2018 9th International Conference on Agriculture and Animal Science (ICAAS 2018)

October 29-31, 2018

San Diego, USA

Four Points by Sheraton San Diego —Sea

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Conference Venue

Four Points by Sheraton San Diego —Sea

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Ideally located, Four Points by Sheraton San Diego —SeaWorld is a short drive from San Diego International Airport (SAN) and just minutes from the area's best attractions such as historic Old Town, SeaWorld, and more. This location is also in close proximity to a number of government facilities.

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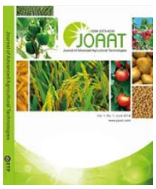
Session 2

San Diego Conference Introductions

Welcome to 2018 HKCBEES conference in San Diego, USA. The objective of the USA conference is to provide a platform for researchers, engineers, academicians as well as industrial professionals from all over the world to present their research results and development activities in Agriculture and Animal Science.

2018 9th International Conference on Agriculture and Animal Science (ICAAS 2018)



Papers will be published in one of the following journals:

Journal of Advanced Agricultural Technologies (JOAAT ISSN: 2301-3737), which is indexed by Ulrich's Periodicals Directory, Google Scholar, Engineering & Technology Digital Library, Crossref and Electronic Journals Digital Library, et al;

Conference website and email: http://www.icaas.net; caas@cbees.org

Presentation Instructions

Instructions for Oral Presentations

Devices Provided by the Conference Organizer:

Laptop Computer (MS Windows Operating System with MS PowerPoint and Adobe Acrobat Reader)
Digital Projectors and Screen
Laser Sticks

Materials Provided by the Presenters:

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

Duration of each Presentation (Tentatively):

Regular Oral Presentation: about **12** Minutes of Presentation and **3** Minutes of Question and Answer
Keynote Speech: about **35** Minutes of Presentation and **5** Minutes of Question and Answer

Instructions for Poster Presentation

Materials Provided by the Conference Organizer:

The place to put poster

Materials Provided by the Presenters:

Home-made Posters
Maximum poster size is A1
Load Capacity: Holds up to 0.5 kg

Best Presentation Award

One Best Oral Presentation will be selected from each presentation session, and the Certificate for Best Oral Presentation will be awarded at the end of each session on October 30, 2018.

Dress code

Please wear formal clothes or national representative of clothing.

Keynote Speaker Introductions

Keynote Speaker I

Prof. Pedro Joaqu ń Guti érrez-Yurrita

Instituto Politecnico Nacional, Mexico

Education

Jul 2007 –at present University of Alicante, Spain CANDIDATE TO PH.D. ON ENVIRONMENTAL LAW, Alicante, Spain

Jan 2006 – Jul 2007 University of Alicante, Spain MASTER IN ENVIRONMENTAL LAW AND SUSTAINABILITY, ENVIRONMENTAL LAW, Alicante, Spain

Jan 1994 – Jul 1997 Autonomous University of Madrid, Spain PH. D., BIOLOGICAL SCIENCES, Madrid, Spain

Jun 1990 – Sep 1993 National Autonomous University of Mexico MASTER IN SCIENCES, MANAGEMENT OF NATURAL RESOURCES, Mexico City, Mexico

Jun 1986 – Jun 1990 National Autonomous University of Mexico COLLEGE / UNDERGRADUATE, BIOLOGY, Mexico City, Mexico

Research Experience

Jan 2015 – May 2015 Visiting research-professor University of Alicante, Department of State Legal Studies Alicante, Spain

Jun 2009 –at present Full time professor National Polytechnic Institute, Interdisciplinary Centre for Research and Studies on Environment and Development, M éxico, D. F.

Jan 1997 – Dec 1997 Post-doctorate research Autonomous University of Madrid, Department of Ecology, Madrid, Spain

Project: Ecological impact and management of Red swamp crayfish in Tenerife (Canary Island, Spain)

Jan 1998 – May 2007 Full time professor Autonomous University of Queretaro, Faculty of Natural Sciences, Santiago de Quer étaro, Mexico

Topic: “Rhizomatic ecology: the ecology for the society of the 21st century”

***Abstract*—**The concept of Rhizomatic Ecology is introduced as the paradigm for environmental studies of the future, in the understanding that the challenges of today are more intense varied and complex than in the past and, therefore, require new ways of dealing with them. If predictions about what will happen in the future of the earth, due to global climate change, desertification, desertification and loss of biodiversity were successful, at least 50%, perhaps in a first phase, with a view to the conservation of the landscape heritage, the systemic approach to conservation with a holistic view that is neither centred nor hierarchical is adequate. The paradigm of rhizomatic ecology promotes the management of resources under the systemic approach, because it is based on the theory of thermodynamically open systems, but with internal energy flows that increase the negentropy; the hypothesis of unstable but recursive systems and of chaotic systems with natural attractors clearly defined by the researcher, in such a way that an effective, holistic, just and equitable management of our landscape heritage can be made. Finally, the desirable scenarios that are generated in the rhizomatic ecology have a methodology of regressive reflection (back casting) by analysis of fuzzy logic. The holistic management of landscape under the premises of rhizomatic ecology, seeks that biological evolution continues its path, while finding options to improve the standard of living of all people on the planet, breaking the balance established by man and returning the functional balance natural ecosystem network. Landscape conservation, under the perspective of rhizomatic ecology, reconciles the triple challenge of our era, which is to provide better life options to all the beings that inhabit the planet; to conserve the ecological processes that allow the evolutionary continuity of the Eco diversity and, that in the future, all heirs of the planet (human or not) can enjoy better standards of life.

