

2016 APCBEES INCHEON CONFERENCE ABSTRACT

October 12-14, 2016

Incheon National University

Incheon, Republic of Korea



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2016 APCBEES Incheon Conference

Introductions

Welcome to CBEES 2016 conferences in Incheon, Republic of Korea. The objective of the Incheon conferences is to provide a platform for researchers, engineers, academicians as well as industrial professionals from all over the world to present their research results and development activities in Environment and Bioscience, Agriculture and Animal Science and Plant Factory.

2016 6th International Conference on Environment and Bioscience (ICEBS 2016)

- ❄ **Paper publishing and index:** **ICEBS 2016** papers will be published in one of the following journals:



International Journal of Pharma Medicine and Biological Sciences (IJPMBBS, ISSN: 2278-5221) and all papers will be included in the Engineering & Technology Digital Library, and indexed by WorldCat, Google Scholar, Cross ref, ProQuest, CABI.

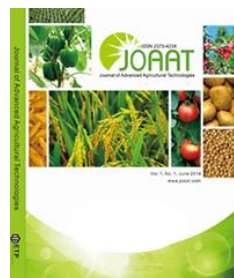


Journal of Environmental Science and Development (IJESD, ISSN: 2010-0264), and all the papers published in IJESD will be Indexed by Chemical Abstracts Services (CAS), CABI, DOAJ, Ulrich Periodicals Directory, Engineering & Technology Digital Library, Electronic Journals Library, Crossref, ProQuest.

- ❄ **Conference website and email:** <http://www.icebs.org/>; icebs@cbees.org.

2016 7th International Conference on Agriculture and Animal Science (ICAAS 2016)

- ❄ **Paper publishing and index:** **ICCAS 2016** papers will be published in the following journal:

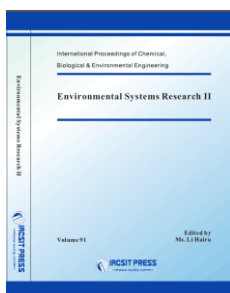


Journal of Advanced Agricultural Technologies (JOAAT, ISSN: 2301-3737), and will be indexed by Ulrich's Periodicals Directory, Google Scholar, Crossref, and etc.

- ❄ **Conference website and email:** <http://www.iccas.net/>; ccas@cbees.org.

2016 International Conference on Plant Factory (ICPF 2016)

❄ **Paper publishing and index:** **ICPF 2016** papers will be published in the following journal:



International Proceeding of Chemical, Biological and Environmental Engineering (IPCBEES, ISSN:2010-4618), and all the papers published in IPCBEE will be included in the Engineering Technology Digital Library, and indexed by CABI, Ulrich's Periodicals Directory, EBSCO, CNKI, WorldCat, Google Scholar, Crossref.

❄ **Conference website and email:** <http://www.ic-pf.org/>; icpf@cbees.net.

Presentation Instructions

Instructions for Oral Presentations

Devices Provided by the Conference Organizer:

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

Digital Projectors and Screen

Laser Sticks

Materials Provided by the Presenters:

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

Duration of each Presentation (Tentatively):

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

Keynote Speech: about **15** Minutes of Presentation and **5** Minutes of Question and Answer

Instructions for Poster Presentation

Materials Provided by the Conference Organizer:

The place to put poster

Materials Provided by the Presenters:

Home-made Posters

Maximum poster size is A1

Load Capacity: Holds up to 0.5 kg

Best Presentation Award

One best oral presentation will be selected from each oral presentation session, and the Certificate for Best Oral Presentation will be awarded at the end of each session on October 13, 2016.

Dress code

Please wear formal clothes or national representative of clothing.

Keynote Speaker Introductions

Keynote Speaker I



Prof. Chan Jin Park
Incheon National University, Republic of Korea

Prof. Park Chan Jin graduated from Korea University, and got Master and PhD degrees in same university. His major fields of research are the air pollution control, greenhouse gas technology and odor management technology. His another interests is green growth policy. He is now full-professor in Incheon National University at Urban and Environmental Engineering School. And he is vice chairman of Korean Society of Odor Research and Engineering in Korea.

Topic: “The Characteristics of Air Pollution and Management in Urban Area”

Abstract: As the economic growth increases, the generation of air pollution sources becomes larger with the growth of industrial facilities and increase of the transportation vehicles and the management of air quality becomes more indispensable for better and healthy living in urban area. The odor is especially defined as sensuous pollution like noise in the field of air pollution because of peculiar properties for the various effects of human life. The characteristics of odor pollution, the method of odor analysis and the generating sources of odor pollutants in urban area were illustrated. As the accurate analysis and management of odor is complicated, the more sophisticated method for odor monitoring was suggested to make more accurate state of odor. And effective management methods for odor pollution including policies and technologies for air quality management in urban area were suggested.

Keynote Speaker II



Prof. Yang-Seop Bae
Incheon National University, Republic of Korea

Prof. Yang-Seop Bae, President of the Korea Society of Nature Conservation, has been doing his biodiversity research in the field and environmental sciences. He is interested in the insect diversity of Oriental Region, i.e., Vietnam, Cambodia, Laos, Myanmar, Thailand. He graduated and received an MA and PhD in Entomology from the Department of Applied Entomology, Osaka Prefecture University in 1989, 1993. From 1995, he is working at Incheon National University. The original papers are total of 138 and also 34 books are published.

Topic: “Insect Biodiversity of Oriental Region
with Emphasizes of Cambodia and Laos Moths”

Abstract: Over one million species of insects have been described in the world, but current estimates of total insect diversity vary from 5-80 million species of insect. Of them, five orders of insects stand out in their levels of species richness: Hymenoptera, Diptera, Coleoptera, Lepidoptera, and the Hemiptera. Insects biodiversity is instrumentally important not only for the production of food, but for other ecological services as well: pollination by bees accounts for over US\$9 billion of economic revenue in USA; over 1000 species used as food; human culture as insect symbolism (Cranston & Gullan, 2005). The insect fauna is poorly known in many countries of SE Asia then E Asia.

The specimens examined were collected by using light traps in many sites, i.e., Seima Biodiversity Conservation Area, Mondulkiri Protected Forest, Central Cardamom Protected Forest, Bokor National Park, Kep National Park, and Kirirom National Park in Cambodia, and PhouKhaoKhouay National Protected Area and PhouSaboht-Poungchong Protected Area in Laos.

In the present study, we have been briefly reviewed of the insect fauna of Oriental Region based on the expedition of Cambodia and Laos. From 2009 to 2016 with 17 times in Cambodia and Laos survey on insect fauna have been done by Cambodian, Laotian and Korean specialists with students. As the results, a total of 524 species (130 species in 2009, 76 species in 2010, 100 species in 2011, 80 species in 2012, 53 species in 2013, and 85 species in 2014) from Cambodia and a total of 240 species (138 species in 2015, 82 species in 2016) from Laos were recorded for the first time respectively. In 2016, of them a special insect group, the Tiger Moths (Lepidoptera, Noctuoidea, Erebidae, Arctiinae) are published as book with 214 species of 79 genera in Cambodia.

Key words: Oriental Region, insect, biodiversity, fauna, moths, Lepidoptera, Cambodia, Laos.

Keynote Speaker III



Assoc. Prof. Keimei Oh

Bioorganic Chemistry, Department of Biotechnology, Akita Prefectural University, Japan

Assoc. Prof. Keimei Oh received his Ph.D. degree from the Graduate School of Agricultural Sciences, The University of Tokyo in 1997. After working at RIKEN as a Special Postdoctoral Fellow, he joined the Department of Biotechnology faculty at Akita Prefectural University in 1999. In 2003, he worked as a visiting scientist at US Department of Energy, Plant Research Laboratory in Michigan State University. He was appointed as Associate Professor at Akita Prefectural University in 2007. Currently, he is working in the field of design and synthesis biological active chemicals targeting plant hormone biosynthesis and signaling transduction pathways. He received numerous awards including the Society Award of the Japanese Society for Chemical Regulation of Plants.

Topic: “Development and Application Use of Brassinosteroid Biosynthesis Inhibitors”

Abstract: Plant growth and development are regulated by a complex mechanism of signal transduction pathways. Plant hormones are important signals that play key roles in signaling. Brassinosteroids (BRs) are plant hormones involved in plant development and defense responses to environmental stress. To explore the biological functions of BR biosynthesis, we conducted a systematic search for specific inhibitors of BR biosynthesis. Based on the molecular scaffold of P450 inhibitors, we discovered a series of novel BR biosynthesis inhibitors YCZs. Structure-activity relationship studies created YCZ-2013, which is the most potent BR biosynthesis inhibitor found to date. Application use of YCZs to control the longitude growth of rice indicated that BR biosynthesis inhibitors are potential plant growth retardant with new mode of actions. Development and application use of fluorescent labeled YCZs provided insight information of BR biosynthesis in plant tissues

Brief Schedule for Conferences

Day 1	October 12, 2016 (Wednesday) 10:00~14:00 Venue: Building 11, 208 Arrival Registration 14:00~16:30 University Tour	
Day 2	October 13, 2016 (Thursday) 9:00~18:45 Venue: Meeting Room 11-208(Welfare Assembly Hall) Arrival Registration, Keynote Speeches, and Conference Presentations	
	Morning Conferences	
	Venue: Meeting Room 208 Opening Remarks 9:30~9:35 President Address 9:35~9:45 Keynote Speech I 9:45~10:05 Keynote Speech II 10:05~10:25 Coffee Break & Photo Taking 10:25~10:45 Keynote Speech III 10:45~11:05 Session 1: 11:05~12:20 5 presentations-Topic: "Agriculture and Animal Science"	
	Lunch 12:20~13:30 Venue: Building 11, 1st Floor	
	Afternoon Conferences	
	13:30~16:15	
	Session 2: 13:30~16:15 Venue: Meeting Room 11-208 11 presentations-Topic: "Environmental Science and Engineering"	Session 3: 13:45~16:15 Venue: Meeting Room 11-223 10 presentations-Topic: "Bioscience"
	Coffee Break 16:15~16:30	
	Session 4: 16:30~18:45 Venue: Meeting Room 11-208 9 presentations-Topic: "Agriculture"	Session 5: 16:30~18:30 Venue: Meeting Room 11-223 8 presentations-Topic: "Food Science and Engineering"
	Poster Session: 9:00~18:45 Venue: Meeting Room 11-208	
	Dinner: 19:00 Venue: Chico	
Day 3	October 14, 2016 (Friday) 10:00-18:00 One-Day Academic Tour	

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

Detailed Schedule for Conferences

October 12, 2016 (Wednesday)

Venue: Building 11, 208

10:00-14:00	Arrival and Registration
14:00-16:30	University Tour

Note:(1) The registration can also be done at any time during the conference.

(2) The organizer doesn't provide accommodation, and we suggest you make an early reservation.

(3) One best oral presentation will be selected from each oral presentation session, and the Certificate for Best Oral Presentation will be awarded at the end of each session on October 13, 2016.

