

2015 APCBEES DUBAI CONFERENCE ABSTRACT

December 5-6, 2015

Flora Grand Hotel

Dubai, UAE



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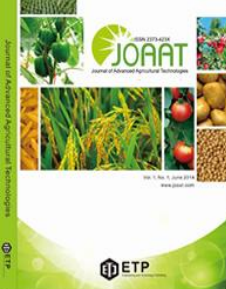

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2015 APCBEES Dubai Conference Introductions

Welcome to CBEES 2015 conferences in Dubai, UAE. The objective of the Dubai 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 Food and Agricultural Sciences, Environment Pollution and Prevention, Medical, Environmental and Bio-technology, Materials Mechanical and Electrical System.

2015 3rd International Conference on Food and Agricultural Sciences (ICFAS 2015)

❄ Paper publishing and index: **ICFAS 2015** papers will be published in one of the following journals:

	<p>Journal of Advanced Agricultural Technologies (JOAAT, ISSN: 2301-3737), and be included in the Ulrich's Periodicals Directory, Google Scholar, Engineering & Technology Digital Library, Wourldcat and</p>		<p>International Journal of Food Engineering (IJFE, ISSN: 2301-3664), and be included in the Engineering & Technology Digital Library, and indexed by WorldCat, Google Scholar, DOAJ, Doi system.</p>
<p>sent to be reviewed by Ei Compendex and ISI Proceedings.</p>			

❄ Conference website and email: <http://www.icfas.org/>; icfas@cbees.net.

2015 3rd International Conference on Environment Pollution and Prevention (ICEPP 2015)



❄ Paper publishing and index: **ICEPP 2015** papers will be published in the **Journal of Environmental Science and Development (IJESD, ISSN:2010-0264)**, and be included in the Engineering & Technology Digital Library, and indexed by CAS, WorldCat, Google Scholar, Cross ref, ProQuest, CABI and sent to be reviewed by EI Compendex and ISI Proceedings.

❄ Conference website and email: <http://www.icepp.org/>; icepp@cbees.net.

2015 3rd International Conference on Medical, Environmental and Bio-technology (ICMEB 2015)

❄ Paper publishing and index: **ICMEB 2015** papers will be published in the one of the following journals:



International Journal of Pharma Medicine and Biological Sciences (IJPMBBS, ISSN: 2278-5221), and be included in the Engineering & Technology Digital Library, and indexed by Embase (Under elsevier), ProQuest, Google Scholar, CAS, Indian Science, ICMJE, HINARI, and NYU.



Journal of Environmental Science and Development (IJESD, ISSN:2010-0264), and be included in the Engineering & Technology Digital Library, and indexed by CAS, Google Scholar, Cross ref, ProQuest, CABI and sent to be reviewed by EI Compendex and ISI Proceedings.

❄ Conference website and email: <http://www.icmeb.org/>; icmeb@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 **10** Minutes of Presentation and **5** Minutes of Question and Answer

Keynote Speech: about **40** Minutes of Presentation and **10** 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 December 6, 2015.

Dress code

Please wear formal clothes or national representative of clothing.

Keynote Speaker Introductions

Keynote Speaker I



Prof. Saif Al Qaydi
United Arad Emirates University, UAE

Prof. Saif Al Qaydi is currently the Dean of College of Humanities and Social Sciences. He held several academic and scientific positions as chair of the Geography and Urban Planning department and Assistant dean for student affairs. He completed a post-doc in GIS and RS from Clark University, 1994. He was a team leader in several projects e.g. to review the exhibits content for Sheikh Zayed Desert Learning Center, as part of Al Ain Zoo project (2011-2013). He was member of Abu Dhabi High Committee in Geographical Names to the Abu Dhabi roads and streets naming project (2012-2014& 2015..). He was visitor at several Universities e.g. Sydney, 2008, George Washington 1997 and 2006, Durham University, 2005, Georgetown 2001/2002. He was the Vice-Chairman of the Arab Division on Arab Geographical Names, Part of the UN Expertise Team (UNGEGN) and the UAE representative, 2004-2012. He was and still member at the editorial board in several journals, e.g. (IWRA, 2004-2007) Scientific board at the Scientific Journal International (SJI, since 2006-), The Gulf Geographical Journal, GCC Society (since 2005-). Prof. Al Qaydi published more than 50 papers in international and regional journals and 8 books. <http://faculty.uaeu.ac.ae/alqaydi/>.

Topic: “Preemptive Intervention in Vulnerable Regions and its Impact on World Food Supplies; Natural Disasters”

Abstract: Timely supply of food at affordable prices is a challenging issue in many countries, including those that depend on farming as a main source of national income. Natural disasters are considered among the factors that affect food supply worldwide. Some food-supplying regions, especially Third World countries such as Pakistan, Thailand and Vietnam, frequently experience severe disasters the effects of which are beyond the ability of these countries to cope with. Some of these natural disasters result in human casualties and displacement of large numbers of people. In 2013, 330 naturally triggered disasters were registered worldwide, and the economic damage caused by these disasters was estimated at \$156.7 billion. Between 2003 and 2012, an average of 106,654 natural disaster-related deaths was reported annually. Therefore, preemptive intervention in these vulnerable farm regions can help countries to reduce the impact of natural disasters, and contribute to ensuring continued supply of food to international markets.

Keynote Speaker II



Prof. Hami Alpas

Food Engineering Department, Middle East Technical University, Turkey

Prof. Hami Alpas is a Food Engineer and also holds an MBA degree from Dept. of Business Administration METU on Total Quality Management.

He has served as a “visiting scholar” in 1996 and 1998 at University of Wyoming, USA; as a “visiting scientist” in 2001 and 2002 at Ohio State University, USA and as a “visiting professor” in 2006, 2007 and 2008 at University of Bordeaux I, France on the topic of Non-Thermal Food Processing Technologies (HHP).

His main research areas are: Unit Operations in Food Engineering, Non-thermal Food Processing Technologies, Food Quality, Food Safety and Food Security through Total Food Protection. He is an expert in Food Defense training activities via NCFPD (USA).

He has supervised 4 Ph.D and 11 M.Sc. thesis in Food Engineering Department. He has 72 international journal articles (SCI) and over 800 citations (ISI-Web of Sci; h-factor 18) as well as close to 55 academic presentations in 35 different international meetings.

He has completed 15 national, 4 international projects including EU/JRC, CNRS-EGIDE and NATO ARW/ATC projects. He has authored 7 chapters in internationally edited books and has edited 3 international books by Springer. He has also organized and co-directed 3 NATO-workshops (ARW-ATC). He is currently the co-director of EU-FP7 project on “Plant Food Security”.

Topic: “Food Continuum Paradigm in a Global World: The Food Security Challenge”

Abstract: When all people at all times have physical and economic access to sufficient, safe and nutritious food any matter that prevents access by the consumer to foodstuffs will be a security issue. This will range in severity from lack of access to foods of choice through starvation from no access at all. Depending on the structure of food delivery any interruption in that supply can quickly become an emergency, or appear as one. Practically food has no borders as a result of globalization and technical innovations and the global food chain is highly vulnerable to the attacks. In addition there is no specific targeting information indicating attack on food supply is imminent and manuals for intentional contamination of food are widely available, therefore a concern exists for exploitation of soft targets, such as the food chain. Taking into account the mass usage of water (70% worldwide used for agriculture), water shortages seem likely to create tension in some regions of the world especially where several countries rely on the same water sources. In that sense, food insecurity is a current and a future massive problem that should be handled globally. Food security challenge through hunger-poverty cycle will be discussed as a dilemma for solution.

Keynote Speaker III



Prof. Osam Adiguzel

Firat University, Department of Physics, Turkey

Dr Osam Adiguzel was born in 1952, Nigde, Turkey. He graduated from Department of Physics, Ankara University, Turkey in 1974 and received PhD- degree from Dicle University, Diyarbakir-Turkey in Solid State Physics with experimental studies on diffusionless phase transformations in Ti-Ta alloys in 1980. He studied at Surrey University, Guildford, UK, as a post doctoral research scientist in 1986-1987, and his studies focused on shape memory alloys. He worked as research assistant, 1975-80, at Dicle University, Diyarbakir, Turkey. He shifted to Firat University in 1980, and became professor in 1996, and He has already been working as professor. He published over 45 papers in international and national journals, He joined over 60 conferences and symposia in international and national level with contributions of oral or poster, and He supervised 5 PhD- theses and 3 M.Sc theses. Dr. Adiguzel served his directorate of Graduate School of Natural and Applied Sciences, Firat University in 1999-2004. He received a certificate which is being awarded to him and his experimental group in recognition of significant contribution of 2 patterns to the Powder Diffraction File – Release 2000. The ICDD (International Centre for Diffraction Data) also appreciates cooperation of his group and interest in Powder Diffraction File. Scientific fields of Dr. Adiguzel are as follow: Martensitic phase transformations and applications to copper-based shape memory alloys, molecular dynamics simulations, alloy modeling, x-ray diffraction, and electron microscopy.

Topic: “Atomic-Scale Aspects of Displacive Transformations in Shape Memory Alloys”

Abstract: Shape memory alloys take place in a class of smart materials by exhibiting a peculiar property called shape memory effect. This property is characterized by the recoverability of desired shape on the material at different conditions. Shape memory alloys are functional materials in many engineering application due to the capability to recover the initial shape when subjected to variation of temperature or stress.

Shape memory effect is based on a solid state phase transition, martensitic transformation, which is characterized by a change in the crystal structure of the material. Martensitic transformations are first order diffusionless transitions and occur with cooperative movement of atoms in the materials on cooling from high temperature parent phase region.

Martensitic transformations have displacive character and the product phase inherits the order of parent phase, and atomic movements are less the half interatomic distance.

Martensitic transformations occur by two or more lattice invariant shears on a {110}-type plane of austenite matrix which is basal plane or stacking plane for martensite, as a first step, and the transformed region consists of parallel bands containing alternately two different variants. These variants form internally twinned martensite regions. In a martensitic transformation, the lattice of high temperature austenite phase has greater crystallographic symmetry than that of the low-temperature product phase.

Copper based ternary alloys exhibit this property in metastable β -phase field, which have bcc-based structures at high temperature. These structures undergo two ordered transitions on cooling, and bcc structures turn into B2 (CsCl) or DO_3 (Fe_3Al) -type ordered structures. These ordered structures martensitically undergo the non-conventional structures on further cooling.

Lattice invariant shear is not uniform in copper base ternary alloys and causes the formation of the unusual layered complex structures called long period layered structures such as 3R, 9R or 18R depending on the stacking sequences on the close-packed planes of the ordered lattice.

The complicated long-period stacking ordered structures mentioned above can be described by different unit cells. The close-packed planes, basal planes, exhibit high symmetry and short range order as parent phase, but the unit cell is completed through 18 layers in direction z, and the unit cell has not symmetry in this direction. Therefore, the unit cells in the product phases of the mentioned alloys are not periodic in short range in direction z.

