions. The samples of duck egg that used in century egg production were immersed in alkaline solution at hydrostatic pressure of 1 and 2 bars, and 380 and 760 mmHg of hydrostatic vacuum. The samples of egg were random to evaluate internal change of some physical and chemical properties in term of percent of specific gravity increased, hardness of albumen, pH of albumen and yolk, and visible changing with image analysis every 2 days until 12 days. The results of studies indicate that percent of specific gravity increased, pH of albumen and yolk are increase when immersion time increases every pressure, but in contrast to the hardness of albumen. The hydrostatic pressure affect on percent of specific gravity increased clearly than hydrostatic vacuum, but in contrast of pH of albumen. The immersion time affect to change the color of albumen from transparent gel to dark brown every pressure. In addition, the eggs that immersed in alkaline at 2 bars for 6 days were suitable for produce century egg.

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Session Chair: Prof. Somchart Chantasiriwan

L0012 Presentation 7 (14:30~14:45)

The Presence of Some Mycotoxins in Corn Grown in Turkey

Nevzat Artik, Ufuk Tansel Sireli and Nevzat Konar, Kivanc Yarangumeli
Siirt University Department of Food Engineering, Turkey

Abstract—This study aimed to determine the presence of major mycotoxins of human and animal importance, namely total aflatoxins, fumonisin, deoxynivalenol, zearalenon, T-2 toxin and HT-2 toxin in samples from corn grown in different regions in Turkey. 770 corn samples in total were taken from Çukurova, Sakarya (Adapazarı), Bursa (Karacabey), İzmir (Torbalı), Mersin (Tarsus), Adana (Kozan) ve Şanlıurfa regions between August and November 2015. 625 of the samples were used for total aflatoxin analyses by LC-MS/MS. For other toxin analyses (Fumonisin B1, Fumonisin B2, DON, Zearalenone, T-2 and HT-2) 29 samples were blended for each toxin. The results showed that the highest contamination and risk arises from fumonisin toxins (2652 µg/kg). Mycotoxin contamination in analysed samples was found to be 1.03%. Total aflatoxin was detected as 3.44% (1 of 625), total fumonisin as 17.24% (5 of 29) and zearalenon as 6.89% (2 of 29). None of the samples were found to contain more than one of the analysed mycotoxins. Also, no DON, T-2 or HT-2 toxin was found. In conclusion, the findings of our study on corn produced in Turkey shows that in some regions contamination levels of corn by mycotoxins exceed the legal limits. Supplying contaminated corn and corn products to human and animal consumption may result in serious health problems, moreover it is known that some toxicogenic fungi may cause decrease in quality and yield in corn production.

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Session Chair: Prof. Somchart Chantasiriwan

L0013 Presentation 8 (14:45~15:00)

Phenolic profile of meals obtained from defatted hazelnut (*Corylus avellana* L.) varieties
Atilla Simsek, **Nevzat Artik** and Nevzat Konar
Siirt University Department of Food Engineering, Turkey

Abstract—In this study, the total phenolic contents (TPC) and phenolic profiles of defatted 17 hazelnuts were investigated. All samples were gathered in harvesting period from Black Sea Region (Ordu and Giresun prefecture) of Turkey. Methanolic extraction was used for taking the phenolics from the hazelnut varieties. The highest TPC was determined in Mincane (1093 ± 13.40 mg/100 g) and the lowest one belonged to Foşa (529 ± 16.19 mg/100 g) variety. Two-way ANOVA analyze showed that there was significant effect of the variety on phenolic profiles and TPC ($P < 0.01$). Results revealed that all varieties have almost a similar phenolic profile. Catechin, catechol, chlorogenic and quercetin were found as major compounds in all varieties. This study also showed that defatted hazelnuts may be alternative method for the production of phenolics and the enrichment of foods or pharmaceutical products.

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L0015 Presentation 9 (15:00~15:15)

Effect of pigment composition of *Porphyridium cruentum* as continuously culture method in industrial scale tubular photobioreactor

Yasar Durmaz, Faruk Tamturk, Nevzat Konar, Omer Said Toker and Ibrahim Palabiyik
Ege University, Turkey

Abstract—Since the beginning of the use of microalgal biotechnology, photobioreactors have been designed in different types and shapes. Tubular systems are the most widely used commercial systems and typically designed to use sunlight. Microalgal valuable natural products are used as animal and human food sources, pharmaceuticals and medicines. The unicellular red alga *Porphyridium cruentum* is a member of the Rhodophyta, and their biochemical composition show that it is rich in many important compounds, i.e. protein, carbohydrate, lipids and carotenes. This study aims to describe a dynamic model of a bioreactor conceived for a continuous mass microalgal culture and to detect optimum drying temperature for valuable pigment composition.