Morning, October 13, 2016 (Thursday)

Venue: Building 11, 208

9:30~9:35		Opening Remarks Prof. Chan Jin Park Incheon National University, Republic of Korea
9:35~9:45		President Address President. Dong Sung Jo Incheon National University, Republic of Korea
9:45~10:05		Keynote Speech I Prof. Chan Jin Park Incheon National University, Republic of Korea Topic: "The Characteristics of Air Pollution and Management in Urban Area"
10:05~10:25		Keynote Speech II Prof. Yang Seop Bae Incheon National University, Republic of Korea Topic: "Insect Biodiversity of Oriental Region with Emphasizes of Cambodia and Laos Moths"
10:25~10:45		Coffee Break & Photo Taking
10:45~11:05		Keynote Speaker III Assoc. Prof. Keimei Oh Akita Prefectural University, Japan Topic: "Development and Application Use of Brassinosteroid Biosynthesis Inhibitors"

Let's move to the Sessions!

Session 1

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

Moring, October13, 2016 (Thursday)

Time: 11:05~12:20

Venue: Building 11, 208

Session 1: 5 presentations-Topic: “Agriculture and Animal Science”

Session Chair: To be added

S0019 Presentation 1 (11:05~11:20)

Effects of Bio-Based Nutrient on Community Structure of Organic Paddy Fields

Dina Trisnawati and Hironori Yasuda

Universitas Muhammadiyah Yogyakarta, Indonesia

Abstract—Bio-based nutrients from aquatic organisms have been used for organic farming to build the soil, making it the most promising method for eliminating the negative effects due to agrochemicals. To understand the effects of bio-based nutrient on community structure of arthropods, field researches were carried out in 5 and 20 years old organic fields. Results showed that the community structure of aquatic organisms was affected by the histories, but aboveground arthropods were less. A factorial experiment was conducted to know how the interaction of snails and loaches, two important aquatic organisms, influences on the abundance of aboveground arthropods. Results showed that loaches negatively influenced snail survivors. In addition, the snails improved the abundance of aquatic organisms and aboveground arthropods, while the loaches affected conversely. This study suggested that organic paddy fields improved the biotic interactions within and between aquatic and aboveground ecosystem thereby might achieve sustainability of the paddy field system.

Moring, October 13, 2016 (Thursday)

Time: 11:05~12:20

Venue: Building 11, 208

Session 1: 5 presentations-Topic: “Agriculture and Animal Science”

Session Chair: To be added

S1005 Presentation 2 (11:20~11:35)

Livestock Products Food Expenditure Pattern in Indonesia: Estimation Analysis from Repeated Cross-section Data

Mujtahidah Anggriani Ummul Muzayyanah, SudiNurtini, RiniWidiati, Suci P Syahlani, and Tri A Kusumastuti

Gadjah Mada University, Indonesia

Abstract—The aim of this study is to analyze the livestock products consumption patterns based on a household data and explore the dynamic effects as well as the impact of demographic variables on the demand model specification. This paper used a dynamic LA/AIDS demand model to estimate various food demand parameters for households using household expenditure survey data (SUSENAS) 2012 and 2013. The results show that all important livestock products food has positive expenditure elasticities. Meat, egg and milk are necessities. The estimated point elasticities are consistent with previous studies and a priori expectations. Egg is found to be price inelastic in long run. While meat and milk are price elastic in the long run. The expenditure elasticities for meat and milk are declining, but these for egg is increasing. As per capita income rises and population increases, the demand for these items will continue to increase. Habit effects imply consumption of livestock products having an income effect on current consumption decision Therefore, Indonesia must continue to increase its food production by a greater rate in the future in order to avoid food shortages.

Moring, October 13, 2016 (Thursday)

Time: 11:05~12:20

Venue: Building 11, 208

Session 1: 5 presentations-Topic: “Agriculture and Animal Science”

Session Chair: To be added

S0020 Presentation 3 (11:35~11:50)

Association of STAT5A Gene Polymorphisms with Milk Yield in Primiparous Agerolese Cow

Maria Selvaggi and Cataldo Dario

University of Bari Aldo Moro, Italy

Abstract—Signal transducers and activators of transcription (STAT) are latent cytoplasmic transcription factors belonging to a seven member family of intracellular factors that mediate actions of many peptide hormones and cytokines within target cells acting as signal transducers in the cytoplasm and transcription activators in the nucleus. STAT5, also known as mammary gland factor (MGF), was discovered initially as a PRL-induced transcription factor; it is the main mediator of growth hormone (GH) action on target genes and is a key intracellular mediator of prolactin signalling pathway being able to activate the transcription of milk protein genes in response to prolactin. Two genetic polymorphisms at STAT5A gene were investigated in a sample of Agerolese cows, an autochthonous Italian cattle breed reared in the province of Naples. So, the aims of the present study were to estimate the allele and genotype frequencies for both SNPs and to investigate the relationship among genotypes and milk yield during first lactation. No genetic variability was found at STAT5A/AvaI locus. At STAT5A/MslI locus the frequencies of T and C alleles were 0.875 and 0.125, respectively.

Moring, October 13, 2016 (Thursday)

Time: 11:05~12:20

Venue: Building 11, 208

Session 1: 5 presentations-Topic: “Agriculture and Animal Science”

Session Chair: To be added

S3001 Presentation 4 (11:50~12:05)

Performance of Broiler Farmer in Partnerships System at Surakarta, Indonesia

Sudi Nurtini, Mujtahidah AU Muzayyanah, F Trisakti Haryadi, and Abdul Hakim

Universitas Gadjah Mada, Indonesia

Abstract—The research was conducted to evaluate the performance of broiler chicken farmer with partnership system. The research was conducted using survey method to broiler chicken farmer who joining partnership system. Descriptive explanative method was using to analyze data. This research used descriptive explanatory method using a quantitative approach. The result showed that income of the broiler farmer received from the core-breeder Rp 13,836,594.08 /head/ period, while net-income of the famers is amounted to Rp 7,864,326.24 / head/period. It is concluded that the net income received by farmers was only half.

Moring, October 13, 2016 (Thursday)

Time: 11:05~12:20

Venue: Building 11, 208

Session 1: 5 presentations-Topic: “Agriculture and Animal Science”

Session Chair: To be added

S3005 Presentation 5 (12:05~12:20)

Effects of β -Carotene and Light Intensity on the Photo-oxidation of Red Palm Oil

Dewi F. Ayu, Netti Herawati, and Akhyar Ali

University of Riau, Indonesia

Abstract—Red palm oil (RPO) is a refined palm oil which has high content of carotenoids and vitamin E. The objective of this research was to study the effects of β -carotene and light intensity on the assessment of photo-oxidation on RPO. Concentration of β -carotene in the RPO was diluted to 100, 200, and 350 ppm by adding olein pure into RPO. Photo-oxidation on RPO was investigated under elevated intensity of fluorescent light of 5,000 and 10,000 lux for 7 d at $31\pm 2^\circ\text{C}$. Changes in concentrations of β -carotene, tocopherols, and chlorophyll, and peroxide value (PV) were evaluated daily. The results showed that concentration of β -carotene at 350 ppm effectively improved the photo-oxidative stability of RPO. Degradation of β -carotene, tocopherols, and chlorophyll, and an increase in PV were proportional to light intensity during photo-oxidation. The degradation rates of tocopherols and chlorophyll were higher at higher light intensity which can be described using first order kinetics model, while the degradation rate of β -carotene and the increase rate of PV can be described using zero order kinetics model. These results suggested that β -carotene in RPO might be acted as a singlet oxygen quencher during photo-oxidation.

Lunch	
12:20~13:30	Building 11, 1st Floor

Session 2

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

Afternoon, October 13, 2016 (Thursday)

Time: 13:30~16:15

Venue: Building 11, 208

Session 2: 11 presentations-Topic: “Environmental Science and Engineering”

Session Chair: Prof. Chan Jin Park

K0005 Presentation 1 (13:30~13:45)

Application of p-Dimethylaminobenzaldehyde Benzoylthiourea as a Colorimetric Chemosensor for Detection Of Cu^{2+} in Aqueous Solution

Sharizal Hasan, **NurulAsma Hamedan**, and Hamizah Mohd Zaki

Universiti Teknologi Mara, Malaysia.

Abstract—Design of a new specific colorimetric chemosensor for detection of Cu^{2+} is a challenge in the context of interference from coexisting metal ions in aqueous solution. Therefore, ortho (L1), meta (L2) and para (L3) bearing benzoyl thiourea moiety as binding site and p-dimethylaminobenzaldehyde moiety as signal group were designed and synthesized to apply as colorimetric chemosensors for detection of Cu^{2+} . The structure was confirmed by characterized the compound using Elemental analysis, Fourier Infrared (FTIR) and proton Nuclear Magnetic Resonance (^1H NMR) spectroscopy. Functional group of C=O, N-H, C=N and C=S was found at 1663 cm^{-1} , 3336 cm^{-1} , 1596 cm^{-1} , 1064 cm^{-1} respectively while ^1H NMR show peaks of alkane (CH_2), benzene (Ar-H), CONH, CSNH at 3.7 – 3.99, 7.05 – 7.79, 8.07, and 9.59 respectively. Elemental analysis for L1-L3 $\text{C}_{21}\text{H}_{26}\text{N}_5\text{OSBr}$ found was compatible with the expected theoretical calculation. For application, all of these three sensors showed excellent colorimetric specific selectivity and high sensitivity for Cu^{2+} in acetonitrile/water binary solutions so only L1 was selected for further studies towards sensitivity. When Cu^{2+} was added to the solution of L1, a dramatic color change from orange to brown, while other cations Fe^{2+} , Zn^{2+} , Ni^{2+} , Co^{2+} , Cr^{3+} and Mn^{2+} did not interfere with the recognition process for Cu^{2+} . The detection limits of L1 were 1.5×10^{-4} M and 1.7×10^{-5} M of Cu^{2+} using the visual color changes and Ultraviolet-visible spectroscopy changes respectively. Test strips based on L1 were fabricated, which could act as a convenient

and efficient Cu^{2+} test kit.

Afternoon, October 13, 2016 (Thursday)

Time: 13:30~16:15

Venue: Building 11, 208

Session 2: 11 presentations-Topic: “Environmental Science and Engineering”

Session Chair: Prof. Chan Jin Park

K0006 Presentation 2 (13:45~14:00)

Fluorescent Chemosensor Bearing Amine and Benzenyl Functionality for Fe^{3+} ions Detection in Aqueous Solution

Sharizal Hasan, Salamiah Zakaria, and Siti Nur Ain Mohd Adnan

Faculty of Applied Sciences, Universiti Teknologi MARA

Abstract—Recently the designing of fluorescent chemosensor for heavy metal ions detection with high specificity and sensitivity have been explored. Majority of fluorescent chemosensor involves the interaction of the cation with the binding site that caused changes in the electronic properties of signaling unit resulting in sensing targeted ion. In this works, two steps synthesis of A was prepared using schiff base technique. Monocondensed ligand ‘half unit’ was prepared by reacting diethylenetriamine with 4-dimethylaminobenzaldehyde, followed by attaching 3-pyridinecarbaldehyde on the other side of diethylenetriamine. Schiff bases is formed by the condensation of aldehyde and amine in which the carbonyl group $\text{C}=\text{O}$ and amine $-\text{NH}_2$ is replaced by azomethine group $\text{C}=\text{N}$. The newly synthesized A was fully characterized by FT-IR, ^1H -NMR and elemental analysis (CHN). The signal at 1639.46 cm^{-1} in FT-IR spectrum was assigned to $\text{C}=\text{N}$, formed after condensation reaction in between aldehyde and amine. However NH_2 peak at 3278.78 cm^{-1} still appeared confirmed the monocondensed diethylenetriamine. ^1H -NMR values at 8.19 ppm and 2.72 ppm were assigned to $\text{HC}=\text{N}$ and $-\text{NH}_2$ respectively. Dicondensed ligand was formed after addition of pyridine aldehyde. NH_2 signal in FT-IR spectrum was absent indicating both amines in triamine undergone condensation to form dicondensed. ^1H -NMR also indicate the loss of NH_2 peak. ^1H -NMR spectrum at 8.19 ppm was assigned to $(\text{HC}=\text{N})$ appeared due to the formation of imine proton on the other side of triamine. The purity of the ligand is determined by microanalysis with the percentage composition of CHN is 91.82%. Further studies on selectivity and sensitivity of ligand A was conducted on several metal ions. The fluorescent spectral measurements revealed that A is a selective fluorescent sensor for Fe^{3+} ions but not for metal ions such as Co^{2+} , Ni^{2+} , Cu^{2+} and Zn^{2+} . This straight forward and cost effective receptor provides rapid detection of Fe^{3+} ions at concentrations as low as $6.49 \times 10^{-5}\text{ M}$ and expected to be useful to design efficient chemical sensor.

