

# 2013 APCBEES PHUKET CONFERENCES SCHEDULE

**November 23-24, 2013**

**Phuket, Thailand**

**Asia-Pacific Chemical, Biological & Environmental Engineering Society**



2013 3rd International Conference on Environment and BioScience (ICEBS 2013)

2013 4th International Conference on Biology, Environment and Chemistry (ICBEC 2013)

2013 4th International Conference on Agriculture and Animal Science (CAAS 2013)

2013 4th Journal Conference on Chemical Engineering and Applications (JCCEA 2013 4th)

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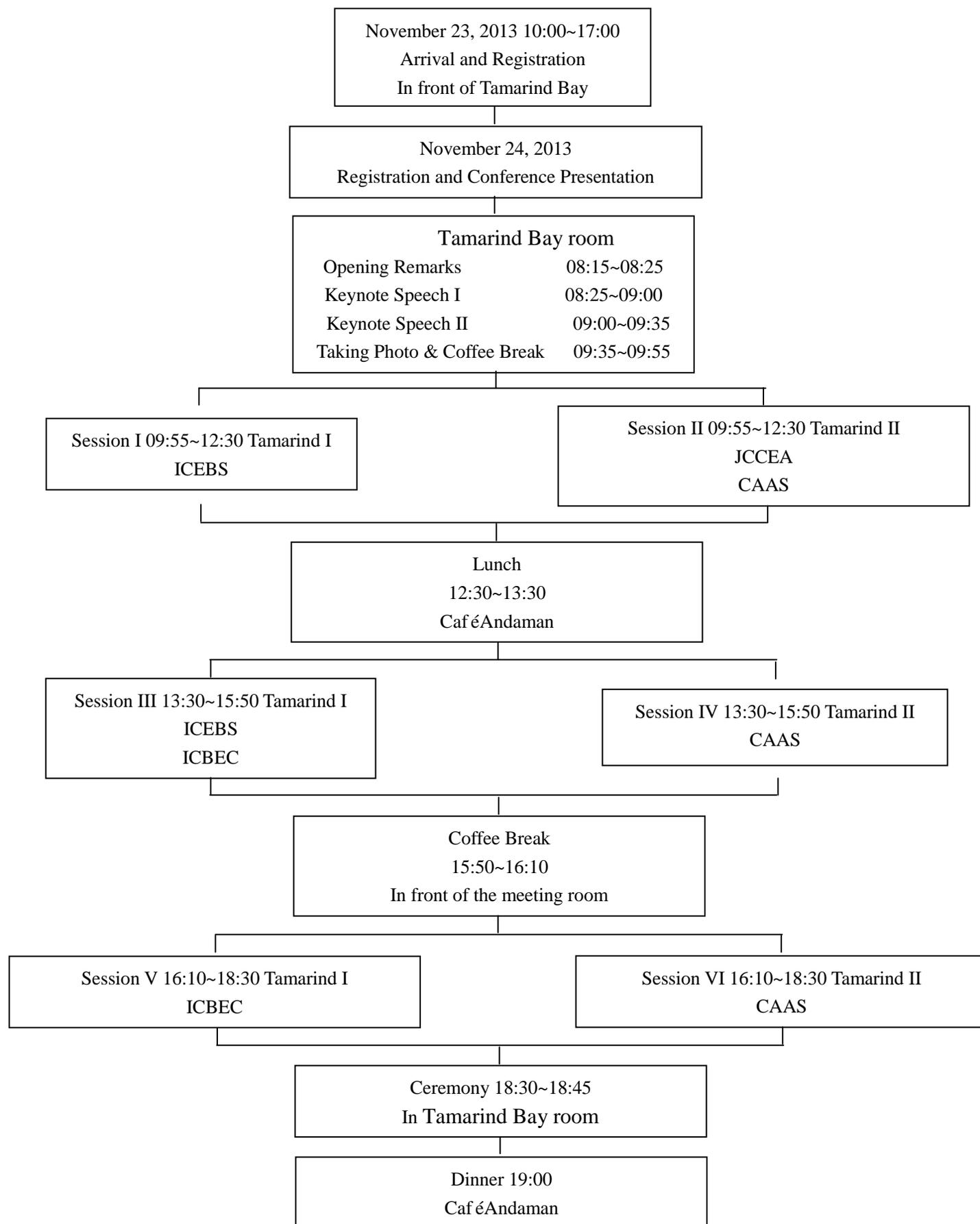
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## CAPE PANWA HOTEL, PHUKET



## November 23, 2013 (Saturday)

10: 00 – 12: 30	Arrival and Registration
13: 30 – 17: 00	(Conference Registration in front of Tamarind Bay)

- Note:** (1) All the authors and listeners who choose to register during the conference may get blank certificates.  
(2) All the authors and listeners who paid the registration fee can get the conference documents whenever at the registration desk during the conference.  
(2) The organizer doesn't provide accommodation, so we suggest you make an early reservation.  
(3) One Excellent Paper will be selected from each oral session. The Certificate for Excellent Papers will be awarded in the Closing Ceremony on November 24, 2013.

## Instructions for Oral Presentations

### Devices Provided by the Conference Organizer:

Laptops (with MS-Office & Adobe Reader)

Projectors & Screen

Laser Sticks

### Materials Provided by the Presenters:

PowerPoint or PDF files (Files shall be copied to the Conference Computer at the beginning of each Session)

Duration of each Presentation (Tentatively):

Regular Oral Session: about 8 Minutes of Presentation 2 Minutes of Q&A

Keynote Speech: 30 Minutes of Presentation 5 Minutes of Q&A

### Conference website and Secretariat Contact:

ICEBS 2013: [www.icebs.org](http://www.icebs.org)      [icebs@cbees.org](mailto:icebs@cbees.org)

ICBEC 2013: [www.icbec.org](http://www.icbec.org)      [icbec@cbees.org](mailto:icbec@cbees.org)

CAAS 2013: [www.cbees.org/caas/](http://www.cbees.org/caas/)      [caas@cbees.org](mailto:caas@cbees.org)

JCCEA 4<sup>th</sup> 2013: <http://www.ijcea.org/jcea/4th/>      [iccea04@stpress.net](mailto:iccea04@stpress.net)

**Morning on November 24, 2013 (Sunday)**

Venue: Tamarind Bay room

08:15- 08:25	Opening Remarks Prof. Richard Haynes The University of Queensland, Australia
08:25-09:00	Keynote Speaker I  Prof. Judilynn N. Solidum University of the Philippines, Manila, Philippines “Heavy Metals in Manila, Philippines Setting”
09:00 – 09:35	Keynote Speaker II  Prof. Richard Haynes The University of Queensland, Australia “Constructed wetlands: an effective green technology for treating wastewaters”
09:35-09:55	Taking Photo and Coffee Break

**Morning, November 24, 2013 (Sunday)**

SESSION – 1 (ICEBS)

Venue: Tamarind I

Session Chair:

Time: 09:55 – 12:30

N0002	<p>Lipid Peroxidation as a Biomarker of Field exposure in the Gills and Digestive Gland of the Freshwater Bivalve <i>Batissa violaceae</i> Lamarck <b>Reiza I. Salinas</b> and Glorina N. Pocsidio</p> <p><i>Abstract</i>—This current research aims to determine the potential of lipid peroxidation as a biomarker for environmental water pollution. Post-hoc multiple comparisons between sites, flow regimes and tissues were made using least significant difference test (LSD) to determine which values differed significantly. Results of the TBARS assay on the acute exposures in the field and in the lab showed that after 24, 48 and 72 hrs. exposure, clams from both sites showed higher MDA levels in the digestive gland and gills during</p>
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	<p>the low flow period than in the high flow period .The laboratory control clams showed progressive decline in MDA levels in low flow clams while the high flow clams showed relatively no change in the MDA levels. Most marked was the significant rise in the MDA levels of low flow clams of Site 1 after 72 hrs exposure in the field. Digestive glands were more sensitive to change in the levels of lipid peroxidation compared to gill tissues. The results suggest that lipid peroxidation levels can be a good bioindicator of pollution which in this study is inherent characteristic of Site 1 especially during the low period.</p>
N0005	<p><b>Computer-aided Treatment Decision on Scoliosis Based Three-Dimensional Radiographic Features</b>  <b>Junhua Zhang, Fei Guo, Hongjian Li, Liang Lv</b></p> <p><i>Abstract</i>—The purpose of this study is to develop a computer-aided decision making system for scoliosis treatment based on biplanar spinal radiographs. Three-dimensional (3D) features were automatically extracted from the 3D spinal model that was reconstructed by using the self-calibration algorithm from landmarks identified by users on radiographs. The <i>k</i>-nearest-neighbor model was trained and then was used to determine the treatment for a scoliotic curve as observation, bracing, or surgery. With leave-one-out methodology, 31 cases were used to test the system performance. Experimental results showed that the system could achieve accuracy of 91.9% and consistency of 96.8%. This system can be an objective aid to surgeons in the task of treatment decision for scoliosis.</p>
N0008	<p><b>Effectivity of Methanotrophic Bacteria and <i>Ochrobactrum Anthropi</i> as Biofertilizer and Emission Reducer of CH<sub>4</sub> and N<sub>2</sub>O in Inorganic Paddy Fields</b>  <b>Gloria Maria Foster Pingak, Hendri Sutanto, Alina Akhdiya, Iman Rusmana</b></p> <p><i>Abstract</i>—Global warming is the increasing of earth's surface temperature which can occurred due to agricultural activities. Agricultural activities contribute to the global warming as sources of CH<sub>4</sub> and N<sub>2</sub>O emissions. Application of methanotrophic bacteria, <i>Ochrobactrum anthropi</i>, <i>Azotobacter</i> and <i>Azospirillum</i> combination could reduce the emission of CH<sub>4</sub> and N<sub>2</sub>O. In addition, these bacteria can fix nitrogen (N<sub>2</sub>) to enhance the plant growth. The aim of this study was to determine the effectivity of methanotrophic bacteria, <i>Ochrobactrum anthropi</i>, <i>Azotobacter</i> and <i>Azospirillum</i> combination as biofertilizer and emission reducer of CH<sub>4</sub> and N<sub>2</sub>O in the inorganic paddy fields. This experiment was arranged by treating 100% dosage of inorganic fertilizer as positive control, 25% dosage of inorganic fertilizer and 25% dosage of inorganic fertilizer mixed by biofertilizer. The observations were made on the growth parameters and the rate of gas fluxes. The combination of bacterial isolates could increase rice growth, grain yield productivity by 67.53% and they also could reduce CH<sub>4</sub> and N<sub>2</sub>O emission.</p>
N0009	<p><b>Distributions of Heavy Metals Contamination in Upstream River of Timah Tasoh Lake</b>  <b>Siti Aesah Abdullah, Sharizal Hasan, Mohd Lias Kamal</b></p> <p><i>Abstract</i>—Distribution of heavy metals namely lead, copper, chromium, arsenic, manganese and aluminium were determined for surface water samples during Southwest Monsoon and Northeast Monsoon 2012. The level of heavy metals was determined using Inductively Coupled Plasma Mass Spectrometry (ICP-MS) and the spatial distribution of heavy metals contamination was visualized using MapInfo Software. The highest contamination was found is manganese, copper and aluminium which is exceeding the permissible limit set by Department of Environmental, Malaysia. These might due to the increase of agricultural, industrial and domestic wastes located near the river.</p>
N0010	<p><b>The Feasibility Study of Brown Marine Algae toward Cadmium Ions as a Low Cost Biosorbent</b></p>

	<p><b>Anies Suhaida Mohd Naspu, Nur Saliza Awatif Zahala, Sharizal Hasan &amp; Mohd Lias Kamal</b></p> <p><i>Abstract</i>—The adsorption study on removal of cadmium ions from aqueous solution by modified brown marine algae namely <i>Padina</i> sp. was performed under batch experimental conditions. The effect of initial concentration of metal ion solution, contact time, and biosorbent dosage has been investigated using the batch adsorption technique. The data obtained were used to analyzed by using pseudo-first order and pseudo-second order model. The result show that pseudo-second order obey the assumptions. The optimum removal of cadmium ions by initial concentration of 50 ppm. While 60 minutes contact time of biosorbent was resulting maximum adsorption of cadmium ions with 1.0 g dosage of biosorbent under 150 rpm of agitation speed.</p>
N0011	<p><b>Effect of Physical and Human Factors on Temporal and Spatial Variations of Dissolved Oxygen in Kuwait Bay</b> <b>Huda AlAzmi</b></p> <p><i>Abstract</i>—The primary aim of this research is to obtain a better understanding of (a) temporal and spatial variations of dissolved oxygen in Kuwait Bay and (b) the physical and human factors involved in controlling these variations. For this purpose, we performed various statistical and field investigations to analyse and interpret the main factors, which included temperature, salinity and power stations. Data obtained from the Environment Public Authority, the Ministry of Electricity and Water, and field-work were analysed statistically to determine whether a relationship between dissolved oxygen and other factors exists and which factors have a significant effect on dissolved oxygen. The results revealed varying degrees of dissolved oxygen, temperature and salinity in Kuwait Bay throughout the year, whereas spatial variations were less noticeable. Conversely, power stations increase production during summer months; the Western Doha Station recorded its highest production and the Alshuwaikh its lowest. Based on an analysis of the relationship between dissolved oxygen and other factors, only temperature among the physical factors has an inverse relationship, while dissolved oxygen is controlled positively by the distance from power stations.</p>
N0012	<p><b>An Optimised High-Salt CTAB Protocol for Both DNA and RNA Isolation from Succulent Stems of <i>Hylocereus</i> sp.</b> <b>Li-Min Wong, Santha Silvaraj and Lee-Quen Phoon</b></p> <p><i>Abstract</i>—The isolation of high quality DNA and RNA from plant species harboring high levels of polysaccharides and secondary metabolites are typically problematic, especially those in cactus. These compounds often co-precipitate with DNA and RNA thus causes low recovery and quality of the nucleic acids. Six DNA extraction protocols were tested on the sample of <i>Hylocereus</i> spp. of which the results were compared and analyzed. For comparison, three manufacturer's protocols from different commercial kits and another three conventional DNA extraction protocols were compared. It was found that conventional method generally produces consistent and higher yield. Among the conventional protocols itself, each has their pros and cons. Therefore, a modified protocol which is concise, quick and simple was developed for <i>Hylocereus</i> spp. which is beneficial for further molecular work. This method was proven to be reliable in generating a good quality of DNA from these particular genera. Similarly for RNA extraction, four different extraction protocols were tested on the same sample. The results were analyzed and a modified protocol was developed to obtain a higher quality and yield of RNA for further downstream investigations. The extraction buffer from our modified DNA extraction protocol was tested on the RNA</p>