Keynote Speaker II

Prof. Laosheng Wu

University of California, Riverside, USA

Dr. Laosheng Wu is a Professor of Soil & Water Science, Agricultural Water Management Specialist, and Chair of the Department of Environmental Sciences, University of California at Riverside. He received Bachelor's degree in Soil Science & Agrichemistry (1981) from Zhejiang University, China; Master's degree in Soil Physics (1987) from Oregon State University; and Ph.D. degree in Soil Physics (1991) from the University of Minnesota.

Dr. Wu's long-term goal is to promote safe application of lower quality water including recycled wastewater in agriculture and urban environment. His current research investigates the fate and transport of contaminants in soil and water receiving recycled wastewater application, evaluates the effect of salinity and other toxic elements from low quality irrigation water on crop growth, assesses soil quality response to recycled wastewater application, and develops optimal salinity leaching management practices for irrigated cropland.

Dr. Wu was elected as a Fellow of the American Society of Agronomy in 2009; a Fellow of the Soil Science Society of America in 2010; and a Fellow of the American Association for the Advancement of Science in 2010.

Topic: "Water Reuse and Environment Risks"

***Abstract*—**Reclaimed wastewater reuse in California is an important integral part of the water resources management plan. Currently California recycles approximately 800 million cubic meters (650,000 acre-feet) of water per year, and it has the potential of reusing an additional 1800 million cubic meters (1.5 million acre-feet) in the future. Comparing with its source water, recycled water contains higher impurities after each cycle of use. Some impurities are of agronomic significance, while others are of ecological and public health significance. This presentation will review potential impact of water reuse on agricultural production and human and environmental health.

Keynote Speaker III

Prof. Jae K. Park

University of Wisconsin-Madison, USA

Dr. Park is a professor of the Civil and Environmental Engineering Department at the University of Wisconsin-Madison since 1988. He received a B.S. in Civil Engineering at Yonsei University in 1977 and a M.S. in Environmental Engineering at Seoul National University in 1979. He worked as a consulting engineer in Korea and Australia for two years after serving two and a half years of military service. He received a Ph.D. in Public Health Engineering at the University of Newcastle upon Tyne, United Kingdom in 1985. He worked as a research associate at the Sanitary and Environmental Health Research Laboratory, University of California, Berkeley from 1985 to 1988.
Since he joined University of Wisconsin-Madison in 1988, he has taught various environmental engineering courses such as water treatment plant design, wastewater treatment plant design, biological treatment, physicalemical treatment, hazardous waste management, solids and hazardous waste engineering, industrial water pollution control, etc. His research is in the areas of water quality management and river restoration; biological treatment; hazardous waste treatment; mass transport in the environment; fate of organic compounds in water and wastewater treatment processes; computer-aided design of water and wastewater treatment plants; and reuse of scrap vehicle tires as a contaminant sorbent. His research was supported by the National Science Foundation, the Department of Defense, municipalities, private industries, Wisconsin Department of Transportation, Wisconsin Department of Natural Resources, and various research institutes. He has served as the consultant of various governments, research institutes, utilities, universities, and industries all over the world.

Topic: “How to Make Livestock Manure-to-Energy Projects Successful?”

***Abstract*—**In the United States (U.S.), energy resource conversion of livestock manure is being actively pursued based on the program called AgSTAR: Biogas Recovery in the Agriculture Sector. The U.S. Environmental Protection Agency encourages biogas production in the agricultural sector using anaerobic digesters to achieve social, environmental and economic benefits through this program. However, technical and economic problems are still widespread. In general, anaerobic digesters for livestock manure are effectively operated by specializing in design, construction and operation, but economy is largely dependent on the collection and transport of manure, lack of organic waste for merging treatment, price fluctuations of electricity and gas companies, and regulations. The total methane gas production capacity in the U.S. is 7.9 million tons per year, which is 5% of U.S. total electricity production or 56% of transportation gas consumption. In this study, the livestock manure to energy projects in Wisconsin were evaluated and critical factors leading to success were identified. The economics of livestock manure biogas are declining due to the regulation of cheap electricity and gas supply companies. Currently in Wisconsin, the "Hub and Spoke" model is being developed to encourage livestock farmers to pump manure into a single large anaerobic digester. Energy recycling of livestock wastewater is the best way to manage manure. However, there are still many barriers. Most technical problems have been resolved through specialization and enlargement. Economics is the most important factor, and it is changing rapidly according to policy. In particular, if low energy costs continue, the government will need to support the economy in order to meet the economic feasibility. Finding the integrated use of nearby organic wastes and the use of energy generated by biogas is a shortcut to increase the economic efficiency.

Keynote Speaker IV

Prof. Khaled M. Bali

University of California, San Diego, USA

Prof. K. M. Bali is an Irrigation/Water Management Advisor and County Director at the University of California Desert Research and Extension Center in Holtville, California. He holds a Ph.D. Degree (1992) in Soil Science (soil physics) and MS Degree (1987) in Water Science (Irrigation and Drainage) from the University of California at Davis. He holds a Bachelor of Science Degree (1984) in soils and irrigation from the University of Jordan, Amman.

His main fields of scientific interest include water resources and management, water quality, irrigation systems, automation of surface irrigation, evapotranspiration, salinity, water quality, and reuse of wastewater for irrigation.

Dr. Bali a member of many professional societies as American Geophysical Union and United States Committee on Irrigation and Drainage. He is a U.S. Fulbright Scholar and served on a number of National and International Scientific Committees.