All of these martensite phases are long-period stacking ordered structures that is the underlying lattice is formed by stacks of close-packed planes.

In the present contribution, x-ray diffraction and transmission electron microscopy (TEM) studies were carried out on two CuZnAl and CuAlMn alloys. X-ray diffraction profiles and electron diffraction patterns reveal that both alloys exhibit super lattice reflections inherited from parent phase due to the displacive character of martensitic transformation.

Brief Schedule for Conferences

December 5, 2015 (Saturday) 10:00~17:00 Venue: Al Rigga Boardroom Arrival Registration	
December 6, 2015 (Sunday) 9:00~18:20 Venue: Flora Grand Ballroom Arrival Registration, Keynote Speeches, and Conference Presentations	
Morning Conferences	
Venue: Flora Grand Hall Opening Remarks 9:00~9:10 Keynote Speech I 9:10~10:00 Coffee Break & Photo Taking 10:00~10:20 Keynote Speech II 10:20~11:10 Keynote Speech III 11:10~12:00	
Lunch 12:00~13:00 Venue: Hotel Restaurant	
Afternoon Conferences	
Session 1: 13:00~14:30 Venue: Flora Grand Hall 6 presentations-Topic: "Food"	Session 2: 13:00~14:30 Venue: Al Umara 6 presentations-Topic: "Medical and Bio-technology"
Break Time 14:30~14:40	
Session 3: 14:40~16:10 Venue: Flora Grand Hall 6 presentations-Topic: "Agriculture"	Session 4: 14:40~16:10 Venue: Al Umara 6 presentations-Topic: "Environment"
Break Time 16:10~16:20	
Session 5: 16:20~18:20 Venue: Flora Grand Hall 9 presentations-Topic: "Materials Mechanical and Electrical System"	Session 6: 16:20~18:05 Venue: Al Umara 7 presentations-Topic: "Environment"
Dinner: 18:30 Venue: Hotel Restaurant	
December 7, 2015 (Monday) One-Day Tour	

Tips:

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

Detailed Schedule for Conferences

December 5, 2015 (Saturday)

Venue: Al Rigga Boardroom

10:00-17:00	Arrival and Registration
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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 December 6, 2015.

Morning, December 6, 2015 (Sunday)

Venue: Flora Grand Hall

9:00~9:10		Opening Remarks Prof. Hami Alpas Food Engineering Department, Middle East Technical University, Turkey
9:10~10:00		Keynote Speech I Prof. Saif Al Qaydi United Arab Emirates University, UAE Topic: "Preemptive Intervention in Vulnerable Regions and its Impact on World Food Supplies; Natural Disasters"
10:00~10:20	Coffee Break & Photo Taking	
10:20~11:10		Keynote Speech II Prof. Hami Alpas Food Engineering Department, Middle East Technical University, Turkey Topic: "Food Continuum Paradigm in a Global World: The Food Security Challenge"
11:10~12:00		Keynote Speech III Prof. Osam Adiguzel Firat University, Department of Physics, Turkey Topic: "Atomic-Scale Aspects of Displacive Transformations in Shape Memory Alloys"

Lunch	
12:00~13:00	Hotel Restaurant

Session 1

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

Afternoon, December 6, 2015 (Sunday)

Time: 13:00~14:30

Venue: Flora Grand Hall

Session 1: 6 presentations-Topic: “Food”

Session Chair: Prof. Saif Al Qaydi

A0003 Presentation 1 (13:00~13:15)

An Evaluation of the Level of Synthetic Phenolic Antioxidants in Virgin Palm Oil

Oladunni Olafisoye, Olalekan Fatoki, Oluwafemi Oguntibeju, and Adelaja Osibote

Cape Peninsula University of Technology, South Africa

Abstract—Palm oil contains important dietary nutrients and it is important to humans since it contains antioxidants which are mediators of various diseases especially of the cardiovascular system. Virgin palm oil is pressed from the oil palm fruit and stored in vessels prior to usage. During storage virgin palm oil undergoes various oxidation processes making it rancid. This reduces its shelf life and causes it to change in colour and composition giving off an offensive odour. It is possible for small and large scale oil palm plantation owners to preserve the virgin palm oil by some natural means or artificially with the use of synthetic phenol antioxidants. Synthetic phenolic antioxidants are added to food for preservation and to prolong its shelf life. In this study, virgin palm oil was analysed for synthetic phenolic antioxidants by Reverse Phase-High Performance Liquid Chromatography (RP-HPLC) coupled with a Ultraviolet /Visible (UV-Vis) detector. A mixture of solvents, hexane and acetonitrile was used for the extraction method. Virgin palm oil was analysed qualitatively and quantitatively to determine the concentration of Butylated hydroxytoluene (BHT), butylated hydroxyanisole (BHA), propyl gallate (PG) and 2- ethylhexyl 4-methoxycinnamate (EEMC). PG was detected below the detection of the method. A new extraction method was proposed to validate the experimental procedure.

Afternoon, December 6, 2015 (Sunday)

Time: 13:00~14:30

Venue: Flora Grand Hall

Session 1: 6 presentations-Topic: “Food”

Session Chair: Prof. Saif Al Qaydi

A0006 Presentation 2 (13:15~13:30)

Antibacterial Activity of Different Culture Extracts from Marine *Penicillium citrinum* against Food-Borne Bacteria

Nor Ainy Mahyudin and Noor Ifatul Hanim Mat Daud

Universiti Putra Malaysia, Malaysia

Abstract—Marine fungi have demonstrated different levels of bioactivities under different cultural and extraction conditions, thus indicate their likelihood to have a wide range of biosynthetic capabilities. The objectives of this study are to investigate the effect of culture media [Peptone Yeast Glucose broth (PYGB), Malt Extract broth (MEB) and Potato Dextrose broth (PDB)] and extraction solvents [Ethyl acetate (EtOAc), Dichloromethane (DCM), Chloroform (CHCl₃) and Carbon tetrachloride (CCl₄)] on the antibacterial activities of *Penicillium citrinum* against four food-borne pathogens [*Listeria monocytogenes* (ATCC 19155), *Staphylococcus aureus*, *Escherichia coli*, and *Salmonella Typhi* (ATCC 14028)]. Antibacterial activity was assessed using disc diffusion assay, minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) methods. *P. citrinum* cultured on MEB and PYGB media showed activities against all tested bacteria, while PDB cultures were active only against *E. coli* and *S. Typhi*. The MEB culture exhibited highest antibacterial activity ($p < 0.05$) against *L. monocytogenes* (21.45 ± 0.21 mm), followed by *S. Typhi* (18.80 ± 0.65 mm), *S. aureus* (16.36 ± 0.36 mm) and *E. coli* (15.76 ± 0.71). The lowest MIC value was also demonstrated by the MEB culture of *P. citrinum* against all tested bacteria (7.50 mg/ml), while the lowest MBC value (7.50 mg/ml) was against *S. aureus* and *L. monocytogenes*. The EtOAc extracts of *P. citrinum* cultured on MEB displayed highest activity ($p < 0.05$) against all tested bacteria; *L. monocytogenes* (24.35 ± 0.92 mm), followed by *S. Typhi* (19.64 ± 0.55 mm), *S. aureus* (17.94 ± 0.48 mm) and *E. coli* (16.13 ± 0.88 mm). DCM and CHCl₃ extracts showed moderate antibacterial activity against all tested bacteria, while CCl₄ extract was inactive against *S. aureus* and *L. monocytogenes*, and displayed lowest inhibition zone for *E. coli* (5.92 ± 0.41 mm) and *S. Typhi* (4.37 ± 0.40 mm). The EtOAc extracts of *P. citrinum* showed lowest MIC value (7.50 mg/ml) against both *L. monocytogenes* and *S. Typhi*, while the lowest MBC value (7.50 mg/ml) was recorded against *L. monocytogenes*, *S. aureus*, and *S. Typhi*. The *P. citrinum* isolate has the potentials to be explored as new antibacterial agents against food-borne bacteria by exploiting the use of different culture media and solvent extractions.

Afternoon, December 6, 2015 (Sunday)

Time: 13:00~14:30

Venue: Flora Grand Hall

Session 1: 6 presentations-Topic: “Food”

Session Chair: Prof. Saif Al Qaydi

A0010 Presentation 3 (13:30~13:45)

Effects of Controlled Atmosphere Conditions on Storability of Libyan Hurra Soft Date Cultivar

Mohamed A. Fennir and Mohamed T. Morgham

Faculty of Agriculture, Tripoli University, Libya

Abstract—Libyan ‘Hurra’ soft dates at ‘Khalal’ (Balah) stage were stored at 1 °C and four controlled atmosphere (CA) treatments; O₂-CO₂ percentages named as CA1 (7.33-4.23), CA2 (10.75-5.95), CA3 (12.08-3.38), and CA4 (15.05-2.70). CA treatments were compared with regular atmosphere (RA) (21-0.03) in storage duration. Quality related attributes such as mass loss, color, fruit firmness, total soluble solids (TSS) and respiration rate were also measured at the start and the end of the storage duration. The four CA treatments led to extending fruit storability up to 23 weeks, compared with RA treatment which lasted for 7 weeks. Mass losses were about 5, 5, 6 and 8% for CA1 to CA4 treatments, respectively, while mass loss in RA treatment reached 38%. Color, firmness, TSS were all significantly lower than those measured at the start of the experiment, yet their ranges were in good agreement with values reported in the literature and fell within acceptable ranges. CA treatments also affected respiration, its mean rate was (<0.5ml⁻¹.kg⁻¹.h⁻¹), compared with (2.2 ml⁻¹.kg⁻¹.h⁻¹) measured at RA.

Afternoon, December 6, 2015 (Sunday)

Time: 13:00~14:30

Venue: Flora Grand Hall

Session 1: 6 presentations-Topic: “Food”

Session Chair: Prof. Saif Al Qaydi

A0011 Presentation 4 (13:45~14:00)

Encapsulation of *Michelia alba* D.C. Extract Using Spray Drying and Freeze Drying and Application on Thai Dessert from Rice Flour

Raj nibhas Samakradhamrongthai, Prodepran Thakeow, Phikunthong Kopermsub, and Niramom Utama-Ang

Division of Product Development Technology, Faculty of Agro-Industry, Chiang Mai University, Thailand

Abstract—The objectives of this research were to investigate and characterize encapsulated powder of *Michelia alba* D.C. (MAD) extract from spray drying and freeze drying with octenyl succinic anhydride starch (OSA). The results showed that moisture content, water activity and solubility of spray drying were lower than freeze drying whereas the encapsulation efficiency was higher. The X-ray diffraction results also revealed that the freeze-dried encapsulated powder exhibited less amorphous form and higher crystallinity than the spray-dried encapsulated powder. It was indicated that the encapsulated powder from spray drying and freeze drying created complexes of the OSA starch and the MAD extract which indicated high stability of encapsulated powder. In addition, the decreasing of aroma content from the MAD encapsulated powder also that volatile compounds are restored better by microencapsulation. The spray-dried encapsulated powder was taken to create the multi-core encapsulated powder and applied on Nam Dok Mai (NDM) Thai dessert. It was varied at 0, 0.5, 1, 3, and 5% w/w. The color and texture profile were analyzed and also sensory evaluation. The results revealed that NDM dessert with 1% w/w of multi-core encapsulated MAD flavor powder showed the most preferable of sensory preference. In conclusion, the spray drying was suitable for encapsulating the MAD extract. The multi-core encapsulated MAD powder at 1% w/w was the most suitable amount to apply on NDM dessert.