The *P. cruentum* were cultured in an experimental tubular photobioreactors as continuously culture method. The cell density of *P. cruentum* was held around 25.1×10^6 cells mL⁻¹ after the 9th day until the end of experiment with an average harvesting of 10%. As a result of this study, the biomass concentration spanned throughout the entire growth period and during the culture period of 45 days, totally 2250 L of *P. cruentum* was harvested as liquid biomass. Additionally, highest total β -carotene and chlorophyll a amount was measured as 415.88 ± 17.95 μ g/g and 1513.12 ± 61.78 μ g/g, respectively when the drying temperature was arranged to 180°C at spray dryer.

The results of the present study indicate that outdoor tubular photobioreactor systems can be used for growing microalgae and provide many advantages when compared with open systems. Since the best quality of *P. cruentum* biomass can be obtained at drying temperature of 180°C.

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L0016 Presentation 10 (15:15~15:30)

Effects of Some N₂-fixing Rhizobacteria on Growth and N nutrition in Apple tree
Ahmet Esitken, Mesude Figen Donmez, Faruk Tamturk and **Yasar Durmaz**
Ege University, Turkey

Abstract—Fruit agriculture is most intensive use of chemical fertilizer which are nitrogen (N), phosphor (P) and potassium (K). Reducing the use of these elements are effect to negative impact on yield. In this respect, it is very important to increase the availability of nutrients in the soil. Therefore, the elements are present in nature, they must be transformed into forms for use of plants. For example, nitrogen in the atmosphere cannot be used directly by plants. Some microorganisms present in nature are able to bind gaseous nitrogenous plants (symbiotic to leguminous plants symmetrically to leguminous plants) or soil (Rhizobacteria) and enable plants to use them. In this study, 120 bacteria strain were isolated from rhizosphere from east of Turkey. 2 strain were selected as fixing of Nitrogen in the soil in order to obtain the expected benefits for apple tree. The name of species is that *Micrococcus luteus* and *Arthrobacter oryzae*. These bacteria were cultured with use fermenter. This biomass inoculated to apple trees soil. As a result, the content of nitrogen level in the leaf of the trees was obtained more than control groups which were reduced as 30% chemical fertilizer.

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Session 1: 11 presentations- Topic: “Food Engineering and Biotechnology”

Session Chair: Prof. Somchart Chantasiriwan

L0017 Presentation 11 (15:30~15:45)

Effect of Various Process Conditions on Efficiency and Colour Properties of Pistacia terebinthus oil Encapsulated by Spray Drying

Eylem Temel Özat, Ender Sinan Poyrazoğlu, **Nevzat Konar**, Gülay Çoksarı and Eşef Özat
Siirt University Department of Food Engineering, Turkey

Abstract—In the present study, determination of colour properties of encapsulated material and encapsulation efficiency of Pistacia terebinthus spp. terebinthus oil were aimed by using spraying drying. Drying operations were carried out in the spray dryer at different temperatures (170-180-190 °C) and different wall materials (gum arabic, inulin, maltodextrin (DE18) and the yields of the resulting encapsulated menengic oils were calculated. Literature studies and preliminary tests have shown that 14% wall material is encapsulated with 14% oil. By wall the Pistacia terebinthus oil with different wall materials at different temperatures, the best encapsulation efficiency was obtained and the highest L* value was determined inulin at 170 °C. The lowest encapsulation yields at different temperatures were found in maltodextrin wall material. As temperature increases, a* values in all wall materials increase in gum arabic, but decrease in inulin and maltodextrin.



15:45-16:00

Coffee Break & Group Photo Taking

Session 2

Tips: The schedule for each presentation is for reference only. In case of missing your presentation, we strongly suggest that you attend the whole session.