Topic: “Tools To Improve Surface Irrigation Efficiency Using Advance Sensors and Wireless/WiFi Systems”

Abstract—California agriculture is a $54 Billion industry that relies heavily on the State’s developed water resources for its economic viability and environmental sustainability. With the increasing water scarcity, competition for freshwater supplies among sectors, and impacts of climate change on irrigated agriculture are projected to intensify in the near future. In this context, improving agricultural water management through greater resource-efficiency is essential to sustaining the State’s historically phenomenal agricultural production. We present here practical tools to improve surface irrigation efficiency utilizing low cost sensors and WiFi network to help growers improve surface (flood) irrigation efficiency. The sensors are used in a design and system evaluation software to produce charts and tables to help growers to improve the efficiency of their surface irrigation efficiency. In addition, the tools and generated charts assist growers in designing flood irrigation system by selecting the appropriate land (border) width to achieve the highest irrigation distribution uniformity (efficiency) based on the local conditions (soil type, crop, available flow rate).

Brief Schedule for Conference

Day 1	**October 29, 2018 (Monday) 10:00~17:00** **Venue: Lobby** Participants Onsite Registration & Conference Materials Collection
Day 2	**October 30, 2018 (Tuesday) 8:50~17:30** **Venue: Pacifico** Arrival Registration, Keynote Speech and Conference Presentation
	Morning Conference
	Opening Remarks 8:50~9:00 Prof. Khaled M. Bali, University of California, San Diego, USA **Keynote Speech I 9:00~9:40** Topic: "Rhizomatic ecology: the ecology for the society of the 21st century" (Prof. Pedro Joaqu ń Guti érrez-Yurrita, Instituto Politecnico Nacional, Mexico) **Keynote Speech II 9:40~10:20** Topic: "Water Reuse and Environment Risks" (Prof. Laosheng Wu, University of California, Riverside, USA)
	Coffee Break & Group Photo Taking 10:20~10:40
	Keynote Speech III 10:40~11:20 Topic: "How to Make Livestock Manure-to-Energy Projects Successful?" (Prof. Jae K. Park, University of Wisconsin-Madison, USA)
	Keynote Speech IV 11:20~12:00 Topic: "Tools To Improve Surface Irrigation Efficiency Using Advance Sensors and Wireless/WiFi Systems" Prof. Khaled M. Bali, University of California, San Diego, USA
	Lunch 12:00~13:30
	Afternoon Conference
	Session 1 13:30~15:45 **Venue: Pacifico** 9 presentations-Topic: "Agricultural Science and Food Engineering" **Session chair: Prof. Laosheng Wu and Assoc. Prof. Tumen Wuliji**
	Coffee Break 15:45~16:00
	Session 2 16:00~17:30 **Venue: Pacifico** 6 presentations-Topic: "Environmental Engineering and Sustainable Development" **Session chair: Prof. Pedro Joaqu ń Guti érrez-Yurrita and Prof. Jae K. Park**
	Dinner 18:00

Day 3	**Half Day Visit & Half day Tour** **9:00 to 17:00**

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

Session 1

Tips: The schedule for each presentation is for reference only. In order not to miss your presentation, we strongly suggest that you attend the whole session.

Afternoon, October 30, 2018 (Tuesday)

Time: 13:30~15:45

Venue: Pacifico

9 presentations—Topic: "Agricultural Science and Food Engineering"

Session Chair: Prof. Laosheng Wu and Assoc. Prof. Tumen Wuliji

K2008 Presentation 1 (13:30~13:45)

Experimental Fleece-Removal with Bioclip® Wool-Harvesting System for Merino-derived Wool Sheep in the US

Tumen Wuliji
Lincoln University of Missouri, USA and University of Nevada, USA

Abstract—The objective of this trial is to evaluate the efficacy of a biological wool-harvesting system, Bioclip®, as an alternative to the mechanical shearing of wool sheep. Twenty-six 10-month-old ewes were selected for a Bioclip® shearing comparison experiment. Ewes were weighed and stratified by body weight and breed, and then, divided into a control (conventional shearing, n = 10) and Bioclip® treatment group (n = 16). Treatment group animals were each given a 2.5 ml Bioclip® injection formula (7.5 mg/ml epidermal growth factor or EGF) subcutaneously on the inguinal bare skin area, after which a fleece retention net was placed on each animal. Sheep were fed alfalfa hay for 1 week prior to the Bioclip® injection, and 4 weeks post-injection under a semi-sheltered pen, until fleece removal at the 28th day, with wool regrowth monitoring at 5 weeks postharvest. Posttreatment wool regrowth monitoring was conducted and compared for the control and Bioclip® groups at 5 weeks post wool harvesting. There was no difference in the posttreatment body weight, fleece weight, weight gain, fiber diameter, and wool regrowth rate between the control and Bioclip® treatment group. Whereas, fleece staple length and regrowth fiber length measured significantly ($P < 0.01$) longer for Bioclip®-harvested wool than conventionally shorn sheep. This was the first time Bioclip® was used experimentally on US wool sheep and resulted in a simultaneous and complete shedding of fleeces. The results suggest that Bioclip® can improve wool clip quality and animal welfare as well as reduce farm labor intensity.