Afternoon, December 6, 2015 (Sunday)

Time: 13:00~14:30

Venue: Flora Grand Hall

Session 1: 6 presentations-Topic: “Food”

Session Chair: Prof. Saif Al Qaydi

A0015 Presentation 5 (14:00~14:15)

Protective Effect of CSN1S2 Protein of Fresh Goat Milk on Ileum Microstructure and Inflammation in Rat-CFA-Induced Rheumatoid Arthritis

Fatchiyah Fatchiyah and Rista N Rohmah

University of Brawijaya, Indonesia

Abstract—The bioactive peptides is being able to modulate the biological activities on cellular mechanism. Recently our study, we had characterized seven bioactive peptides of the Indonesian local Ethawah breed milk and high amount of caprine CSN1S2 protein (MW: 36kDa), whether this molecular weight is not detected in bovine casein milk. This study aimed to elaborate the protective effect of goat milk CSN1S2 protein on ileum microstructure and inflammation in rat-CFA-induced rheumatoid arthritis model and treated the oral administration of CSN1S2 protein of goat milk and yogurt for 3 months. The ileum microstructures were analyzed by using Scanning Electron Microscopy (SEM) and measured of level expression IgE, secretory-IgA, IL-17, IL-10, Ki-67 and caspase-9 using Western blotting. The CSN1S2 protein of milk and yogurt could repair the ileum villi of RAM and RAY group similar with normal, though goat yogurt CSN1S2 proteins revealed a little cavity reform. Our study revealed that there were different microstructures of ileum characteristic between normal and RA rat model. The RA rat models had no intact and showed an appearance at cavity of ileum surface comparing with the normal rats. The ileum histology also had shown the villi ileum destruction on the columnar absorption cell. The level of IgE and secretory-IgA was down-regulated after induced by both goat CSN1S2 proteins. The expression level of IL-17 was down-regulated and IL-10 expression was up-regulated at both of goat milk and yogurt CSN1S2 protein of RA rat group. The expression level of Ki-67 of RAM and RAY rat group was significantly increased. The expression of caspase-9 RA rat group was significantly declining closed with normal levels. In conclusion, CSN1S2 protein of goat Ethawah breed milk and yogurt could repair the ileum microstructure and suppress inflammatory processes through IL-10 elevation. These results indicate that goat CSN1S2 protein may protect the ileum disorder in RA disease.

Afternoon, December 6, 2015 (Sunday)

Time: 13:00~14:30

Venue: Flora Grand Hall

Session 1: 6 presentations-Topic: “Food”

Session Chair: Prof. Saif Al Qaydi

A0016 Presentation 6 (14:15~14:30)

Cereal By-Products Conversion to Stock with High Content of *P. acidilactici* BaltBio01 MSCL P1480 by Using Enzymatic and Microbial Treatment

Elena Bartkiene, Vadims Bartkevics, and Vita Krungleviciute

Lithuanian University of Health Sciences, Lithuania

Abstract—The aim of this study was to apply the enzymatic treatment and fermentation with *P. acidilactici* BaltBio01 MSCL P1480 for industrial cereal by-products on purpose to produce food/feed stock with high amount of lactic acid bacteria (LAB). Also, the possibility to use the potato juice for *P. acidilactici* multiplication was analyzed. Potato juice was found suitable substrate for *P. acidilactici* cultivation (cells count 9.6 log CFU/mL). Two techniques (freeze- and spray-drying) were used for *P. acidilactici* stabilization in potato juice. Stabilized by spray-drying LAB powder remained stable (7.0 log CFU/g of viable cells) during 12 months of storage and was used as bacterial starter for cereal by-products fermentation. The changes of microbial profile, biogenic amines (BAs), mycotoxins, lactic acid (L+/D-), lignans and alkylresorcinols (ARs) contents of fermented cereal by-product were analysed. Microbial fermentation reduces mycotoxins content of cereal by-products. The BAs concentration in fermented cereal by-products were far below those levels associated with a health risk. The use of *P. acidilactici* for cereal by-product fermentation increase matairesinol and secoisolariciresinol content. According to our results, *P. acidilactici* could be used for cereal by-products fermentation, as a potential resource to produce safer food/feed stock with high amount of LAB.

14:30-14:40

Break Time



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, December 6, 2015 (Sunday)

Time: 13:00~14:30

Venue: Al Umara

Session 2: 6 presentations-Topic: “Medical and Bio-technology”

Session Chair: Dr. Sengul Tural

H0003 Presentation 1 (13:00~13:15)

Study on the Bid Decision System of Renewable Energy for Buildings Based on FAHP and Intuitionistic Fuzzy Set TOPSIS Method

Yunna Wu, **Zhen Wang**, and Shuai Geng

North China Electric Power University, College of Economic and Management, China

Abstract—In a renewable energy for buildings project, the owner needs the different contractors to complete it. In order to ensure the project’s quality, we need a decision framework of renewable energy for buildings contractors selection. Currently, few research papers study contracting problems from the owners’ perspectives, but from the contractors’ about the renewable energy for buildings. Hence, This paper is first to summarize the influence factors of the renewable energy building contractors selection from the owners’ perspectives, establish the basic conditions to screen the contractors and select the appropriate contractors from the aspects of business and technology. Then we use the Fuzzy AHP(Fuzzy Analytic Hierarchy Process) to determine the relative weights of the evaluation criteria and IFS-TOPSIS (the Intuitionistic Fuzzy Set Technique for Order Preference by Similarity to Ideal Solution) to rank the alternatives. Based on the aforementioned contents, the decision framework of renewable energy building contractors selection is established. The advantages of this decision framework have two: first, it can offer the contractors selection direction for the owners of renewable energy building; second, this decision framework can solve the information loss problem which will affect the reasonability and accuracy of the decision result. Finally, a China’s case study proves this decision framework is effective.

Afternoon, December 6, 2015 (Sunday)

Time: 13:00~14:30

Venue: Al Umara

Session 2: 6 presentations-Topic: “Medical and Bio-technology”

Session Chair: Dr. Sengul Tural

H0004 Presentation 2 (13:15~13:30)

Cellular Thermal Measurement and Characteristic Analysis of Yeast Cells by Dielectrophoresis

Ryo Kido and Kozo Taguchi

Ritsumeikan University, Japan

Abstract—In this paper we measured the cellular thermal changes by dielectrophoresis when we used yeast cell for the target cell. First, we conformed about heat damage evaluation of the yeast cells in the suspension. This is because to check the effectiveness of our proposed experimental systems and our electrodes. As a result, it was found that cells activity could be checked from shunt voltage changes. Second, we conformed about cellular thermal measurement using yeast cell. As the results, yeast cell was trapped between the electrodes by the DEP force and shunt voltage changes were measured as the impedance changes between the electrodes. Shunt voltage increased with the temperature rise, and decreased with the temperature drop. In addition, this phenomenon was confirmed only when the cells have been trapped. Also, when the number of trapped cell increased, voltage changes became larger.

Afternoon, December 6, 2015 (Sunday)

Time: 13:00~14:30

Venue: Al Umara

Session 2: 6 presentations-Topic: “Medical and Bio-technology”

Session Chair: Dr. Sengul Tural

H0005 Presentation 3 (13:30~13:45)

Discontinuous Electrophoresis Deposition for Dye-Sensitized Solar Cells

Kanta Sugii and Kozo Taguchi

Ritsumeikan University, Japan

Abstract—As one method of making dye sensitized solar cell (DSSC), electrophoresis deposition (EPD) which laminates TiO_2 on anode using two electrodes is practical way. Because it linked with low-temperature firing in case of espousing plastic substrate. In addition to being able to cut cost of experimental devices. However it has been reported that cracks appear and get bigger on surface of TiO_2 layer depending TiO_2 thickness. In this paper, we conducted discontinuous electrophoresis and compared with continuous about surface condition of TiO_2 layer and conversion efficiency. We used a glass substrate coated FTO as an anode and pt-FTO as a cathode. We adopted MK-2 dye which was an organic pigment. As a result of experiment, we could realize improvement of TiO_2 surface condition and progress conversion efficiency in case of discontinuous (2.47%) than continuous (2.08%) under illumination with 100 mWcm^{-2} (AM 1.5) simulated sunlight. Moreover, we proved that it was better dividing number of times.

Afternoon, December 6, 2015 (Sunday)

Time: 13:00~14:30

Venue: Al Umara

Session 2: 6 presentations-Topic: “Medical and Bio-technology”

Session Chair: Dr. Sengul Tural

H0006 Presentation 4 (13:45~14:00)

Evaluation of Cells Activity Using Non-Invasive Dielectrophoresis Method

Ryosuke Komai and Kozo Taguchi

Ritsumeikan University, Japan

Abstract—The advance of biotechnology has provided various benefits to our lives. There is an increase in the opportunity of cell fusion and cultivation for using optical tweezers. Although optical tweezers is useful technique, cells are damaged by laser irradiation. Therefore, in our study, we estimated the cells damage by Ar laser (514nm) and semiconductor laser at 980nm. As a preliminary stage to our study, we trapped cells using optical tweezers at 980nm laser and Ar laser and showed manipulation data of polymer microspheres and yeast cells. Furthermore we calculated trapping power and trapping efficiency from the results of manipulation data. In the next stage, we focused on activity evaluation method using Dielectrophoresis (DEP) as estimating yeast cells damage. We trapped yeast cells by optical tweezers at 980nm laser and Ar laser and observed the movement of cells while changing the time of irradiation. We set the initial value to voltage of 1V and frequency of 500kHz and applied such parameter settings to the electrode by function generator(KENWOOD, FG-281). This experiment proved that optical tweezers at Ar laser was harmful for yeast cells, while optical tweezers at 980nm laser was harmless for yeast cells.