	extraction and shows a good yield.
N0015	<p>Ammoniacal Nitrogen (NH<sub>3</sub>-N) Removal in Semiconductor Wastewater by Sequence Batch Reactor using Bacteria Inoculum from Worm Tea  <b>Nur Farehah Z.A.</b>, Norli I., Siti Norfariha M. N. , Siti Aisyah I., and Renuka R.</p> <p><i>Abstract</i>—Two condition of treatment (aerobic and anaerobic) environment in SBR were applied. Three isolated bacteria from worm tea have been used in the semiconductor wastewater treatment; there are <i>Bacillus pumilus</i>, <i>Micrococcus lutues</i> and <i>Staphylococcus warneri</i>. The SBR were monitored 30 days, using synthetic semiconductor wastewater in the treatment which contained high concentration amount of NH<sub>3</sub>N, 1000mg/L. The results showed efficiencies of removal of ammoniacal nitrogen by <i>Staphylococcus warneri</i> is 97.2% which remained NH<sub>3</sub>N 30 mg/L, <i>Bacillus pumilus</i> is 60.7% and <i>Micrococcus lutues</i> is 79.2% respectively, and the highest microbial density of <i>S. warneri</i> was about 3.02 (optical density).</p>
N0016	<p>Fe-Ni-Cr Crude Alloy Production from Direct Smelting of Chromite and Laterite Ores  <b>Erlinda Olivar Yape</b></p> <p><i>Abstract</i>—Ferrochromium and ferronickel which are obtained from the reduction of chromite and laterite ores , respectively, are the important alloying materials in the production of stainless steel. The present study is possibly the first of its kind related to production of crude stainless steel melt by direct smelting of chromium and nickel ore without use of ferrochromium and ferronickel alloys. The feasibility of producing Fe-Ni-Cr crude alloy by direct smelting of chromite and laterite ores from local sources with activated carbon as reducing agent at 1400° to 1550°C using graphite crucible under argon atmosphere were conducted in a vertical tube furnace . It was found that the grade and composition of chromite and laterite ores are the main factors to produce the alloy. The smelting of 10-13% SCO chromite ore and 87 – 90% LIM laterite ore produced alloys with average iron, nickel and chromium content about 82%, 6.22% and 2.17%, respectively, at an average iron, nickel and chromium recovery of 98%, 97% and 87%, respectively. The high recovery of iron and nickel in the alloy indicates a high reducing condition in the smelting experiment. It is also shown that the solubility of Ni in the slag increases with Ni concentration in the alloy and the FeO concentration in the slag.</p>
N0021	<p>Aqueous Humor Natural Convection of the Human Eye induced by Electromagnetic Fields: In the Supine Position  <b>Teerapot Wessapan</b> and Phadungsak Rattanadecho</p> <p><i>Abstract</i>—This study presents the simulation of the specific absorption rate (SAR), fluid flow and heat transfer in an anatomical human eye exposed to EM fields in the supine position. In this study, the frequencies of 900 and 1800 MHz were chosen for our simulations. This work focuses on the aqueous humor natural convection of the lying human eye induced by electromagnetic (EM) fields. In this study, the effect of operating frequency on the SAR, fluid flow and heat transfer in the eye was systematically investigated. The SAR value and the temperature distribution in various tissues in the eye during exposure to EM fields were obtained by numerical simulation of EM wave propagation and a heat transfer model was then developed based on the natural convection and porous media theories. The findings demonstrate the potential of aqueous humor natural convection in enhancing heat transfer of the eye in the supine position.</p>
N0022	<p>Prioritizing Drivers of Sustainable Competitive Advantages in Green Supply Chain Management Based on Fuzzy AHP  <b>Nisakorn Somsuk</b></p>

	<p><i>Abstract</i>—Successful implementation of green supply chain management (GSCM) can create a sustainable competitive advantage. A firm’s specific internal and relational resources can be considered as drivers of sustainable competitive advantages in GSCM. To extend the scope of the limited research on the identification and prioritization of resource-related drivers having a strong influence on a firm’s sustainable performance, this study was to explore the priority of these drivers based on the Triple Bottom Line. Fuzzy analytic hierarchy process (AHP) approach was applied to prioritize these drivers from experts’ point of view — the view from the electronics industry in Thailand. Resource-based and relational views were then used to determine the drivers and develop an AHP model for prioritizing such drivers. The model based on our previous research. Finally, managerial and policy recommendations for more effective strategic management tailored to the context of the electronics industry in Thailand were provided.</p>
N1001	<p><b>Landscape Degradation of River Island Majuli, Assam (India) due to Flood and Erosion by River Brahmaputra and its Restoration</b>  <b>Alee Sarma</b></p> <p><i>Abstract</i>—Majuli, one of the largest inhabited river islands in the world, is under serious threat due to large-scale bank erosion by the Brahmaputra River. There is urgent need to preserve this socio-culturally rich island of over 0.2 million people. Erosions have been shrinking its landmass significantly and thereby causing enormous pressure on its ecosystem. Through this study, an attempt has been made to assess the effect of flood and erosion on the island, its nature, habitats and eco-system. Survey maps and satellite data are considered as major inputs to this study. Inputs from various sources in the island including associated government agencies are utilized in this study. Analyzed data indicate that the island eroded at an annual rate of 0.71 sq-km from 1914 to 1949 and alarmingly at an average rate of 3.43 sq-km in subsequent years. Recurring major floods have blanketed fertile land with unproductive silt and shrunk areas of water-bodies. Remedial measures to counter all these diminishing phenomenon and conservation of its natural resources including restoration of water-bodies are discussed. For conservation and restoration of the degraded island, people’s participation is considered very essential.</p>
N1002	<p><b>Environmental Geochemical Mapping on Distribution of Metal Contamination in Topsoils Perlis, Malaysia</b>  <b>Siti Norbaya Mat Ripin</b></p> <p><i>Abstract</i>—An extensive survey was conducted in this study to determine the spatial distribution and possible sources of 7 heavy metals (Pb, Cu, Zn, Cr, Ni, Co, Mn) in the soils in Perlis and producing a heavy metal distribution maps. 18 soil samples around Perlis undergo microwave digestion and analyzed by inductively coupled plasma mass spectrometry ICP-MS. The spatial distribution pattern shows that Cu, Pb, Cr and Zn have similar patterns of spatial distribution. Main sources of these element mainly form anthropogenic sources such as industrial activity and transportation in main roads where high traffic density was identified as contributor to heavy metal contamination in soil. Meanwhile the spatial distribution patterns of Ni, Co and Mn show hot-spot areas were mainly located in the sides of the urban area where the road dust was significantly influenced by natural soils. Besides that geoaccumulation index was calculated and the values showed that all seven element classes as uncontaminated to moderately contaminated and possibly become seriously contaminated if no implementation of remediation effort.</p>
N1006	<p><b>Exposure to PM<sub>10</sub> and NO<sub>2</sub> and Association with Respiratory Health among Primary School Children Living Near Petrochemical Industry Area at Kertih, Terengganu</b>  <b>Ayuni N. A., Juliana J. and Ibrahim M.H</b></p>

	<p><i>Abstract</i>—This study was carried out to determine the level of exposure to PM<sub>10</sub> and NO<sub>2</sub> and its relation to respiratory health among primary school children living near petrochemical industry area at Kertih, Terengganu. This cross sectional comparative study was conducted among 60 children from studied group and 60 children from comparative group. The respondents were selected based on inclusive criteria's for this study. Level of exposure of PM<sub>10</sub> was measured using DustTrak Aerosol Monitor while level of exposure of NO<sub>2</sub> was measured using LaMotte Air Sampling Pump. Questionnaire was used to collect information on respondent's socio-demography background and respiratory symptoms. Lung function test was performed using Spirometer. Results showed that the mean concentration of PM<sub>10</sub> (79 µg/m<sup>3</sup>) and NO<sub>2</sub> (3.73 ppm) for studied group was higher compared to comparative group, PM<sub>10</sub> (49 µg/m<sup>3</sup>) and NO<sub>2</sub> (0.14 ppm). As overall, reported respiratory symptoms were significantly higher among studied group compare to comparative group. Significant reduction value of FEV<sub>1</sub>/FVC% showed that there was airways obstruction for studied group. Findings from this study indicated that exposure to indoor PM<sub>10</sub> and NO<sub>2</sub> concentrations may increase risk of getting respiratory symptoms and reduction of lung function among primary school children living near petrochemical industry area.</p>
N1007	<p><b>Industrial By-products: Stress Factors or Nutrients?</b>  <b>Brigitta Tóth, Géza László Nagy, Szilvia Veres, László Nagy, László Lévai</b></p> <p><i>Abstract</i>—The reduction of fertilizer's portion has become essential in the crop production by now. The aim of our work was to examine four industrial by-products (sewage sludge, flue-gas, extruded poppy-heads) in order to determine whether the examined by-products can be potentially used for the nutrition of plants.</p> <p>The dry matter accumulation, relative chlorophyll contents of the plants, as well as the absolute quantities of photosynthetic pigments, the concentrations of various elements in the shoots and roots were measured. We have come to the conclusion that all of the examined by-products can be used in the nutrition supply of plants, but it is essential to determine the concentrations of application accurately for field use.</p>

### Morning, November 24, 2013 (Sunday)

SESSION – 2 (JCCEA & CAAS)

Venue: Tamarind II

Session Chair: *Sherin Sherif*

Time: 09:55 – 12:30

CA422	<p>Effects of RF Power and Treatment Time on Wettability of Oxygen Plasma-treated Diamond-like Carbon Thin Films  <b>Chavin Jongwannasiri</b></p> <p><i>Abstract</i>—Diamond-like carbon (DLC) thin films can be used in numerous industrial applications, including biomedical modified-surfaces with biocompatible and wetting properties. It is important to understand the surface properties of DLC thin films for these applications. In this study, oxygen (O<sub>2</sub>) plasma treatment on DLC film surfaces is studied, taking into account the effects of radio frequency (RF) power and treatment time on wetting property. All the films were prepared on Si (100) wafers using a plasma-based ion implantation (PBII) technique using acetylene (C<sub>2</sub>H<sub>2</sub>) as the plasma source. The</p>
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	<p>deposited DLC films were then treated with oxygen plasma using various RF powers and treatment times in order to characterize the wettability, compared to as-deposited DLC film. The thickness and structure of the films were evaluated using stylus profilometer and Raman spectroscopy. The wettability of the films was assessed using a contact angle meter. The results indicate the oxygen plasma treatment on DLC film surfaces influenced to thickness change, but unaffected to structure of the films with various RF powers and treatment times. Further, oxygen plasma-treated DLC films exhibit a hydrophilic surface due to the introduction of some hydroxyl and carbonyl groups onto the DLC film surface. It is concluded that oxygen plasma treatment can be used to make hydrophilic DLC, making it a favorable wetting surface for biomedical applications.</p>
CA423	<p><b>Thermodynamic Analysis for Liquefaction of Natural Gas Using the C<sub>3</sub>-MR Refrigeration Process</b>  <b>Clementino Pereira, Asep Handaya Saputra, and Sutrasno K.</b></p> <p><i>Abstract</i>—This paper presents a propane precooled mixed refrigerant (C<sub>3</sub>-MR) liquefaction plant with 3 pressure levels of propane cooling that is planned to be build in Timor-Leste and the simulation of refrigeration system for C<sub>3</sub>-MR process that is to predict liquefied natural gas (LNG) specific horse power of the system. By varying the natural gas temperature between 10 and 50°C and pressure between 20 and 60 bar respectively, the effect of natural gas temperature and pressure on specific horse power for the C<sub>3</sub>-MR was determined. The result of simulation indicates that the specific horse power for the C<sub>3</sub>-MR process depends on natural gas supply temperature and pressure. The increase of temperature from 30°C to 50°C results in 0.83% increase in specific horse power and the decrease of temperature from 30 to 10°C results in 0.82% decrease in specific horse power. The pressure increase from 40 to 60 bar results in 0.37% decrease in specific horse power and decrease from 40 to 20 bar results in 0.39% increase in specific horse power. In addition that, the production capacity per train increase by 4.78% when natural gas pressure supplied from 40 to 60 bar and 7.22% decrease when pressure decrease from 40 to 20 bar.</p>
CA425	<p><b>Synthesis and Characterization of Carboxymethyl Cellulose (CMC) From Water Hyacinth Using Ethanol-Isobutyl Alcohol Mixture as the Solvents</b>  <b>Asep Handaya Saputra, Linnisa Qadhayna, and Linnisa Qadhayna</b></p> <p><i>Abstract</i>—Water hyacinth, a free-floating aquatic weed originating from South America has become a major floating weed of tropical and subtropical regions of the world. The plant has the tendency to regenerate from seeds and fragment allowing rapid increase in plant population. Water hyacinth is however a fiber that is rich in its cellulosic compounds, which can be derivated into somewhat multifunctional properties. Carboxymethyl Cellulose (CMC) is a derivated cellulose that is used in food products as a thickener agent or non-food products such as detergents, paints, and others. The research has investigated further on how one would synthesize CMC from water hyacinth as well examining the characterization of the CMC samples that is originated from the plant. The production of CMC involves four main processes: the isolation of alpha-cellulose from the water hyacinth and the synthesis by the alkali-catalyzed reaction (alkalization) of cellulose with chloroacetic acid (carboxymethylation) and finally the purification of the CMC itself to remove undesirable compounds. In this research, the variations are comprised of the NaOH added (5 M - 35 M) during alkalization and the ratio of the solvent between isobutanol and ethanol (ratio 80:20, 50:50 and 20:80) thus fifteen samples are obtained. The characterization is based on two testing methods: FTIR and Degree of Substitution (DS). During FTIR test, it is proven that CMC is produced in the experiment. This is verified from the spectrum transmitting 1400 cm<sup>-1</sup> 1600 cm<sup>-1</sup> indicating ether and carboxyl functional group consecutively. On the other hand, the highest DS is obtained in sample</p>