Afternoon, October 30, 2018 (Tuesday)

Time: 13:30~15:45

Venue: Pacifico

9 presentations—Topic: "Agricultural Science and Food Engineering"

Session Chair: Prof. Laosheng Wu and Assoc. Prof. Tumen Wuliji

K0007 Presentation 2 (13:45~14:00)

Identification of Aroma-Active Compounds in a Button Mushroom-Derived Reaction Flavor
Lopez Jordan; Foley Melissa; Luckett Curtis R.; Munafo John P
Institute of Agriculture, University of Tennessee, Knoxville, Tennessee, USA

Abstract—A series of mushroom-derived reaction flavors were screened for saltiness and savory attributes in a model low-sodium chicken broth food system using a small consumer screening panel (n = 10). Based on this preliminary screening, enzymatically hydrolyzed mushroom protein (eHMP), prepared from the button mushroom, *Agaricus bisporus*, the most important mushroom in agriculture, was found to increase the perceived saltiness and savory aroma attributes more than the control chicken broth. To further enhance the effect, mushroom hydrolysate products were reacted with a variety of amino acids under kitchen-like cooking conditions and evaluated in a larger consumer sensory trial (n = 27). The process of enzymatic hydrolysis, followed by thermal processing in the presence of the amino acid cysteine (eHMP + Cys), generated a reaction flavor with an intense savory aroma profile reminiscent of meat and meat products. The reaction flavor also imparted a strong savory aroma attribute and increased the perceived saltiness of the chicken broth. To identify the aroma-active compounds in the reaction flavor, gas chromatography-olfactometry (GC-O) and gas chromatography-mass spectrometry (GC-MS) were employed. A comparative aroma extract dilution analysis (cAEDA) led to the identification of 3-mercapto-2-pentanone (black currant), 1-(furan-2-yl)ethane-1-thiol (meaty), 2-furfurylthiol (coffee) and 2-acetylthiazole (toasty) as contributors to the savory aroma found in the flavor reaction mixture. This talk will highlight the sensory data, the identification of the aroma compounds, and the quantitation of the odorants in the reaction flavor by stable isotope dilution assay (SIDA).

Afternoon, October 30, 2018 (Tuesday)

Time: 13:30~15:45

Venue: Pacifico

9 presentations—Topic: "Agricultural Science and Food Engineering"

Session Chair: Prof. Laosheng Wu and Assoc. Prof. Tumen Wuliji

X0047 Presentation 3 (14:00~14:15)

Revealing The Secrets Of Aroma In Pakistani Rice (Oryzae Sativa) Based On Biochemical And Molecular Association

Saddia Galani, Shagufta Sahar, Syed Ghulam Musharraf, Abid Azhar
University of Karachi Karachi, Pakistan

Abstract—Aroma is considered as one of the most important trait which is the key factor in determining the market price. The classic fragrance of aromatic rice is due to the compound 2-acetyl-1-pyrroline (2-AP) and its accumulation occurs as a result of loss of function mutation in *fgr gene.* This 8-base pair deletion and 3 single nucleotide polymorphisms in exon 7 of fgr gene causing a premature stop codon and a truncated BADH2 and prevents the enzyme to play its normal function. Hence, the catalysis of 4-amino butyraldehyde to 4-amino butyric acid (GABA) is interrupted which leads to the production of 2-AP conferring fragrance. Although, many varieties are reported to be fragrant without having these known mutations with intact *fgr* gene producing a functional BADH2 enzyme with elevated levels of 2AP, suggesting the involvement of other genes/mutations for controlling the development of 2 AP metabolism pathways which are needed to explore. Chemical analysis of GABA and Proline revealed significantly low proline levels in aromatic rice varieties while GABA was not significantly different in both types of rice varieties. These findings suggest that GABA levels are maintained by *badh2* homologues or produced by an alternative pathway irrespective of BADH2 enzyme disruption. However, low amounts of Proline in aromatic rice may be the reason of general susceptibility of aromatic rice varieties against stress conditions. These findings will be helpful in understanding the factors contributing to rice aroma that could be implemented in rice breeding programs for the development of better aromatic varieties.

Afternoon, October 30, 2018 (Tuesday)

Time: 13:30~15:45

Venue: Pacifico

9 presentations—Topic: "Agricultural Science and Food Engineering"

Session Chair: Prof. Laosheng Wu and Assoc. Prof. Tumen Wuliji

X1006 Presentation 4 (14:15~14:30)

Weed Management in Cowpea through Combined Application of Allelopathic sorghum residues and Less Herbicide

Ibrahim S. Alsaadawi, **Hamid A. Hadwan** and Husam M. Malih
Baghdad University, Iraq

Abstract—A Field study was conducted to explore the allelopathic potential of sorghum residues alone and in combination with half (1.2 L ha-1) of recommended rate of trifluralin herbicide for controlling weeds in cowpea field. Sorghum residues at 5 and 10 t ha-1 were used either alone or in combination with trifluralin at 1.2 L ha-1. Trifluralin at full label rate (2.4 L ha-1), weedy check and weed free treatments were also included for comparison. Incorporation of sorghum residues at 5 and 10 t ha-1 reduced weed density by 6 and 43 % of control and dry weight biomass by 48 and 66% of control, respectively. However, application of herbicide at 50% rate in plots amended with sorghum residues at 5 and 10 t ha-1 provided weed density and dry weight biomass suppression greater than that of full herbicide rate treatment. Chemical analysis of sorghum residues amended field soil revealed the presence of phenolics in higher concentration. Periodic data revealed that maximum quantities of phenolics were coincided with the period in which maximum suppressive activity against the weeds was noticed. Application of sorghum residue at 10 t ha^{-1} to the plots amended with half rate of trifluralin herbicide provided seed yield significantly higher than that achieved by sole application of label rate of herbicide, which could be used as a feasible and environmentally sound weed management approach in cowpea field.

Afternoon, October 30, 2018 (Tuesday)

Time: 13:30~15:45

Venue: Pacifico

9 presentations—Topic: "Agricultural Science and Food Engineering"

Session Chair: Prof. Laosheng Wu and Assoc. Prof. Tumen Wuliji

X1017 Presentation 5 (14:30~14:45)

Proposed maximization of biogas production by the sequenced process of mesophilic fermentation and thermophilic fermentation for cow manure methane fermentation

Shiho ISHIKAWA, Kazunori IWABUCHI, Keiji TAKAHASHI, Ryoichi HARA and Hiroyuki KITA
Hokkaido University, Sapporo, Hokkaido, Japan

Abstract—A biogas plant (BGP) is a manure treatment system that can reduce the environmental load of animal manure in a region while recycling its organic resources. This study used a series of wet methane fermentation experiments with cow manure slurry (CMS) and anaerobically digested slurry (ADS) as raw materials to verify the impact of raw materials on the maximization of biogas production (BP).