Afternoon, December 6, 2015 (Sunday)

Time: 13:00~14:30

Venue: Al Umara

Session 2: 6 presentations-Topic: “Medical and Bio-technology”

Session Chair: Dr. Sengul Tural

H0007 Presentation 5 (14:00~14:15)

Experimental Investigation of Carbon Nanotubes Counter Electrodes for Dye-Sensitized Solar Cells

Kazuaki Tamiya and Kozo Taguchi

Ritsumeikan University, Japan

Abstract—Carbon nanotubes (CNT) counter electrodes for dye-sensitized solar cells (DSSCs) were prepared by electrophoretic deposition (EPD). It was shown to be a convenient method to fabricate uniform coatings of CNT with desired thickness by changing voltage, electrophoresis time and inter electrode distance. Currently, CNT counter electrodes are lower conversion efficiency than that of Pt counter electrodes, and it needs to improve conversion efficiency as much as possible. We found that when we fabricated CNT counter electrodes at 500 °C, both conversion efficiency and surface area obtained the best result. In this study, we examined that when we controlled film thickness by using EPD, how it would affect the conversion efficiency. We fixed DC voltage at 15V and controlled film thickness from 5µm to 20µm. After that, we sintered it at 500°C and measured the conversion efficiency. As experimental results, we achieved the highest efficiency at 10µm and 2.4 %.

Afternoon, December 6, 2015 (Sunday)

Time: 13:00~14:30

Venue: Al Umara

Session 2: 6 presentations-Topic: “Medical and Bio-technology”

Session Chair: Dr. Sengul Tural

H1002 Presentation 6 (14:15~14:30)

Genotoxic Effects of Levetiracetam Exposure during Pregnancy on Rat Offsprings

Sengul Tural

Ondokuz Mayıs University, Faculty of Medicine, Turkey

Abstract—Levetiracetam (LEV) is a new generation antiepileptic drug initially approved as an adjunctive treatment of refractory partial seizures and is now also used as monotherapy. The aim of this study was to evaluate the genotoxic effects of LEV exposure during pregnancy on rat offsprings. In this study, we used the newborn pups of rats exposed to LEV during pregnancy. Thirty Sprague-Dawley rats were divided into three groups. The mother rats of group 1 and 2 were treated with different doses of LEV (25 mg/kg/d and 50 mg/kg/d) from gestational days 1 to 18 during pregnancy. Group 3 (control group) was not treated with any drug. In vivo Sister Chromatid Exchange (SCE) induction and in vivo Micronucleus (MN) formation were performed. The pups of rats bone-marrow were used for investigation. As a result of this study, SCE and MN values of LEV 25 and 50 mg/kg/d groups were compared with those of control group and it was seen that LEV exposure did not alter SCE frequencies and the mean of MN in prenatal period ($p>0.05$). It was also seen that LEV did not cause miscarriage during pregnancy in mother rats. This study emphasized the fetal safety after prenatal LEV exposure.

14:30-14:40

Break Time



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, December 6, 2015 (Sunday)

Time: 14:40~16:10

Venue: Flora Grand Hall

Session 3: 6 presentations-Topic: “Agriculture”

Session Chair: Prof. Hami Alpas

A0001 Presentation 1 (14:40~14:55)

Environmental Control of a Greenhouse System Using NI Embedded Systems Technology

Christakis Papageorgiou, Ahmed Sadriwala, Mohammed Almoalem, Conor Sheedy, and Andre Hajjar

Bahrain Polytechnic, Bahrain

Abstract—This paper presents the application of an automated environmental control system for a prototype greenhouse system using commercial embedded systems technology. The prototype greenhouse system was developed and instrumented with appropriate sensors to measure various environmental variables like the temperature, the light intensity, the soil moisture, the air humidity and CO₂ concentration. These measurements are provided to the control algorithm which is implemented on a commercial embedded system and manipulates various actuators like, a heating and cooling actuator, fans, lights, irrigation system, and louvers in order to achieve the desired set-points, as specified by the user through a Human-Machine Interface implemented in LabView software. Certain aspects of the greenhouse dynamics have been modeled in Matlab/Simulink using nonlinear differential equations and the simulation model has been validated against experimental data, showing good agreement between the simulation and the experimental data. The purpose of this work is to enhance research related to the accurate environmental control of greenhouse systems in order to minimize energy and water consumption and to develop a robust educational platform for teaching control system design, analysis, instrumentation and embedded systems development at the Engineering School of Bahrain Polytechnic.

Afternoon, December 6, 2015 (Sunday)

Time: 14:40~16:10

Venue: Flora Grand Hall

Session 3: 6 presentations-Topic: “Agriculture”

Session Chair: Prof. Hami Alpas

A0002 Presentation 2 (14:55~15:10)

Is Trunk Injection More Efficient Than Other Iron Fertilization Methods in Date Palms Grown in Calcareous Soils?

Jahanshah Saleh, Yaaghoob Hosseini, and Maryam Ghoreishi

Hormozgan Agricultural and Natural Resources Research and Education Center, Iran

Abstract—The effect of different iron fertilization methods on yield and some fruit quality parameters of the date-palm variety ‘Piarom’ was studied in a calcareous soil of Hormozgan Province in Iran. The trees were 12 years old and the treatments comprised of: 1-control, 2-surface placement of Fe-EDDHA in the soil with two levels, 3- deep placement of FeSO₄ in the soil (Chalkood method) with two levels, and 4- injection of FeSO₄ solution into the trunk of trees with four levels. The experiment was accomplished as a randomized complete blocks design with nine treatments and three replications during four years. Injection of 25 grams of FeSO₄ into the trunk resulted in the highest yield, having considerable differences with the other treatments. The maximum concentration of iron, as well as the highest Brix index and reducing sugars content were obtained in trees injected with a solution of FeSO₄, showing no significant differences between different levels of FeSO₄. Therefore, it can be concluded that trunk injection is a more efficient method for iron fertilization of date palms grown in calcareous soils. Moreover, the best injection level was 25 grams FeSO₄ tree⁻¹.

Afternoon, December 6, 2015 (Sunday)

Time: 14:40~16:10

Venue: Flora Grand Hall

Session 3: 6 presentations-Topic: “Agriculture”

Session Chair: Prof. Hami Alpas

A0004 Presentation 3 (15:10~15:25)

Determination of the Level of Pesticides in Sediment and Water from the Lagos Lagoon

Oladunni Olafisoye, Senkale Temitope, and **Adelaja Osibote**

Cape Peninsula University of Technology, South Africa

Abstract—The study aimed to determine the levels of organochlorine pesticides in sediment and water from the Lagos lagoon. Sediments and water samples were analysed using a ⁶³Ni electron capture detector gas chromatograph (Agilent 5890 series, GC-ECD). High levels of organochlorine pesticides were detected in both sediment and water samples collected. The results of the analysis show that the mean values of the organochlorine pesticide in sediments were higher than that for water. It can be attributed to the fact that organochlorine pesticides which are pollutants are more persistent and organically bound to sediments than water since sediments leach organically bound pollutants to water. Dichlorodiphenyltrichlorethane (DDT) and dichlorodiphenylchloroethane(DDE)were seen to be absent in both sediments and water sampled from the lagoon which is a possible indication to compliance on the ban of organochlorine pesticides for agricultural and fishing purposes.

Afternoon, December 6, 2015 (Sunday)

Time: 14:40~16:10

Venue: Flora Grand Hall

Session 3: 6 presentations-Topic: “Agriculture”

Session Chair: Prof. Hami Alpas

A0012 Presentation 4 (15:25~15:40)

Follicular Development, Estrus and Pregnancy Rate in Pre-Pubertal Goats Treated Melengestol Acetate (MGA) in Rural Areas of Mexico

Guillermo Salas-Razo, Edi Mendoza-Vargas, Ramiro A. Mendoza, and Jesús A. Rojo-Martínez

Universidad Michoacana De San Nicolás De Hidalgo, México

Abstract—The aim of this study was to evaluate the effect of a prolonged melengestrol acetate (MGA) treatment in pre-pubertal goats on the induction of ovarian activity, induction and synchronization of estrus and pregnancy rate. 10 pre-pubertal Saanen goats, 9 months of age, body condition of 2.1 ± 0.32 (scale 1-5), a live weight of 30.44 ± 1.93 kg and size of 62.1 ± 2.69 cm were used. The treatment consisted on the administration of 0.22 mg/goat/day of MGA orally, during 46 days. During the treatment, the ovaries were evaluated by rectal ultrasonography using a 7 MHz transducer on days 15, 30 and 45 to observe the presence or absence of follicles. Once the treatment was completed, the sire was placed in the pen with the goats and estruses were detected during 10 days post-treatment. The pregnancy diagnosis was performed 45 days after breeding via transabdominal ultrasound using a 3.5 and 5 MHz transducer. Since the first evaluation of ovarian activity, the 10 goats showed follicle development; in the right ovary an average of $9.66 < 4\text{mm}$ and $9.33 \geq 4\text{mm}$ was observed and in the left ovary $11.33 < 4\text{mm}$ and $9.66 \geq 4\text{mm}$, without the presence of corpus luteum. 100% of the goats presented estrus and the pregnancy rate was 90%; concluding that the use of MGA at a dose of 0.22 mg/goat/day in pre-pubertal goats during prolonged treatment induces follicular development, estrus synchronization and a high percentage of fertility by natural mating is obtained.

Afternoon, December 6, 2015 (Sunday)

Time: 14:40~16:10

Venue: Flora Grand Hall

Session 3: 6 presentations-Topic: “Agriculture”

Session Chair: Prof. Hami Alpas

A0013 Presentation 5 (15:40~15:55)

The Social Contribution of the Adoption of the Systems Intensive Silvopastoral in Tierra Caliente Michoacán, México

David Ramírez-Martínez and **Guillermo Salas-Razo**

Universidad Michoacana De San Nicolás De Hidalgo, México

Abstract—The production model intensive silvopastoral system must be evaluated from three perspectives of sustainable development: economic, social and environmental. The evaluation has been the most important economic aspect; while the environmental part has only been evaluated as justification to funding research and the social aspect was downplayed. The objective of this study was to know the social contribution through adoption intensive silvopastoral systems in Tierra Caliente, Michoacán. The information was provided by farmers through interviews. The data were diffusion source of the intensive silvopastoral system, year of diffusion the production model, production objective of intensive silvopastoral system, benefits perceived by the adoption of the production model and factors that influenced in implementing the intensive silvopastoral system. Since 2006, NGO have played an important role in the dissemination, implementation and adoption of these productions model. Intensive silvopastoral systems have been implemented with livestock objectives; farmers said they have received benefits by the adoption; the most influential factor in the implementation of the intensive silvopastoral system was the confidence generated from the experiences and previous results in other farmers. The adoption of intensive silvopastoral systems, increase the productivity and profitability of production units in addition to promoting environmental sustainability and social welfare.

Afternoon, December 6, 2015 (Sunday)

Time: 14:40~16:10

Venue: Flora Grand Hall

Session 3: 6 presentations-Topic: “Agriculture”

Session Chair: Prof. Hami Alpas

A2005 Presentation 6 (15:55~16:10)

Productivity Gains of the World Bank Assisted Fadama II Project: The Nigerian Federal Capital Territory Experience

Joseph C. Umeh, Faith Ani, Peter I. Ater, and Ebele U. Umeh

University of Agriculture, Makurdi, Nigeria

Abstract—The study appraised the productivity gains of the World Bank Assisted Fadama II Project in the Nigerian Federal Capital Territory. The respondents made up of 980 and 870 Beneficiaries and Non-Beneficiaries respectively were drawn adopting multi-stage stratified random sampling technique. Stochastic Production Function Model was used to estimate the elasticities of production and the technical efficiencies of the two groups. The estimated Stochastic Production Function discriminated between the two groups on the basis of the factors (improved seeds and fertilizers) which the project assisted the participants to acquire. Elasticities of production for both the Beneficiaries and Non-Beneficiaries were 0.9 and 1.06 respectively. The mean efficiency for Beneficiaries and Non-Beneficiaries were 0.79 and 0.73 respectively with a significant mean difference among the groups. Given the productivity differential between the groups it is recommended that Fadama II Project which has tackled the Nigerian rural agricultural productivity problem be universally adopted throughout the Nigerian agriculture sector.