Afternoon, October 13, 2016 (Thursday)

Time: 13:30~16:15

Venue: Building 11, 208

Session 2: 11 presentations-Topic: “Environmental Science and Engineering”

Session Chair: Prof. Chan Jin Park

K0012 Presentation 3 (14:00~14:15)

Investigation on the Capacitive Deionization Behavior of Functionalized Carbon Nanotubes f-CNTs and Silver-Decorated f-CNTs for Water Softening

Khrizelle Angelique L. Sablan; Rizalinda L. De Leon, Jaeyoung Lee, and Joey Ocon

University of the Philippines-Diliman

Abstract—The impending water shortage drives us to find alternative sources of water. One of the possible solutions is desalination of seawater. There are numerous processes by which it can be done and one of which is capacitive deionization. Capacitive deionization is a relatively new technique for water desalination. It utilizes the electric double layer for ion adsorption. Carbon-based materials are commonly used as electrodes for capacitive deionization. In this study, carbon nanotubes (CNTs) were treated in a mixture of nitric and sulfuric acid. Silver addition was also facilitated to incorporate antimicrobial action. The acid-treated carbon nanotubes (f-CNTs) and silver -decorated f-CNTs (Ag@f-CNTs) were used as electrode materials for seawater deionization and compared with CNT and acid-treated CNT. The synthesized materials were characterized using TEM, EDS, XRD, XPS and BET. The electrochemical performance was evaluated using cyclic voltammetry and the deionization performance was tested on a single cell with water containing 64mg/L NaCl. The results showed that the synthesized Ag@f-CNT-10 H could have better performance than CNT and a-CNT with a maximum ion removal efficiency of 50.22% and a corresponding adsorption capacity of 3.21 mg/g. It also showed antimicrobial activity against E. Coli. However, the said material lacks stability as the efficiency decreases with repeated usage of the electrode.

Afternoon, October 13, 2016 (Thursday)

Time: 13:30~16:15

Venue: Building 11, 208

Session 2: 11 presentations-Topic: “Environmental Science and Engineering”

Session Chair: Prof. Chan Jin Park

K0019 Presentation 4 (14:15~14:30)

Determination of Ammonium and Nitrate Ions on Degraded Peat Soil by Termites Activities in Tanjung Leban, Bengkalis Regency

Sofia Anita, Fransisca, and Tengku Ariful Amri

University of Riau, Indonesia

Abstract—Indonesia, especially Riau Province has struggled with forest fire since 1997 which causes degradation of peat soil. Nowadays, peat soil in the Bengkalis District, Riau Province, has been partially degraded by repeated fires and land clearing so that the fertility decline. Therefore, it is necessary to improve the fertility of peat land. The aim of this research was to study the effect of the presence of the termite nest to the ecosystem degraded peat lands in the village of TanjungLeban, Bengkalis Regency. Parameters measured were the content of ammonium and nitrate ions in soil samples around the termite nests using Auto-analyzer. The results of analysis of 10 termite nests showed that the ion content of NH_4^+ (H_2O), NH_4^+ (KCl), and NO_3 (H_2O and KCl) found in soil samples S2, S8 and S10. Based on the results, it can be concluded that the termite nests found in this study site in general no significant impact on the increase of nitrogen in the soil using analysis of variance (ANOVA) and Duncan test at $\alpha = 0.05$.

Afternoon, October 13, 2016 (Thursday)

Time: 13:30~16:15

Venue: Building 11, 208

Session 2: 11 presentations-Topic: “Environmental Science and Engineering”

Session Chair: Prof. Chan Jin Park

K0027 Presentation 5 (14:30~14:45)

Hybrid Power Generation as an Environmental Friendly Energy Supply Solution for Remote Area in Indonesia

Burhanuddin Halimi

Institut Teknologi Bandung, Indoneisa

Abstract—This paper focuses on the optimal solution to provide a more environmental friendly electrical power supply for remote areas which usually have many problems regarding electricity supply. Due to their remote location, it is very impractical to deliver the electrical energy from power generation plants by using the conventional method. To solve this problem, generator sets are commonly utilized for providing electrical power for these kind of areas. But their fuel storage and transportation issues are not quite easy to be dealt with. Moreover, considering the environmental impacts, the use of fossil fuels should be minimized.

The proposed system adopts a stand-alone hybrid photovoltaic, wind turbine and fuel cell power system without battery storage support. The best combination of these three resources are computationally analyzed to get the optimal result. To obtain the optimal result, the proposed system is analyzed using HOMER software. By adopting the baseline load average of 225 kW or 5,397 kWh/d with peak load of 290 kW, it was obtained that the optimal system is PV array of 7,000 kW, 6 x @250 kW wind turbines, fuel cell of 350 kW which is supported by 2,000 kW electrolyzer.

Afternoon, October 13, 2016 (Thursday)

Time: 13:30~16:15

Venue: Building 11, 208

Session 2: 11 presentations-Topic: “Environmental Science and Engineering”

Session Chair: Prof. Chan Jin Park

K0029 Presentation 6 (14:45~15:00)

On the Control Process of Odor Material by Using Coffee Wastes

Eun Ji Woo, Yu Jin Oh, Ji Ye Yoo, and Chan Jin Park

Incheon National University, Republic of Korea

Abstract—In this study, we investigated the current status of atmospheric environment with a variety of materials on the central of various environmental installments which are located in S-Free Economic Zone, Incheon. We were able to confirm that occurrence rate of Acetaldehyde is the most high among odor materials. Thus we tried to find characteristics of Acetaldehyde in odor emitting facility and the solutions that can increase efficiency of removal. In particular, Acetaldehyde indicates high efficiency in general treatment processing, however the minimum sensible concentration is very low and indicates the high rate at the level of contribution in odors. Accordingly, we proposed to estimate processing efficiency of existing activated carbon by making activated carbon that is included coffee wastes.

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Venue: Building 11, 208

Session 2: 11 presentations-Topic: “Environmental Science and Engineering”

Session Chair: Prof. Chan Jin Park

K1002 Presentation 7 (15:00~15:15)

Influence of Reaction Temperature and Feed size on Biocrude-oil from Fast Pyrolysis of Palm Kernel Shell

Tawsif Rahman, Yeon Seok Choi, Sang Kyu Choi, So Young Han, and Seock Joon Kim

University of Science and Technology

Abstract—Fast pyrolysis of Palm Kernel Shell (PKS) was performed in a bubbling-fluidized-bed reactor to produce biocrude-oil. The aim of this study is to find out the effects of reaction temperature and feed size on product yields and characteristics. PKS feed was prepared by grinding, drying and sieving to make three different feed sizes: 1mm -2mm, 0.425mm-1mm and 0.106mm-0.425mm. Feeding rate was constant at 200g/h. Reaction temperature was varied from 400-600 °C range. Physical and chemical properties of products were characterized through higher heating value (HHV), water content, proximate analysis and ultimate analysis. Maximum biocrude-oil yield for feed size 0.425mm-1mm was found 41.56% of products at 490°C with higher heating value 17.42 MJ/kg. The results showed the prospects of PKS biocrude-oil as a potential fuel.

Afternoon, October 13, 2016 (Thursday)

Time: 13:30~16:15

Venue: Building 11, 208

Session 2: 11 presentations-Topic: “Environmental Science and Engineering”

Session Chair: Prof. Chan Jin Park

K3005 Presentation 8 (15:15~15:30)

Calorific Optimization design of Waste biomass Using Response Surface Method(RSM)

Jin Kyung Jo

119, Academy-ro, Yeonsu-gu, Incheon 22012, Republic of Korea

Abstract—The optimization of Bio-SRF is conducted by mixing sewage sludge with waste sawdust and coffee grounds to improve high moisture content and low calorific value.

This study was aimed at put the sewage sludge(2~10g), waste sawdust(1~5g) and coffee grounds(1~5g) as variables using RSM (Three-dimensional analysis & Central composite design).

The result is [sewage sludge(2.0g), waste sawdust(1.0g), coffee grounds(5.0g)] and 0.9872 as R-square(adj). Forecast data is reported 4,574.26 kcal/kg above the condition.

The p-value for Regression model and each variable is identified as less than 0.05. Therefore, this methodology has been proven feasible.

Afternoon, October 13, 2016 (Thursday)

Time: 13:30~16:15

Venue: Building 11, 208

Session 2: 11 presentations-Topic: “Environmental Science and Engineering”

Session Chair: Prof. Chan Jin Park

K3006 Presentation 9 (15:30~15:45)

Bridging Instruction, Research and Community Involvement- Health, Environment
Awareness Lecture Caravan - San Beda College Manila, Philippines

Liwayway H. Acero and Ed.D.

San Beda College Manila

Abstract—The Health, Environment Awareness Lecture Caravan (HEALC) of the Department of Natural Sciences-San Beda College Manila, Philippines is under the College of Arts and Sciences of San Beda College. The HEALC team is composed of the professors in the Department, served as lecturers and experts both in instruction and research output dissemination on Health and Environment aspect; invited experts from Project- NOAH (Nationwide Operational Assessment of Hazards) and NDRRMC (Nationwide Disaster Risk Reduction Management Council) enhanced lectures on environmental issues; fourth year BS Human Biology students shared their theses results in the community, the executive board of Kapisanang Aghamng San Beda organized and facilitate the conduct of the lecture/seminar and the Institutional Community Involvement Center (ICIC) of San Beda College. This study categorized the activities done by HEALC team based on trilogy function of the College. It analyzed participants’ answers on the helpfulness of the lectures and identified possible community-based researches in partner communities of ICIC. A structured questionnaire was used to gather the perception of the participants on the helpfulness of the lectures done. It was analyzed using frequency and percentages. The HEALC proved to bridge the trilogy function of the college mandated by the Commission on Higher Education (CHED). The expertise of professors, students in the Department, increased the awareness and help people in the partner communities in Health and environment aspect as attested by their responses. Flyers in local dialect (Tagalog version) help people to fully understand the lectures. The HEALC team was able to identify and generate possible community-based researches as suggested by the participants.