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Session 2: 13 presentations- Topic: “Environmental Engineering and Industrial Innovation”

Session Chair: Prof. Gordon Huang

A0009 Presentation 1 (16:00~16:15)

Assessing the Socio-economic Benefits of Seaweed Production to the Rural Coastal Areas in Ghana

Frank Ebbah and Isaac Ampong

University for Development Studies, Ghana

Abstract—The economic significance of seaweed farming was recognized in the rural coastal areas of Ghana in recent times. The goal of this document is to assess the socio-economic benefits of seaweed production to the rural coastal communities in Ghana. Seaweed farming based primarily on the culture of *Kappaphycus* and *Eucheumaspecies* has grown significantly in the rural communities along the coast of Ghana which could be beneficial to the rural masses when taken seriously. Given the rising global demand for seaweed-derived products, seaweed farming has the potential to generate further socio-economic benefits to coastal communities in tropical regions of Ghana.

The study brought to light that the change of occupation by villagers from traditional activities to seaweed farming is usually different from one village to another as females are predominantly into the seaweed cultivation than their male counterparts who indicated to the study that they need money every day and that; women are more patient to complete the cycle of planting, weeding, harvesting, and selling involved in the cultivation of seaweed.

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**Session 2: 13 presentations- Topic: “Environmental Engineering and
Industrial Innovation”**

Session Chair: Prof. Gordon Huang

A3006 Presentation 2 (16:15~16:30)

Catalytic Hydrocracking of Kapuk Seed Oil (*Ceiba pentandra*) to Produce Biofuel Using Zn-Mo Supported HZSM-5 Catalyst

Yustia Wulandari Mirzayanti, Danawati Hari Prajitno and Achmad Roesyadi
Sepuluh Nopember Institute of Technology, Indonesia

Abstract—In the present paper Kapuk seed oil (KSO) was considered as a potential biofuel for alternative fuel from inedible oil. Catalytic hydrocracking of Kapuk seed oil using Zn-Mo supported on the HZSM-5 catalyst in a slurry pressure batch reactor at various temperature with reactor pressure in range 10-15 bar. The Zn-Mo/HZSM-5 catalyst was prepared by incipient wetness impregnation. The physicochemical properties of the catalyst were investigated by X-ray diffraction (XRD), scanning electron microscopy (SEM) and Brunauer-Emmett-Teller (BET) method. The best catalyst performance on catalytic hydrocracking of KSO using Zn-Mo/HZSM-5 (Si/Al = 25) with loading 2.92%wt for Zn and 7.55%wt for Mo. It displayed the highest hydrocarbon content decarboxylation and/or decarbonylation were 35.51 area% of n-paraffins and the highest content for gasoil-range alkanes was 17.24 area% at 400⁰C. the liquid product predominant is n-C₁₅, and the second component is n-C₁₇. The catalyst Zn-Mo/HZSM-5 was helpful for the catalytic hydrocracking of KSO for hydrocarbon biofuel production.

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**Session 2: 13 presentations- Topic: “Environmental Engineering and
Industrial Innovation”**

Session Chair: Prof. Gordon Huang

A0014 Presentation 3 (16:30~16:45)

Evaluation of Nano Zero Valent Iron Effects on Fermentation of Municipal Anaerobic Sludge and Inducing Biogas Production

Tareq W.M. Amen, Osama Eljamal, Ahmed M.E. Khalil and Nobuhiro Matsunaga
Kyushu University, Japan

Abstract—The application of nano size materials on wastewater is going extensive because its high reactivity compared with other materials. As a result, numerous research studies investigated the effectiveness of dosing nano zero valent iron (nZVI) or micro zero valent iron (mZVI) on anaerobic digestion (AD) of sludge and production of biogas as promising renewable energy but inconsistent outcomes have appeared. In this paper, different dosing concentrations of nZVI were applied on anaerobic activated municipal sludge to examine the impact of nZVI on sludge fermentation, biogas generation, and methane (CH₄) content stimulation. The results showed that addition 250 mg/L nZVI nanoparticles could enhance 25.23% biogas production and the methane content reached 94.05% after one week of digestion compared with 62.67% without adding iron nanoparticles.

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**Session 2: 13 presentations- Topic: “Environmental Engineering and
Industrial Innovation”**

Session Chair: Prof. Gordon Huang

A0017 Presentation 4 (16:45~17:00)

Assessment of Air Pollution of Settlement Areas in Ulaanbaatar City, Mongolia
Chonokhuu Sonomdagva, Chuluunpurev Byambatseren and Byambaa Batdelger
National University of Mongolia, Mongolia

Abstract—The purpose of this study is to analyses mass concentration varied by its measurement of air pollution in Ulaanbaatar city, Mongolia. Ulaanbaatar city will have been increasing air pollution due to rapidly expanding vehicular population, growing industrial sector in last 10 years ago. In addition, people use to heat the carbon from 10 month in every year. This becomes a base cause of air pollution in Ulaanbaatar.