16:10-16:20

Break Time



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, December 6, 2015 (Sunday)

Time: 14:40~16:10

Venue: Al Umara

Session 4: 6 presentations-Topic: “Environment”

Session Chair: Assoc. Prof. Emmanuel Iyiegbuniwe

S0006 Presentation 1 (14:40~14:55)

Heavy Metals Pollution and Ecological Risk Assessment in Surface Sediments of West Coast of Peninsular Malaysia

Tijjani Rufa' IBuhari and Ahmad Ismail

Northwest University, Nigeria

Abstract—In this study, Surface sediments from six sampling sites in the west coast of Peninsular Malaysia were analysed for heavy metals (Cu, Zn, Pb, Cd and Ni) to evaluate the pollution status and ecological risk assessment. Sediment samples were collected in triplicates from six sampling sites in the study area. Direct aqua – regia method was employed to analyse the total metal concentrations in the sediment samples. The filtrates obtained from the sediments, were determined for heavy metals by using an air –air acetylene flame atomic absorption spectrophotometer (AAS) Perkin Elmer Analyst 800. The results showed that Zn and Cd reveal considerable contamination, and almost all the sampling sites were of moderate degree of contamination. The calculated; Potential Ecological Risk Index (RI) ranged from low to moderate, the Sediment Quality Guideline Quotient (SQG-Q), for all the sampling sites falls into impact level category 2; indicating moderate impact potential for observing adverse biological effects. All the studied metals except Zn were found below effective range-median (ERM). The present study reveals that surface sediments from west coast of Peninsular Malaysia were exposed to heavy metals pollution; Zn and Cd were observed as metals of Ecotoxicological significant in the present study.

Afternoon, December 6, 2015 (Sunday)

Time: 14:40~16:10

Venue: Al Umara

Session 4: 6 presentations-Topic: “Environment”

Session Chair: Assoc. Prof. Emmanuel Iyiegbuniwe

S0008 Presentation 2 (14:55~15:10)

Carbonic Footprint Versus Time in Porto-Lisbon Route

Nuno Oliveira, Susana Paix ão, Jo ão Figueiredo, and **Ana Ferreira**

IPC – Escola Superior de Tecnologia da Saude de Coimbra, Portugal

Abstract—Dependence on fossil fuels is a major factor in the energy landscape on a global level, with particular focus on the transports sector. However the change in everyday habits as individuals and the practice of sustainable actions represent an extremely important role in reducing the carbon footprint. This article analyzes the carbon footprint in Porto-Lisbon route in different means of transport (road, air and rail) relating to the alleged time to make the trip. This article was carried out by using several computer programs, highlighting the COPERT IV v10.0, Flight Carbonfootprint Calculator and ECOviagem-CP to determine the CO2 emission values of the study modes. It was concluded that the fastest option is the plane and that the most sustainable option is the train. We need to rethink current policies and the goals we set to achieve. However the change in everyday habits as individuals and the practice of sustainable actions represent an extremely important role in reducing the carbon footprint.

Afternoon, December 6, 2015 (Sunday)

Time: 14:40~16:10

Venue: Al Umara

Session 4: 6 presentations-Topic: “Environment”

Session Chair: Assoc. Prof. Emmanuel Iyiegbuniwe

S0010 Presentation 3 (15:10~15:25)

A Review of Occupational Health Implications of Exposure and Risk Management of Carbon Nanotubes and Carbon Nanofibers

Emmanuel Iyiegbuniwe and Usonwanne Nwosu

Western Kentucky University, USA

Abstract—In the last decade, available research studies on industrial and biomedical applications have documented the potential for significant health effects from exposure to carbon nanotubes (CNTs) and carbon nanofibers (CNFs). This paper reviews existing information on toxicity and potential health risks from occupational exposures to CNTs and CNFs. Additionally, the paper discusses the need to consider the Precautionary Principle as a basis for risk management practices for effectively controlling exposures to CNTs and CNFs. It must be noted that in order to effectively evaluate workers’ exposures and minimize risks for respiratory hazards, a multi-tiered measurement strategy and feasible interventions or controls must be developed with a view to controlling exposures below NIOSH’s recommended exposure limit of 1.0 $\mu\text{g}/\text{m}^3$ over a working lifetime of 45 years. The application of classical industrial hygiene exposure controls (engineering, administrative control/work practices, and personal protective equipment) is recommended.

Afternoon, December 6, 2015 (Sunday)

Time: 14:40~16:10

Venue: Al Umara

Session 4: 6 presentations-Topic: “Environment”

Session Chair: Assoc. Prof. Emmanuel Iyiegbuniwe

S0011 Presentation 4 (15:25~15:40)

Phytoremediation Potential of *Jatropha Curcas*, *Adansoniadigitata* and *Azadirachta Indica* for Removal of Heavy Metals from Soils of the Challawa Industrial Estate, Kano-Nigeria

MaimunaWaziri, Usman Abdullahi, Abdulrahman A. Audu, and K Kalimullah

Department of Chemistry, Federal University, Nigeria

Abstract—Waste discharges into River Challawa in Kano, Nigeria is posing serious environmental hazards. The present study was therefore designed to examine the potentials of *Jatropha* (*Jatrophacurcas*), *Neem* (*Azadirachtaindica*) and *Baobab* (*Adansoniadigitata*) for phytoremediation of some heavy metals in the industrially contaminated soils of Challawa in Kano, Nigeria. The plants were grown under hydroponic greenhouse conditions for thirteen weeks and levels of metals in plants, soil and effluent water were determined using Atomic Absorption Spectrophotometer. The mean concentrations of the metals ranged from $4.33 \pm 0.02 \text{ mg/kg}$ Pb to $453.15 \pm 42.32 \text{ mg/kg}$ Fe and $2.6 \pm 0.01 \text{ mg/kg}$ to $114.6 \pm 23.24 \text{ mg/kg}$ for plants grown in the contaminated and control soils respectively. The bioaccumulation factors ($\text{BAC} > 1$) indicates metal contamination of the soils and thus can be used for their phytoextraction. The results suggests that the investigated plants are potentially useful for remediating heavy metals from Challawa contaminated soils.

Afternoon, December 6, 2015 (Sunday)

Time: 14:40~16:10

Venue: Al Umara

Session 4: 6 presentations-Topic: “Environment”

Session Chair: Assoc. Prof. Emmanuel Iyiegbuniwe

S0012 Presentation 5 (15:40~15:55)

Quantification and Prediction of the Impact of Road Transport on Ambient Concentrations of Particulate Matter PM10

Aminu Suleiman, Miles Tight, and Andrew Quinn

University of Birmingham, United Kingdom

Abstract—The main challenge facing the air quality management authorities in most cities is meeting the air quality limits and objectives in areas where road traffic is high. The difficulty and uncertainties associated with the estimation and prediction of the road traffic contribution to the overall air quality levels. In this paper, a decade of PM10 measurement collected from 10 monitoring sites in London was investigated with a view to estimating and predicting the impact of the road traffic on the concentration of PM10 levels in London. The bivariate polar plots were used to identify various sources of PM10 at the monitoring sites. The roadside PM10 increments were taken as the difference between the roadside and the background PM10 concentrations measured between 6:00 am and 22:00 pm. The contribution of other sources was discriminated by considering the PM10 increments associated with the wind speeds less than 3m/s and wind sectors related to the roads adjacent to the monitoring site. The mean PM10 increment for each wind speed – wind direction cell expressed as a percentage of the average roadside PM10 concentration was taken as the upper limits of the road contribution. The traffic, meteorological and pollutants data associated with the road contributions were then extracted and divided into training and testing data in preparatory for training an artificial neural network model for the prediction of the road contributions. The percentage frequency of the observations associated with the road contribution was about 21% to 44% of the total PM10 observations. Moreover, their corresponding mean increments was between 24% and 62% of the mean roadside PM10 concentrations. The models performed well in prediction the road contributions with their R-values ranging between 0.6 and 0.9, FAC2 between 0.6 and 0.95, and the normalised mean bias between 0.01 and 0.11.

Afternoon, December 6, 2015 (Sunday)

Time: 14:40~16:10

Venue: Al Umara

Session 4: 6 presentations-Topic: “Environment”

Session Chair: Assoc. Prof. Emmanuel Iyiegbuniwe

S3004 Presentation 6 (15:55~16:10)

Ecological Fitness of *Escherichia coli* Transconjugants Obtained via Horizontal Gene Transfer from Bacterial Communities in a Phytoremediated Mine Soil

Carlos Garbisu, Olatz Garaiurrebaso, **Iker Martín**, Fernando Blanco, Lur Epelde, Elisabeth Grohmann, and Itziar Alkorta

NEIKER, Spain

Abstract—The transfer of antibiotic resistance among bacteria via horizontal gene transfer (e.g., conjugative plasmids) is currently a well-known human health problem. In this study, initially, conjugative plasmids were isolated, using the Exogenous Plasmid Isolation Technique and *Escherichia coli* as recipient, from soil bacterial communities living in phytoremediated mine soils contaminated with trace elements (Zn, Pb, Cd). In particular, two mine soils, showing different levels of trace element contamination, were subjected to aided phytostabilization with a variety of organic amendments (cow slurry, sheep manure, chicken manure, paper mill sludge + chicken manure) and vegetated with *Festuca rubra* L. These soils were *a priori* very good candidates for the isolation of conjugative plasmids harbouring antibiotic resistance genes due to the presence of high trace element concentrations and animal manure amendments. As a matter of fact, seventeen *E. coli* transconjugants were confirmed by BOX-PCR. Out of these 17, ten transconjugants, showing antibiotic resistance against different antibiotics, were selected to study the effect of plasmid acquisition on the ecological fitness of these *E. coli* transconjugants. To this aim, we determined the following parameters which provide information on the abovementioned ecological fitness: growth curves, RNA/DNA ratios, gyrase activity, MIC values for trace elements and antibiotics, carbon substrate utilization patterns with Gen III BiologTM plates, and expression of antioxidant enzyme genes via RT-qPCR. Acquired conjugative plasmids showed to have a clear effect on both the fitness and phenotype of the different *E. coli* transconjugants obtained via horizontal gene transfer from bacterial communities in a phytoremediated mine soil.