	CMC-28-10 with a value of 1.76 with the highest purity of 93.24.
CA426	<p>Statistical Optimization for Application of Nonionic Surfactant in Enzymatic Hydrolysis of Palm Fiber for Ethanol Production  <b>Jatuporn Parnthong</b> and Suratsawadee Kungsnant</p> <p><i>Abstract</i>—Palm fiber is a lignocellulosic material, which is available in large quantity from oil palm industry. Due to its cellulosic structure, it is considered as a highly potential alternative material for ethanol production. Thus, the palm fiber is utilized as a raw material in this study. The palm fiber is obtained from local industry and mechanically ground to reduce the size in the range of 0.417-1 mm. Then, it is pretreated with 10% sodium hydroxide. Then, it is further utilized in the enzymatic hydrolysis. The commercial cellulase enzyme (<i>Trichoderma reesei</i>) is employed in this study. The nonionic surfactant (Tween80) is applied to enhance the conversion of cellulose to sugar. In the experiment, the effects of enzyme loading, surfactant concentration, and hydrolysis time on sugar yield are investigated at 50 °C and pH 5. By employing the response surface methodology, optimum sugar yield was obtained at as high as 67.65 % from palm fiber at 107 h hydrolysis time, 20 FPU/g substrate enzyme loading, and 7.39 g/L surfactant concentration.</p>
CA428	<p>Decolorization of Synthetic Dyes by Crude Laccase from <i>Lentinus polychrous</i> Lev.  <b>Karnika Ratanapongleka</b></p> <p><i>Abstract</i>—In the present study, the addition of copper (2mM) to the fungus <i>L. polychrous</i> cultivated in solid media influenced the laccase activity. Laccase production was increased in the presence of copper and reached a maximum activity of 145 U/ml on 12<sup>th</sup> day. Crude laccase was capable to decolorize different dye structures. The enzyme showed great decolorization efficiency toward Acid Blue 80 (85% decolorization in 120 min). Reaction kinetics of the enzyme on Acid Blue 80 followed Michaelis-Menten behavior and the initial rate of decolorization depended on the dye concentration. The kinetic parameters of the enzyme were determined and calculated from Lineweaver-Burk plots. The results indicated that the <math>K_m</math> value was 0.36 mM and <math>V_{max}</math> value was 0.0017 mM/min. The pH value for maximum decolorization of Acid Blue 80 was 5.0.</p>
CA429	<p>Effect of Curing Temperature on Pozzolan Reaction of Fly Ash in Blended Cement Paste  <b>Mongkhon Narmluk</b> and Toyoharu Nawa</p> <p><i>Abstract</i>—In this research, the degree of pozzolan reaction of fly ash in blended Portland cement pastes cured at different temperatures was determined by the selective dissolution method. The effect of curing temperature on pozzolan reaction was then investigated using the modified Jander's model. The results confirm that the pozzolan reaction of fly ash is strongly influenced by curing temperature and replacement ratio of fly ash. The higher the curing temperature and the lower the fly ash replacement ratio, the higher is the degree of pozzolan reaction of fly ash. The rate and mechanism of pozzolan reaction of fly ash vary with curing temperature. Elevated curing temperatures lead to faster the onset and accelerated the rate of the main reaction linearly.</p>
L001	<p>Analysis of Phenolic Content and Antioxidant Capacity of Potato, <i>Solanum Tuberosum</i> L from Tamilnadu region, India  <b>C.Chellaram, V.Parthasarathy, M.M.Praveen, A.A.John, T.P.Anand, G.Priya</b> and D.Kesavan</p> <p><i>Abstract</i>—Aim of this work is to significant difference existed in the antioxidant capacity of three different processed purple potato (<i>S. tuberosum</i> L.) extracts assayed via DPPH and FRAPS colorant stability. High</p>

	<p>temperature treatment would destroy the antho-cyanin compounds and significantly decrease the anthocyanin-based purple potato colorants. Our results suggest that in order to exploit and utilize purple potato colorant more effectively, colorant should be kept away from light and heat treatment. The direct lyophilization treated sample had significant higher content than other processing method. Stability study showed that both light and heat could accelerate the degradation of anthocyanin-based potato colorant. The fresh potato colorant showed the most stable property, followed by the lyophilization, oven drying, steaming before lyophilization. Our results suggest that lyophilize was a recommended suitable processing method in food industry.</p>
L003	<p><b>Significance of Nanotechnology in Food Industry</b>  <b>C.Chellaram, G.Murugaboopathi, A.A.John, R.Sivakumar, S.Ganesan, S.Krithika and G.Priya</b></p> <p><i>Abstract</i>—Magical spell have the ability to turn everything touched into gold, in real time scenario one such spell is “Nanotechnology” which has the mystical power to revolutionize every field touched by it. Nanotechnology is now invading the food industry and establishing great potential. Nanotechnology applications in food industry include: encapsulation and delivery of substances in targeted sites, increasing the flavor, introducing antibacterial nanoparticles into food, enhancement of shelf life, sensing contamination, improved food storage, tracking, tracing and brand protection. Nano food processing and products can change the color, flavor, or sensory characteristics; they also change the nutritional functionality, removes chemicals or pathogens from food. Nano food packaging materials may extend food life due to high barrier packaging, improve food safety, alert consumers that food is contaminated or spoiled, repair tears in packaging, and even release preservatives to extend the life of the food in the package. Nanobarcodes are used for safety labeling and monitor distribution of food products. Nanosupplements can be easily incorporated by encapsulation techniques for nutritional and drug delivery systems effectively. And as health plays a major role in food the disadvantages of the technology is to be concerned.</p>
L005	<p><b>Self-life Studies on an Underutilized Sea Food from Southeast Coast of India</b>  <b>C.Chellarama, T.P.Anand, M.M.Praveen, G.Murugaboopathi, R.Sivakumar, B.Arvind Kumar and S.Krithika</b></p> <p><i>Abstract</i>—The horse conch, <i>Pleuroploca trapezium</i> is a marine gastropod that is landed in huge amount as by-catch along Gulf of Mannar, southeast coast of India. To make use of this underutilized gastropod meat, ready-to-serve instant soup powder was prepared using this meat with an objective to popularize the meat among local people. This study was intended to find out the best packing material for the long time storage of this soup powder. Instant soup powder was first prepared using non-deodourized meat and packed in LDPE pouches. Since the shelf life was poor, another batch of soup powder was prepared using deodourized meat and packed in pouches made of HMHD, PP, 12<math>\mu</math> PET laminated with 50<math>\mu</math> LDPE, 12<math>\mu</math> PET laminated with BOPP, 12<math>\mu</math> PET laminated with metallised BOPP. During storage, studies such as relative humidity moisture relationship, wettability were also carried out in addition to shelf life studies. The soup powder stored in laminated pouches had a shelf life of 6 months at room temperature.</p>
L008	<p><b>Anthropometry and Agricultural Hand Tool Design for Javanese and Madurese Farmers in East Java, Indonesia</b>  <b>Robertoes Koekoeh Koentjoro Wibowo and Peeyush Soni</b></p> <p><i>Abstract</i>—This study revealed that anthropometric measurements of Javanese farmers are mostly higher</p>

	<p>than that of Madurese farmers. The minimum, mean, and the maximum stature values are 146.3, 159.0, 174.6 cm for Javanese male farmers and 143.0, 156.3, 173.8 cm for Madurese male farmers, respectively. The minimum, mean, and the maximum stature of Javanese and Madures female farmers are 137.7, 152.5, 167.3 cm and 137.4, 150.1, 167.7 cm, respectively. The mean of Relative Sitting Height (RSH) of Javanese and Madurese, male is 0.49, 0.49, respectively, whereas the mean of RSH of Javanese and Madurese female is 0.52, 0.51, respectively. The mean values of body surface area (BSA) of Javanese, Madurese, male are 1.57, 1.54, and for female are 1.47, 1.44 m<sup>2</sup>, respectively. Whereas, the body mass index (BMI) is 22.4, 22.88 for male and 22.38, 22.75 kg/m<sup>2</sup> for female Javanese and Madurese farmers, respectively. By using Principal Component Analysis (PCA) with varimax rotation, the first rank preference of farmers is safety for hand tools, and then followed by good fit in hand, easy to use, reliable and to no inflamed skin in the last. For agricultural hand tools, farmers prefer utilitarian performance than hedonic performance.</p>
L009	<p><b>Farmers' Local Knowledge in Extensive Shrimp Farming Systems in Coastal Bangladesh</b> <b>Md. Arif Chowdhury and Yahya Khairun</b></p> <p><i>Abstract</i>—The study was conducted to analyze farmers' local knowledge in extensive shrimp farming in the coastal area of Bangladesh. The relevant data were collected through farmers' interview in the study area. Bangladesh shrimp farming are involved with traditional method and generally do not practice well-defined pond preparation, liming, fertilization, predator control or artificial feeding, where production is low, water exchange is irregular, and water management is very poor. In south-western region of the country traditionally two types of shrimp farming systems are practicing in Khulna region; i) rice-shrimp: shrimp with rice or alternate shrimp rice culture and ii) only-shrimp: year round shrimp culture systems. Farmers are doing their best to get optimum output with minimum investment and low risk. Pond preparation, feeding and fertilizing and fry stocking are the main components of shrimp farming. Farmers' knowledge in these three components was found good in both farming systems. Around 80% of farmers have received training on different pond activities like pond preparation, fry stocking and water quality management. Thus the research concludes that shrimp farmers in the area are doing their farming by using their local knowledge what they achieved during long history of the traditional culture in the south-west coastal Bangladesh.</p>
L011	<p><b>Climate Change Impacts on Agricultural Products in Thailand: A Case Study of Thai Rice at the Chao Phraya River Basin</b> <b>Nara Phongphanich, Mao Guan-Guay and Yen Tsair-Bor</b></p> <p><i>Abstract</i>—This study has focus specifically on the experience of Thailand's worst floods in the Chao Phraya River Basin (CPRB). The economy was broadly affected, experiencing temporary halt in some production sectors of country. The study found that most of this was to the Thailand's agricultural products, as major agricultural products were the Thai Rice, and Thailand was one of major rice producer and exporter in the world. In 2011, a total export value of the Thai Rice was 210,527 million baht. However, the impact of tropical cyclone Nock-Ten on the Thai Rice export was reinforced an economic slowdown in Thailand during 2011-2012. Hence, this study diagnosed the impacts of flood on the Thai Rice in CPRB, and recommends the solutions on effective management of climate change impacts on Thai Rice.</p>
L017	<p><b>Use of Multi-Diffusion Model to Study the Release of Urea from Urea Fertilizer Coated with Polyurethane-like Coating (PULC)</b> <b>Thanh Trinh Hoai, Ku Zilati Ku Shaari, Abdul Basit and Babar Azeem</b></p>

	<p><i>Abstract</i>—Controlled release fertilizer (CRF) play an important role in nutrient loss prevention and plant's uptake efficiency. This study uses a multi-diffusion model to simulate urea release from urea fertilizers coated with polyurethane-like coating (PULC). In this model, finite element method (FEM) and 2D geometry are applied for three sizes of urea granule using COMSOL Multiphysics software. Modeling results are in agreement with the experimental data for the "constant release" stage. Standard error of estimate (SEE) ranges from 0.00417 to 0.02084 in these simulations. Besides, relationship of coating thickness with release time and percent of urea released at the end of "constant release" stage has also been established.</p>
L018	<p><b>UV/Ozone Treatment of the Pyrethroid Insecticide Fenvalerate in Aqueous Solutions</b> Nga Tran, <b>Thanh Trinh</b>, Nam Hoang and Thang Ngo</p> <p><i>Abstract</i>—Fenvalerate is a common Pyrethroid insecticide exists stably in water and soil. This study subjected to enhance the degradation of fenvalerate (in the form of aqueous emulsion of a commercial formulation) using UV/ozone process. Experiment results indicated that fenvalerate was decomposed rapidly under UV irradiation (99% within 10 minutes). Degradation yield also showed an increase when ozone was applied. UV/ozone degradation rates of fenvalerate followed first-order kinetics. In alkaline medium, there was a slight increase in yield. Sodium nitrate acted as a photo-sensitizer for UV irradiation process so it helped to increase reaction rate at an optimum concentration of 2.5 mM. Moreover, some degradation products were identified and tentatively assigned by GC-MS.</p>
L20012	<p><b><i>In Vivo</i> Pathogenicity Studies of Aspergilli in Lepidopteran Model Host <i>Galleria Mellonella</i></b> <b>Naureen Akhtar</b></p> <p><i>Abstract</i>—Species of Genus <i>Aspergillus</i> are ubiquitous and have been involved in human affairs since centuries mainly due to their industrial applications and pathogenicity. In the recent past, larvae of <i>Galleria mellonella</i> are emerged as effective infection model for both bacteria and fungi. In this present study different species of <i>Aspergillus</i> have been evaluated for their pathogenicity by injecting <i>G. mellonella</i> larvae with their spores. The main findings of present work are (i) a wild type prototrophic laboratory strain of <i>A. nidulans</i> (as well as its genetic derivatives) is safe to handle in the laboratory (ii) <i>A. fumigatus</i> and <i>A. flavus</i> are pathogenic and (iii) previously unreported <i>A. terreus</i>, has quite nasty consequences for moth larvae and most likely constitute a health risk for humans.</p>

12:30 – 13:30

Lunch(Café Andaman)

### Afternoon, November 24, 2013 (Sunday)

SESSION – 3 (ICEBS &amp; ICBEC)

Venue: Tamarind I

Session Chair: **Judilynn N. Solidum**

Time: 13:30 – 15:50

N2001	<p>Immobilization of Hg(II) to Hg(0) on Reducing Dehydrated Carbons <b>El-SAid I. El-Shafey</b></p>
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	<p><i>Abstract</i>—Hg (II) is one of the most toxic elements in the aquatic environment and its immobilization as water insoluble form of Hg (0) is the aim of this research. Dilute sulfuric and phosphoric acids were used to prepare sulfuric acid dehydrated carbon (SDC) and phosphoric acid dehydrated carbon (PDC), respectively from peanut shell at 170 °C. Removal of Hg (II) from aqueous nitrate solution was tested at different initial pH, contact time, concentration and temperature. Maximum sorption took place at initial pH 2 and equilibrium obtained within ~ 70 hr on both carbons with increased uptake as temperature rises. Activation energy, <math>E_a</math>, was &gt;40 kJ/mol indicating chemical adsorption. Hg (II) uptake was found to follow well the Langmuir adsorption model with higher uptake for SDC than PDC. Temperature rise led to increased removal of Hg (II) on both carbons. Scanning electron microscopy (SEM) showed micro-droplets of Hg (0) on the carbon surface that was confirmed using energy dispersive spectroscopy (EDS). Hg (II) reduction was accompanied by surface oxidation. Hg (0) was collected from mercury loaded carbons via sonication under water. Dehydrated carbons shows promising results for Hg (II) immobilization as Hg (0).</p>
N3003	<p><b>Bioconversion of Oil Palm Trunks Sap to Bioethanol by Different Strains and Co-Cultures at Different Temperature</b> <b>Che Ku Mohammad Faizal</b></p> <p><i>Abstract</i>—Oil palm plantation (OPT) generates a large amount of agricultural waste in a form of oil palm trunk sap. The content of sap (juice) from OPT can be used to produce ‘higher value things’ including bioethanol. In this research, sap was utilised as the raw material for producing bioethanol using different strains. The relationship between temperature and shaking to the fermentation of OPT sap for bioethanol production was investigated. The experimental results showed that 30 °C was the best temperature for most strains except for <i>Pichia stipitis</i>. This study indicated that <i>Saccharomyces cerevisiae</i> is the most suitable strains to produce bioethanol from oil palm trunk sap, and thus demonstrated that OPT sap is a promising renewable energy crop.</p>
N3004	<p><b>Synthesis of Disulfonato Silica Hybrid from Rice Husk Ash</b> <b>C. Azmiyawati, Nuryono, Narsito</b></p> <p><i>Abstract</i>—Disulfonato-silica hybrid (DSSH) has been synthesized through sol-gel process using a silica precursor of sodium silicate solution extracted from rice hull ash (RHA), acid monosodium salt 4-amino-5-hydroxy-2,7-naftalena-disulfonato (AHNSNa) as the sulfonato source, and a crosslinking compound of 3-chloropropyltrimethoxy-silane. The hybrid characteristics were evaluated based on the infrared (IR) spectra, x-ray diffraction (XRD) patterns, Scanning Electron Microscope/Energy Dispersive X-ray spectroscopy (SEM/EDX), Brunauer–Emmett–Teller (BET) and Nuclear Magnetic Resonance-Silica (NMR-Si) spectra. Results show that the binding sulfonato has been happened. DSSH obtained has properties of amorphous, mesoporous size, and the future can be used as an adsorbent. Mainly used adsorbent for metal ions adsorb in accordance with the sulfonato group.</p>
N3005	<p><b>Characterization of Functionalized Low Density Polyethylene/Polyaniline Nano Fiber Composite</b> <b>Che Ku Mohammad Faizal</b></p> <p><i>Abstract</i>—Nano composite based on polyaniline (PANI) nano fibers filler and chromic acid functionalized low density polyethylene (LDPE) matrix with biocompatibility and low percolation threshold value was prepared via twin screw extrusion process. Density measurement, Fourier Transform Infrared</p>