The experiment used a stainless steel sealed tank (20 L) as the batch type fermentation tank at an effective volume of 15 L. The fermentation temperature was set at approximately 40 ℃ for mesophilic fermentation (MF) and approximately 55 ℃ for thermophilic fermentation (TF). CMS collected from the cattle barn at the Rakuno Gakuen University (RGU) and ADS that had undergone MF treatment in the BGP of RGU were collected and added to the fermentation tank every day.

The average quantity of biogas produced per 500 ml of CMS and ADS added per day (hydraulic retention time (HRT): 30 d) during the MF process was 11.34 L/d for the former and 0.92 L/d for the latter. The frequency at which the raw materials were added did not have an impact on the quantity of biogas produced, but it did impact the gas composition in terms of the methane and hydrogen sulfide concentrations. The average quantity of biogas produced per L of CMS and ADS added per day (HRT: 15 d) during the TF process was 22.59 L/d for the former and 2.09 L/d for the latter. This shows that the TF of ADS effectively maximizes BP, increasing gas recovery by about 10%.

The sequenced fermentation process effectively ensured the reliability of the raw material retention days and the safety of ADS. However, since this will require investment in new facilities and the repair of existing ones, evaluating its impact on the environment while considering economic efficiency and its overall life cycle is also presumed to be important. We wish to consider these in future studies.

Afternoon, October 30, 2018 (Tuesday)

Time: 13:30~15:45

Venue: Pacifico

9 presentations—Topic: "Agricultural Science and Food Engineering"

Session Chair: Prof. Laosheng Wu and Assoc. Prof. Tumen Wuliji

K1001 Presentation 6 (14:45~15:00)

Assessing the impact of interpersonal and communication skills of agricultural professionals on the farming community for food sustainability in Pakistan

Muhammad Zafarullah Khan
The University of Agriculture, Peshawar-Pakistan

Abstract—Agricultural extension is one of the effective tools in attaining the millennium development goals related to the reduction and eradication of extreme poverty and hunger in developing countries like Pakistan. Basically the interpersonal and communication skills are thought of as "working of human mind and behavior" which brought a native genuine success in imparting conceptual thinking into original information and scientific know how among agricultural professionals to move swiftly to address the issues of food sustainability. Interpersonal and communication skills brought out success and tales of modernization by using original information and scientific know-how provided by agricultural professionals in accomplishing objectives for food sustainability. The present research is to appraise the interpersonal along with communication skills of agricultural professionals posted at Province. Data were collected through well-structured questionnaire and analyzed through SPSS. There were differences of food sustainability in interpersonal and communication skills in various aspects based on their self perception. Study revealed the note worthy diversities in food sustainability of them by making benchmark of attendance of their training programs as well as their higher qualifications. Constructive association was found among those agricultural extension professionals who were professionally qualified in higher degrees along with training. A noteworthy break off on hand and predictable point necessitate the in-service trainings of Agriculture Extension Officers to motivate farming community for sustaining their food having different personalities/psychological types. Training opportunities may increase their efficiency. It is also suggested that AEOs must be encouraged for higher qualification to improve their potentials in food sustainability

Afternoon, October 30, 2018 (Tuesday)

Time: 13:30~15:45

Venue: Pacifico

9 presentations—Topic: "Agricultural Science and Food Engineering"

Session Chair: Prof. Laosheng Wu and Assoc. Prof. Tumen Wuliji

X0046 Presentation 7 (15:00~15:15)

Effect of Natural Growth Promoters as Alternative to Antibiotic Growth Promoters (AGPs) on Lipid profile, Carcass Characteristics and Growth Performance of Broiler Chickens.

Syed Muddassar Hussain Gilani, Sitwat Zehra, Saddia Galani, Faiz-ul-Hassan
University of Karachi, Pakistan

Abstract—This experiment was conducted to evaluate the effect of Natural growth promoters as alternative to antibiotic growth promoters (NGPs) on lipid profile, carcass characteristics and growth performance of broiler chickens. A total 315 day old broiler chicks were randomly divided into five treatment groups with 3 replicates each 21 broiler chickens. Treatments groups were as follows: Group 1 were control (basal diet without AGP), 2 (basal diet with AGP) , 3 (basal diet with organic acids) , 4 (basal diet with phytobiotics) and group 5 (basal diet with combination of organic acids and phytobiotics). Data regarding growth performance (body weight gain, feed intake and feed conversion ratio) were noted on weekly basis. At the end of experiment randomly three birds were selected from each replicate for collection of blood sample from brachial vein to determination of lipid profile, also slaughtered for determination of carcass characteristics.it was observed that feed intake, body weight gain and feed conversion ratio, cholesterol, triglyceride, HDL, and dressing % were significantly ($P<0.05$) improved among all treatment groups as compared to control diets. It was concluded that supplementation of organic acids and phytobiotics can be considered as alternative to antibiotic growth promoters to improve the performance of broilers in term of body weight gain, feed intake and feed conversion ratio without any negative effect on physiological status of broiler chickens.