16:10-16:20

Break Time

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, December 6, 2015 (Sunday)

Time: 16:20~18:20

Venue: Flora Grand Hall

Session 5: 9 presentations-Topic: “Materials Mechanical and Electrical System”

Session Chair: Prof. Osam Adiguzel

NP015 Presentation 1 (16:20~16:35)

Selective Binding of Protein Molecules with DNA-Wrapped Carbon Nanotubes

Kazuo Umemura, Yu Ishibashi, Katsuki Izumi, and Shusuke Oura

Tokyo University of Science, Japan

Abstract—Single-stranded DNA binding (SSB) proteins and RecA proteins are well known DNA binding proteins. SSB binds only with single-stranded DNA (ssDNA). RecA binds both ssDNA and double-stranded DNA (dsDNA). In this paper, we evaluated affinity of the two proteins with single-walled carbon nanotubes (SWNTs) that were wrapped with DNA molecules. Although hybrids of DNA and SWNTs have huge potentials in biological applications such as DNA sensing devices, fundamental researches to evaluate condition of DNA molecules on SWNT surfaces are required. We reacted SSB and RecA proteins with ssDNA-SWNT and dsDNA-SWNT surfaces in order to examine biomolecular recognition ability of the proteins against DNA molecules adsorbed on SWNT surfaces. As a result, SSB revealed exact selective binding onto DNA molecules even on SWNT surfaces. RecA also showed selective binding, however, tolerance of selectivity was observed. The information is helpful to establish nanobiodevices using DNA-SWNT hybrids with biomolecular recognition.

Afternoon, December 6, 2015 (Sunday)

Time: 16:20~18:20

Venue: Flora Grand Hall

Session 5: 9 presentations-Topic: “Materials Mechanical and Electrical System”

Session Chair: Prof. Osam Adiguzel

NP008 Presentation 2 (16:35~16:50)

Carbon Nanohorn and Carbon Nanotube Nanofluids for Solar Thermal Collectors

Sara Mesgari, Natasha Hjerrild, Felipe Crisostomo, and Robert Taylor

UNSW, Australia

Abstract—Carbon nanofluids are engineered materials with controllable thermal and optical properties. For solar thermal applications, they are uniquely well-suited due to their high spectral absorptivity over the entire solar range. Among carbon nanomaterials, carbon nanotubes have attracted particular attention as a potentially new class of solar thermal absorbers. The optical characterization results reported in previous studies show that multiwalled carbon nanotubes (MWNTs) are highly absorbing over the majority of the solar spectrum, allowing for close to 100 % solar energy absorption, even at low concentrations and small collection volumes. The application of carbon nanotubes as solar thermal absorbers is, however, currently hindered by the difficulties in achieving carbon nanotubes dispersions which remain stable at elevated temperatures. Disperion of CNTs has been widely investigated in the literature and a number of chemical functionalization methods including oxidation using strong acids, polymer grafting and mild oxidation using potassium persulfate have been developed to achieve stable dispersions of carbon nanotubes in polar solvents. However, because of the relatively low boiling points of most polar solvents, such dispersions are generally not suitable for medium temperature (up to 400 °C) solar thermal applications. One approach to achieving stable carbon nano-fluids for high temperature solar thermal applications is to use carbon nanomaterials with weaker inter-particle interactions including carbon nanohorns (CNHs) which are easier to disperse in nonpolar solvents. Due to their weaker inter-particle interaction and horn-like shape, carbon nanohorns tend to disperse better than carbon nanotubes at normal temperatures while offering a similarly high solar absorption. However, the stability of carbon nanohorn nanofluids at elevated temperatures experienced in solar thermal applications has not been investigated. By analysing the results of a comprehensive series of experiments, this paper compares the thermal stability of carbon nanohorn and carbon nanotube nanofluids at elevated temperatures of up to 250 °C. Carbon

nanotubes and carbon nanohorns were chemically functionalized to obtain stable dispersions in water, Glycerol, propylene glycol and Therminol (a synthetic non-polar oil). The stability of chemically functionalized carbon nanohorn and carbon nanotube dispersions at different temperatures including 80, 150, 200 and 250 °C was investigated. The results of optical characterization showed no agglomeration in the mildly oxidised carbon nanotubes and carbon nanohorns dispersed in Therminol when heated to 250 °C. Due to their considerably high stability at elevated temperatures as high as 250 °C together with their close to 100 % solar energy absorption (at a relatively small fluid thickness (mm range)), the nanofluids developed in this study are expected to open a new class stable nanofluid-based thermal absorbers for commercial solar thermal collectors designed to supply thermal energy in the temperature range of 100-250 °C.

Afternoon, December 6, 2015 (Sunday)

Time: 16:20~18:20

Venue: Flora Grand Hall

Session 5: 9 presentations-Topic: “Materials Mechanical and Electrical System”

Session Chair: Prof. Osam Adiguzel

NP2001 Presentation 3 (16:50~17:05)

Classical Molecular Dynamics Simulation on the Dynamical Properties of H₂ on Silicene Layer

CASUYAC, Miqueas P, and BANTACULO, Rolando V.

Physics Department, Mindanao State University – Iligan Institute of Technology, Philippines

Abstract—This study investigates the diffusion of hydrogen molecule physisorbed on the surface of silicene nanoribbon (SiNR) using the classical molecular dynamic (MD) simulation in LAMMPS (Large-scale Atomic/Molecular Massively Parallel Simulator). The interactions between silicon atoms are modeled using the modified Tersoff potential, the Adaptive Intermolecular Reactive Empirical Bond Order (AIREBO) potential for hydrogen – hydrogen interaction and the Lennard – Jones potential for the physisorbed H₂ on SiNR. By varying the temperatures (60 K - 130 K), we observed that the Δx displacement of H₂ on the surface SiNR shows a Brownian motion on a Lennard-Jones potential and a Gaussian probability distribution can be plotted describing the diffusion of H₂. The calculated mean square displacement (MSD) was approximately increasing in time and the activation energy barrier for diffusion has been found to be 43.23 meV.

Afternoon, December 6, 2015 (Sunday)

Time: 16:20~18:20

Venue: Flora Grand Hall

Session 5: 9 presentations-Topic: “Materials Mechanical and Electrical System”

Session Chair: Prof. Osam Adiguzel

R0010 Presentation 4 (17:05~17:20)

Available Fault Protection Methods of Ungrounded AC Microgrids Evaluated by Transient Simulation Results

Keng-Yu Lien, Duong Minh Bui, Shi-Lin Chen, Yung-Ruei Chang, Yih-Der Lee, Jheng-Lun Jiang, and Ching-Chih Lin

Department of Avionics, China University of Science and Technology, Hsinchu, Taiwan

Abstract—This paper evaluates fault protection methods of ungrounded low-voltage (LV) AC microgrids (MGs) based on transient simulation results of a typical ungrounded LVAC microgrid. By considering operation characteristics of ungrounded MGs and a literature review on existing MG fault protection solutions in recent years, possible fault protection methods are proposed for an ungrounded AC MG. Transient simulation results of an ungrounded AC MG are obtained by line-to-line (LL) and line-to-ground (LG) faults, and operation transition tests of the microgrid between autonomous and grid-connected operation modes. Based on the simulation results, advantages and disadvantages of each ungrounded microgrid protection solution are highlighted. In order to get the optimal fault protection, combinations among some or all of possible fault protection solutions of an ungrounded LVAC microgrid are found out. As a result, main contributions of the paper contain: (i) proposing and analysing available fault protection solutions of ungrounded LVAC MGs, (ii) doing the transient simulations of a typical ungrounded microgrid under different disturbance cases, and (iii) suggesting the necessary combinations among proposed fault protection solutions of ungrounded MGs.

Afternoon, December 6, 2015 (Sunday)

Time: 16:20~18:20

Venue: Flora Grand Hall

Session 5: 9 presentations-Topic: “Materials Mechanical and Electrical System”

Session Chair: Prof. Osam Adiguzel

R0011 Presentation 5 (17:20~17:35)

Transient Responses and Appropriate Fault Protection Solutions of Unigrounded AC Microgrids

Keng-Yu Lien, Duong Minh Bui, Shi-Lin Chen, Yung-Ruei Chang, Yih-Der Lee, Jheng-Lun Jiang, and Ching-Chih Lin

Department of Avionics, China University of Science and Technology, Hsinchu, Taiwan

Abstract—This paper simulates transient situations of a uni-grounded low-voltage (LV) AC microgrid through various fault tests and operation transition tests between grid-connected and islanded modes of the uni-grounded microgrid. Based on transient simulation results, available fault protection methods are proposed for main and back-up protection of a uni-grounded AC microgrid. As a result, main contributions of the paper are: (i) analysing transient responses of a uni-grounded LVAC microgrid through line-to-line faults, line-to-ground faults, three-phase fault and microgrid operation transition tests; and (ii) proposing available fault protection methods for uni-grounded microgrids, such as: non-directional or directional overcurrent protection, under/over voltage protection, differential protection, voltage-restrained overcurrent protection, and other protection principles not based on phase currents and voltages (e.g. total harmonic distortion detection of currents and voltages, using sequence components of current and voltage, 3I0 or 3V0 components).

Afternoon, December 6, 2015 (Sunday)

Time: 16:20~18:20

Venue: Flora Grand Hall

Session 5: 9 presentations-Topic: “Materials Mechanical and Electrical System”

Session Chair: Prof. Osam Adiguzel

DS1002 Presentation 6 (17:35~17:50)

Stability Simulation of a Vehicle with Wheel Active Steering

BRABEC Pavel, Robert Voženílek, and Martin Lachman

Technical University of Liberec, Czech Republic

Abstract—This paper deals with the possibility of increasing the vehicle driving stability at a higher speed. One of the ways how to achieve higher stability is using the 4WS system. A simulation model of a vehicle with such a system is described in this paper and one of the options of a control system set-up of such a system which uses compound coupling is also shown here.

Afternoon, December 6, 2015 (Sunday)

Time: 16:20~18:20

Venue: Flora Grand Hall

Session 5: 9 presentations-Topic: “Materials Mechanical and Electrical System”

Session Chair: Prof. Osam Adiguzel

DS1003 Presentation 7 (17:50~18:05)

Construction of a Special Mobile Robot that Uses a Special Travelling Wheel

BRABEC Pavel, Robert Voženílek, Václav Záda, and Leoš Beran

Technical University of Liberec, Czech Republic

Abstract—This paper deals with the engineering design of a solution of a mobile robot that uses a special travelling wheel for transmission of motive power onto a surface. It further explains the principle of a vehicle travelling wheel that – according to an actual situation of the surface – changes the way of the wheel movement on the surface.