We studied a change of mass concentration an air pollution elements in Ulaanbaatar, Mongolia. To research work, we used information that based on data of my measurements of air pollution and Metropolitan air quality agency until 2006 to 2016.

This research important result is air pollution levels are limited to the areas around Ulaanbaatar areas are the most polluted in the center of city are the least polluted areas whereas Tolgoit, Sapporo, 1st Khoroolol, Amgalan, Shar Khad are moderately polluted and the areas around Baruun 4 zam, Factory, Zaisan, Nisekh are normally polluted. The results of pollution are illustrated four zones. By dividing the polluted areas into such zones, we are trying to make it easier to take preventive measures against the pollution itself and protective measures for safeguarding the health of mass population.

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**Session 2: 13 presentations- Topic: “Environmental Engineering and
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Session Chair: Prof. Gordon Huang

A0018 Presentation 5 (17:00~17:15)

Validation of Tsunami Inundation Model TUNA-RP Using OAR-PMEL-135 Benchmark Problem Set

Hock Lye Koh, Su Yean Teh, **Wai Kiat Tan** and Xin Yi Kh'ng
School of Mathematical Sciences, Sunway University, Malaysia

Abstract—A standard set of benchmark problems, known as OAR-PMEL-135, is developed by the US National Tsunami Hazard Mitigation Program for tsunami inundation model validation. Any tsunami inundation model must be tested for its accuracy and capability using this standard set of benchmark problems before it can be gainfully used for inundation simulation. The authors have previously developed an in-house tsunami inundation model known as TUNA-RP. This inundation model solves the two-dimensional nonlinear shallow water equations coupled with a wet-dry moving boundary algorithm. This paper presents the validation of TUNA-RP against the solutions provided in the OAR-PMEL-135 benchmark problem set. This benchmark validation testing shows that TUNA-RP can indeed perform inundation simulation with accuracy consistent with that in the tested benchmark problem set.

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**Session 2: 13 presentations- Topic: “Environmental Engineering and
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Session Chair: Prof. Gordon Huang

A0020 Presentation 6 (17:15~17:30)

Integrating Environmental Management into Food Safety and Food Packaging in Malaysia:
Review of the Food Regulation 1985

Norul Hajar Nordin, Hirofumi Hara and Naoka Kaida

University of Technology Malaysia (UTM, Kuala Lumpur), Malaysia

Abstract—Food safety is an important issue that is related to public safety to prevent the toxicity threats of the food. Management through legal approach has been used in Malaysia as one of the predominant approaches to manage the environment. In this regard, the Food Regulation 1985 has been one of the mechanisms of environmental management through legal approach in controlling the safety of packaged food in food packaging industry in Malaysia. The present study aims to analyse and to explain the implementation of the Food Regulation 1985 in controlling the safety of packaged food in Malaysia and to integrate the concept of environmental management into the food safety issue. Qualitative analysis on the regulation document revealed that there are two main themes, general and specific, while their seven sub themes are included harmful packages, safety packages, reuse packages, polyvinyl chloride (PVC), alcoholic bottle, toys, money and others and iron powder. The implementation of the Food Regulation 1985 in controlling the safety of packaged food should not be regarded solely for regulation purposes but should be further developed for a broader sense of food safety from overcoming the food poisoning.

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**Session 2: 13 presentations- Topic: “Environmental Engineering and
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Session Chair: Prof. Gordon Huang

A0021 Presentation 7 (17:30~17:45)

Utilization of Ethyl Cellulose Polymer and Waste Materials for Roofing Tile Production
Suubitaa Spencer Sam, Ng Choon Aun, Chee Swee Yong, Noor Zainab Habib, Humayon
Nadeem and Teoh Wei Ping
Universiti Tunku Abdul Rahman, Malaysia

Abstract—The aim of this study was to utilize ethyl cellulose, mixture of waste engine oil and waste vegetable oil as a binder in the environmental friendly roofing tile production. The waste engine-vegetable oil was mixed together with ethyl cellulose, fly ash, coarse aggregates, fine aggregates and a catalyst. The Fourier Transform Infrared (FTIR) analysis showed that the oil mixture added with ethyl cellulose has the relatively high binding effect due to the presence of strong carbonyl group especially after being heat cured at 190°C for 24 hours. The mixed proportion of materials with different amount of ethyl cellulose used was studied in the production of tile specimen. The results showed that the ethyl cellulose composed roofing tile specimens passed the transverse breaking strength, durability, permeability and the ultraviolet accelerated test. The shrinkage on the tile can be overcome by adding temperature resistance polymer on the exterior of the tile.