	<p>Spectroscopy (FTIR), Field Emission Electron Microscopy (FESEM), Energy-dispersive X-ray spectroscopy (EDX), X-ray crystallography (XRD), Brunauer, Emmett and Teller analysis (BET), Thermo Gravimetric (TGA), Differential Scanning Calorimetry (DSC) and Four-Probe Conductivity measurements are reported. As low density polyethylene functionalization renders LDPE more biocompatible, it also facilitates conductivity due to carbon carbon double bonds, sulfonic, and carbonyl group moieties. PANI nano fibers also assist in charge transfer mechanism of resultant composite. Overall results indicate the formation of highly stable nanocomposite materials, with good physiochemical properties and conductivity. The resultant blend may prove beneficial as a low cost biocompatible and electrically simulated nerve tissue repair scaffolds.</p>
N3008	<p><b>Groundwater Development for Localized Water Supply in South Africa</b> <b>Ola Busari</b> and <b>Jeremiah Mutamba</b></p> <p><i>Abstract</i>—This paper captures the outcomes of a collaborative initiative between the national Department of Water Affairs in South Africa and the Trans-Caledon Tunnel Authority, a state-owned water infrastructure enterprise, on the development of groundwater as a source of localized water supply in two municipalities in the north-eastern portions of the country. The paper reviews the pre-existing situation of water supply in the project communities, presents the resulting benefits of, and challenges to, the interventions, and makes practical recommendations for going to scale with more effective harnessing of groundwater in similar settings.</p>
H004	<p><b>Second Generation Bioethanol from Lignocellulosic Biomass Using Worm Tea as Pretreatment</b> <b>Siti Norfariha M.N.</b>, Siti Aisyah I., Nur Farehah Z.A, Renuka R. and Norli I.</p> <p><i>Abstract</i>—Production of ethanol from mixed fruit waste (biomass) to represent lignocellulosic biomass was investigated. Worm tea was used as an alternative for the pretreatment of fruit waste. A <math>2^k</math> fractional factorial experimental design was used to analyze the five factors use in this study (pH, temperature, biomass loading, worm tea ratio and heating time). Results from the analysis revealed loading and ratio had the strongest effect on the bioethanol yield with the highest reading of 0.501mg/l.</p>
H006	<p><b>Optimization Studies on Textile Wastewater Decolourization by <math>Fe^{3+}</math> /Pectin</b> <b>Siti Aisyah I.</b>, Siti Norfariha M.N. , Nur Farehah Z.A, Megat Azlan M. A., and Norli I.</p> <p><i>Abstract</i>—The existence of dyes in wastewater is harmful to the environment if it is released without proper treatment. The aim of this study was to determine the application of pectin extracted from banana pseudostem for coagulation-flocculation of textile wastewater in Penang. Pectin was applied with the addition of <math>Fe^{3+}</math> on textile wastewater and the optimum of colour removal efficiency was measured. The optimization study through central composite design (CCD) was conducted in jar test to determine the interaction effect between pH, coagulant dose, and flocculant dose. Results showed there is a significant effect between pH and flocculant dose on the colour removal, followed by the effects between coagulant dose and flocculant dose and no interaction between pH and coagulant dose (<math>p &gt; 0.05</math>). In conclusion, 74.2% of colour removal can be obtained at the optimum treatment conditions (pH 7.5, coagulant dose 250 mg/ L, and flocculant dose 35 mg/L. This demonstrates the benefits of the approach based on the response surface method (RSM) in achieving good predictions especially for treating actual textile waste.</p>
H007	<p><b>Development of Field Deployable Point-of-Care Diagnostic Systems</b> <b>Christopher A. Heist</b>, Daniel Huynh, Myra Koesdjojo, and <b>Vincent T. Remcho</b></p>

	<p><i>Abstract</i>—Existing technology in the form of Vitros™ dry slides, marketed by Johnson &amp; Johnson via the Ortho Clinical Diagnostics division, was employed to explore various factors crucial to the development of a field deployable reflectance colorimeter. These factors include: sample volume, reaction kinetics, incubation temperature, and method of data collection and analysis. Vitros™ glucose, and urea (BUN) dry chemistry slides were used during the investigation. Various detection methods including an iPhone® using a third party app, ImageJ, as well as Variable Technologies' Node Chroma™ were used to evaluate color development. Our investigation of sample volume illustrates that despite the requirement of 10 µL specified by Ortho, smaller volumes (&gt;4 µL) can produce results that are equally as precise. Our efforts in temperature and kinetics highlight the need for an integrated heating component in the final device. Finally, lighting was also studied and demonstrated that a single light source is not acceptable; rather multiple light emitting diodes (LEDs) are necessary to provide the even lighting that is crucial for accurate color measurement.</p>
H009	<p><b>Antioxidant Activity and Total Phenolic Content of Dried Fermented-Soybean Products Fermented with <i>Bacillus Subtilis</i> and Lab: Potential for Functional Food Application.</b> <b>Arachaporn Chonkeeree, Monrodee Chaowarat and Sumonwan Chumchuere</b></p> <p><i>Abstract</i>—Dried fermented soybean products were prepared with <i>Bacillus subtilis</i> TISTR 001 and LAB (<i>Lactobacillus fermentum</i> TISTR 055, <i>Lactobacillus plantarum</i> TISTR 920 and <i>Lactobacillus casei</i> subsp. <i>rhamnosus</i> TISTR No.108). These organisms are commonly used as starters in the fermentation of many traditional, oriental food products. The total phenolic content and antioxidative activities of the water extract and ethanol extract of these dried products were compared with specific reference to 1,1-diphenyl-2-picrylhydrazine (DPPH) radicals scavenging effects and Fe<sup>2+</sup> chelating ability. Total phenolic content increased in soybean after 72 h fermentation. Fermentation, also displayed enhanced antioxidative activities in comparison with the non-fermented soybean (control). Among the samples tested, that ethanol extract of dried soybean product fermented with <i>B. subtilis</i> exhibited the highest levels of DPPH-free radicals scavenging activity (66.91%) and Fe<sup>2+</sup>-chelating ability (0.11 mmol Fe (II) / g extract). Also, the highest total phenolic content (14.59 mg GAE/g extract) was found in ethanol extract of dried fermented soybeans prepared with <i>B.subtilis</i>. These results show the potential of dried fermented-soybean products for developing a healthy food supplement with soybean fermented by <i>B. subtilis</i> and LAB.</p>
H014	<p><b>Surfactants and Water Soluble Ionic Elements in Urban Road Dust of Kuala Lumpur, Malaysia</b> <b>Nurul Bahiyah Abd Wahid, Mohd Talib Latif, Suhaimi Suratman</b></p> <p><i>Abstract</i>—The aims of this study were to determine the composition of surfactants and water soluble ionic elements in road dust samples from Kuala Lumpur, Malaysia. Road dust was collected and been sieved to separate the dust based on three different range of particle size (µm), which are 125 &gt; X ≥ 63 (fraction A), 63 &gt; X ≥ 45 (fraction B) and X &lt; 45 (fraction C). Colorimetric method was used to determine anionic surfactants as Methylene Blue Active Substance (MBAS) and cationic surfactants as Disulphine Blue Active Substance (DBAS). Meanwhile, the water soluble ionic elements were detected using ion chromatography. Results indicated that MBAS were higher than DBAS in all fractions. The finest particles (fraction C) showed the highest concentration of MBAS (0.53 ± 0.04 µmol/g), followed by fraction B (0.39 ± 0.03 µmol/g) and fraction A (0.31 ± 0.02 µmol/g). For ionic compositions, the results showed the trend of SO<sub>4</sub><sup>2-</sup> &gt; Cl<sup>-</sup> &gt; NO<sub>3</sub><sup>-</sup> &gt; F<sup>-</sup> for anions, while for cations Ca<sup>2+</sup> showed the highest concentration followed by K<sup>+</sup> &gt; Na<sup>+</sup> &gt; NH<sub>4</sub><sup>+</sup> &gt; Mg<sup>2+</sup>. The combination of principle component analysis</p>

	<p>(PCA) and multiple linear regressions (MLR) revealed two major sources contributing to surfactants in road dust which explained 72.6% of the total varians. The possible sources were industrial/construction activities and biomass burning/vehicular emissions</p>
H015	<p><b>Physical Properties of Chitosan Films as Affected by Concentration of Lactic Acid and Glycerol.</b>  <b>Aishah Bujang, Syarifah Nur 'Adila, Nugraha Edhi Suyatma</b></p> <p><i>Abstract</i>—In this study, the physical properties of chitosan film (1% w/v) incorporated with different concentration of lactic acid (1 and 2% w/v) and glycerol (2, 4, 6, 8, 10% w/w) were evaluated. Results indicated that the addition of different concentration of glycerol on the chitosan film mixed with 2% lactic acid did not affect the thickness of the film. However, significant reduction in thickness was observed on the chitosan film when mixed with 1% lactic acid at different concentration of glycerol. Similarly, water vapour transmission rate (WVTR) of the chitosan film mixed with 2% lactic acid showed no significant difference in value when different concentrations of glycerol were added. While the chitosan film with 1% lactic acid showed gradual linear increase in WVTR as the concentration of glycerol added was increase. In term of the mechanical properties of the chitosan film, addition of glycerol at different concentration did not affect the tensile strength of the film incorporated with 2% lactic acid. However, chitosan film of the 1% lactic acid showed decrease in tensile strength, as the glycerol concentration added was increase. The unplasticized chitosan film prepared with 1% lactic acid exhibited the highest tensile strength (<math>26.12 \pm 4.5236</math> Mpa). While no significant difference in tensile strength was observed for the 2% lactic acid chitosan films. Percent elongation of the chitosan film mixed with 1% and 2% lactic acid as solvent showed a contrast effect between each other when added with different concentrations of glycerol. An increase in % elongation was observed on the 1% lactic acid chitosan film, as the concentration of glycerol was increase. While for the 2% lactic acid chitosan film, decrease in % elongation was obtained when the concentration of glycerol added was increase.</p>
H016	<p><b>Isolation and characterization of lactic acid bacteria from Indonesian soybean tempe</b>  <b>Balqis Pisol, Lilis Nuraida, Noriham Abdullah, Suliantari and Khalilah Abdul Khalil</b></p> <p><i>Abstract</i>—Tempe is a widely consumed Indonesian traditional food which is made from soybean through a fermentation process, mainly by <i>Rhizopus oligosporus</i>. Lactic acid bacteria (LAB) also involves in the process specifically in the soaking and fermentation steps. Isolation of the LAB from tempe was done at different stages of the tempe's production to examine for the occurrence of LAB. Morphological, physiological and biochemical characteristics were employed to identify LAB. 16 LAB were obtained and 13 LAB isolates were identified as Lactobacillus heterofermentative, one isolate, (S4 I) as Streptococcus non enterococci while the other 2 LAB isolates, (S4 A and S4 J) could not be identified. Hence this study showed that Lactobacillus heterofermentative bacteria is dominant in every stage of tempe's production.</p>
H1009	<p><b>Study on the Compatibility and Mechanical Properties of BR-LDPE-PVC Blends</b>  <b>Jyotishmoy Borah</b></p> <p><i>Abstract</i>—A series of ternary polymer blends of polybutadiene rubber (BR), low density polyethylene (LDPE) and poly (vinyl chloride) (PVC) were prepared and characterized. Our aim of the work is to study the compatibility and mechanical properties of dicumyl peroxide (DCP) and sulfur (S) cured blends. The scanning electron microscopic (SEM) study supports the morphology of the blends. Tensile test results for all blends samples are compared. From tensile strengths data, it was found that the tensile strength (TS) BR-LDPE-PVC ternary blends are higher than BR-LDPE blends. Result also indicated that the DCP is</p>

	better curing agent than sulfur for these ternary blends.
H1013	<p>Impacts of Cyanobacterial Toxins from Dau Tieng Reservoir, Vietnam, on the Early Life Stage of Zebrafish  <b>Thanh-Son Dao</b>, Truc-Ly Tran, Thanh-Luu Pham, Lan-Chi Do-Hong Phuoc-Dan Nguyen</p> <p><i>Abstract</i>—In water bodies, cyanobacteria and their toxins are of serious problem and damage to aquatic organisms including fish. In this study, the zebrafish embryos were exposed to crude extracts of cyanobacterial scum and toxic <i>Microcystis</i> containing 50 and 200 <math>\mu\text{g L}^{-1}</math> of microcystins (MC), and to crude extract of non-MC producing <i>Arthrospira</i>, until hatching. Then the fish larvae from incubations with 50 <math>\mu\text{g L}^{-1}</math> of MC and <i>Arthrospira</i> crude extracts were split into two groups and (1) the first group was raised in control medium; (2) the second group was continuing incubated in the same medium as the embryos were. Another experiment in which fish embryos and larvae were incubated in non-toxic medium was also implemented as control. The results showed that low MC (50 <math>\mu\text{g L}^{-1}</math>) and non-MC crude extracts slightly reduced the hatching rate of the zebrafish embryos. However, high MC (200 <math>\mu\text{g L}^{-1}</math>) crude extracts strongly decreased their hatching rate. Mortality of the zebrafish larvae increased after 11 days of incubation even though they were raised in non-toxic medium. Furthermore, malformation of the fish embryos and larvae was recorded during the experiments.</p>
H1014	<p>Composition and Diversity of Phytoplankton in Lake Lindu, Central Sulawesi  <b>Sevi Sawestri</b>, Samuel, Ni Komang Suryati</p> <p><i>Abstract</i>—Lake Lindu is located in Lore Lindu National Park, Central Sulawesi, Indonesia. This lake kind of tectonic lake and still on natural condition. This study aims to determine the composition and diversity of phytoplankton in Lake Lindu. Observations were made in May, July and October 2012. Five stations representing the waters conditions of Lake Lindu were set up. Phytoplankton samples were collected by using a plankton net with 25 <math>\mu\text{m}</math> mesh size. Supporting data, temperature, transparency, pH, nitrate (<math>\text{NO}_3</math>), and phosphate (<math>\text{PO}_4</math>) were measured on same location. Three phytoplankton classes were recorded consisting of 25 species of phytoplankton. The largest number of phytoplankton species was recorded in Chlorophyceae, with 12 species, while the lowest one recorded from Cyanophyceae classes, with 2 species. The abundance of phytoplankton varied from 200-2954 cells/L. The diversity/Shannon index (H') ranged between 0.50 and 2.24. The index of dominance (D) ranged between 0.13 and 0.76.</p>