Afternoon, October 13, 2016 (Thursday)

Time: 13:30~16:15

Venue: Building 11, 208

Session 2: 11 presentations-Topic: “Environmental Science and Engineering”

Session Chair: Prof. Chan Jin Park

K3007Presentation 10 (15:45~16:00)

On Solar Energy Utilization for Drying Technology

JiYeYoo, HeeJung Kim, EunJi Woo, and ChanJin Park

Incheon National University, Republic of Korea

Abstract—Solar drying is one of the oldest drying techniques in which solar radiation is used. Drying is an essential process in the preservation of agricultural crops and in industries, such as textile production, dairy processing, cement production, clay brick production, tile production, wood and timber processing, wastewater treatment and biomass treatment. Solar drying is another very important application of solar energy. Solar dryers use air collectors to collect solar energy. Solar dryers are used primarily by the agricultural industry. The purpose of drying an agricultural product is to reduce its moisture content to a level that prevents its deterioration. In drying, two processes take place; One is a heat transfer to the product using energy from the heating source, and the other is a mass transfer of moisture from the interior of the product to its surface and from the surface to the surrounding air. In short, we conduct a comprehensive review of summarize the research and development work for solar drying. It is hoped that this review work maybe valuable and appropriate for further development work.

Afternoon, October 13, 2016 (Thursday)

Time: 13:30~16:15

Venue: Building 11, 208

Session 2: 11 presentations-Topic: “Environmental Science and Engineering”

Session Chair: Prof. Chan Jin Park

K3008 Presentation 11 (16:00~16:15)

Air Pollution and Tourism Management

Alka S. Grover, Meenu Wats, Aanchal Wats, and Adwiteya Grover

Department of Chemistry, Dav College Chandigarh, India

Abstract—Tourism in itself is a significant contributor to greenhouse emission, transport pollution, degradation of land, addition of solid and sewage waste and colossal ill effects on health of indigenous people. The tourist thus, though a pivotal attraction to the economy, simultaneously becomes its destructor. The study concerning pm 2.5 and pm 10 along with humidity level was conducted in early winter of 2015 to july, 2016 in and around new delhi, a heritage city attracting innumerable tourist. The present study has given a clear indication of correlation of both outdoor as well as indoor air pollution viz-a-viz human health. Both tourists and local residents frequent tourist places exposing themselves to particulate matter increasing their vulnerability to respiratory irritations (38%), headaches (24%), asthma (19%), irritable behavior (12%), irritable bowel syndromes (9%). This fact is also supported by a data study projected by w.h.o. That attributes every 8th death in the world to air pollution. This paper deals with the aforesaid aspects, shortfalls in the enviro-legal framework of india embodied in the air (prevention and control of pollution) act, 1981 and its execution to suggest methods to improve or remedy the situation have also been explored.

Session 3

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

Afternoon, October 13, 2016 (Thursday)

Time: 13:45~16:15

Venue: Building 11, 223

Session 3: 10 presentations-Topic: “Bioscience”

Session Chair: Prof. Yang-Seop Bae

R0001Presentation 1 (13:45~14:00)

Alkaloid Quinine in Cell Suspension Culture of *Cinchona Ledgeriana* Moens: Biological Study towards Industrial Application

Diah Ratnadewi, Dedi Satriawan, Dian Rahma Pratiwi, and Sumaryono

Bogor Agricultural University, Indonesia

Abstract—Alkaloid quinine has many benefits in medicinal as well as in food industries. Salt of quinine has been produced as one of the pharmaceutical industries in Indonesia. Lack of raw material that is cinchona bark is a major problem and consequently increase the production cost. Imported cinchona bark from several African countries contains very low level of quinine. Cell suspension cultures of *Cinchona ledgeriana* clone QRC 315 exhibited a high percentage of quinine, 7 to 11%. The cells were treated with plant growth retardants abscisic acid (ABA) or paclobutrazol (PBZ), combined with sucrose as a source of carbohydrate or with mannitol as a partial substitution of sucrose. Double applications of stress-inducing agent, 7 mg/L PBZ and mannitol resulted in 10.9% quinine, the highest level, but with the least proliferated cells. Addition of 3 mg/L ABA combined with sucrose presented only 6.8% of quinine but with the highest production of cell biomass that eventually gave substantial amount of total quinine. With some more improvements on the treatments applied to the cell suspension culture, the technique may be developed from laboratory to industry through the use of bioreactors.

Afternoon, October 13, 2016 (Thursday)

Time: 13:45~16:15

Venue: Building 11, 223

Session 3: 10 presentations-Topic: “Bioscience”

Session Chair: Prof. Yang-Seop Bae

R0005 Presentation 2 (14:00~14:15)

LED Growth Light with Flexible Photoperiods and Programmable Light Output Intensity

Palanichamy Manikandan, C. S. Wong, K. W. Lam, K. H. Loo, Y. M. Lai, and S. Y. Chau

The Hong Kong Polytechnic University

Abstract—Water, food and energy are going to be a big challenge in the future. As a result of understanding this fact that the world cannot only depend on conventional agriculture, it is moving towards soil-free, sunlight-free, and pesticides-free self-sustainable indoor cultivation systems. Indoor cultivation works without changing anything about the genetics of seeds but just by optimizing the environment where plants are growing, so called a controlled environment. Researchers, engineers and programmers are helping to rebuild the global agriculture industry by providing a path of technological opportunities for people of modest means to become farmers. Thus, light emitting diode (LED) lighting systems were introduced to replace sunlight in indoor cultivation systems. When LEDs are applied in such high power application as multiple parallel strings it has a current deviation issue that leads to short life-time, uncontrolled light intensity, and additional energy consumption of LEDs. This paper presents an active current balance approach by using switch mode current converters to regulate and balance the current in each LED string with flexible photoperiod and light intensity levels. We also improved the current deviation deficiency from 32.7-28.5% to 6.5% in multi-parallel LED strings system.

Afternoon, October 13, 2016 (Thursday)

Time: 13:45~16:15

Venue: Building 11, 223

Session 3: 10 presentations-Topic: “Bioscience”

Session Chair: Prof. Yang-Seop Bae

S0025Presentation 3 (14:15~14:30)

Echinococcus Granulosus (Eg95) Subunit Vaccine Suppressed the Prevalence of Echinococcosis in China

Cao Zheng, **Zhao Yangyang**, Chen Qianlin, and Li Chunyan

Chongqing Auleon Biologicals CO., LTD, China

Abstract—Cystic Echinococcosis (CE) or Hydatid Disease is a zoonotic infection that could cause severe serious illness when the larvas of Echinococcus parasitise on the host. The use of Eg95 vaccine in sheep offers a long-term protection against sheep Hydatid Disease that could interrupt the life cycle of Echinococcus, which provides an indirect protection to people and animals. In this work, we monitored the clinical application of Eg95 subunit vaccine in western China to investigate the prophylactic effect of Hydatid Disease. From 2011 to 2014, almost 210 thousand sheep in western China were continuous immunized with Eg95 subunit vaccine. The immune response of immunized sheep, the prevalence rate of sheep Hydatid disease, and the detection rate of Echinococcus eggs in dog feces were investigated from 2011 to 2015. The result showed that Eg95 subunit vaccine could induce the powerful humoral and cellular immune response after immunization. The Echinococcus prevalence rate went from 57% in 2011, 26.0% in 2012, 8.53% in 2013, 5.15% in 2014 to 4.63% in 2015. The detection rate of Echinococcus eggs in dog feces decreased from 14.1% to 7.4% from 2011 to 2015. Results showed that sheep and dogs' Echinococcosis prevalence rate declined, and the vaccine played a significant role in inhibition on the spread of the disease by promoting the use of vaccines.

Afternoon, October 13, 2016 (Thursday)

Time: 13:45~16:15

Venue: Building 11, 223

Session 3: 10 presentations-Topic: “Bioscience”

Session Chair: Prof. Yang-Seop Bae

S0026 Presentation 4 (14:30~14:45)

Evaluation of osmotic stress tolerance in lentil genotypes (*Lens culinaris* Medik.)

Ali Asghari

University of Mohaghegh Ardabili, Iran

Abstract—Drought is the most important abiotic stress in reduction of crop production. Assessment of genetic diversity of crop plants under osmotic stress is a useful method for drought tolerant genotype selection. The genetic diversity of 20 lentil genotypes under osmotic stress based on morphological traits and ISSR markers were investigated. The morphological traits of root length (RL), shoot length (ShL), root fresh weight (RFW), shoot fresh weight (ShFW), root dry weight (RDW), shoot dry weight (ShDW), biological yield (BY), root volume (RV) and root surface (RS) were measured under control and osmotic stress condition. Analysis of variance showed significant difference in morphological traits between genotypes, three stress levels and genotypes stress interaction. This indicates that the difference between the genotypes in studied traits were not same at three stress levels. Genotypes divided to three groups using cluster analysis based on morphological traits at three osmotic stress levels. In two stress levels, the lines 5, 8, 9, 10, 19 and 20 belonged to groups with higher averages than total averages of traits. In molecular analysis, the 10 used ISSR primers produced 55 polymorphic bands. Marker index (MI) also had a range of 1.53 and 2.70. Polymorphic information content (PIC) of studied ISSR primers was 0.28 to 0.47. This generated information can be used in breeding program for tolerance to drought stress. Studied lines grouped using molecular data but, different results obtained from grouping of lines using morphological and molecular data.

Afternoon, October 13, 2016 (Thursday)

Time: 13:45~16:15

Venue: Building 11, 223

Session 3: 10 presentations-Topic: “Bioscience”

Session Chair: Prof. Yang-Seop Bae

S0027 Presentation 5 (14:45~15:00)

The Impact of Effective Microorganisms in Nitrogen Levels on Biochemical Properties of Strawberries

Ali Akbar Shokouhian and Shahriyar Einizadeh Einizadeh

University of Mohaghegh Ardabili, Ardabil, Iran

Abstract—In order to study the impact of Effective Microorganisms (EM) on Biochemical Properties of strawberry cv. Paros, a split-split-plots experiment was conducted based on Randomized Complete Block Design (RCBD) with three replications in University of Mohaghegh Ardabili during 2014-2015 years. In this study, treatments included EM concentration in four levels (0, 1, 2 and 3percentage), EM application in two methods (foliar and soil application) and nitrogen concentration in 3 levels (50, 100 and 150Kg/ha). Traits measured in the present study included C vitamin, content total soluble solid (TSS), total acidity (TA). Analysis of variance indicated that the effective microorganisms and nitrogen treatments had significant effect at 0.05 probability level on all traits. EM produced the best results in 2 percentage concentration. As for nitrogen treatments, 100Kg/ha treatment produced the highest results.

Afternoon, October 13, 2016 (Thursday)

Time: 13:45~16:15

Venue: Building 11, 223

Session 3: 10 presentations-Topic: “Bioscience”

Session Chair: Prof. Yang-Seop Bae

K0009Presentation 6 (15:00~15:15)

Fe(II) is a Key Factor for the Competition between Anammox and Methane-Dependent Denitrification Process

Yong-Ze Lu

University of Science and Technology, China

Abstract—Coupling anaerobic ammonium oxidation (anammox) with denitrifying anaerobic methane oxidation (DAMO) is a potential project for nitrogen removal from wastewater streams containing ammonium and nitrate/nitrite. Besides, the coexistence of anammox bacteria and DAMO microorganisms are in the ecology and play an important role in global carbon and nitrogen cycles. However, the competitive relation between anammox and DAMO process has been little studied. In the present study, the short- and long-term effects of variations in Fe(II) concentrations on anammox bacteria and DAMO microorganisms were investigated. The results indicated that Fe(II) (80, 20 and 80 μM , respectively) obviously stimulated the activity of anammox bacteria, DAMO bacteria and DAMO archaea. The activity of anammox bacteria increases more significant than DAMO bacteria with the increase of Fe(II) concentration. After long-term running with increased concentration of Fe(II) in medium, anammox bacteria had a obvious advantage than DAMO bacteria, DAMO archaea develop remarkably and dominate in the anammox-DAMO system. To our knowledge this is the first time to explore the competition of anammox-DAMO system and the further enrichment of DAMO archaea by Fe(II).