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A0022 Presentation 8 (17:45~18:00)

Critical Factors of Implementing Industrialised Building System in Sarawak: A research on SME

Nurulhudaya Abdul Hadi, Wan Mohd Nurrdan Wan Muhammad and Mohd Khairul Fitri Othman

Universiti Teknologi Mara Cawangan Sarawak, Malaysia

Abstract—Industrialised Building System (IBS) have been adopted in Malaysia for over five decades and is expected to grow consistent with Malaysia's economic development. In promoting the adoption of IBS in construction projects, the government has taken several steps such as levy exemption for contractors and developers. Despite its numerous advantages and efforts pulled by the government, the implementation and adoption of IBS are still below the expected figure. Many researchers investigated readiness, setbacks and issues related to the implementation of IBS in Malaysia's construction projects. However, most of the research mainly for projects located in urban areas of West Malaysia. Therefore, this paper aims to close the gap on factors affecting the implementation of IBS for SMEs in Sarawak, where the level urbanisation is low. A semi-structured interview was conducted with 10 SME's contractors to get better insight view. The study found that logistics and infrastructure problems, a limited number of the manufacturer, lack of incentive, conventional payment methods, lack of financial supports are among critical factors affecting the implementation of IBS. Therefore, it was concluded that government plays major role in providing supports, incentives and facilitating the improvement of infrastructure to successfully implementing IBS in Sarawak.

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**Session 2: 13 presentations- Topic: “Environmental Engineering and
Industrial Innovation”**

Session Chair: Prof. Gordon Huang

A2005 Presentation 9 (18:00~18:15)

Solar PV Leasing in Singapore: Enhancing Return on Investments with Options

Song Shuang and Poh Kim Leng

National University of Singapore, Singapore

Abstract—Renewable energy is getting more important nowadays as an alternative to traditional energies. Solar energy, according to Energy Market Authority, is the most viable in the context of Singapore compared to other renewable energy sources due to land constraints. In light of the increasing adoption of solar power in Singapore, this paper focuses on solar PV leasing using a case study. This paper assesses the prospect for solar PV leasing companies in Singapore through the lens of embedded real options. The recent news that solar power is becoming the cheapest form of new electricity presents the leasing company an option to expand the scale of solar PV system. Taking into account this option, the Net Present Value (NPV) of the investment increased significantly compared to the case without real options. Technological developments result in a continuously changing environment with uncertainties. Thus, decision makers need to be aware of the inherent risk associated and identify options to maximize NPV. This upside potential is realized by exercising the managerial flexibility and exploiting the uncertainty. The paper enables solar energy planners to consider possible managerial flexibilities under uncertainties, showing how option thinking can be incorporated in the valuation of solar energy.

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**Session 2: 13 presentations- Topic: “Environmental Engineering and
Industrial Innovation”**

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A0015 Presentation 10 (18:15~18:30)

Effective Kinetic Modeling of Advanced Oxidation Processes Used for Aquatic
Environment Pollution Control

Hong-Ming Li, Chu-Chun Chang and **Jia-Ming Chern**

Tatung University, Taiwan

Abstract—Organic pollutants from domestic wastewaters or industrial wastewaters represent significant threats to human being and aquatic environment. Such organic pollutants could be removed by traditional biological processes, e.g. activated sludge process that used dissolved oxygen to oxidize the organic pollutants in the presence of microorganisms. Currently Advanced Oxidation Processes (AOPs) have been used as pretreatment to increase the biodegradability of wastewaters or tertiary treatment to reduce chemical oxygen demand (COD) to meet more stringent discharge standards.