### Afternoon, November 24, 2013 (Sunday)

SESSION – 4 (CAAS)

Venue: Tamarind II

Session Chair: *Ahmed Hussein*

Time: 13:30 – 15:50

L019	<p>Lactic Acid Production from Simultaneous Saccharification and Fermentation of Cassava Starch by <i>Lactobacillus Plantarum</i> MSUL 903  <b>Kannika Chookietwattana</b></p> <p><i>Abstract</i>—The objectives of this study were to select an amylolytic lactic acid bacterium for simultaneous saccharification and fermentation (SSF) of starch to lactic acid and determine the optimum conditions for</p>
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	<p>SSF of cassava starch to produce lactic acid by the selected strain. Lactic acid production from SSF of cassava starch by the selected strain using a batch mode and under a non-sterile condition was also investigated. An isolate MSUL 903 was selected. It was named as <i>Lactobacillus plantarum</i> MSUL 903 according to the result of 16S rRNA gene sequences. The optimum conditions for <i>L. plantarum</i> MSUL 903 in SSF of cassava starch to produce lactic acid were determined to be at an initial pH of 6.5, 6% (w/v) of cassava starch concentration, and urea as an inexpensive nitrogen source. Lactic acid concentration at 10.34 g/L was obtained. Lactic acid concentration at 39.70 g/L was achieved from SSF of cassava starch under a non-sterile condition. The <i>L. plantarum</i> MSUL 903 has been proven to be an efficient amylolytic lactic acid bacterial strain for SSF of cassava starch to lactic acid.</p>
L020	<p><b>Polyhydroxyalkanoate Production from Sequencing Batch Reactor System Treating Domestic Wastewater Mixed with Glycerol Waste</b>  <b>Kannika Chookietwattana, Jongrak Phasakanon, Somchai Dararat</b></p> <p><i>Abstract</i>—The study aimed to determine the polyhydroxyalkanoate (PHA) production and treatment efficiency of sequencing batch reactor (SBR) system treating synthetic domestic wastewater (DW) and synthetic domestic wastewater mixed with glycerol waste (DW+GW). The system with a total sequence of 24 h consisted of filling phase (20 min), reaction phase (22 h), settling phase (1 h), and withdrawal phase (40 min). The two-step SBR operation comprised anoxic/aerobic steps of 4/18 h was employed at reaction phase. The system fed with DW+GW produced higher PHA than the system fed with DW. In addition, PHA accumulation in activated sludge obtained from the anoxic step was higher than the aerobic step in which the highest PHA concentration and PHA yield at 1,086.87 mg/L and 61.42% as dry sludge weight, respectively, were attained. The results of treatment efficiency revealed that the anoxic step performed higher removal efficiencies of total kjeldahl nitrogen and total phosphate than the aerobic step, while an opposite result of COD removal efficiency was found.</p>
L021	<p><b>Production of Pha from Cassava Starch Wastewater in Sequencing Batch Reactor Treatment System</b>  <b>Nitinard Chaleomrum, Kannika Chookietwattana, Somchai Dararat</b></p> <p><i>Abstract</i>—The project attempt to investigate the potential of cassava starch wastewater for producing polyhydroxyalkanoate (PHA) from sequencing batch reactor (SBR) treatment system seeded with <i>Bacillus tequilensis</i> MSU 112, a PHA-producing bacterial strain. A total sequence of 24 h with a reaction phase (22 h) comprised anoxic/aerobic steps of 4/18 h was employed. The effect of varies chemical oxygen demand (COD) concentration of the synthetic cassava starch wastewater (CSW) (3,000 4,000 and 5,000 mg/L) on PHA production and treatment efficiency was determined. The CSW with COD at a concentration of 4,000 mg/L produced the highest PHA concentration, PHA yield, and total kjeldahl nitrogen and total phosphate removal efficiencies at 3,346 mg/L, 79.2% as dry sludge weight, 20.6% and 27.7%, respectively, while the CSW with COD concentration of 5,000 mg/L provided the highest COD removal efficiency at 94.8%. In addition, the activated sludges obtained from an anoxic phase provided higher PHA production than an aerobic phase. The results revealed that the SBR system treating CSW with the presence of <i>B. tequilensis</i> MSU 112 offers a promising approach for PHA production.</p>
L025	<p><b>Wafer as Feed Supplement Stimulates the Productivity of Bali Calves</b>  <b>Yuli Retnani, Chairussyuhur Arman, Syahrudin Said, Idat Galih Permana and Andi Saenab</b></p> <p><i>Abstract</i>—The aim of this research was to determine the nutrient content, digestibility on wafer of feed supplement and productivity of Bali calves that were given by wafer of feed supplement. This research</p>

	<p>had two steps experimental, the first steps experiment to determine the nutrient content and digestibility on wafer of feed supplement. The treatments were wafer of feed supplement composition i.e. T1 = wafer containing lamtoro leaf, T2 = wafer containing lamtoro and papaya leaf, T3 = wafer containing moringa leaf, T4 = wafer containing gamal leaf, T5= wafer containing corn leaf and corn. Nutrient content and digestibility of T1 had highest compared among the others, i.e. crude protein (32.34%), ash (7.24%), crude fiber (16.85%), crude fat (4.52%), NFE (39.06 cal/g) and digestibility of dry matter 82.87 %. The result indicated that digestibility of T1 was highest compared among the other wafer treatment, i.e. digestibility of dry matter 82.87 %, digestibility of organic matter 81.78%, NH<sub>3</sub> 9.33% and VFA 164.55%. The second step of this research was the best result of the nutrient content and digestibility of wafer of feed supplements tested to bali calves. The experimental design used Randomized Block Design with four treatment and three replications. The treatments were level of wafer containing lamtoro leaf, i.e R1 =0%, R2 =5%, R3 =10%, R4=15%. The result indicated that treatments had significant effect (P&lt;0.05) on daily weight gain. It was concluded that bali calves were fed by wafer of feed supplement with level 10% had 69% higher than conventional.</p>
L026	<p><b>Environmental Awareness Automation Monitoring System for Training Dog Kennel</b>  <b>Sumalee Chaisit, Hsu-Yang Kung, Jian-Liang Pan and Yan-Hua Chen</b></p> <p><i>Abstract</i>—Environmental awareness is currently significant caring in all industrial sectors, particularly in the animal industries. Animals are directly affected by environmental conditions and climate changes. Working dog is costly production in time and money to be successful. Health and temperament are key factors to be successful in training dog program. Working training dog school, NPUST is located in mountainous areas. The weather has frequently extreme change in temperature and humidity. The changes cause the heat in in-house and humidity in the air that may cause the dog illness. Therefore, working training dog school has to provide an appropriate kennel environment for all dogs throughout the training program. In order to secure the dogs, the automatic environmental sensing should be deployed. Web sensors and radio frequency identification (RFID) technologies were integrated, and have been implemented that are the weather sensing system and in-out control system, combining with health care management. Web based monitoring systems have provided based on user-friendly interface along with real-time information. In addition, it is very attractive use when the system operating via more convenient for computer and mobile communication devices.</p>
L027	<p><b>Applying Information-Centric Networking in Today's Agriculture</b>  <b>Pilaiwan Phupattansin and Sheau-Ru Tong</b></p> <p><i>Abstract</i>—Under the title of agriculture, Information and Communication Technologies (ICTs) enmesh the globe and represent a transformational opportunity for the livelihoods of smallholders to connect with the knowledge, institutions necessary, as well as sharing information on networking. With respect to information sharing, the Information-Centric Networking (ICN) is the Future Internet which has been recently proposed for efficiently accessing and distributing of content by replace the current host-oriented communication model toward a content-centric model. This article provides an overview of the novel of ICN architecture that is better suited to today's use, with a particular spotlight on content distribution and mobility technologies, which make ICN an excellent networking community for agriculture sector.</p>
L039	<p><b>Optimization Lactic Acid Production from Molasses Renewable Raw Material through Response Surface Methodology with Lactobacillus Casei M-15</b>  <b>Korawit Chaisu, Albert Linton Charles, Yuan-Kuang Guu, Tsair-Bor Yen and Chiu-Hsia Chiu</b></p>

	<p><i>Abstract</i>—Lactic acid is one of the functional and valuable compounds utilized in food, pharmaceutical and chemical industries while Poly lactic acid (PLA) is a biodegradable polymer that has a variety of applications. In recent years, microbial conversion of renewable raw materials has become an important objective in industrial biotechnology. Sugarcane molasses can be considered as potential renewable raw materials in PLA production. The objective of this study is to optimized fermentation medium and conditions to obtain maximum lactic acid production and Colony Forming Unit (log CFU/mL) through response surface methodology (RSM). The maximum lactic acid production (38.33%) and log CFU/mL (8.30) by <i>Lactobacillus casei</i> M-15 was under 3.82% of molasses and 8.02% of inoculum level within 24 hr at 37 °C respectively. This process will be advantageous for increasing yields of lactic acid and enhancing productivity by optimization technique. Moreover, it can reduce waste disposal and pollution and can selectively produce by sustainable agriculture such as agriculture material. In addition, the high-performance of lactic acid-producing microorganisms, qualified renewable raw materials and effective fermentation processes will be benefit for bioplastic technologies.</p>
L045	<p><b>Early Detection of Fungal Diseases in Winter Wheat by Multi-Optical Sensors</b>  <b>Yuxuan Wang, Shamaila Zia, Sebastian Owusu-Adu, Roland Gerhards and Joachim Müller</b></p> <p><i>Abstract</i>—Biotic factors such as pests and pathogens cause a substantial damage to wheat crops which leads to reduction in yield in a range from 10% to 50%. Application of fungicides and pesticides on one hand protects the crop but it also increases the crop production cost. Pathogens affect photosynthesis, respiration, translocation of water and nutrients of the crop and mostly the visual symptoms are detected too late to protect the crop. The objective of this study was to detect the plant fungal diseases by non-invasive sensor technologies and to determine the early outbreak of the disease. The experiment was conducted in the greenhouse where the two wheat cultivars namely; Monopol and Kalahari were infected with three fungal diseases viz. <i>Fusarium culmorum</i>, <i>Septoria tritici</i> and <i>Blumeria graminis f.sp. tritic</i>. Throughout the experiment four spectral sensors were used namely, Isaria, Handyspec, Multiplex and Infrared thermal camera. The results showed that as early as 2 days after inoculation (DAI), an increase in the average canopy temperature and maximum temperature difference within the canopy (MTD) was observed. Similarly, the REIP calculated from Handyspec showed significant difference between the infested and the control plants before the visual symptoms appeared. Multiplex measured chlorophyll content which is related to the photosynthesis process allowed to detect the early symptoms in contrast to the Isaria which, does not show a significant difference between control and infected plants.</p>
L049	<p><b>Lactic Acid Production from Repeated-Batch and Simultaneous Saccharification and Fermentation of Cassava Starch Wastewater by Amyolytic <i>Lactobacillus Plantarum</i> Msul 702</b>  <b>Sirirat Tosungnoen, Kannika Chookietwattana, Somchai Dararat</b></p> <p><i>Abstract</i>—The present study is aimed at determining the performance of an amyolytic <i>Lactobacillus plantarum</i> MSUL 702 for lactic acid production from the repeated-batch and simultaneous saccharification and fermentation (SSF) of a synthetic cassava starch wastewater (SCW). An ability of the bacteria to treat the SCW in terms of chemical oxygen demand (COD) and total kjeldahl nitrogen (TKN) removal efficiencies was also investigated during the fermentation processes. The SSF experiments were performed for five consecutive batches under a non-sterile condition and at a room temperature. The highest lactic acid concentration and viable lactic acid bacteria at 28.71 g/L and 9.26 log CFU/mL, respectively, were obtained in the 48 h of the first batch fermentation. The highest COD and TKN removal</p>

	<p>efficiencies at 98% and 85%, respectively, were obtained in the 48 h of the second batch fermentation. The bacteria could retain the high lactic acid production and treatment efficiency up to four consecutive batches.</p>
L057	<p><b>Utilization of Scallop Waste Shell for Biodiesel Production from Palm Oil - Optimization Using Taguchi Method</b>  <b>Achanai Buasri</b>, Phatsakon Worawanitchaphong, Sarinthip Trongyong, Vorrada Loryuenyong</p> <p><i>Abstract</i>—The optimization of experimental parameters, such as reaction time, reaction temperature, methanol/oil molar ratio and catalyst loading, on the transesterification for the production of biodiesel has been studied. A Taguchi L9 (3<sup>4</sup>) orthogonal array was used to evaluate the factors affecting the conversion of palm oil to fatty acid methyl ester (FAME). The scallop waste shell was calcined at 1,000 °C for 4 h and catalyst characterizations were carried out by XRD, XRF, SEM, and BET surface area measurements. Under the optimal reaction conditions of 10 wt.% of catalyst, 9:1 methanol/oil molar ratio and at a temperature of 65 °C, the FAME conversion was 95.44% and it was achieved in 3 h. It was found that the scallop waste shell catalyst shows high catalytic activity and ecologically friendly properties, having the potential opportunity to be used in biodiesel production process as heterogeneous base catalyst.</p>
L058	<p><b>Production of Healthy Brown Rice from Three Various Color Rice</b>  <b>Patcharapun Seedad</b>, Sirirat Deeseenthum, Kedsukon Maneewan and Worapol Aengwanich</p> <p><i>Abstract</i>—This study was aimed at investigating the following: 1) Rice formula selections accepted by consumers; 2) levels of <math>\gamma</math>-oryzanol, <math>\alpha</math>-tocopherol, total phenols and antioxidant activities of rice formulas accepted by consumers by using three strains of brown rice, namely, Khaw Dok Mali 105, Aromatic Black Rice and Fragrant Red Rice, respectively, to alter ratios in mixing four rice formulas. Sensory measurements were then taken to select rice formulas accepted by consumers with measurements of all <math>\gamma</math>-oryzanol, <math>\alpha</math>-tocopherol, total phenol levels, antioxidant activities (before and after cooking), and measured GPx levels in rats under heat stress. According to the findings, Rice Formula 2 was the rice formula most widely accepted by tasters for tested properties. After cooking rice with heat, Rice Formula 2 (after cooking), had reduced <math>\gamma</math>-oryzanol, <math>\alpha</math>-tocopherol, total phenol levels and antioxidant activities with statistical significance in every method. Furthermore, a temperature of 38±2 °C was found capable of giving rats higher GPx while polyphenol substances from extracts of Rice Formula 2 at 500 mg/kg were found to have the effect of reducing GPx in rats. Based on this study, rice may be indicated as a naturally encountered antioxidant source. Polyphenol substances from rice extracts were found capable of reducing heat-related stress to the red blood cells of rats.</p>
L059	<p><b>Gas Transmission Rates Across ‘Carabao’ Mango (<i>Mangifera indica</i> L.) Peel at Different Stages of Maturity and Ripeness</b>  <b>Fidelina Flores</b>, Kevin Yaptenco, Engelbert K. Peralta, Edralina P. Serrano</p> <p><i>Abstract</i>—Gas transmission rate through fruit peel is needed to understand gas exchange between fruit and the environment. It can be used to design packaging material and formulate edible coatings to be used by the fruit. It can also be used to predict oxygen consumption and possible carbon dioxide injury which could affect ripening and could predict the internal gas level inside the fruit. Oxygen and carbon dioxide transmission rates (O<sub>2</sub>TR and CO<sub>2</sub>TR) of mango (<i>Mangifera indica</i>, L.) peel at different stages of maturity and ripeness which were stored under two temperature regimes were measured using gas diffusion chamber. Nitrogen gas was flushed inside the chamber to decrease the oxygen level. Then a gas mixture of</p>