Afternoon, October 30, 2018 (Tuesday)

Time: 13:30~15:45

Venue: Pacifico

9 presentations—Topic: "Agricultural Science and Food Engineering"

Session Chair: Prof. Laosheng Wu and Assoc. Prof. Tumen Wuliji

K1008 Presentation 8 (15:15~15:30)

Impact of *Aspilia africana on* Semen and Testicular Characteristics of Rabbit Bucks

Mary A. Oguike, Stephen C. Onuta, Wisdom Amaduruonye, and Isaac U. Akpan
Michael Okpara (Federal) University of Agriculture Umudike

Abstract—A completely randomized design experiment was conducted to study semen characteristics, testicular histology and morphological dimensions of mixed bred rabbit bucks fed *Aspilia africana* leaf meal (AALM).The treatments designated treatment one (T_1), treatment 2 (T_2) and treatment 3 (T_3) having 12 rabbits each were replicated 3 times with 4 rabbits per replicate. The age of the rabbits was 3 to 6 months, and they weighed approximately 2.56 kg. Three diets formulated with AALM and supplemented at 0, 10 and 20 g/kg feed were fed to rabbits in the respective treatments. Data were collected on the libido, semen parameters and testicular morphometry and histology. Results showed significant ($P<0.05$) dose-dependent decrease in gross motility (T_1 80.00; T_2 78.67; T_3 70.67 %), total sperm/ejaculate (T_1 57.78; T_2 55.48; T_3 39.97 %), sperm concentration ($T_1$116.8; T_2 110.83; T_3 88.00 x10^6/ml), fructose T_1 0.24; T_2 ; 0.20 T_3, 0.17 mmol/l), zinc (T_1 1.81; $T_2$1.63; T_3 1.51 mmol/l), scrotal circumference (T_1 4.57; T_2 4.43; T_3 4.00 cm), paired testis weight (T_1 3.45; T_2 3.10; T_3 2.94 g) and volume (T_1 3.43; T_2 3.14; 3.14 T_3 3.07 cm^3) following supplementation of AALM. Abnormal sperm significantly ($P<0.05$) increased with increase in the test ingredient. In conclusion, these results indicated that supplementation of AALM even at low levels adversely affected semen characteristics, testicular histology and testicular morphometric parameters.

Afternoon, October 30, 2018 (Tuesday)

Time: 13:30~15:45

Venue: Pacifico

9 presentations—Topic: "Agricultural Science and Food Engineering"

Session Chair: Prof. Laosheng Wu and Assoc. Prof. Tumen Wuliji

K0014 Presentation 9 (15:30~15:45)

Nutritional Evaluation of *Paniccum maximum* (Guinea grass) as a feed resource for grower pigs

A．H. Akinmutimi and Uregbu H. O
Michael Okpara University of Agriculture, Umudike, Abia State, Nigeria

Abstract—The optimum inclusion dietary level of Guinea grass (*Panicum maximum*) forage for grower pigs should not exceed 10%. Thirty grower pigs were used to evaluate nutritional value of *Panicum maximum* as feed resource for grower pigs. They were randomly assigned to five diets with 2 pigs/replicate and replicate thrice (3). The diet T_1 contain 0% *Panicum maximum*, while dietsT_2-T_5 contain 5%, 10%, 15%, and 20% inclusion levels of Guinea grass forage in the diets respectively. The experiment was carried out in Completely Randomized Design (CRD) and lasted for 63 days. Feed and water were given *ad-libitum*. Growth parameters, carcass, organ characteristics, haematology, blood chemistry and economicsof the diets were evaluated. The results showed that 10%*Paniccum maximum* inclusion improved weight gain, feed conversion ratio(T_1 (4.04), T_2 (4.13), T_3 (3.92), T_4 (4.45) and T_5(4.80)), reduce back fat thickness and improved percentage dressed weight ($P<0.05$). The organ weights compared favorably with the control diet up to 10% with the exception of liver ($P<0.05$). The haematological and biochemical parameters were within the normal range established for grower pigs. Diet T_3 (10%) has the least cost/kg weight gained (T_1 (335.20 Naira), T_2 (325.53 Naira), T_3 (292.71 Naira), T_4 (313.81 Naira) and T_5 (318.62 Naira) that was significantly lower ($P<0.005$) than others, making it to be more economically viable. Conclusively, the use of 10% *Paniccum maximum* in diet of grower pigs resulted in better feed conversion ratio, percentagedressed weight, comparable carcass quality and organ weights, normal blood constituents parameters and had the least cost/kg weight gain and hence recommended.

Session 2

Tips: The schedule for each presentation is for reference only. In order not to miss your presentation, we strongly suggest that you attend the whole session.

Afternoon, October 30, 2018 (Tuesday)

Time: 16:00~17:30

Venue: Pacifico

6 presentations—Topic: "Environmental Engineering and Sustainable Development"

Session Chair: Prof. Pedro Joaqu ń Guti érrez-Yurrita and Prof. Jae K. Park

X0018 Presentation 1 (16:00~16:15)

Pollution, degradation and microbial response of chromium and nitrogen in a typical soil profile in the tannery sludge landfill site