Since many free radicals involve in AOPs, the reaction mechanisms become too complicated to be analyzed by traditional kinetics methodology, therefore simple empirical rate law such as pseudo first-order model has been used in most AOPs. The obtained apparent first-order rate coefficient usually depends on operating parameters such as co-reactant concentration, solution pH, and temperature; and thus cannot be used for reactor scale up. In order to know such parameter dependency, adequate rate equation derived from rigorous reaction mechanism should be used for reactor design. In this study, an effective kinetic modeling methodology, based on reaction network analysis, is applied to develop the rate equations of several AOPs and compared with experimental data.

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**Session 2: 13 presentations- Topic: “Environmental Engineering and
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Session Chair: Prof. Gordon Huang

A3004 Presentation 11 (18:30~18:45)

Utilization of Eggshell Waste as Low-Cost Solid Base Catalyst for Biodiesel Production from Used Cooking Oil

Nyoman Puspa Asri, *N P Asri, B Podjojono, R Pujiari and D Aini*

WR. Supratman University, Indonesia

Abstract—A solid CaO-based catalyst of waste eggshell was developed for biodiesel production from used cooking oil. The waste eggshell powder was calcined in air at 900 °C for 4 h to change calcium species in the eggshells into active CaO catalysts. The characterization of CaO catalyst was done by XRD and BET analysis. The CaO catalyst was then introduced for transesterification of used cooking oil (UCO) for testing of its catalytic activity. The experiment was conducted in batch type reactor that consists of three-neck glass equipped by reflux condenser and magnetic stirrer. Before tranesterification process, the UCO was treated by coconut coir powder in order to reduce the free fatty acid content. The result showed that the catalyst was potentially use for tranesterification of used cooking oil into biodiesel with relatively high yield of 75% was achieved at reaction temperature, reaction time, molar ratio UCO to methanol and catalyst amount of 65 ° C, 7 h, 1:15 and 6%, respectively.

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Session Chair: Prof. Gordon Huang

A3005 Presentation 12 (18:45~19:00)

Formation of Hydrocarbon Compounds during the Hydrocracking of Non-Edible Vegetable Oils with Cobalt-nickel Supported on Hierarchical H₂Sm-5 Catalyst

Lenny Marlinda, Muhammad Al-Muttaqii, Achmad Roesyadi, Danawati Hari Prajitno
Sepuluh Nopember Institute of Technology, Indonesia

Abstract—The hierarchical Co-Ni/HZSM-5 catalyst with hierarchical pore structure was prepared by desilication and incipient wetness impregnation. Hydrocracking of non-edible vegetable oils at temperature of 400 °C, 20±5 bar for 2 h was performed in the presence of this type of catalyst under hydrogen initial pressure in pressured batch reactor. Non-edible vegetable oils, such as Reutealis trisperma (Blanco) airy shaw (sunan candlenut) and Hevea brasiliensis (rubber seed) were chosen to study the effect of the degree of saturation and lateral chain length on hydrocarbon compounds obtained through hydrocracking. The hydrocracking test indicated that liquid product produced has a similar hydrocarbon compounds with petroleum diesel. The most abundant hydrocarbon is pentadecane (n-C15) and heptadecane (n-C17). The high aromatic compounds were found in liquid product produced in hydrocracking of Sunan candlenut oil.

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Session 2: 13 presentations- Topic: “Environmental Engineering and Industrial Innovation”

Session Chair: Prof. Gordon Huang

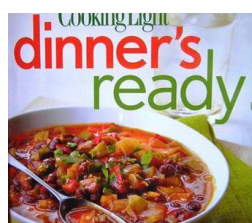
A0012 Presentation 13 (19:00~19:15)

Low Cost and Long Durability Material for Water Treatment: Titania-coated Cement

Mennad Abdelkader, Boutra B and Mohamed Abbas

Unit é de Développement des Equipements Solaires, UDES/Centre de Développement des Energies Renouvelables, CDER, Algeria

Abstract—Primary studies have been carried out on titanium dioxide powder, and revealed the efficient photocatalytic property of this material. More techniques have been developed to deposit the titanium dioxide particles onto a substrate, thus preserving from any further filtration after a water treatment. White cement has been used, as both a binder and a substrate, to deposit onto it titanium dioxide powder and to carry out the photodegradation of the tartrazine in an aqueous solution. The experiment has been conducted into a photocatalytic reactor designed and registered as a prototype patent. The complete photodegradation of the tartrazine molecule occurs with the same way as observed with the titanium dioxide powder in the aqueous solution of tartrazine. The same catalytic material of the titania-coated cement has been submitted for a series of the photocatalytic degradation tests of the tartrazine molecule and remained still active and comparable to those observed during the first reaction tests.