Afternoon, October 13, 2016 (Thursday)

Time: 13:45~16:15

Venue: Building 11, 223

Session 3: 10 presentations-Topic: “Bioscience”

Session Chair: Prof. Yang-Seop Bae

K0010 Presentation 7 (15:15 ~15:30)

Robust Performance of a Novel Anaerobic Membrane bioReactor with Mesh Filter and Carbon Fiber (AnMBR-MF-CF) in Wastewater Treatment

Na Li

University of Science and Technology, China

Abstract—In this study, a novel anaerobic membrane bioreactor with mesh filter and carbon fiber (AnMBR-MF-CF) was developed to treat wastewater from low to high strength and evaluated throughout shock changes of organic loading rate (OLR). It was found that this novel AnMBR-MF-CF exhibited high and stable chemical oxygen demand (COD) removal efficiencies with average values of 95% and an average methane yield of 0.29 L CH₄/g CODremoved. More importantly, no major accumulation of volatile fatty acids was occurred after an OLR shock. Variation of transmembrane pressure during operation indicated that mesh fouling was mitigated and the fouling rate with a maximum value of 9.83×10^9 m⁻¹ h⁻¹ was much lower than that of conventional AnMBR reported in literatures. It was also found that the addition of CF accelerated the substrate utilization and CH₄ production rates in a batch test. Methanosaeta was the dominant genus in the biofilm representing 30.6% of relative abundance, indicating that acetoclastic methanogens were abundant in AnMBR after 186-d operation. All these results demonstrate that this novel AnMBR-MF-CF system is robust for wastewater treatment throughout OLR shocks, which holds great promise in anaerobic biological wastewater treatment for both low and high strength wastewater with the low membrane fouling rate.

Afternoon, October 13, 2016 (Thursday)

Time: 13:45~16:15

Venue: Building 11, 223

Session 3: 10 presentations-Topic: “Bioscience”

Session Chair: Prof. Yang-Seop Bae

K0020 Presentation 8 (15:30 ~15:45)

Analysis of Soil-Borne Wheat Mosaic Virus and Soil-Borne Cereal Mosaic Virus using
Datamining

Bogyung Kim, JiinJeong, and Taeseon Yoon

Hankuk Academy of Foreign Studies

Abstract—Plant viruses are viruses that affect the proper development of plants. The research for plant viruses, first initiated by the scientist A. Mayer in 1886, grew to offer various explanations for their transmission, including vector transmission, generation-to-generation transmission from seed and pollen, and the rare human-plant transmission. Among the many ways which the plant viruses can spread through, a small number of plant viruses were found to become transmitted through the soil. Such two examples of soil-borne viruses that infect plants through soil are soil-borne wheat mosaic virus (SBWMV) and soil-borne cereal mosaic virus (SBCMV). In this paper, we compared the protein sequences encoded in the RNA genomes of soil-borne cereal mosaic viruses and soil-borne wheat mosaic viruses, particularly focusing on replication protein, coat protein, cysteine rich protein, and 84-kDa protein. Furthermore, through examination of the position and frequency of each amino acid, we analyzed the similarities and differences between the two soil-borne viruses.

Afternoon, October 13, 2016 (Thursday)

Time: 13:45~16:15

Venue: Building 11, 223

Session 3: 10 presentations-Topic: “Bioscience”

Session Chair: Prof. Yang-Seop Bae

K0026 Presentation 9 (15:45 ~16:00)

Cytochrome b5 Activates the 17, 20-Lyase Activity of Human Cytochrome P450 17A1 by Increasing the Coupling of NADPH Consumption to Androgen Production

Sangchoul Im

University of Michigan/Ann Arbor VA Medical Center, USA

Abstract—Human cytochrome P450 17A1 is required for all androgen biosynthesis and is the target of abiraterone, a drug used widely to treat advanced prostate cancer. P450 17A1 catalyzes both 17-hydroxylation and subsequent 17,20-lyase reactions with pregnenolone, progesterone, and allopregnanolone. The presence of cytochrome b5 (b5) markedly stimulates the 17,20-lyase reaction, with little effect on 17-hydroxylation; however, the mechanism of this b5 effect is not known. We determined the influence of b5 on coupling efficiency-defined as the ratio of product formation to NADPH consumption-in a reconstituted system using these 3 pairs of substrates for the 2 reactions. Rates of NADPH consumption ranged from 4 to 13 nmol/min/nmol P450 with wild-type P450 17A1. For the 17-hydroxylase reaction, progesterone oxidation was the most tightly coupled (~50%) and negligibly changed upon addition of b5. Rates of NADPH consumption were similar for the 17-hydroxylase and corresponding 17,20-lyase reactions for each steroid series, and b5 only slightly increased NADPH consumption. For the 17,20-lyase reactions, b5 markedly increased product formation and coupling in parallel with all substrates, from 6% to 44% with the major substrate 17-hydroxypregnenolone. For the naturally occurring P450 17A1 mutations E305G and R347H, which impair 17,20-lyase activity, b5 failed to rescue the poor coupling with 17-hydroxypregnenolone (2-4%). When the conserved active-site threonine was mutated to alanine (T306A), both the activity and coupling were markedly decreased with all substrates. We conclude that b5 stimulation of the 17, 20-lyase reaction primarily derives from more efficient use of NADPH for product formation rather than side products.

Afternoon, October 13, 2016 (Thursday)

Time: 13:45~16:15

Venue: Building 11, 223

Session 3: 10 presentations-Topic: “Bioscience”

Session Chair: Prof. Yang-Seop Bae

K0024 Presentation 10 (16:00 ~16:15)

Isolate of Heterotrophic Microalgae as a Potential Source for Docohexaenoic Acid (DHA)

Elin Julianti, Mochamad Fathurohman, Sophi Damayanti, and Rahmana Emran Kartasasmita

School of Pharmacy, Bandung Institute Technology (ITB)

Abstract—Docosahexaenoic acid (DHA) is one of essential fatty acids that are beneficial to health. Nowadays, the source of docosahexaenoic acid (DHA) is mainly obtained from fish which are extracted into fish oil products. However, the fish oil products still have some drawbacks in term of purity, acceptable flavor for costumers, and also their not environmental friendly production process. As an alternative solution, heterotrophic microalgae can be used as a potential source for DHA due to their excellence compared to fish oil products. The aim of this study is to isolate the heterotropic microalgae that can produce DHA. The heterotrophic microalgae were isolated from mangrove fallen leaves (*Rhizophora apiculata*) by using direct planting method. The morphology of pure microalgae colony were observed through light microscope and subsequently fermented for 14 days. Fatty acids were extracted and methylated through direct transesterification method. Identification and quantification of DHA were conducted by using gas chromatography. The results were four isolates of heterotropic microalgae, namely MTKC1, MTKC2, MTKC3, and MTKC4. The extract of MTKC2 that only showed the content of DHA with value of 9.2 % w/w. Therefore MTKC2 is a potential source for DHA.

16:15-16:30

Coffee Break



Session 4

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

Afternoon, October 13, 2016 (Thursday)

Time: 16:30~18:45

Venue: Building 11, 208

Session 4: 9 presentations-Topic: “Agriculture”

Session Chair: Assoc. Prof. Keimei Oh

S0017 Presentation 1 (16:30~16:45)

The Effects of Urban Farming on Well-being of the Elderly: a Focus on Social, Psychological, and Environmental Well-being

Jihye Yang and **Minhwan Na**

Hanguk Academy of Foreign Studies, Yongin, South Korea

Abstract—This study examines the effect of urban farming on the well-being of the elderly, and with a focus on the effect of participation in urban farming on psychological well-being, and the mediating effects of social well-being and environmental well-being on that relationship. We surveyed individuals aged 55 or older residing in the Gyeonggi or Busan regions to measure their social well-being, psychological well-being, and environmental well-being. We conducted t-tests, correlation analyses, and regression analyses on a sample of 385 individuals, and our results were as follows. First, people who participated in urban farming reported a significantly higher level of social, psychological, and environmental well-being than those who did not. Second, social, psychological, and environmental well-being were related to each other in a statistically-significant way. However, age and well-being revealed a statistically negative relationship, as did the relationship between satisfaction with economic conditions and well-being. Third, our testing of mediating effects found that, regarding the effect of participation in urban farming on psychological well-being, social well-being was a complete mediator while environmental well-being was a partial mediator. These results suggest that urban farming enhances the well-being of the elderly, and the expansion of urban farming can be a viable component of improving welfare for the elderly. This study is also meaningful in that it investigates the social effects of urban farming, a topic that existing studies have not examined in depth.

Afternoon, October 13, 2016 (Thursday)

Time: 16:30~18:45

Venue: Building 11, 208

Session 4: 9 presentations-Topic: “Agriculture”

Session Chair: Assoc. Prof. Keimei Oh

S0021 Presentation 2 (16:45~17:00)

Estimation of Andisols's Soil Quality Index under Tea Plantation (*Camellia sinensis* L) from Central Java, Indonesia

EkoHanudin, MurniHandayani, Benito H Purwanto, SuciHandayani, and AktaviaHerawati

Gadjah Mada University, Indonesia

Abstract—The objective of this research was to estimate soil quality index (SQI) of andisols under a different density of tea plantation (*Camellia sinensis* L). The field research was conducted at the Pagilaran Tea Plantation, Central Java, Indonesia. Soil samples were collected from three locations with different plant densities namely: 5000-7500, 7501-10000 and > 10000 shrubs ha⁻¹. As a comparison, soil samples were also taken from other land uses such as cornfield, clovefield and pine forests. Soil physico-chemical analysis was subjected for bulk density, particle density, soil porosity, texture, effective depth, aggregate stability, pH-H₂O, pH-KCl, pH-NaF, available P, N-total, C-organic, Cation Exchange Capacity and base cations (Ca²⁺, Mg²⁺, K⁺, Na⁺). Estimation of SQI referred to Mausbach and Seybold method which modified by using minimum data set analyses (MDS). The results obtained SQI of andisol from block with plant density of 5000-7500, 7501-10000 and >10000 shrubs ha⁻¹ were 0.80, 0.66 and 0.67, respectively. The SQI from pine forests were obtained 0.72, while SQI from cornfield and clovefield has a similar value (0.53). Aggregate stability (r=0,797) and available P (r=0,758) were physico-chemical attributes contributed significantly to the soil SQI. Based on the SQI value indicates that the tea plant is a good plant to conserve and sustain Andisols located at the highlands compared to corn and cloves. Even the tea plants with a density of more than 10000 shrubs ha⁻¹ have SQI values higher than a pine forest.