	<p>known concentration was flushed in the chamber and the concentration inside the chamber was measured through time. The Exponential Decay Method of Gas Transmission Rate of Films as described by Moyls (1992) was used to relate partial pressure of the gas concentration inside the chamber and the outside condition. Results showed that overmature fruit peel-PCI3 under 27 °C had the highest O<sub>2</sub>TR and CO<sub>2</sub>TR (1.636 mL O<sub>2</sub>/cm<sup>2</sup>-hr - 4.744 mL CO<sub>2</sub>/cm<sup>2</sup>-hr) while immature fruit peel-PCI1 under 14 °C had the lowest O<sub>2</sub>TR and CO<sub>2</sub>TR (1.104 mL O<sub>2</sub>/cm<sup>2</sup>-hr - 3.321 mL CO<sub>2</sub>/cm<sup>2</sup>-hr). At constant temperature, gas transmission rates increase with maturity and as the fruit peel turns yellow.</p>
L10002	<p><b>Utilization and Evaluation of Moringa Oleifera as Poultry Feeds</b>  <b>Hermogenes M. Paguia, Rina Q. Paguia, Rudy C. Flores</b></p> <p><i>Abstract</i>—To evaluate the potentials and economic advantages of Moringa as poultry feeds, three (3) research studies were conducted to determine the effect of Moringa leaf powder on two (2) different age groups of chicken layer and broiler chicken, to wit.</p> <p>Study 1. Effect of diet supplemented with varying levels of Moringa Leaf Powder (MLP) on the laying performance of chicken layer (<i>Gallus domesticus</i> L). Study 2. Effect of diet supplemented with varying levels of Moringa Leaf Powder on post-molting performance of chicken layer (<i>Gallus domesticus</i> L). Study 3. Growth performance of broilers (<i>Gallus domesticus</i> L) fed with Moringa Leaf Meal. The results from the three (3) studies showed that the addition of Moringa Leaf Powder and Moringa Leaf Meal on poultry diets did not significantly influence the growth and laying performance of broilers and laying hens (P&gt;0.05). Significant differences were observed in feed cost per kg of egg produced and egg weight (P&lt;0.05). The other parameters measured such as; average cumulative feed efficiency, laying percentage, feed consumption and income over feed cost of the chicken layers fed diets containing varying amounts of Moringa Leaf Powder were statistically comparable to those fed with the basal diets. The results however were constantly higher than the values obtained from the control groups.</p> <p>Finally, for optimum production performance, follow-up studies on utilization of enzyme enriched Moringa leaf powder and leaf meal shall be conducted for egg and meat production. The study using more parameters to evaluate egg quality, digestibility rate and populations of pathogenic bacteria in the GIT shall also be conducted.</p>
L10006	<p><b>Sustainability of Sheep and Goat Production Systems under United Arab Emirates' Aridland Constraints</b>  <b>S Sherif, S. Al-Shorepy, A. Al-Juboori, and E. Fathelrahman</b></p> <p><i>Abstract</i>—Sheep and goat production systems in the UAE within scarce natural resource constraints represent an ideal setting for studying input-use economic efficiency (production and allocative). Despite the importance of this subsector in the UAE, no reliable cross-sectional data was ever disseminated. The research objectives are to: obtain the baseline information on the existing small-ruminant farms in UAE; identify the responsiveness of output to percentage changes in inputs, rank the prominent inputs with the greatest impact on output level; and determine the corresponding allocative efficiency for the most significant inputs. A cross-section field survey that covered 661 mixed farms, with major sheep and goat production activities, was conducted in three areas of Al-Ain, the Western Region, and Abu Dhabi during 2012. Cobb-Douglas double-logarithmic production function approach was applied to estimate the important economic derivatives. A multidisciplinary approach was implemented to better understand the integration of biological and economic perspectives of the issue. Results indicated inefficiency of the inputs utilized for sheep and goats separately; where all of the inputs used in sheep production were overutilized, whereas those used in goat production were two underutilized, one over-utilized, with only</p>

	one input close to economic-use optimality. Study beneficiaries include strategic-decision makers and individual sheep and goats producers.
L10007	<p><b>A Study on Comparison of Stall Feeding System of Goat Rearing with Grazing System</b>  <b>Manjunath Patil, Pradeep Kumar, Raju G Teggelli and Prahlad Ubhale</b></p> <p><i>Abstract</i>—A study was undertaken to compare the grazing system and stall feeding system in goats in Gulbarga district, Karnataka state. Twenty Osmanabadi goats were divided into two groups; stall feeding group and grazing group each containing 10 goats. The overall weight gain was significantly higher in stall fed group (7.90 ±0.12 kg) compared to grazing group (5.30 ±0.55 kg). Blood parameters (average Hb (g/dl), PCV (%) and RBC (10<sup>6</sup>/cmm) count) were higher in stall feeding group (9.16±0.68, 25.09±0.43 and 10.75±0.37 respectively) compared to grazing group (8.64±0.52, 22.97±0.16 and 8.97±0.42 respectively). Upon DLC analysis, different leukocytes were in the normal range in the stall fed group compared to the grazing group. On the 1<sup>st</sup> day deworming was done for all the goats. At the end of the study, no Strongyle eggs were observed in both the groups. However, coccidial oocysts were found in three goats in grazing group. After three months of experimental period for 10 goats the profit was calculated to be \$ 464.4 (\$ 96.84 more) in stall fed group as compared to \$ 367.56 in grazing group. Therefore goats grow healthier, gain better body weight, and are healthier and farmers gain more profit in stall feeding system of goat rearing compared to grazing system.</p>

15: 50 - 16: 10

Coffee Break

### Afternoon, November 24, 2013 (Sunday)

SESSION – 5 (ICBEC)

Venue: Tamarind I

Session Chair: **Vincent T. Remcho**

Time: 16:10 – 18:30

H1015	<p><b>Growout of Striped Snakehead (<i>Channa Striata</i>) in Swamp Water System Using Fences and Cages</b>  <b>Dina Muthmainnah</b></p> <p><i>Abstract</i>—Striped Snakehead (<i>Channa striata</i>) is a local species with biological characteristics adapted to swamp water and have a potential to culture in swamp water system. This research was to find out a suitable stocking rate and feeding management in culture system to reach high growth rate of striped Snakehead. Experiment on grow out of striped Snakeheads was conducted in swamp area of Sekayu village, South Sumatra Province, Indonesia using three fences of 6x4 m<sup>2</sup> each and six bamboo cages of 2x1.5x1.5 m<sup>2</sup> each. In fence system the fish were stocked at density of 10 fish/m<sup>2</sup> gave three different feeds i.e, trash fish, pelleted feed, and both trash fish and pelleted feed. In cages the fish were stocked in three different rates i.e, 50, 100, and 150 fish/m<sup>2</sup>, fed with pelleted feed at a rate of 3% of total biomass. The results show that in fence system the different fed could give different growth rate due to behaviour feeding, and trash fish treatment was gave higher production/m<sup>2</sup>. While in cages, the higher stocking</p>
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	density gave lower final weight but higher production/m <sup>2</sup> .
H1021	<p>A New Cellular Automata Based Converter for Genetic Sequences Jui-Ming Chen, Ying-chieh Lin, <b>Meng-Hsiun Tsai</b>, Yu-Chen Lin, Hsiao-Wei Lin and Sheng-Hsiung Chiu</p> <p><i>Abstract</i>—With the development of computer technology, the more information is obtained from biological experiments through computer analysis, and the term bioinformatics is even coined. The commonly used tool in bioinformatics is sequence alignment, which is to compare the sequence with unknown function to the sequence with known function, and identify the possible biological function for them. Instead of using traditional dotplot or dynamic programming to conduct sequence alignment, this thesis uses cellular automata (CA) theory as the research topic. The parallel computing characteristic of cellular automata makes the future expansion model tremendously decrease the massive sequence computing costs. This thesis modifies the originally defined rules of cellular automata in order to make it more appropriate for amino acid sequence alignment. In addition, a cloud computing for sequence alignment system is proposed in this thesis so that users can do sequence alignment with the transfer methods used in this thesis through the Internet.</p>
H2004	<p>Water Quality Assessment using Benthic Macroinvertebrates in Water Bodies, Tien Giang Province, Vietnam <b>Pham Anh Duc</b></p> <p><i>Abstract</i>—This study to enhance the discussion about the usefulness of benthic macroinvertebrates for water quality assessment in Mekong Delta provinces. Data from 30 sites were used as a representative example for water bodies in 2,482 km<sup>2</sup> Tien Giang Province. The data covered the period 2012 – 2013. To implement this evaluation, the analyses were based on accepted MRC methods and classifications, and the working experiences of scientific group for the biological status assessment. Selected environmental variables were compared with ecological indices, based on benthic macroinvertebrates. The characteristics for the communities of benthos macroinvertebrates were described. Both univariate and multivariate analyses were used to examine the spatial patterns of water quality and biological groups, and to relate these patterns to environmental variables. The results demonstrated that these organisms could be applied to describe the ecological health in water bodies of Tien Giang Province.</p>
H2007	<p>Influence of Substituent on Thermal Decomposition of 1H-1,2,4-Triazole <b>Shizuka Tagomori</b>, Yusuke Kuwahara, Hiroshi Masamoto, Mikiji Shigematsu, <b>Wasana Kowhakul</b></p> <p><i>Abstract</i>—The thermal decomposition of 1H-1,2,4-triazole (1Htri) and its derivatives with different substituents were studied by sealed-cell differential scanning calorimetry (SC-DSC). Molecular orbital calculations (MO) were used to clarify thermal and chemical properties. The thermal decomposition temperature (T<sub>DSC</sub>) increased as (1Htri-NO<sub>2</sub>) &lt; (1Htri-NH<sub>2</sub>) &lt; (1Htri-CH<sub>3</sub>) &lt; (1Htri-COOH) &lt; (1Htri). The activation energy (ΔE<sub>a</sub>) was determined using the Kissinger and Ozawa approaches. The ΔE<sub>a</sub> increased as (-NO<sub>2</sub>) &lt; (-NH<sub>2</sub>) &lt; (-CH<sub>3</sub>) &lt; (-COOH) and corresponded with the order of the T<sub>DSC</sub>. The MO indicated that the 1Htri-NH<sub>2</sub> and 1Htri-CH<sub>3</sub> decompose at N1-N2 and C3-N4, while 1Htri-COOH and 1Htri-NO<sub>2</sub> decompose at C5-N1 and C3-N4.</p>
H2008	<p>Bioactivities of β-Glucan and Tannin Extracted with Superheated Water by Using a Macchinetta Extractor <b>Masato Adachi</b>, Wasana Kowhakul, Hiroshi Masamoto, Mikiji Shigematsu</p>

	<p><i>Abstract</i>—This work investigated the use of a macchinetta extractor to obtain <math>\beta</math>-glucan and tannin from bark and fungi. Normally a macchinetta extractor is used to extract espresso coffee through employment of a high extraction temperature (100–150 °C of superheated water), rapid cooling after emission from the extractor (below 100 °C), and a very short extraction time (1-5 minutes). <math>\beta</math>-Glucan obtained from the edible fungus <i>Hypsizygus marmoreus</i> by macchinetta extraction, had antitumor activity toward the Caco-2 cancer cell at concentrations above 100 mg/L. Autoclave extraction from fungi was effective for providing a high extraction yield, but this solution showed no antitumor activity. Macchinetta extracts from various edible fungi possessed higher antioxidant activity than those obtained from hot water and autoclave extractions. The yield of tannin from bark obtained from macchinetta extraction was about half that obtained from autoclave extraction. However, the protein adsorption activity of the tannin from the macchinetta extract was 2-fold higher than that from the autoclave extract. Macchinetta extracted tannin exhibited high antimicrobial activity toward <i>Staphylococcus aureus</i>.</p>
H2009	<p><b>Material Recycling of Used Primary Batteries</b>  <b>Tomonori Kawamura, Kazuki Yoshimura, Wasana Kowhakul, Hiroshi Masamoto and Mikiji Shigematsu</b></p> <p><i>Abstract</i>—We developed equipment for the separation of a mixture of zinc-carbon and alkaline manganese batteries of the same size but different mass with the ultimate aim of recycling the valuable metals from these batteries. Using our equipment, we were able to separate these batteries with an accuracy of greater than 90%. After being dismantled, the metal content of each part of the battery was analyzed. For the alkaline manganese battery, post-treatment by potassium removal from the manganese cathode was necessary for material recycle. Potassium removal by hot water leaching was ineffective, but removal was possible using dilute hydrochloric acid leaching. The cathode of the zinc-carbon battery consisted mainly of manganese with low zinc and no potassium being present. Zinc contamination increased with battery discharge as it dissolved in the electrolyte.</p>
H3001	<p><b>The Socio-Political Structure that Regulates the Ifugao Forest Maintenance</b>  <b>Jae Woo Jang, Scott Platt Salcedo</b></p> <p><i>Abstract</i>—As many farmlands, urban regions and villages around the world confront the shortage of water supply due to the drastic climate and environmental changes during the last decade, it has become imperative to look elsewhere for efficient and sustainable water conservation model. The Ifugao socio-political structure <i>Muyong</i> that regulate the maintenance and the communal use of the land, and the <i>Muyong</i> forest itself bring forward a model for a sustainable utilization of farmlands without causing excessive damage to the land. This system of water utilization and recycling in effect produces potable fresh water and water for irrigation. The socio-political model includes several methods of maintenance contributed by all the members of the society and a customary law that ensures environmental sustainability and water accessibility for all. This paper shall outline the indigenous culture that embodies this socio-political structure, the hydrological system built as a result and in turn will emphasize the importance of collective responsibility and communal ownership as a mode of ensuring environmental sustainability and water conservation. It shall also propose a possible replication of this model in other areas around the world.</p>
H3007	<p><b>Synthesis and Characterization of Magnetic MgAl-NO<sub>3</sub>-HT Composite via the Chemical Co-precipitation Method</b>  <b>Triastuti Sulistyaningsih, Dame Sari Valentine Silalahi, Sri Juari Santosa, Dwi Siswanta,</b></p>