Dinner	
19:30	401

One Day Visit & Tour

April 26, 2017 (Wednesday) 9:00~17:00

(Tip: Please arrive at the institute before 9 a.m., please wear the formal clothes; the following places are for references, and the final schedule should be adjusted to the actual notice.)

1. (9:00) Assemble at the outside of International University of Malaya Wales Auditorium

2. (9:30-12:00) Visit International University of Malaya Wales Auditorium

Add: Jalan Tun Ismail 50480 Kuala Lumpur



International University of Malaya Wales Auditorium

The greatest collaboration is finally in Kuala Lumpur. International University of Malaya-Wales (IUMW) is a mutual partnership between the University of Malaya and the University of Wales (who has made a commitment to merge with the University of Wales Trinity Saint David, United Kingdom) which has more than 200 years of

combined academic experience.

IUMW is the first university in South East Asia to be accepted as a member of the United Kingdom's Higher Education Academy (HEA), a renowned British body for learning and teaching in higher education.

Leveraging on both universities' outstanding achievement, together with our own band of academicians, IUMW offers an array of undergraduate and postgraduate courses to both local and international students. We aspire to be a comprehensive research-oriented university, recognized for its innovative teaching and learning, research, social services and education management.

3. (12:00-13:00) Have Lunch together.

4. (13:00-16:40) City sighting



Petronas Twin Towers (Chinese: 双子塔)

The Petronas Towers, also known as the Petronas Twin Towers (Malay: Menara Petronas, or Menara Berkembar Petronas) are twin skyscrapers in Kuala Lumpur, Malaysia. According to the Council on Tall Buildings and Urban Habitat (CTBUH)'s official definition and ranking, they were the tallest buildings in the world from 1998 to 2004 until surpassed by Taipei 101, but they remain the tallest twin building in the world. The buildings are the landmark of Kuala Lumpur with nearby Kuala Lumpur Tower.



National Mosque (Chinese: 国家清真寺)

The National Mosque of Malaysia is located in Kuala Lumpur. It has a capacity of 15,000 people and is situated among 13 acres (53,000 m²) of beautiful gardens. The original structure was designed by a three-person team from the Public Works Department-UK architect Howard Ashley, and Malaysians Hisham Albakri and Baharuddin Kassim. The

mosque was built in 1965 on the site of a church, the Venning Road Brethren Gospel Hall which had stood there since 1922 but appropriated by the Malaysian government. The mosque is a bold and modern approach in reinforced concrete, symbolic of the aspirations of a then newly independent Malaysia.

5. (16:40) Back to International University of Malaya Wales Auditorium

Conference Venue

International University of Malaya Wales Auditorium

<http://www.iumw.edu.my/>

Add: Jalan Tun Ismail 50480 Kuala Lumpur



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Feedback Information

(Please fill this form and return it to conference specialist during the conference days.)

Personal Information					
Conference Name and Paper ID					
Full Name					
E-mail Address					
Area of Research					
Affiliation					
Please indicate your overall satisfaction with this conference with “√”					
	Very Satisfied	Somewhat Satisfied	Neutral	Somewhat Dissatisfied	Very Dissatisfied
Conference Content					
Presentation and Paper Value					
Registration Process					
Venue					
Food and Beverage					
Are You A Member of APCBEEES	Yes <input type="checkbox"/> No <input type="checkbox"/> (If “No”, you may apply membership from http://www.cbees.org/member.htm)				
Do You Willing to Receive APCBEEES Future Conferences Information Via E-mail	Yes <input type="checkbox"/> No <input type="checkbox"/>				
Where did you get the conference information?					
Would you please specify the main reason for attending this conference?					
Did the conference fulfill your reason for attending?	Yes- Absolutely <input type="checkbox"/> Yes- But not to my full extent <input type="checkbox"/> No <input type="checkbox"/> (If “No”, please tell us the main reason)				

2017 HKCBEEES KUALA LUMPUR CONFERENCE

<p>Would you please list the top 3 to 5 universities in your city?</p>	
<p>Other Field of Interest</p>	
<p>Any Other Suggestions/Comments</p>	

Thank you for taking time to participate in this conference evaluation. Your comments will enable us to execute future conferences better and tailor them to your needs!