Afternoon, December 6, 2015 (Sunday)

Time: 16:20~18:20

Venue: Flora Grand Hall

Session 5: 9 presentations-Topic: “Materials Mechanical and Electrical System”

Session Chair: Prof. Osam Adiguzel

DS3005 Presentation 8 (18:05~18:20)

A Method to Analyze Dynamics Properties of Transfemoral Prosthesis

Van Tuan Le, Kengo Onishi, Hiroshi Otsuka, Yukio Agarie, Shinichiro Yamamoto, and Akihiko Hanafusa

Shibaura Institute of Technology, Japan

Abstract—The method to compute gait cycle forces and moments acting on the hip and knee joints of a lower limb with a trans-femoral prosthesis were investigated. A 3D model of the lower limb with prosthesis was created using CAD software and based on MRI data and real size dimension. The transfemoral prosthesis was modelled as a coupled of links with two revolution joints at hip and knee joint. This coupled link was connected to a bar with translation joint to description the distance walked of people in gait cycle. All parts of the prosthesis were measured and a full-size 3D model was created. The kinematics parameters of a lower limb with a prosthesis were determined from motion-captured system data. The reaction force was measured with a force sensor in the footplate. The 3D model of the prosthesis was exported to Matlab Simmechanics. The input data which are kinematic parameters were applied to calculate the forces and moments acting on the joints. The results of this study present a method to analyse the dynamic properties of transfemoral prosthesis including speed of the gait. It could be used to calculate the load transferred from the socket to the residual limb. They could also be used to design the structure of a prosthesis and optimize the dynamic characteristics of such a prosthesis.

Afternoon, December 6, 2015 (Sunday)

Time: 16:20~18:20

Venue: Flora Grand Hall

Session 5: 9 presentations-Topic: “Materials Mechanical and Electrical System”

Session Chair: Prof. Osam Adiguzel

DS005 Presentation 9 (poster)

Numerical Modeling of Wheel/Rail Contact according a Curve and against Curve

L. Boussalia and Ahmed Bellaouar

Mentouri brothers, Constantine, Algeria

Abstract—The degradations generated by the couple wheel/rail in contact according to a curve and against curve are the result of the mechanical behavior of the wheel/rail contact. This approach consists in modeling the mechanical behavior in order to predict the intensity of the damage and areas which could be the seats of high concentrations. In the curved line, the degradation of the wheel is strongly implied because of an unfavorable loading state. The results presented show the evolution of the displacement and stress fields as well as the states of the contact elements (slip, adherence etc.) at the static state. The wheel/rail contact has involved the Hertz theory. The work is modeled by the finite element method as implemented in the computer code of the ANSYS APDL software. The results obtained are in good agreement with the operating conditions as well as the states of the couple loading. This study also serves to establish a preventive or conditional maintenance program in order to track spot areas identified by the predictive numerical model.

Session 6

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, December 6, 2015 (Sunday)

Time: 16:20~18:05

Venue: Al Umara

Session 6: 7 presentations-Topic: “Environment”

Session Chair: Prof. Ana Ferreira

S0009 Presentation 1 (16:20~16:35)

Evolution of Municipal Waste in the EU - Portugal, Croatia and Netherlands

Patr ícia Matos, **Susana Paix ão**, Jo ão Paulo Figueiredo, and Ana Ferreira

IPC – Escola Superior de Tecnologia da Saude de Coimbra, Portugal

Abstract—The waste production is intrinsically connected to the growth of society and economics, which allows us to understand that in the developed countries, or in developing, there is a growing trend for its increase. "The waste represent a huge loss of resources either in the form of materials or energy". The more waste is produced, the more wastage of resources result, therefore producing less "trash" should be a high-priority for any policy that manages waste. Thereupon, the objective of this study was to evaluate the evolution of Municipal Waste in Portugal, Croatia and Netherlands, in order to comprehend the amount of waste produced and its processing. These points were required to ascertain if there has been a significant improve over the last years, and if Portugal, Croatia and Netherlands are in the best way to fulfill the goals of the Directive 2008/98/EC for the year 2020. It is a systematic review of the documents of the international entities, which are the European Environment Agency e European Commission. They studied the evolution of the municipal wastes in the European Union of 2001-2013. In a nutshell, the values showed that there were a positive development in the area of the municipal waste and there was a trend to decline its production, such as the deposition of municipal waste in landfills, unlike the recycling that has being increased. Despite of this positive evolution, it is necessary to get more and better in this area, since there are still problems of environmental to tackle and objectives to fulfill.

Afternoon, December 6, 2015 (Sunday)

Time: 16:20~18:05

Venue: Al Umara

Session 6: 7 presentations-Topic: “Environment”

Session Chair: Prof. Ana Ferreira

S0014 Presentation 2 (16:35~16:50)

Thermochemical Conversion of Municipal Solid Waste – An Energy Potential and Thermal Degradation Behavior Study

Aviwe Hlaba, Ademola Rabiou, and Adelaja Osibote

Cape Peninsula University of Technology, South Africa

Abstract—Solid waste management has become an ever growing problem world-wide due to rapid urbanization and population growth. South Africa was found to have generated 59 million tons of general waste in 2011 with the Western Cape generating 675kg/capita/annum. The convention of management has been that of landfilling, however this method is fast becoming insignificant due to the lack of space and detrimental nature to environment. In light of the energy security issue South Africa is facing, and the global drive of finding alternate sources of fuel with the depletion of fossil fuel, attention has turned to MSW as a sustainable source of energy while remediating its effect on the environment. Thermochemical conversions of Municipal Solid Waste (MSW), thus presents an attractive means of harnessing the potential value in this waste stream thus thermochemical conversion pose an attractive means of converting this waste stream into valuable fuel products. Study was conducted making use of RDF pellets produced from the MSW. Pellet density was varied by varying the starch binder to MSW ratio, thus the effect of this on energy content and thermal degradation behavior was studied. The energy content of MSW in Cape Town was investigated using a bomb calorimeter and the thermal degradation behavior was studied using Thermogravimetric Analysis (TGA). The MSW calorific value was found to average at 19MJ/kg and 3 distinguishable major mass loss regions were found between temperatures 55 - 265°C, 270 - 410°C and 410 - 502°C. The total mass reduction was found to be 76%.

Afternoon, December 6, 2015 (Sunday)

Time: 16:20~18:05

Venue: Al Umara

Session 6: 7 presentations-Topic: “Environment”

Session Chair: Prof. Ana Ferreira

S0015 Presentation 3 (16:50~17:05)

Determinants of Rural Farmers` Adoption of Climate Change Adaptation Strategies: Evidence from Amathole District Municipality, Eastern Cape Province of South Africa

Amon Taruvinga, Martine Visser, and Leo Zhou

University of Fort Hare, South Africa

Abstract—There is consensus that rural farmers’ livelihoods are vulnerable to climate change. Also, literature suggests that locally driven adaptations are critical complementary strategies that can be targeted to reduce the negative effects of climate change in the short-run. Thus far, through using a cross sectional survey sample of 200 rural farmers from the Amathole district municipality of the Eastern Cape Province of South Africa, the paper estimated farmers’ climate change adaptation strategies, adaptation portfolio diversity and factors that condition farmers’ adoption behavior. The results reveal several crop, livestock and non-farm based adaptation strategies skewed in favour of crop and non-farm floral based techniques. The results further indicate that rural farmers in general are low adopters of climate change adaptation strategies with poor adaptation portfolio diversity. Regression estimates reveal several socio-economic and institutional factors as drivers of adoption and adaptation portfolio diversity worth targeting to promote the ability of rural farmers to cope with climate change.

Afternoon, December 6, 2015 (Sunday)

Time: 16:20~18:05

Venue: Al Umara

Session 6: 7 presentations-Topic: “Environment”

Session Chair: Prof. Ana Ferreira

S0016 Presentation 4 (17:05~17:20)

Study of Separating and Recovering Waste Metal Layers Aircraft by Electrochemical Treatment

Dihia Benyahia and Robert Hausler

École de technologie supérieure(ETS), Canada

Abstract—Recovery of waste metals of aircrafts is an important step during recycling process which is harder and more harmful by the presence of different toxic components. This study investigated the effects of different electrolyte (HCl, NaOH, HNO₃, H₂SO₄, H₃PO₄, NH₄OH) on the separation and recovery of waste metals layers using the electrochemical treatment with a constant voltage 3v. In addition, the influence of electrolyte concentrations (10, 5, 3, 1) mol/l were studied after choosing the most effective electrolyte, the separation processes has been compared with and without electrochemical treatment. In order to analyze the microstructural of aircraft samples Scanning Electron Microscopy (SEM) equipped with EDS and optical-digital microscopy were used. The SEM images result shows that the aircraft waste contains seven layers, with different compounds. The major elements are Aluminum, chromium and titanium. It is observed hydrochloric acid has the best result on complete solving of the middle layer contains highest Aluminum element, so its solution release the other layers. The higher hydrochloric acid concentration and electrochemical process makes the separation of layers 14 times faster. The procedure was successfully separated and recovered three layers (aluminum layer chromium layer and titanium layer). The separation process can recover approximately 466 kg aluminum, 37 kg chromium and 138 kg titanium from 1 ton of waste metal.

Afternoon, December 6, 2015 (Sunday)

Time: 16:20~18:05

Venue: Al Umara

Session 6: 7 presentations-Topic: “Environment”

Session Chair: Prof. Ana Ferreira

S3002 Presentation 5 (17:20~17:35)

Pattern of Characteristics of Leachate Generation from Municipal Solid Waste Landfill by Lysimeter Experiment

Kasam, Sarto, Siti Syamsiah, and Agus Prasetya

Islamic University of Indonesia, Yogyakarta, Indonesia

Abstract—Management of municipal solid waste in Indonesia is majority disposed to landfill. There are some problems on landfill in Yogyakarta namely are scavenger, cattle cow and leachate generation. The characteristics of landfill leachate generation will occur dynamically depending on the various factors including: precipitation (rainfall), evapotranspiration, water content of waste, density, field capacity, waste composition, age of waste in the landfill. This research aims to identify the characteristics of leachate generation from landfills by simulation of landfill. It was conducted by two lysimeters with 2.4 m high and 0.7 m diameter. The refuse were used as samples taken from the Piyungan landfill, Bantul regency, Special Province of Yogyakarta. Characteristic of Leachate is expressed by BOD, COD, TDS parameters. The results showed that the characteristics decay of the leachate generation from landfill with recirculated faster than without recirculated. The mathematical equations of exponential form to describe the characteristics pattern of leachate with BOD, COD and TDS parameters. Peak concentration for BOD = 7118.8 mg/L and 7411 mg/L, COD = 11232 mg/L and 1184 mg/L, TDS = 3920.9 mg/L and 4443.1 mg/L lysimeter-1 and lysimeter-2 respectively. Validation was performed using statistical criteria of goodness of fit Chi-Square with a confidence level of 0.1 shown still meet Chi-Square standards.