	<p>and Bambang Rusdiarso</p> <p><i>Abstract</i>—Magnetic MgAl-NO<sub>3</sub>-Hydrotalcite (MHT) composite was synthesized via a chemical co-precipitation method using sodium hydroxide as the precipitating agent. The synthesized composite was characterized by the Fourier transform infrared spectroscopy (FTIR), the X-ray diffraction (XRD), the scanning electron microscopy (SEM), and Brunauer-Emmett-Teller (BET). The spectra of FTIR indicated that nitrate anion was the interlayer anion for MgAl-NO<sub>3</sub>-HT, while the XRD pattern and SEM image showed that magnetite particles were dispersed on the surface of the MgAl-NO<sub>3</sub>-HT. This dispersion of magnetite enhanced the specific surface area MgAl-NO<sub>3</sub>-HT.</p>
H3008	<p>Synthesis and Adsorption Study of C-4-ethoxy-3-methoxyphenylcalix[4]resorcinarene Triphenylphosphonium Chloride on Cr<sub>2</sub>O<sub>7</sub><sup>2-</sup></p> <p><b>Rika Wulandari, Jumina and Dwi Siswanta</b></p> <p><i>Abstract</i>—A new compound, C-4-ethoxy-3-methoxyphenylcalix[4]resorcinarene triphenylphosphonium chloride (CEMFKRF) had been synthesized. The compounds of CEMFKRF is an orange solid with a 74.68% yield and melting point 259.7°C. Application CEMFKRF for trapping metal anions Cr<sub>2</sub>O<sub>7</sub><sup>2-</sup> was examined by mixing the adsorbent in the sample solution in a variety of pH, contact time, and concentration. This compound was able to absorb Cr<sub>2</sub>O<sub>7</sub><sup>2-</sup> effectively. Adsorption pattern was following the adsorption kinetics model of pseudo second order Ho &amp; McKay and adsorption isotherm was following the model of Langmuir isotherm. Adsorption capacity was obtained as 5.64 x 10<sup>-5</sup> mol/L. The mechanism of adsorption on the adsorbent Cr<sub>2</sub>O<sub>7</sub><sup>2-</sup> was in the chemisorption mode (<math>\Delta G = 30.91</math> kJ/mol).</p>
H3011	<p>Synthesis of Silica Modified with Quaternary Ammonium and its Application for Solid Phase Extraction of Au(III) ion</p> <p><b>Ngatijo, Nuryono, Narsito and Bambang Rusdiarso</b></p> <p><i>Abstract</i>—Silica gel modified with quaternary ammonium (SMQA) has been prepared through sol-gel technique. Using rice hull ash (RHA) as silica source. The product was characterized using fourier transform infrared (FTIR), X-rays diffractometry (XRD), surface area with Brunauer-Emmett-Teller(BET), morphology surface and composition of elements by scanning electron microscopy (SEM) and energy dispersive x-ray (EDX). Adsorption for Au(III) were analyzed by atomic adsorption spectrophotometry (AAS). Result of characterization with FTIR showed that SMQA has been succesfully synthesized, indicated by presence of characteristic absorbance of functional groups from silanol (Si-OH), siloxane (Si-O-Si), amine (-NH<sub>2</sub>) and methylene groups. The XRD data showed amorphous structure of SMQA. From BET analyser result that specific surface area and totalmpore volume of SMQA were 164.682 m<sup>2</sup>/g and 8.039 mL/g respectively. The maximum of Au(III) adsorbed at pH 5 that obtained to 8.42 mg/g adsorbent can be respectively used for the decontamination of copper, silver and ammonium salt from Au(III) via solid phase extraction following atomic adsorption spectroscopy (AAS) measurement.</p>
H3013	<p>Estimation of Above Ground Biomass for Oil Palm Plantations Using Allometric Equations</p> <p><b>Nazlin Asari, Mohd Nazip Suratman, Jasmee Jaafar, Mazzueen Md. Khalid</b></p> <p><i>Abstract</i>—Malaysia is the second largest world producer of palm oil (<i>Elaeis guineensis</i>) with current planted area of plantations around 4.69 million ha. Oil palm contributes of about 75 percent of total planted area as compared to other agricultural tree crops. Since the oil palm plantations play an important roles in the economic and sources of income to Malaysia, accurate and reliable information is needed for</p>

	<p>its management efforts and planning. In Malaysia, there is lack of data and information regarding the aboveground biomass (AGB) for oil palm plantation. Therefore, the need for current inventory on resource availability has leads this research into ground field survey using existing allometric equations. The objectives of this study are (1) to estimate the AGB of oil palm plantations using different allometric equations and (2) to determine the relationships of AGB with oil palm stand variables. This study was conducted in 60 oil palm plantations in Selangor, Malaysia. The AGB of oil palm measured in the field using Corley and Tinker's equation (2003) estimates an average of 40.77 tonnes per hectare while using Khalid's equation (1999) estimates an average of 47.19 tonnes per hectare.</p>
H3014	<p><b>Cellulose Acetate Production from <i>Acacia Mangium</i> Pulp</b>  <b>Melissa Sharmah Gilbert and Ismawati Palle</b></p> <p><i>Abstract</i>—One of the main industries with reference to <i>Acacia mangium</i> wood utilization is the production of pulp. Apart from yielding papers, pulp has a high potential for cellulose-based product development due to its chemical composition. As for this project, <i>A. mangium</i> pulp is developed into cellulose acetate and evaluated based on the effect of time and pretreatment to the degree of substitution of the acetyl group in the polar hydroxyl alcohol groups of cellulose. The cellulose acetate was produced through a series of acetylation process that includes cellulose activation pretreatment, acetylation using acetic anhydride, and hydrolysis. The samples in which was divided into the treated and untreated pulps underwent different acetylation duration; which includes 24, 36, and 48 hours. Results showed that activated samples are more susceptible to chemical modification compared to the inactivated ones due to the homogeneous accessibility of the hydroxyl group provided through the swelling agent, acetic acid. Meanwhile, the optimum duration in obtaining cellulose diacetate was 36 and 48 hours for the activated and inactivated samples, respectively, as longer period of process enables better extension to the hydroxyl group. The income of this study shows the potential of <i>A. mangium</i> pulp development as well as denoting the factor affecting the cellulose derivation.</p>
H3015	<p><b>Hydrothermal Pyrolysis of Food Waste for Bio-oil Production over Ceria and H-ZSM-5</b>  <b>Notsawan Swadchaipong, Nutnan Kanestitaya, Itsara Rojana, Tanes Utistham, Unalome Wetwatana</b></p> <p><i>Abstract</i>—Pyrolysis is one of thermal cracking processes that are used to convert carbonaceous materials, i.e. food waste, to energy. Effects of catalysts and the optimum operating conditions were observed to obtain the optimal condition whilst minimize pressure. The non-catalytic pyrolysis gave the highest yield of 7.98% bio-oil and 4.45% charcoal at 356 °C, 183 bars and 120 minutes of retention time. Hydrogen, oxygen and carbon content in the bio-oil produced were 10.10, 13.68 and 75.43, respectively, with heating value of 37,829.64 kJ/kg. Ceria, when used as a catalyst, was found to help reducing the final pressure by 4.13%, to compare with the non-catalytic pyrolysis under supercritical condition, and increased the yield of bio-oil by 12.9%. ZSM-5-catalysed pyrolysis showed 1.25% higher in percent yield bio-oil. The obtained bio-oil was found to possess good characteristics and possibly be a substitute for fuel oil.</p>
H3016	<p><b>A Simple, Specific, and Rapid Lateral-Flow Immunochromatographic Test Method for Detection of <i>Legionella pneumophila</i> in Water Samples</b>  <b>Zongke Sun, Xuetao Bai, Xiping Chen, David McCrae, Elric Saaski</b></p> <p><i>Abstract</i>—To control and determine the cause of clustered cases of respiratory disease, a means of rapid assessment of contamination of environmental water samples with <i>Legionella pneumophila</i> (<i>Lp</i>) was developed. An <i>Lp</i> specific antibody was identified that functions in a lateral flow immunoassay.</p>

	Colloidal gold particles coated with the antibody recognizes <i>Lp</i> and coupled with biotin-labeled antibody capture the bacterial cells and migrate to a test line, which indicates the presence of the pathogen that is visible within 15 minutes. The sensitivity of the assay is $10^5$ CFU/ml demonstrated by detection of <i>Lp</i> in water samples. Cross reaction wasn't observed with three other bacterial species: <i>B. anthracis</i> , <i>E. coli</i> and <i>S. aureus</i> , even in the background of a turbid field-collected water sample. These lateral flow immunochromatographic assays for <i>Lp</i> are selective, relatively sensitive, extremely rapid, and easily performed outside of the laboratory.

### Afternoon, November 24, 2013 (Sunday)

SESSION – 6 (CAAS)

Venue: Tamarind II

Session Chair: *Yuli Retnani*

Time: 16:10 – 18:30

L10009	<p><b>Green Map: Agricultural Resources Management Tool for Community-Based Tourism</b> Savichaya Supa-udomlerk Trirat, <b>Jukkaphong Pong-ngamchuen</b>, Somjai Ponghan, Mingkoun Dangsuwann, Kanjana Ponghan</p> <p><i>Abstract</i>—The agricultural resources management through Green Map processing for CBT has been studied. Participatory Action Research (PAR) technique was used to gather the data from 50 sampling of Baan Pong community, Chiang Mai, Thailand. The data were analyzed by descriptive and inferential statistics. As a whole, community had participation in agricultural resources management in moderate level. Community's knowledge and understanding of Green Map was significantly increased after the participation. Learning process was emerged during the activities of agricultural resources planning such as green mapping, resources' symbol making, GPS coordinating and transferring to Google Map, and broadcast to several website. After self-assessment of 7 Greens concept by Tourism Authority of Thailand (TAT), community was observed in 4 aspects as follow: green heart, green activity, green community, and environmental responsibility. As to the knowledge of Green Tourism testing, found the highly significant increased after the activity. The community reflects lessons learned from working together which resulted in a partnership between community's leaders, members, and youth.</p>
L10015	<p><b>Comparative Study between Ovine Artificial Insemination and Free Mating in Ouled Djellal Breed</b> A. Allaoui, <b>M. Tlidge</b>, B. Safsaf, W. Laghrour</p> <p><i>Abstract</i>—In Algeria, the artificial insemination is of a current application in cattle and is in its beginnings in sheep.</p> <p>To assess the impact of this biotechnology on the control of reproduction in Ouled Djellal breed (OD), we conducted a practice study at the artificial insemination and genetic amelioration center (CNIAAG) in Biskra's department and Bouchebaa's model farm in Constantine's Department.</p> <p>Our study focused on 350 ewes OD aged from 2 to 6 years and divided into two groups:</p> <ul style="list-style-type: none"> <li>- A: 300 ewes maintained at the farm Bouchebaa, rely on free mating</li> <li>- B: 50 ewes maintained at the CNIAAG - Biskra.</li> </ul>

	<p>Zootechnical performance are lower in-group B (fertility rate = 101% vs 66%, fertility rates = 86.70% vs 64% and prolificacy rate = 116, 54% vs 103%, respectively for free mating vs AI); for the last two parameters, this difference was significant (<math>p &lt; 0.02</math>). Concerning the success factors of AI, the statistical analysis revealed no significant difference, at the age (9 months, 3, 4 or 6) or class (yearling or adult) ram used for the seed harvest.</p> <p>In conclusion, we can say that the success rate of AI will never be similar to natural reproduction. Therefore, those farmers continue to show a limited interest for this technique. It should be noted that to date, the success rate recorded at AI sheep centers in Algeria vary from 46 to 76%. However, in free mating it is almost impossible to determine the paternal ancestry of newborns.</p>
L10016	<p><b>Factors Affecting Scrotal Measurements and Weight of Ouled Djellal Rams in Eastern and South-Eastern Algeria</b>  <b>A. Allaoui, B. Safsaf, W. Laghrour, M. Tlidjane</b></p> <p><i>Abstract</i>—The aim of this study was to evaluate some performances in Ouled Djellal (OD) rams. (21) rams divided equally into three age groups, I: 2-3 years, II: 4 years, III: 5-6 years, and were followed at farm in East Algeria, and 07 lambs, at the Artificial Insemination Centre (South-Eastern). We have determined monthly: antero-posterior diameter of testis, scrotal volume and circumference, and body weight (BW). Young rams showed an increase in values of BW and scrotal measurements (SM) with significant differences with <math>p &lt; 0.01</math> and <math>p &lt; 0.001</math> respectively since comparison "spring vs summer" and "spring vs autumn", and highly significant positive correlation between BW and SM but no between left and right testicle. A highly significant correlation is noted in Adult rams between BW and SM for groups I and II, no in group III. An important effect of age on BW and SM is noted with significant variation (from <math>p &lt; 0.01</math> at <math>p &lt; 0.001</math>), since comparison groups I vs II, and I vs III but no in groups II vs III. This study showed a positive correlation between SM and BW and the peak of measurements is reached around 4 years of age and far to stabilize relatively thereafter.</p>
L10017	<p><b>Technical and Economic Analyses of Poultry Production in the UAE: Utilizing an Evaluation of Poultry Industry Feeds and a Cross-Section Survey</b>  <b>A. Hussein, S. Sherif, E. Fathelrahman, A. Al-Juboori, A. Al-Mansorri, and K. Alsharafi</b></p> <p><i>Abstract</i>—The project objective is to closely investigate select UAE poultry industry production issues as well as technical and marketing aspects. A comprehensive cross-sectional survey was conducted of UAE poultry farms using PDA (Portable Data Assistant) technology. Study objectives include: (1) obtaining baseline information on existing broiler and layer farm subsectors; (2) quantifying the amount of input used in the production process and the outputs obtained, and to identify some main and by-products that might have some economic value; (3) and assessment of feed-utilization produced by the feed industry. Economic characteristics of a typical poultry farm in UAE include: average broiler production at about 2,880 tons; average layer production at about 49 million eggs; and feed cost share of the average farm's operational cost estimated at 95%. This indicates the importance of expanding investment in UAE poultry sector. Efficiency of feed utilization of birds fed feeds from one company was slightly better (1.68 vs. 1.71) than birds fed feeds from the other company. Feed utilization efficiency of selected major feed producers in the UAE could meet the standards of high quality, commonly used meat-type strains. Such results are useful to the decision-maker at both the farm and policy levels.</p>
L10022	<p><b>Influence of Early Apoptosis Incidence on <i>In Vitro</i> Maturation of Bovine Oocytes</b>  <b>Nor Azlina Abd. Aziz, Atikah Osman, Habsah Bidin, Wan Khadijah Wan Embong, Noor Hashida Hashim</b></p>