Xiangke Kong
Chinese Academy Geological Sciences, Shijiazhuang, Hebei, China

Abstract—Although the utilization of tannery sludge in farmland may have some beneficial effects due to the high organic matter and nitrogen content, its pollution risk on soils has to be considered carefully because of the high chromium (Cr) content. This study investigated the release behavior of main contaminants from tannery sludge and their vertical distribution characteristics in a typical soil profile in the tannery sludge dumping site. Fundamental properties of sludge and soils were characterized by a serious of characterization and testing methods. Total chromium and nitrogen content were 309700 mg/kg and 30900 mg/kg, which were over the limit of country standard. The trivalent chromium (Cr(III)), ammonium and organic nitrogen were the predominant species in the sludge and soils. A linear correlation(R^2=0.99) was observed between dissolved concentrations of Cr and Fe from tannery sludge. Combining with the XRD and XRF results, the release behavior of Cr was controlled by the precipitation-dissolution reactions. In general, the soil samples (0-100cm depth) from unsaturated zone had elevated electrical conductivity, TOC and different forms of chromium and nitrogen. The alkaline soil in the study area had a distinct retardation effect on the transfer of Cr. The decrease in pH and increase in TOC of the surface soil were caused by the sludge leachate containing a large amount of organic matter and acid compounds. Beyond 70 cm of depth, the organic nitrogen and Cr(III) were main species and they had a good correlation in different depth (R^2=0.86), which indicated the organic nitrogen increased Cr(III) mobility through forming Cr(III)-organic complexes in soils. High saline and chromium contaminated soils inhabit the growth of many microorganisms. Proteobacteria, Firmicutes and Bacteroidetes become the dominant microbial population in the contaminated soils.

Afternoon, October 30, 2018 (Tuesday)

Time: 16:00~17:30

Venue: Pacifico

6 presentations—Topic: "Environmental Engineering and Sustainable Development"

Session Chair: Prof. Pedro Joaqu ń Guti érrez-Yurrita and Prof. Jae K. Park

X0019 Presentation 2 (16:15~16:30)

Removal of Cr^{6+} from groundwater by nano-scale zero valent iron particles produced with green tea extract

Hui Li
Chinese Academy Geological Sciences, Shijiazhuang, Hebei, China

Abstract—Nano-scale iron particles (NIP) were produced by reduction of Fe^{3+} ions by green tea extract in ethanol-water mixture. Productivity of the NIP was enhanced by optimized ethanol-water ratio. The suspension is expected to achieve in-situ reductive removal of hexavalent chromium in aquifer through being injected into aquifer. To this end, Reduction and adsorption of Cr^{6+} by the produced NZVI were confirmed by batch adsorption experiments, and by injecting Cr^{6+} solution through natural sand columns with NZVI embedded. The results show that GT-NIP was spherical, uniform in shape, about 10~20 nm in diameter, and had good dispersity in water; the Fe^{2+} content of GT-NIP obtained by XPS test was 55.6%, and the Fe^{3+} content was 44.4%. GT-NIP suspension could reduce Cr(VI) in water. After 1 h, the removal rate of Cr(VI) at the initial concentration of 100 mg/L reached above 94.0%. In the transport test, the average discharge percentage and retention rate of GT-NIP was 68.6% and 31.4%, respectively. When the initial concentration was 100 mg/L Cr (VI) solution flowing through a natural sand column containing GT-NIP, no Cr element was mea sured in before 4 PV injection. And the retained Cr element in the GT-NIP attached in column is also very stable.

Afternoon, October 30, 2018 (Tuesday)

Time: 16:00~17:30

Venue: Pacifico

6 presentations—Topic: "Environmental Engineering and Sustainable Development"

Session Chair: Prof. Pedro Joaqu ń Guti érrez-Yurrita and Prof. Jae K. Park

X0041 Presentation 3 (16:30~16:45)

Development of phytoremediation coupled with agro-production technology using hyperaccumulator *Sedum alfredii* and low-accumulator vegetables

Lin Tang, Weijun Luo, Zhenli He, Yasir Hamid, Hanumanth Kumar Gurajala, Xiaoe Yang
Zhejiang University, Hangzhou, Zhejiang, China

Abstract—Now days, quality of soil and agricultural production is decreasing due to continuous cropping and high fertilizer input. World population is increasing day by day, so, to stop crop production for remediating soil pollution is impractical in current scenario. There is a dire need for screening of Cd and nitrate low accumulator plants coupled with agro-production to feed this populated world. In our study, 4 water spinach genotypes and 7 Chinese cabbage genotypes were identified as low co-accumulator of both Cd and nitrate from 39 water spinach and 62 Chinese cabbage genotypes, which contained low Cd (<0.05 mg kg^{-1} FW) and nitrate (<3100 mg kg^{-1} FW) concentration in the edible parts even when grown in contaminated soils. Afterwards, we develop a PCA technology system for co-contaminated with Cd and nitrate using hyperaccumulator *S. alfredii*. In this system, endophytic bacterium M002 inoculation, CO_2 fertilization, and fermentation residue were continuously applied to improve the growth of *S. alfredii*, and low-accumulator water spinach and Chinese cabbage were rotated under reasonable water management. These comprehensive management practices showed an increase in *S. alfredii* biomass and Cd uptake and reduce Cd and nitrate concentration in water spinach and Chinese cabbage. This agro-rotating system removed 56.5% total Cd, 62.3% DTPA extractable Cd, and 65.4% nitrate, respectively, from the co-contaminated soil in 2 years of phytoremediation, and is an effective way of remediating moderately co-contaminated soil by Cd and nitrate.