Afternoon, October 13, 2016 (Thursday)

Time: 16:30~18:45

Venue: Building 11, 208

Session 4: 9 presentations-Topic: “Agriculture”

Session Chair: Assoc. Prof. Keimei Oh

S0023 Presentation 3 (17:00~17:15)

Agro-Ecosystem Changes on the Southern Parts of Merapi Volcano after 5 Years Eruption

Lis Noer Aini, Bambang Hendro Sunarminto, Eko Hanudin, and Junun Sartohadi

Faculty of Agriculture, Muhammadiyah University of Yogyakarta and Department of Soil Science, Gadjah Mada University, Indonesia

Abstract—This study aimed to determine changes in the agro-ecosystem at the southern parts of Merapi Volcano after the eruption of 2010. The field research was conducted using a survey method that is based on the landscape analysis. The smallest analysis unit for changing in agro-ecosystem is geomorphologic unit of merapi volcano. Purposive sampling method was done to determine 20 sites as representing of the upper, middle and lower slopes of Merapi Volcano. The parameters observed climate (rainfall and temperature), the type of agro-ecosystem, species of plants, type of mineral and soil type. Based on the climatological data indicated that the annual rainfall average of this area 1810 mm/yr or B type according Smith-Ferguson classification. The recorded lowest temperature was 15 °C at the night and the highest one of 28 °C during the day. Based on field observations obtained that at the upper slope area was a forest agro-ecosystem dominated by *Accasiadocurens* that grow naturally. At the middle slope area was a mixture agro-ecosystem compose of a perennial crops, such as *accasiadocurens*, *albizia*, bamboo, teak, grass, etc. At the lower slopes area was also a mixture agro-ecosystem compose of forest crops and food crops that grow naturally and planted by farmers, such as bamboo, jackfruit, mango, rambutan, banana, snakeskin fruit etc. The Merapi volcano eruption in 2010 led to supplies a volcanic materials contains a lot of weathereable primary minerals such as albite, anorthite, opaque. The volcanic material is rich in macronutrients such as P₂O₅ (655 mg/kg), CaO (17300 mg/kg), MgO (73.7 mg/kg), K₂O (4930 mg/kg), and micronutrients such as ZnO (35.8 mg/kg), Mn (414 mg/kg), CuO (25.5 mg/kg). Soil Orders observed were Entisols, Inceptisol and andisols with soil morphology dominated by polygenesis.

Afternoon, October 13, 2016 (Thursday)

Time: 16:30~18:45

Venue: Building 11, 208

Session 4: 9 presentations-Topic: “Agriculture”

Session Chair: Assoc. Prof. Keimei Oh

S0024 Presentation 4 (17:15~17:30)

Evaluation of Yield Components on capsicum spp. under Two Production Systems

Sorapong Benchasri, Sakunkan Simla, and Sirikan Pankaew

Department of Plant Science, Faculty of Technology and Community Development, Thaksin University, Pa Phayom, Phatthalung Thailand

Abstract—Thirty five lines of chilli were evaluated under inorganic and organic production systems. The objective of this study was to compare crop performance of chilli lines in terms of productivity that have good adaptation to inorganic and organic production systems. The chilli lines were carried out a Randomized Complete Block Design under inorganic and organic production systems. The results showed that there were highly significant ($p \leq 0.01$) for number of fruits/plant and yield/plant. The highest number of quality fruits was found on Chee: approximately 519.42 and 512.69 fruits/plant under inorganic and organic production systems, respectively. The lowest number of quality fruits was observed on Labmeunang line about 27.63 and 19.89 fruits/plant under the inorganic production system and organic production system, respectively. Chee line produced the highest yield under the chemical and organic production system about 701.22 and 630.61 grams/plant, respectively. Labmeunang line produced the lowest yield (26.45 grams/plant) under the organic production system.

Afternoon, October 13, 2016 (Thursday)

Time: 16:30~18:45

Venue: Building 11, 208

Session 4: 9 presentations-Topic: “Agriculture”

Session Chair: Assoc. Prof. Keimei Oh

S2007 Presentation 5 (17:30~17:45)

Effect of Chemical and Mechanical Weed Control on Cassava Yield, Soil Quality and Erosion under Cassava Cropping System

T. Islami, E. I. Wisnubroto, and W.H. Utomo

Centre for Tubers and Root Crops Study, University of Brawijaya, Malang, Indonesia

Abstract—Three years field experiments were conducted to study the effect of chemical and mechanical weed control on soil quality and erosion under cassava cropping system. The experiment were conducted at the University of Brawijaya field experimental station, Jatikerto Village of Malang Regency, Indonesia. The experiments were carried out from 2011 – 2014. The treatments consist of two cropping system (cassava mono culture and cassava + maize intercropping), and two weed control method (chemical and mechanical methods). The experimental result showed that the yield of cassava first year and second year did not influenced by weed control method and cropping system. However, the third year yield of cassava was influence by weed control method and cropping system. The cassava yield planted in cassava + maize intercropping system with chemical weed control methods was only 24.25 t.ha⁻¹, which lower compared to other treatments, even with that of the same cropping system used mechanical weed control. The highest cassava yield in third year was obtained by cassava + peanuts cropping system with mechanical weed control method. After three years experiment, the soil of cassava monoculture system with chemical weed control method possessed the lowest soil organic matter, and soil aggregate stability. During three years of cropping soil erosion in chemical weed control method, especially on cassava monoculture, was higher compared to mechanical weed control method. The soil loss from chemical control method for the third year was 54.20 t.ha⁻¹, whereas from the mechanical weed control was only 38.40t.ha⁻¹.

Afternoon, October 13, 2016 (Thursday)

Time: 16:30~18:45

Venue: Building 11, 208

Session 4: 9 presentations-Topic: “Agriculture”

Session Chair: Assoc. Prof. Keimei Oh

S2010 Presentation 6 (17:45~18:00)

Residual Effect of Biochar on Growth and Yield of Red Chili (*Capsicum annum* L.)

Erwin I. Wisnubroto, **Wani H. Utomo**, and E. R. Indrayatie

University of Brawijaya, Indonesia

Abstract—A field experiment was done to study the residual effect of biochar application on the growth and yield of red chili (*Capsicum annum* L.). The experiment was done at Wringinrejo Village, Blitar Regency of Indonesia. The biochar treatment was applied to cassava crops from 2009 until 2013. The subsequent soil then was used for chili planting in 2013 with the treatment of: (i) Biochar residue (with and without biochar), and (ii) fertilizer application (No fertilizer, Nitrogen, Farm Yard Manure (FYM), and combination of N+FYM). These treatments were arranged in a split plot design with biochar residue as the main factor, and fertilizer application as the sub factor; with 4 replications. The collected data were: (i) the growth and yield of chili, (ii) yield component, and (iii) soil quality. The results show that after 4 year of application, biochar still had a significant effect on the growth and yield of red chili. In general, chili planted on plot that given biochar before, tend to be higher with more branches compared to the chili planted on non-biochar applied plot. Thus it can be concluded residual effect of biochar significantly influenced the growth and yield of red chili. Application of nitrogen fertilizer and farm yard manure increase the chili yield, both on non-biochar, and applied biochar plot. The highest fruit yield (14.6 t.ha⁻¹) was obtained by chili planted on biochar-treated plot applied with nitrogen and Farm yard manure.

Afternoon, October 13, 2016 (Thursday)

Time: 16:30~18:45

Venue: Building 11, 208

Session 4: 9 presentations-Topic: “Agriculture”

Session Chair: Assoc. Prof. Keimei Oh

S0036 Presentation 7 (18:00~18:15)

Effects of Climate Change in Farming Practices: the Case of Selected Barangays in San Mateo, Isabela

Annlouise Genevieve Castro and Mario Delos Reyes

School of Urban and Regional Planning, University of the Philippines Diliman Campus, Philippines

Abstract—The agricultural sector is one of the more vulnerable sectors to climate change. The Local government units (LGUs) in the Philippines have only started to incorporate measures into local plans to mitigate or adapt to its adverse effects.

The paper examined the farming practices of farmers in San Mateo, Isabela and how they have adjusted to climate adversities. Primary data was gathered through survey questionnaire, while focus group discussions and key informant interviews were conducted to verify the findings. Secondary data gathering was done to supplement primary data gaps.

The municipality showed high potential for adaptation through farming practices of farmers. Findings show awareness to adverse effects of climate change, resulting to adjustments in farmers’ activities. Dependence on water supply from Magat River Integrated Irrigation System (MRIIS) affects farming schedule, as most of the agricultural lands are irrigated, resulting to changes from traditional farming to more updated techniques. The LGU must recognize the need to educate farmers through trainings and extension education to build farmers’ adaptive capacity. The shift in the mindset of farmers makes it easier to introduce new technology, and innovative farming practices already being practiced may be further enhanced through programs and projects of the local government.

Afternoon, October 13, 2016 (Thursday)

Time: 16:30~18:45

Venue: Building 11, 208

Session 4: 9 presentations-Topic: “Agriculture”

Session Chair: Assoc. Prof. Keimei Oh

K0021 Presentation 8 (18:15~18:30)

Empowerment Agent through Islamic Value in Preventing Palm Oil Plantation Fires Based on Public Participation

Akbarizan, **Fitra Lestari**, Hisbun Nazar, Sri Murhayati, and Mawardi

Empowerment Agent through Islamic Value in Preventing Palm Oil Plantation Fires Based on Public Participation, Indonesia

Abstract—Palm oil plantation provides a positive impact on improving standards of living in the community and also potential for growth Indonesian economies. Nevertheless, there is the high level of smoke pollution that are caused by many hot spots in the palm oil plantation area during the dry season every year. The objective of this study to empower the community by providing the empowerment agent with adopting Islamic value to prevent palm oil plantation fires through public participant. To obtain a better understanding of public participation, the research analysed the study through informal discussions in qualitative research. Then, it is transformed into a technique that represented the many activities using data flow diagrams. The result revealed that reinforcement of the empowerment agent to prevent palm oil plantation fires is done through religion institutional such as mosques. Future research suggested conducting simulation modelling technique in order to evaluate the performance of empowerment agent in reducing smoke pollution in palm oil plantation fires through several performance attributes.

Afternoon, October 13, 2016 (Thursday)

Time: 16:30~18:45

Venue: Building 11, 208

Session 4: 9 presentations-Topic: “Agriculture”

Session Chair: Assoc. Prof. Keimei Oh

K0025 Presentation 9 (18:30~18:45)

Irrigation Network Extraction from DTM: A Case Study of Maranding River Irrigation System, Lala, Lanao del Norte

F. dela Rama-Liwanag, D. Mostrales, V. Malales, and R. Tudio and M. T. Ignacio

Phil-LiDAR 2, Mindanao State University – Iligan Institute of Technology

Abstract—Irrigation has a significant effect on the development of crops. The development of crops is influenced by many factors, but irrigation is the most essential. Irrigation facilitates farmers to strengthen their agricultural procedure and/or change to more productive land uses and therefore has the potential to deliver significant long-term economic growth. Under conditions of water shortage, the advancement of irrigation management approaches help increase and stabilize crop production. An expansion of irrigated land area can provide important benefits for rural communities, which gives positive effect to the society and the economy as a whole. The fundamental requirement to the irrigation sources is to deliver required volume and proper quality of water. When designing the irrigation system, it is essential to identify the hydrological characteristics of the irrigation source, hydrogeology, and land form. Remote sensing satellite data is emerging as the most effective, time saving and accurate technique for irrigation network extraction and monitoring. The use of GIS enables processing of geographic data from a variety of sources and integrates it into a map project which can also be used for planning and management of irrigation systems. The Maranding Irrigation System was used as the study area because of the available LiDAR data. This study focuses on the irrigation network extraction and geodatabase creation using LiDAR derivatives, exiting secondary data, and field validation.