	<p><i>Abstract</i>—Apoptosis in oocyte could be a good marker for oocyte quality and development competency. The study aims to investigate the relation between early apoptosis occurrence in different morphological groups of oocytes, i.e. Group A, B and C, and their developmental potential in terms of meiotic resumption to metaphase II. Annexin-V staining was used to detect early apoptosis in oocytes and Giemsa staining for meiotic resumption. Immature oocytes in Group B and C showed significantly high incidence of early apoptosis compared to Group A oocytes (A: 10.20%, B: 19.00% and C: 20.60%). After maturation, no differences were observed in the incidence of early apoptosis among oocytes from different groups (A: 28.40%, B: 18.20% and C: 23.00%). However, the mean percentage of early apoptosis increased among Group A oocytes after maturation. The progression to metaphase II were similar among the different groups of oocytes (A: 34.09%, B: 31.54% and C: 33.45%). In conclusion, early apoptosis occurrence in bovine oocytes is related to developmental competence.</p>
L20003	<p><b>Young Corn Ear Enhances Nutritional Composition and Unchanged Physical Properties of Chiffon Cake</b>  <b>Wan Rosli, W. I, Che Anis Jauharah, C. M. Z., Robert, S. D., Aziz, A. I.</b></p> <p><i>Abstract</i>—The effects of partial replacement of wheat flour with young corn ear (YCE) on nutritional composition and physical characteristics of chiffon cake were investigated. Dried YCE was processed into powdered form and added in chiffon cake formulations to partially replace wheat flour at concentrations of 0, 10, 20 and 30%. The nutritional composition, especially moisture and ash contents of chiffon cake added with YCE were increased in line with the levels of YCE used. Even though protein content of cake added with YCE increase in line (13.3 to 15.7%) with the levels of YCE (10 to 30%), but there was no significant different compared to control. Replacing partially wheat flour with YCE up to 30% resulted in insignificant changes in both dough yield and baking loss rate. However, specific gravity was unchanged (0.59-0.60 g/ml) when the wheat flour replaced with YCE up to 20% in cake formulations. Meanwhile, all textural attributes (hardness, springiness, cohesiveness, chewiness and resilience) were not affected when cakes prepared with 10% YCE. In summary, partial replacement of wheat flour with YCE improves some nutritional composition but unchanged physical properties at 10% replacement. Thus, this under-utilized agricultural by-product can be suggested as an alternative ingredient in enhancement of dietary fibres in food products.</p>
L20008	<p><b>Oil Palm Plantations Management Effects on Productivity Fresh Fruit Bunch (FFB)</b>  <b>Salmiyati, Arien heryansyah, Ida Idayu, Eko Supriyanto</b></p> <p><i>Abstract</i>—The management of oil palm plantations should consider many criteria and implemented by the garden manager. If the estate is managed in accordance with the rules and requirements of plants it will affect the productivity improvement of oil palm fresh fruit bunches (FFB). Criteria that must be considered is the land selection, planting materials, technical management, harvesting and environmental. If all categories in oil palm plantations can be managed and integrated with each other will be obtained by the production of fresh fruit bunches and plenty fit the desired production. This paper also explains that the use of information and communication technologies have a positive effect on the process of managing a more improved and efficient start of the selection of land to harvesting.</p>
L20009	<p><b>A Study on Soil Compaction Management in Tobacco Cultivation in Mysore Region of India</b>  <b>P. Srinivas, Srinath Ramakkrushnan, Aswathaman Vijayan</b></p> <p><i>Abstract</i>—Soil is a dynamic medium in which the physical, chemical and biological processes are</p>

	<p>changing all the time under the influences of man and nature. The rate at which soil changes under the influence of man's activities are so fast and often negative that this degradation needs urgent attention. Healthy soil includes not only the physical particles making up the soil, but also adequate pore space between the particles for the movement and storage of air and water. This is necessary for plant growth and for a favourable environment for soil organisms to live. Compaction occurs when soil particles are pressed together, thereby reducing the amount of pore space. Most farmers are aware of compaction problems, but the significance is often underestimated. Compaction effects on crop yield can be a significant factor in today's farm economy with a specific reference to tobacco. Thus in order to understand the causes, effects and impacts of soil compaction, ITC limited - Agri Business Division –ILTD undertook a comprehensive study in Mysore region (India) to diagnose the extent of soil compaction in farms and evaluate the impact of subsoiling in breaking the compaction layers.</p>
L30004	<p><b>Nutritional Supplements, Leptin, Insulin and Progesterone in Female Australian Cashmere Goats</b>  <b>M. Shikh Maidin, M.A. Blackberry, J.T.B. Milton, P.A.R. Hawken, G.B. Martin</b></p> <p><i>Abstract</i>—In small ruminants, reproductive wastage due to early embryo mortality is a major industry issue because it reduces reproductive efficiency and limits productivity. In sheep, early embryo mortality appears to be caused by reductions in progesterone concentrations when animals are over-fed, but this concept has not been studied in goats. Therefore we tested whether a supplement of lupin grain affects circulating progesterone concentrations in Cashmere goats during non-breeding season. We allocated 23 females into two groups: Controls were fed to ensure maintenance of body mass (85% chaff, 15% lupins head daily); Supplemented goats were fed twice their daily requirements for maintenance. All animals were anovulatory and treated with CIDRs to supply exogenous progesterone at a relatively constant rate. Nutritional treatments lasted for 18 days, and coincided with the presence of CIDRs. Leptin and insulin concentrations were increased (<math>p &lt; 0.05</math>) by supplementation, but progesterone concentrations did not significant differ between groups at any time during the experiment. We conclude that a dietary supplement that elicits major changes in energy homeostasis does not reduce progesterone concentrations in goats and is thus unlikely to affect embryo mortality.</p>
L30006	<p><b>The Harvest and Post-Harvest of Traditional Pear Varieties in Hungary</b>  <b>Marta Nótári, Árpád Ferencz</b></p> <p><i>Abstract</i>—We have viewed a business in Hungary from an economic point of view. The main activity there is pear growing and storage. Four varieties of different time of ripening and storing are grown there. We have measured all the relevant activities, worked out local normative and prepared a detailed technology. The economic evaluation was based on this data. Activities, like disinfection, pre-storage disinfection and selection, in-storing and out-storing, classification after storage, packaging, as well as loading trucks, were monitored by variety. Storage loss was determined and widely varied according to varieties, length of storage and time of out-storing. Different varieties resulted in different quality classes after storage. Price depended on the quality classes. Economic evaluation was carried out when all the relevant costs and revenues were known. Fixed and variable costs of storage were determined, break-even point was calculated and the market position of the product was evaluated.</p>
L30013	<p><b>Evaluation of Different Commercial Feeds for the Culture of Juvenile Sobaity (Sparidentex hasta, Valenciennes) in Kuwait</b>  <b>M. A. Hossain, K. Al-Abdul-Elah and S. El-Dakour</b></p>

	<p><i>Abstract</i>—A 6-month long growth trial was conducted to evaluate three commercial feeds namely, Skretting (Turkey), Biomar (Greece) and Arasco (Saudi Arabia) in juvenile sobaity (<i>Sparidentex hasta</i>). For confidentiality, these feeds were randomly given code names diets 1, 2 and 3 and trash fish was used as diet 4 (control). Protein in commercial diets ranged between 47.17 and 48.80% while trash fish had 57.40% protein (% dry basis). Sobaity juveniles (51.39±0.63 g) were stocked at the rate of 50fish/tank, each treatment with three replicates. Fish were fed twice daily at satiation level. The results showed that diet 2 (48.80% protein) resulted in significantly (P&lt;0.05) better weight gain, specific growth rate (SGR), feed conversion ratio, protein efficiency ratio, apparent net protein utilization and energy retention compared to other diets. There were no significant (P&gt;0.05) differences between the weight gain and SGR values of fish fed diet 1 (48.50% protein) and trash fish (57.40% protein) while diet 3 resulted in the lowest weight gain and SGR. The muscle fatty acid composition reflected the dietary fatty acids particularly eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) and n-3/n-6 ratios which were significantly higher in fish fed diet 2. The results showed that diet 2 (48.80% protein) may be recommended for culture of the sobaity in Kuwait.</p>
L30015	<p>Effect of Chitosan on the Quality of Rose Apples (<i>Syzygium agueum Alston</i>) cv. Tabtim Chan Stored at an Ambient Temperature  <b>Maratree Plainsirichai, Saranya Leelaphatthanapanich, Nattapong Wongsachai</b></p> <p><i>Abstract</i>—Rose apples (<i>Syzygium agueum Alston</i>) cv. Tabtim Chan are economically important fruit for Thailand. However, because the peel of the rose apple is thin, the fruit deteriorates quickly and water retention is low. This study investigated the effect of chitosan treatment on the quality of rose apples cv. Tabtim Chan stored at an ambient temperature of 30 °C. The results demonstrated that at day 5 of storage, the fruit coated with 2 % chitosan had a weight loss of 12.82 % and a disease incidence of 14 % which were significantly less than those of the control (22.12 %, 24 % respectively). Fruit firmness of the rose apples treated with 2 % chitosan was significantly higher than that of the control (5.92 kg/cm<sup>2</sup> and 4.12 kg/cm<sup>2</sup> respectively). In conclusion, treating the rose apples with 2 % chitosan reduces weight loss, disease incidence and maintains the fruit firmness of rose apples cv. Tabtim Chan compared with those which were untreated.</p>
L30016	<p>Market Access and Herders' Strategies to Pass through Lean Winter Periods in Post-Soviet Kyrgyzstan  <b>Inam ur-Rahim, Daniel Maselli, Henri Rueff, Bassirou Bonfoh</b></p> <p><i>Abstract</i>—This study examines the strategies followed by herders to pass their stock through the lean winter period in post-Soviet Kyrgyzstan determined by markets sizes and accessibility. During de-collectivization after independence, animals from collective farms were distributed to families. Support services and facilities such as animal transportation, irrigation infrastructure and fodder imports collapsed. Herders had to adjust to this new situation. The study reviews the current strategies adopted by herders in three villages that differ in access to markets and land use. Results show that big urban markets are impacting the rural areas in its vicinity to diversify cropping and feeding strategies to produce fresh milk, vegetables and fruits to meet the urban demands. To ensure regular supply of milk to urban areas the milking cows are not sent to remote pasture areas in summer and kept at higher plane of nutrition during lean winter periods.</p>
L30017	<p><i>In vitro</i> Supplements Improves Motility and Progressive Score of Spermatozoa in Jermasia Goats  <b>M. Shikh Maidin, N.F.Adanan, M.T. Aminudin, A. Tawang</b></p>

*Abstract*—Several supplement intakes exert a marked effect on sperm quality, and this is useful in Artificial Insemination practice which is widely used in goat farming. The aim of this study was to determine the effect of in vitro supplementations in different concentrations (selenium, L-Arginine and Vitamin E) on sperm qualities; motility and progressive score of Jermasia goats. Results shown from observation at time interval; 2, 2.5, 3, 4 and 6 hours that the percentage of motility and progressive score of spermatozoa treated with 0.01 mM L-Arginine and 1 mg/ml vitamin E were significantly higher between 2 and 3 hours 0.01 mM L-Arginine and 1 mg/ml vitamin E compared to Control and other supplementation groups ( $p < 0.05$ ). Meanwhile, after 2 hours, the motility and progressive score of 0.6 ppm selenium were declined drastically compared to other groups ( $p < 0.05$ ). The combination of L-Arginine and vitamin E supplements leads to increase productions of Nitric Oxide, hence stimulates the metabolism of glucose and triggering the ATP production in the sperm. In conclusion, both L-Arginine and vitamin E supplements are significantly stimulated and the motility of fresh semen of goats in a concentration-dependent manner is improved.

**November 24, 2013 18:30~18:45**

**Closing Ceremony(Tamarind Bay room)**

**November 24, 2013 19:00**

**Dinner(Caf éAndaman)**

## Conference Venue

# CAPE PANWA HOTEL, PHUKET

[www.capepanwa.com](http://www.capepanwa.com)

27, 27/2 Moo 8 Sakdidej Road, Muang Phuket, 83000

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A part of the Cape Hotel Collection, Thailand's premier luxury chain of Hotels and Serviced Apartments, the Cape Panwa Hotel is a little part of Paradise.

Cape Panwa Beach is perfect for year round swimming. Phuket's south western winds blow from May until October making the seas on the west coast quite rough. However, the seas on the east coast, especially at Cape Panwa, are sheltered and calm.

## APCBEES FORCOMING CONFERENCES

Date & Location	Conference	Journals Publishing	Submission Deadline
May 14-16, 2014 Gdansk, Poland	2014 6th International Conference on Bioinformatics and Biomedical Technology (ICBBT 2014)	IPCBEE, ISSN: 2010-4618	Dec 20, 13
	2014 5th International Conference on Environmental Science and Technology (ICEST 2014)	IPCBEE, ISSN: 2010-4618	
	2014 3rd International Conference on Petroleum Industry and Energy (ICPIE 2014)	JIII, ISSN: 2301-3745	
May 27-28, 2014 Sydney, Australia	2014 International Conference on Environmental Engineering and Development (ICEED 2014)	JOCET ISSN: 1793-821X	Jan. 1, 14
	2014 International Conference on Biomedical and Pharmaceutical Engineering (ICBPE 2014)	JOMB, ISSN: 2301-3796	
	2014 International Conference on Advances in Bioscience and Bioengineering (ICABB 2014)	IJBBB,ISSN: 2010-3638	
Jun. 09-11, 2014 Bangkok,	2014 3rd International Conference on Environment, Energy and Biotechnology	IPCBEE, ISSN: 2010-4618	Jan. 15, 14

## 2013 APCBEES PHUKET CONFERENCES

Thailand	(ICEEB 2014)		
	2014 4th International Conference on Asia Agriculture and Animal (ICAAA 2014)	Journal under Elsevier, ISSN: 2212-6708	
	2014 3rd International Conference on Chemical and Process Engineering (ICCPE 2014)	IJCEA, ISSN: 2010-0221	
Jun. 18-20, 2014 Copenhagen, Demark	2014 3rd International Conference on Nutrition and Food Sciences(ICNFS 2014)	IPCBEE, ISSN: 2010-4618	Feb. 25, 14
	2014 3rd International Conference on Bioinformatics and Biomedical Science (ICBBS 2014)	IJBBB, ISSN: 2010-3638	
	2014 International Conference on Environmental and Engineering Geoscience (ICEEG 2014)	IJESD, ISSN: 2010-0264	
Jul. 29-30, 2014 Hong Kong	2014 International Conference on Food and Nutrition Technology (ICFNT 2014)	IPCBEE, ISSN: 2010-4618	Apr 05, 14
	2014 International Conference on Advances in Biology and Chemistry (ICABC 2014)	IJCEA, ISSN: 2010-0221	
	2014 International Conference on Environment and Natural Resources (ICENR 2014)	IJESD, ISSN: 2010-0264	

2013 APCBEES PHUKET CONFERENCES

<b>Note</b>	

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