Afternoon, October 30, 2018 (Tuesday)

Time: 16:00~17:30

Venue: Pacifico

6 presentations—Topic: "Environmental Engineering and Sustainable Development"

Session Chair: Prof. Pedro Joaqu ń Guti érrez-Yurrita and Prof. Jae K. Park

X1013 Presentation 4 (16:45~17:00)

Investigation and in situ oxidation remediation of a chlorinated hydrocarbon and BTEX contaminated site in Tianjin city, China

Zhantao HAN
Chinese Academy Geological Sciences, Shijiazhuang, Hebei, China

Abstract—A chlorinated hydrocarbon and BTEX contaminated site caused by the a small factory during 1978-1980 was found in Tianjin city, China. The main pollutant is 1,2,3-Trichloropropane (TCP) with a maximum concentration of 270 mg/L in groundwater. the distribution of pollutants in the soil and groundwater were investigated by ground penetrating radar, soil and groundwater sampling, and groundwater level monitoring. The hot spot of soil contamination covers around 200 m^2. The groundwater pollution flume are found to be about 600m long and 300m wide in the aquifer of 6-18 m. The maximum depth of pollutants is around 50 m. In situ chemical oxidation (ISCO) with persulphate solution catalyzed with $FeSO_4$ and citric acid as chelant was tested in 2 different depth of the aquifers. The change of contaminants concentrations were monitored in 2 wells 1 m and 2 m downstream of injection wells. The concentrations of all the chlorinated hydrocarbons and BTEX declined after the injection of oxidation chemicals in 2 months. The the concentration of 1,2,3-trichloropropane in 2 m downstream the injection well decreased from 180 mg/L to 110 mg/L after two months, ISCO by persulfate was testified to be effective for this chlorinated hydrocarbons and BTEX contaminated site.

Afternoon, October 30, 2018 (Tuesday)

Time: 16:00~17:30

Venue: Pacifico

6 presentations—Topic: "Environmental Engineering and Sustainable Development"

Session Chair: Prof. Pedro Joaqu ń Guti érrez-Yurrita and Prof. Jae K. Park

X3003 Presentation 5 (17:00~17:15)

Dynamic Simulation for Sustainable Transportation System
Hassan M. Hassoon ALDelfi
ISHIK UNIVERSITY ERBIL, IRAQ

Abstract—This research is intended to simulate the already developed mathematical model for the five means of transportation systems which are bicycle, water transportation, taxi, bus, and metro. The resulting ecological footprint effect is being used to reflect those means of transport on the environment. A simplified approach to those means is represented by bicycle sustainable impact (BSI). In order to testify this newly derived mathematical model, the equivalent effects of different transportation systems on the environment are represented. The simulation is applied to five randomly selected cities of different geographical locations. They are considered to optimize the sustainability and hence the Anti-Sustainability collectively for the existing transportation in those cities. The selected cities are Erbil (Iraq), Baghdad (Iraq), Maysan (Iraq), Dubai (UAE) and Glasgow (UK). The five randomly selected cities have different modes of transportation. Thus different Anti-Sustainable Impact (ASI) has been found. Conclusive remarks have been drawn accordingly to achieve safe and distinguished sustainable guidelines. High-quality power run metro system depicts higher Anti-Sustainable Impact, Those guidelines can be implemented in future traffic and transportation systems evaluations in any city.

Afternoon, October 30, 2018 (Tuesday)

Time: 16:00~17:30

Venue: Pacifico

6 presentations—Topic: "Environmental Engineering and Sustainable Development"

Session Chair: Prof. Pedro Joaqu ń Guti érrez-Yurrita and Prof. Jae K. Park

X4001 Presentation 6 (17:15~17:30)

Agricultural Land Management Policies in South-South Nigeria Implications for Sustainable Environment and Agriculture

Essien U. A, Okwara M. O, and Osuji, E. E
Cross River Basin Development Authority, Nigeria

Abstract—Agricultural land management policies in South-South, Nigeria; implications for su stainable environment and agriculture were examined. About 60 respondents were interviewed and data collected through a structured questionnaire. The outcomes of the study were analyzed using likert scale techniques. The results showed various forms of environmental concerns prevalent in the area grouped into major and minor environmental concerns subject to the mean score. The major environmental concerns in the area include; Air pollution (3.50), Land pollution (3.23), Water pollution (3.21), Noise pollution (3.20), Climate change (3.14), Bush burning (3.09), and Land grazing (3.01). The result also depicts the potential causes of environmental concerns which include; Gas flaring (3.99), Oil spillage (3.90), Global warming (3.80), Mining (3.75), Industrialization (3.66), Smoke emissions (3.59), and Over-population (3.40). Efficient implementation of agricultural land management policies is a sine qua-non for sustainable environment, agriculture, food security, controlled carbon emissions, improved air and water quality, etc. Sustainable procedures for agricultural land management include; knowledge management, research, awareness and capacity development, community involvement, planning, enabling environment, and government involvement. The study strictly recommends the formulation and implementations of efficient land management policies that are economical, sustainable and environmentally safe.

Half Day Visit & Half day Tour

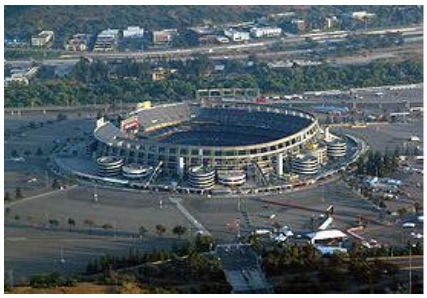
October 31, 2018 (Wednesday)

Time: 9:00~17:00

(Please note that the departure time will be 9:00am, please kindly arrive at the Four Points by Sheraton San Diego —Sea before 9:00am, we will depart on time. Thank you for your cooperation!)

The following places are for references, and the final schedule should be adjusted to the actual notice.

University of California
Agriculture and Natural Resources



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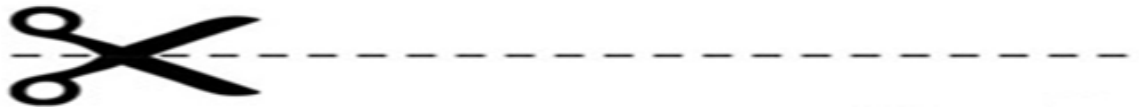

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Thank you for taking time to participate in this conference evaluation. Your comments will enable us to execute future conferences better and tailor them to your needs!