Session 5

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

Afternoon, October 13, 2016 (Thursday)

Time: 16:30~18:30

Venue: Building 11, 223

Session 4: 8 presentations-Topic: “Food Science and Engineering”

Session Chair: To be added

S0013 Presentation 1 (16:30~16:15)

Food Traceability and Safety: from Farm to Fork – A Case Study of Pesticide Traceability in Grapes

Dineshkumar Singh, Karthik Srinivasan, Divya Piplani, and **Siddhesh Nar**

Tata Consultancy Services LTD. India

Abstract—There is a growing need to reduce the use of poisonous chemicals in the food production. We need a system to monitor and manage such chemical usage. Due to globalization, the supplier and the consumer can be across the countries or continents. Hence global crop quality standards must consider; local regulations, grower’s knowledge/skills and also agro input ecosystem. We need to carefully study the entire supply-chain, various stakeholders and find the points of exchange of the products or services. Digital technology can help to map and manage this diversity, across different time zones, culture, language and practices.

mKRISHI® provides a digital platform to identify the farm, record, the laborer skills, manage pesticide inventory and including consumption date, time, dosage, etc. Each plot was identified by plot code and Global Gap Number (GGN). Hence, it’s easy to trace back the produce (grape box) to the plot as well as get the agro inputs used to produce it. Using a QR code and a mobile app, it’s easy for the consumer to get the desired information at their fingertips. Such end to end supply chain digitization not only improves the traceability but also creates a digital mapping framework from farm to fork.

Afternoon, October 13, 2016 (Thursday)

Time: 16:30~18:30

Venue: Building 11, 223

Session 4: 8 presentations-Topic: “Food Science and Engineering”

Session Chair: To be added

S0014 Presentation 2 (16:45~17:00)

Chemical Compositions and Antioxidant Activities of Catfish Epidermal Mucus

Nurul Mariam Hussin, Abdul Hamid Ahmad, Charles S. Variappan, Sharifudin Md. Shaarani, and Mohd Rosni Sulaiman

Faculty of Food Science & Nutrition, Universiti Malaysia Sabah

Abstract—The antioxidant activity of *Clarias gariepinus* and *Clarias sp.1* epidermal mucus were determined. Aqueous extracts of *C.sp1* contained relatively higher levels of protein concentration [602.04 mg g⁻¹ fresh weight] than other extracts while the organic extracts (aqueous phase) of *C.sp1* gave higher levels of protein concentration (43.50 mg g⁻¹ fresh weight) than dichloromethane phase for both species. The chemical composition analysis revealed the values of moisture, ash, crude protein, fat and carbohydrate contents present in both species. The DPPH scavenging effect of all extracts and standards on the DPPH radical decreased in order of: ascorbic acid > BHT > dichloromethane phase extract of *C.gariepinus* > aqueous phase of *C.gariepinus* > acidic extract of *C.sp1* > acidic extract of *C.gariepinus* > dichloromethane phase extract of *C.sp1* > aqueous phase extract of *C.sp1* > aqueous extract of *C.gariepinus* > aqueous extract of *C.sp1* at the concentration of 100 ug/ml, respectively. Reducing power activities in all extracts increased with increasing concentration except for acidic extract of *C.gariepinus* which decreased at concentration of 100ug/ml. The ferric reducing antioxidant power (FRAP) also increased as the concentration increased for all extracts. However, all extracts showed lower scavenging activity, reducing power and FRAP activities than BHT and ascorbic acid at the same concentrations. This preliminary information suggest that mucus from these fish species may be a source of novel antioxidant agents for fish and human health related applicants.

Afternoon, October 13, 2016 (Thursday)

Time: 16:30~18:30

Venue: Building 11, 223

Session 4: 8 presentations-Topic: “Food Science and Engineering”

Session Chair: To be added

S0015 Presentation 3 (17:00~17:15)

Meat Specie Identification through Analytical and DNA Based Techniques

Muneeb Khan and Muhammad Issa Khan

University of Agriculture, Faisalabad, Pakistan

Abstract—Halal meat production and consumption have increased over the last decades. Adulteration in meat has become important issue which is needed to prevent consumers from false meat consumption. It has now become necessary to identify ingredients of processed or composite meat products and verification of these ingredients for authenticity with acceptable source for consumer. Meat authenticity is a process by which meat is verified with its label description. In meat industry there are two main issues regarding adulteration and authenticity of meat. Substitution of meat with low cost raw materials like offal, proteins of animal or plant origin, low cost meat cuts, blood, gluten, eggs and water is main authenticity problem in meat and meat products. For religious concerns, certain meats (e.g. pork) consumption is prohibited in some countries. For this reason analytical techniques are utilized for identification of meat species in raw, cooked and processed products. The use of spectroscopic and molecular analysis has shown its potential to point out meat authenticity problems. Gas chromatography, FTIR (Fourier transform mid-infrared spectroscopy) and principle component DNA analysis techniques can be used for individual meat specie identification in different meat products. It is possible to identify individual meat specie in minced meat products of chicken, mutton and beef samples. These rapid methods could be used for further expansion which have the potential for quality control and authentication of different meat products. Muneeb Khan and Muhammad Issa Khan.

Afternoon, October 13, 2016 (Thursday)

Time: 16:30~18:30

Venue: Building 11, 223

Session 4: 8 presentations-Topic: “Food Science and Engineering”

Session Chair: To be added

S0016 Presentation 4 (17:15~17:30)

Effect of Freeze Dried Protein Hydrolysate from Yellowstripe Scad (*Selaroidesleptolepis*) in Reducing Oil Uptake in Fried Seafood Product

Hau Enghuan

Universiti Malaysia Terengganu, Malaysia

Abstract—Fried products are widely preferred by consumer for appealing crust formation, colour, texture and flavour, but the product is less healthy due to high oil uptake as well as high calorie level. Protein is used to study oil reduction due to the ability in film forming and thermal gelation properties. The objective of this paper is to determine the effect of freeze dried protein hydrolysate from Yellowstripe Scad (*Selaroidesleptolepis*) in reducing oil uptake in fried seafood product. Protein hydrolysate was produced using potassium buffer, 2% Alcalase and 2 h of hydrolysis time. Protein hydrolysate was incorporated at different percentage (0%, 5%, 10%, 15% and 20%) in the batter. Oil uptake was conducted using Soxhlet method, while moisture content was conducted using gravimetric method according to AOAC, 2000. Result depicts that the reduction of oil uptake in fried seafood showed an increasing trend (6% to 32%) as the amount of incorporated protein hydrolysate was increased. However, the acceptable amount of incorporated protein hydrolysate was 10%. The water retained in the sample in 5% and 10% of incorporation were 33.5% and 32.9% while 15% and 20% incorporation had 16% and -5.15%, respectively.

Afternoon, October 13, 2016 (Thursday)

Time: 16:30~18:30

Venue: Building 11, 223

Session 4: 8 presentations-Topic: “Food Science and Engineering”

Session Chair: To be added

S0028 Presentation 5 (17:30~17:45)

Effects of High Oleic Acid Sunflower Oil on Egg Quality and Fatty Acid Composition of Egg Yolk in Laying Hens

Manisa Sangkaew, Mustanur Rahman, and Katsuki Koh

Shinshu University, Japan

Abstract—This study was conducted to investigate the effect of dietary high oleic acid sunflower oil (HOSO) on egg quality and fatty acid composition of egg yolk in laying hens. Twenty White Leghorn laying hens (about 90 weeks old) were placed in individual cages and assigned to four experimental diets namely, control (3% corn oil), L-HOSO (1% HOSO+2% corn oil), M-HOSO (1.5% HOSO+1.5% corn oil), and H-HOSO (3% HOSO). Diets and water were offered ad libitum throughout the 21 d of the experimental period. The results revealed that hen-day production, feed intake, feed conversion ratio, and yolk color did not differ among dietary groups ($P>0.05$). The egg quality parameters, such as specific gravity and the percentage of yolk weight were significantly different among dietary groups, where the highest values were found in H-HOSO group. On the other hand, yolk color was not affected significantly by diets. Oleic and linoleic acids in egg yolk increased and decreased with increasing level of dietary HOSO, respectively. In conclusion, the inclusion of HOSO in laying hen diets may alter the fatty acid composition in egg yolk without any detrimental effects on egg productivity.

Afternoon, October 13, 2016 (Thursday)

Time: 16:30~18:30

Venue: Building 11, 223

Session 4: 8 presentations-Topic: “Food Science and Engineering”

Session Chair: To be added

S0029Presentation 6 (17:45~18:00)

Evaluation of Buckwheat (*Fagopyrum esculentum*) Intrinsic Phytase Activity to Improve Phosphorus Availability in Broilers

Rakhi Chowdhury, Mustanur Rahman and Katsuki Koh

Shinshu University, Japan

Abstract—In the present study, the effect of buckwheat (*Fagopyrum esculentum*) on phosphorus (P) availability in broilers was investigated: non-germinated (BU) and germinated buckwheat (GBU) were used. Seeds samples were analyzed for proximate components, total P, phytate P and phytase activity. The efficacy of BU phytase was assessed by in vitro digestibility (dry matter, crude protein and phytate P) measurement and in vivo experiment using 20 male broilers. For both studies, a positive control (PC), negative control (NC), NC + 10% BU, and NC + 10% GBU diets were prepared where, BU and GBU were included at the rate of 10% NC diet at the expense of corn. Increased phytase activity in BU after germination resulted in decreased phytate P content which reflected through numerically increased in vitro phytate P digestibility. Increased ($P<0.05$) CP digestibility may be also a consequence of phytate P hydrolysis. Retention of nitrogen decreased ($P<0.05$) in broilers given NC diet, which was recovered with the addition of BU and GBU. Moreover, total P retention increased ($P<0.05$) in birds given BU and GBU added diet compared with NC diet. In conclusion, the results revealed that P utilization in birds could be improved when 10% of corn was replaced with BU and GBU, because of their high phytase activity.

Afternoon, October 13, 2016 (Thursday)

Time: 16:30~18:30

Venue: Building 11, 223

Session 4: 8 presentations-Topic: “Food Science and Engineering”

Session Chair: To be added

S0034 Presentation 7 (18:00~18:15)

Effect of Soyghurt and Fat Level on Lactic Acid Bacteria, Chemical, Physical and Sensory Characteristic of Frozen Soyghurt

Evy Rossi, Raswen Efendi, and Akhyar Ali

Universitas Riau, Indonesia

Abstract—Soyghurt (S) was produced by culturing soy milk with Lactic acid bacteria (LAB), which serves as a functional food, because it contains probiotics and prebiotics. However, production and consumption of it was still low compared to other fermented milk such as yoghurt and kefir. To increase the interest of people to consume soyghurt, it then processed into ice cream (Frozen soyghurt/FS). The objectives of this study were to obtain the best ratio of soy milk (S) with low fat milk (M) to produce the highest quality FS and to obtain the best ratio of S and whip cream (W) in FS. There were two stage of research. The first stage, a Completely Randomized Design (CRD) was used with four treatments and three replications, treatment consist of SM1 (S:M=100:0), SM2 (S:M=80:20), SM3 (S:M=60:40), and SM4 (S:M=20:80). The second stage was conducted using CRD with five treatments. The treatments were SW1 (S:K=90:10), SW2 (S:K=80:20), SW3 (S:K=70:30), SW4 (S:K=60:40) and SW5 (S:K=50:50) with three replications. Data obtained were analyzed statistically using analysis of variance (ANOVA) and if the calculated F was greater than or equal to F table then continued with DNMRT at 5% level. The results of first research showed that the ratio of S with M significantly affected the degree of acidity (pH), total lactic acid, total LAB, total solids, viscosity and fat content. The best treatment in this study was SM4. The results of the second stage of this research were ratio S and W had significant ($P<0.05$) effect on LAB, chemical and physical and sensory characteristics of FS. In conclusion, frozen soyghurt that was made using S and W with ratio 50:50 was the best quality and overall acceptance by panelists.