Afternoon, December 6, 2015 (Sunday)

Time: 16:20~18:05

Venue: Al Umara

Session 6: 7 presentations-Topic: “Environment”

Session Chair: Prof. Ana Ferreira

S3005 Presentation 6 (17:35~17:50)

Ecotoxicity of Zero-Valent Iron Nanoparticles to Microbial Communities Growing in PCB-Contaminated Soils

Mikel Anza, Iker Mart í, Fernando Blanco, Lur Epelde, Itziar Alkorta, and **Carlos Garbisu**

NEIKER, Spain

Abstract—Zero-valent iron nanoparticles (nZVI) are being used for the remediation of soils contaminated with polychlorinated biphenyls (PCBs). Nonetheless, there are some concerns regarding the potential ecotoxicity of these nanoparticles to the soil biota and, hence, soil function. Soil microbial communities are responsible, to a great extent, for the functioning of the soil ecosystem. In consequence, the aim of this study was to study the potential impact of nZVI on soil microbial communities as indicators of soil quality. To this aim, the following parameters were determined in two PCB-contaminated (10 mg Aroclor 1248 kg⁻¹) soils, showing different contents of organic matter and clay, which were then spiked with a gradient of nZVI concentrations: 0, 1, 5 10 and 20 mg g⁻¹: microbial biomass carbon, total bacteria and fungi by qPCR, enzyme activities (β -glucosidase, acid phosphatase, urease, arylsulphatase, dehydrogenase), community-level physiological profiles with BiologEcoPlatesTM, and ergosterol content. Zero-valent iron nanoparticles affected the assay used to determine soil dehydrogenase activity (this activity approximates the activity of the membrane-bound electron transport chain in intact cells that transfers electrons or hydrogen from substrates via electron carrier proteins and oxidoreductases to the terminal electron acceptor in respiration); then, when studying the impact of nZVI on oxidation-reduction reactions carried out by soil microorganisms, their possible direct effects on the assay conditions must be taken into account. By contrast, at high concentrations, nZVI appeared to have an inhibitory effect on enzyme activities but not on other microbial indicators of soil quality, such as community-level physiological profiles or total bacteria and fungi.

Afternoon, December 6, 2015 (Sunday)

Time: 16:20~18:05

Venue: Al Umara

Session 6: 7 presentations-Topic: “Environment”

Session Chair: Prof. Ana Ferreira

S3006 Presentation 7 (17:50~18:05)

Removal of Cu(II) in Water by Using Adsorbent Based on Volcanic Ash of Mount Kelud in Indonesia

Eko Siswoyo, Annisa Firachmatika, and Ridho Babel Kautsar

Department of Environmental Engineering, Islamic University of Indonesia

Abstract—Low-cost adsorbent was prepared from volcanic ash of Mount Kelud in Indonesia which erupted in 2014 and remained million cubic of ash. The purpose of this study was to investigate the adsorption capacity of volcano ash to remove Cu(II) in water. Some parameters such as mass of the adsorbent, pH of solution, and shaking time were investigated in order to know the adsorption ability of the adsorbent. FTIR and SEM were utilized in order to know the functional group and surface of adsorbent. The presence of carboxyl and hydroxyl functional groups in this adsorbent were important in the process of adsorption. It was found that pH 6 of solution and 120 minutes of shaking time was a suitable condition for this adsorbent in adsorbing copper ion. Langmuir isotherm adsorption model was fit for this adsorbent and the adsorption capacity for Cu (II) was 82.64 mg/g.

Dinner	
18:30	Hotel Restaurant

Conference Venue

Flora Grand Hotel

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Flora Grand Hotel Dubai is a four star deluxe hotel conveniently located in the heart of Dubai's thriving commercial and leisure district, just 10 minutes from Dubai International Airport and on the famous Al Rigga Street - the most exciting part of town all year round.

The hotel offers 200 rooms to choose from, including Superior, Executive, Deluxe, Connecting Rooms and Suites for uncompromising indulgence.

Indulge your mind and body at the Health and Leisure facilities at the Flora Grand Hotel Dubai. The facilities includes Gym and Health Club, Serenity Spa, Outdoor Swimming Pool and Gym.

The Monsoon is the hotels all day dining restaurant serving a wide range of international cuisine. You can also enjoy a delightful selection of cookies, fresh pastries, juices and coffee at Al Nakheel coffee shop.

Our privileged location in Deira Dubai combined with the highest levels of hospitality and comfort makes the Flora Grand Hotel your best choice in Dubai.

One-Day Tour in Dubai

December 7, 2015 (Monday) 3:30PM-7:30PM

(Departure from Hotel Lobby)



Pick up from Flora Grand Hotel, Dubai.

Dubai Museum – located within an 18th century – it has exhibits which depicts the history and culture of the region.

Jumeirah Mosque – a rare example of a mix of Islamic and modern architecture.

Burj Al Arab – the sail-shaped hotel that holds the distinction of being the world’s only seven-star hotel.

The Palm Island – the most scenic artificial man-made island on the earth, it is an all-inclusive project with incredible beaches, superb facilities for water sport activities and world-class accommodation as well as dining choices.

Atlantis Hotel – this is perhaps the centerpiece of Palm Island.

Mall of Emirates – with Ski Dubai and a host of shops, restaurants and café – it provides finest in shopping, dining and entertainment activities.

Dubai Mall – in addition to incredible shopping and dining choices, it spellbound visitors with its aquarium that is biggest of its kind in the world.

Burj Khalifa – this magnificent steel structure, towering up to a height of 825 meters, is the world’s tallest building.

Drop back to Flora Grand Hotel, Dubai.

APCBEES Forthcoming Conferences

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

CONFERENCE INFORMATION		PUBLICATION
March 12-13, 2016, Singapore		
ICBET 2016	2016 6th International Conference on Biomedical Engineering and Technology (ICBET 2016) http://www.icbet.org/	International Journal of Pharma Medicine and Biological Sciences (IJPMB, ISSN: 2278-5221)
ICEII 2016	2016 6th International Conference on Environment and Industrial Innovation (ICEII 2016) 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)
ICFEB 2016	2016 7th International Conference on Food Engineering and Biotechnology (ICFEB 2016) http://www.icfeb.org/	International Journal of Food Engineering (IJFE, ISSN: 2301-3664), Or International Journal of Life Sciences Biotechnology and Pharma Research (IJLBPR, ISSN:2250-3137),
March 23-25, 2016, Amsterdam, Netherlands		
ICFSN 2016	2016 3rd International Conference on Food Security and Nutrition (ICFSN 2016) http://www.icfsn.org/	International Journal of Food Engineering (IJFE, ISSN: 2301-3664), Or International Proceedings of Chemical, Biological and Environmental Engineering (IPCBE, ISSN: 2010-4618)
ICCBS 2016	2016 3rd International Conference on Chemical and Biological Sciences (ICCBS 2016) http://www.iccbs.org/	The volume of MATEC Web of Conferences (ISSN: 2261-236X) Or International Journal of Pharma Medicine and Biological Sciences (IJPMB, ISSN: 2278-5221),
April 8-9, 2016, Tokyo, Japan		

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ICCOE 2016	2016 3rd International Conference on Coastal and Ocean Engineering (ICCOE 2016) http://www.iccoe.org/	Journal of Environmental Science and Development (IJESD, ISSN:2010-0264) Or International Journal of Engineering and Technology (IJET, ISSN: 1793-8236)
ICBAE 2016	2016 2nd International Conference on Biotechnology and Agriculture Engineering (ICBAE 2016) http://www.icbae.org/	Journal of Advanced Agricultural Technologies (JOAAT, ISSN:2301-3737) Or International Journal of Bioscience, Biochemistry and Bioinformatics (IJBBB, ISSN:2010-3638)
ICCFE 2016	2016 3rd International Conference on Chemical and Food Engineering (ICCFE 2016) http://www.iccfe.org/	The volume of MATEC Web of Conferences (ISSN: 2261-236X) Or International Journal of Chemical Engineering and Applications (IJCEA ISSN: 2010-0221) Or International Journal of Food Engineering (IJFE, ISSN: 2301-3664)
April 24-25, 2016, Antalya, Turkey		
ICBFS 2016	2016 7th International Conference on Biotechnology and Food Science (ICBFS 2016) http://www.icbfs.org/	International Journal of Food Engineering (IJFE, ISSN:2301-3664) Or International Journal of Life Sciences Biotechnology and Pharma Research (IJLBPR, ISSN: 2250-3137)
ICESE 2016	2016 6th International Conference on Environment Science and Engineering (ICESE 2016) http://www.icese.org/	International Proceedings of Chemical, Biological and Environmental Engineering (IPCBEE, ISSN: 2010-4618)
May 11-13, 2016, Copenhagen, Denmark		
ICFAE 2016	2016 2nd International Conference on Food and Agricultural Engineering (ICFAE 2016) http://www.icfae.org/	Journal of Advanced Agricultural Technologies (JOAAT, ISSN:2301-3737) Or International Journal of Food Engineering (IJFE, ISSN: 2301-3664)
ICBPE 2016	2016 3rd International Conference on Biomedical and Pharmaceutical Engineering (ICBPE 2016) http://www.icbpe.org/	Journal of Bioscience, Biochemistry and Bioinformatics (IJBBB, ISSN:2010-3638)
May 25-27, 2016, Jeju Island, Republic of Korea		

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ICEEB 2016	2016 5th International Conference on Environment, Energy and Biotechnology (ICEEB 2016) http://www.iceeb.org/	International Proceedings of Chemical, Biological and Environmental Engineering (IPCBEE, ISSN: 2010-4618)
ICAAA 2016	2016 6th International Conference on Asia Agriculture and Animal (ICAAA 2016) http://www.icaaa.org/	Conference Proceedings Or Journal of Advanced Agricultural Technologies (JOAAT, ISSN:2301-3737)
June 10-12, 2016, Barcelona, Spain		
ICEST 2016	2016 7th International Conference on Environmental Science and Technology (ICEST 2016) http://www.icest.org/	International Proceedings of Chemical, Biological and Environmental Engineering (IPCBEE, ISSN: 2010-4618)
ICBBT 2016	2016 8th International Conference on Bioinformatics and Biomedical Technology (ICBBT 2016) http://www.icbbt.org/	International Journal of Pharma Medicine and Biological Sciences (IJPMB, ISSN: 2278-5221) Or International Journal of Bioscience, Biochemistry and Bioinformatics (IJBBB, ISSN: 2010-3638)
June 25-27, 2016, Bali, Indonesia		
ICNFS 2016	2016 5th International Conference on Nutrition and Food Sciences (ICNFS 2016) http://www.icnfs.org/	International Proceedings of Chemical, Biological and Environmental Engineering (IPCBEE, ISSN: 2010-4618)
ICBBS 2016	2016 5th International Conference on Bioinformatics and Biomedical Science (ICBBS 2016) http://www.icbbs.org/	Volume of Journal (IPCBEE, ISSN: 2010-4618) Or International Journal of Pharma Medicine and Biological Sciences (IJPMB, ISSN: 2278-5221)
ICWT 2016	2016 2nd International Conference on Water Technology (ICWT 2016) http://www.icwt.org/	Volume of Journal (IPCBEE, ISSN: 2010-4618) Or Journal-Water Conservation Science and Engineering (ISSN: 2364-5687) under Springer.

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