Afternoon, October 13, 2016 (Thursday)

Time: 16:30~18:30

Venue: Building 11, 223

Session 4: 8 presentations-Topic: “Food Science and Engineering”

Session Chair: To be added

S1003Presentation 8 (18:15~18:30)

Food traceability and safety: From Farm to Fork – A case study of Pesticide traceability in Grapes

Hoang V. Chuyen, Xuan T. Tran, Minh H. Nguyen, Paul D. Roach, Sophie E. Parks, and John B. Golding

University of Newcastle, Australia

Abstract—Gac fruit (*Momordica cochinchinensis* Spreng.) is a rich source of bioactive compounds especially carotenoids. Currently, only the aril of the Gac fruit is processed and the peel is discarded although it contains high levels of carotenoids and phenolic compounds, which could be extracted for commercial use. In the present study, solvent type, ratio of solvent to material, extraction time and temperature were investigated for the extraction yields of carotenoids and phenolic compounds, the antioxidant activity of the extract from Gac peel. Ethyl acetate extract showed the highest extraction yield of carotenoids, phenolics and ABTS antioxidant capacity. The highest levels of carotenoid yield and antioxidant capacity were obtained at 2 hours of extraction with the ratio of solvent to material of 20:1 (ml/g). Phenolic extraction yield reached the highest level after 2.5 hours of extraction and rose with the increase in extraction temperature while the highest extraction yield of carotenoids was obtained at 40 to 50oC and declined at higher temperature. The extraction using ethyl acetate with the ratio of 20:1 (ml solvent/g Gac peel) for 2 hours at 50oC is suggested for extraction of bioactives from Gac peel.

Poster Session

Tips: The poster session will last from 9:00 to 18:45. Please provide your home-made poster to the conference specialist in advance before the conference beginning.

October 13, 2016 (Thursday)

Time: 9:00~18:45

Venue: Building 11, 208

Poster Session: 2 posters-Topic: "Animal Genetics & Genetic Engineering"

S0018

STUDY ON A SNP AT THE STAT4 GENE IN ITALIAN BROWN COWS: POSSIBLE ASSOCIATION WITH MILK YIELD

Maria Selvaggi and Cataldo Dario

Univeristy of Bari "Aldo Moro", Italy

Abstract—In mammals, signal transducers and activators of transcription (STATs) are a family of latent cytoplasmic transcription factors that mediate the actions of a variety of peptide hormones and cytokines within target cells. STAT4 may play important roles in the activation of milk protein genes and the development of mammary glands. To date, only few polymorphisms at STAT4 gene were found. The SNP considered in the present study is a transition (A>G) at position g.60330 (intron 4) of the STAT4 gene. Three different genotypes may be detected (AA, AG and GG) with PCR-RFLP using MspI restriction enzyme. The Italian Brown cattle breed was originally a multipurpose breed reared in the Alps, subsequently it was selected as a dairy breed by importing Swiss Brown bulls from the U.S. It is one of the most reared milk purpose breed in Italy. Milk from Italian Brown cattle is particularly suitable for cheesemaking as it gives a higher cheese yield and it improves the manufacturing of dairy products by affecting also their biological and organoleptic qualities. The aims of the present study were to investigate the transition at position g.60330 (intron 4) of the STAT4 gene in a sample of Italian Brown cows and to find a possible relationship between this SNP and milk yield. In the investigated population, three possible genotypes were identified and the association with milk yield was investigated. However, further studies are needed to better clarify the role of this SNP on production traits in cattle.

October 13, 2016 (Thursday)

Time: 9:00~18:45

Venue: Building 11, 208

Poster Session: 2posters -Topic: “Animal Genetics &Genetic Engineering”

S0035

The Complete Sequences and Gene Organisation of Mitochondrial Genome of the Indigenous Mong Cai Pig (*Susscrofa*) in Vietnam

Thuy ThiBich Vo, Hieu Nguyen, Thu Nguyen, Linh Pham, Minh Nghiem, and HaiNong

Institute of Genome Research, Vietnam

Abstract—The continuation of previous research on sequencing the genomes of indigenous animal species in Vietnam, this study has sequenced the complete mitochondrial (mt) genome of the indigenous Mong Cai pig (*Susscrofa*) and its phylogenetic relationships with other Asian and European pig breeds. The complete mt genome of Mong Cai pig was 16,711 bp in size and had been deposited in GenBank recently (GenBank accession number: KX147100). The contents of A, T, C, and G in the mt genome were found to be 34.7%, 25.8%, 26.2%, and 13.3%, respectively. Whole mt genome was circular molecule, consisted of 37 genes, comprising 13 genes coding for proteins, 2 ribosomal RNA genes, 22 genes for tRNA, and one non-coding control region (D-loop), which were consistent with other vertebrates. The length of the D-loop region was 1,275 bp and there were 18 repeat sequences (5'-tacacgtgcg) in the region. The phylogenetic relationships of both the mitochondrial genome and the D-loop region were revealed the shortest genetic distance between Mong Cai pig and Lantang pig breeds (belong to South China group) and close relationship to other Asian pig breeds such as South China pig groups, Yangtze River pig groups, and Yellow River Region pig groups. These results were confirmed that Mong Cai pig was clustered into the Asia clade and may be the similar monophyletic to Langtang pig in Guangdong province, South China. However, the origin of Mong Cai pig or other pigs that related to this pig breed should be clearly research through genetic markers in future. Taken together, the more availability of the complete mtDNA sequences of Mong Cai pig provide essential information in understanding phylogenetic relationships among *Susscrofa* domestic mitochondrial genomes and use to futher genetic studies.

Dinner	
19:00	Chico

Conference Venue

Incheon National University, Republic of Korea

<http://www.inu.ac.kr/mbshome/mbs/inueng/index.do>



Welfare Assembly Hall

The conference will be held in **11-208** and **11-223** in **welfare assembly hall**. The university map is as following:



One-Day Academic Tour in Incheon

October 14, 2016 (Friday) 10:00-18:00



COURSE 01. National Institute of Biological Resources

09:00 Incheon National University Get on

National Institute of Biological Resources Take off

- Diversity of Native Species of Korea
- Major ecosystems in Korea
- Biodiversity Conservation and Use of Biological Resources



Lunch

<u>Lunch</u>	
PM 12:00	National Institute of Biological Resources restaurant

COURSE 02. Gyeongin ARA Waterway

12:45 National Institute of Biological Resources Get on

Gyeongin ARA Waterway Take off

- ARA Incheon passenger terminal : ARARIUM
- Observation platform : SICHEON Bridge, ARAMARU



COURSE 03. SUDOKWON Landfill Site Management Corp.

15:00 Gyeongin ARA Waterway Get on

SUDOKWON Landfill Site Management Corp. Take off

- Watching Publicity Video
- The 1st landfill site, Leachate Treatment site, The 2nd landfill site, Glass house tour



COURSE 04. Incheon National University

17:00 SUDOKWON Landfill Site Management Corp Get on
Incheon National University Take off

- Enjoying the night view in Songdo by personally

APCBEES Forthcoming Conferences

<http://www.cbees.org/events/>

CONFERENCE INFORMATION		PUBLICATION
January 8-10, 2017, Penang, Malaysia		
ICFEE 2017	2017 7th International Conference on Future Environment and Energy (ICFEE 2017) http://www.icfee.org/	Journal of Clean Energy Technologies(JOCET, ISSN: 1793-821X) Or Journal of Environmental Science and Development (IJESD, ISSN: 2010-0264) Or International Journal of Structural and Civil Engineering Research (IJSCER, ISSN: 2319-6009)
January 21-23, 2017, Bangkok, Thailand		
ICEBE 2017	2017 3rd International Conference on Environment and Bio-Engineering (ICEBE 2017) http://www.icebe.org/	Journal of Environmental Science and Development (IJESD, ISSN: 2010-0264) Or International Journal of Bioscience, Biochemistry and Bioinformatics (IJBBB, ISSN:2010-3638)
February 8-10, 2017, Frankfurt, Germany		
ICESD 2017	2017 8th International Conference on Environmental Science and Development (ICESD 2017) http://www.icesd.org/	International Proceedings of Chemical, Biological and Environmental Engineering(IPCBEE, ISSN: 2010-4618) Or Journal of Environmental Science and Development (IJESD, ISSN: 2010-0264)
February 25-27, 2017, Hanoi, Vietnam		
ICFES 2017	2017 3rd International Conference on Food and Environmental Sciences (ICFES 2017) http://www.icfes.org/	International Proceedings of Chemical, Biological and Environmental Engineering(IPCBEE, ISSN: 2010-4618) Or International Journal of Food Engineering(IJFE, ISSN:2301-3664)

March 13-15, 2017, Prague, Czech Republic		
ICFSN 2017	2017 4th International Conference on Food Security and Nutrition (ICFSN 2017) http://www.icfsn.org/	International Proceedings of Chemical, Biological and Environmental Engineering(IPCBEE, ISSN: 2010-4618) Or International Journal of Food Engineering (IJFE, ISSN:2301-3664)
March 28-30, 2017,Osaka, Japan		
ICBAE2017	2017 3rd International Conference on Biotechnology and Agriculture Engineering (ICBAE 2017) http://www.icbae.org/	International Journal of Bioscience, Biochemistry and Bioinformatics (IJBBB, ISSN:2010-3638) Or International Journal of Life Sciences Biotechnology and Pharma Research (IJLBPR, ISSN: 2250-3137) Or Journal of Advanced Agricultural Technologies(JOAAT, ISSN: 2301-3737)
April 11-13, 2017, Seoul, South Korea		
ICESE 2017	2017 7th International Conference on Environment Science and Engineering (ICESE 2017) http://www.icese.org/	International Proceedings of Chemical, Biological and Environmental Engineering(IPCBEE, ISSN: 2010-4618)
April 24-26, 2017, Kuala Lumpur, Malaysia		
ICEII 2017	2017 7th International Conference on Environment and Industrial Innovation (ICEII 2017) http://www.iceii.org/	Journal of Environmental Science and Development (IJESD, ISSN: 2010-0264) Or International Journal of Innovation, Management and Technology(IJIMT, ISSN: 2010-0248)
May10-12, 2017, Budapest, Hungary		
ICFAE 2017	2017 3rd International Conference on Food and Agricultural Engineering (ICFAE 2017) http://www.icfae.org/	Journal of Advanced Agricultural Technologies(JOAAT, ISSN: 2301-3737) Or International Journal of Food Engineering (IJFE, ISSN:2301-3664)

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Feedback Information

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

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Please indicate your overall satisfaction with this conference with “√”					
	Very Satisfied	Somewhat Satisfied	Neutral	Somewhat Dissatisfied	Very Dissatisfied
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2016 APCBEES INCHEON CONFERENCES

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

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