2015 APCBEES JINJU CONFERENCES

ABSTRACT

Jinju, South Korea

November 9-11, 2015

Gyeongsang National University-College of Agriculture and Life Science

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Conference Venue
Academic Official Visit
APCBEES Forthcoming Conferences
Note
Welcome to APCBEES 2015 conferences in Jinju, South Korea. The objective of the Jinju 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 Agriculture and Biotechnology, Environment Science and Biotechnology.

**2015 3rd International Conference on Agriculture and Biotechnology (ICABT 2015)**

- **Paper publishing and index:** ICABT 2015 papers will be published in one of the following journals:
  - Journal of Advanced Agricultural Technologies (JOAAT, ISSN: 2301-3737) and will be included in the Engineering & Technology Digital Library, and indexed by Ulrich’s Periodicals Directory, Google Scholar, Engineering & Technology Digital Library, Crossref and Electronic Journals Digital Library.
  - International Journal of Life Sciences Biotechnology and Pharma Research (IJLBPR, ISSN: 2250-3137), and all papers will be included in the Engineering & Technology Digital Library, and indexed by Embase (Under Elsevier), ProQuest, Google Scholar, Chemical Abstracts Services (CAS), Indian Science, ICMJE(International Committee Medical Journal Editors), HINARI(World Health Organization), and NYU(Health Sciences Library)

- **Conference website and email:** [http://www.icabt.org/](http://www.icabt.org/) ; icabt@cbees.net

**2015 5th International Conference on Environment Science and Biotechnology (ICESB 2015)**

- **Paper publishing and index:** ICESB 2015 papers will be published in the Volume of Journal (IPCBEE, ISSN: 2010-4618), and all papers will be included in the Engineering & Technology Digital Library, and indexed by Ei Geobase(Elsevier), CABI, Ulrich’s Periodicals Directory, CNKI, WorldCat, Google Scholar, Cross ref.

- **Conference website and email:** [http://www.icesb.org/](http://www.icesb.org/) ; icesb@cbees.org
Presentation Instruction

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 shall be copied to the Conference Computer at the beginning of each Session)

Duration of each Presentation (Tentatively):
Regular Oral Presentation: about 10 Minutes of Presentation and 5 Minutes of Q&A
Keynote Speech: 40 Minutes of Presentation and 5 Minutes of Q&A

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 Paper Award
One best paper will be selected from each oral presentation sessions, and the Certificate for Best Papers will be awarded at the end of each session on November 10, 2015.

Dress code
Please wear formal clothes or national representative of clothing.
Keynote Speaker Introductions

Keynote Speaker I

Prof. Hyo CHOI
Dept. of Atmospheric & Environmental Sciences, Gangneung-Wonju National University, South Korea

Topic: “Lee Side Internal Gravity Waves and Nocturnal Surface Inversion Layer Affected High PM Concentrations in Gangneung City for a Dust Period”

Abstract
Using the GRIMM-1107 aerosol sampler, GOES-9 DCD satellite images, HYSPLIT backward trajectories and WRF (Weather Research & Forecasting)-model version 3.6, high PM$_1$, PM$_{2.5}$ and PM$_{10}$ concentrations in the downtown of a Korean eastern coastal city-Gangneung were investigated from 0000 LST March 26 to 0000 LST April 4, 2004. During a Yellow Dust period from March 30 to April 1, maximum PM$_{10}$ (PM$_{2.5}$ and PM$_1$) concentration was 3.3 with 238.87 µg/m$^3$ (1.1 with 46.50 µg/m$^3$ and 1.01 with 30.25 µg/m$^3$) times higher than a non-dust period (before the dust period). Dust particles which were uplifted from the Gobi Desert under the strong surface wind and transported toward Nei-Mongo in the southern and eastern outskirts of Mongolia, that is, in the northern China passed by Korean peninsula and reached Gangneung city over the high mountains such as Mt Taegyulyung under northwesterly wind flowing in the behind of cold front. The transported dust particles further combined with local particulate matters and gases emitted from the city and then, their particulates and gases with increased concentrations became trapped inside a calm area which was produced by internal gravity waves (IGW) in the lee side of the mountains. The eastward movement of the trapped dust is prevented by an easterly wind from the East Sea, resulting in high PM concentrations at 09:00 LST (start of the working day), March 30. PM$_{10}$ concentration to be largely affected by coarse particulate matters larger than 2.5µm diameter.

At midday, as the combined dust rises to the top of the thermal internal boundary layer (TIBL) reaching approximately 300 m in depth from the coastal surface to the top of the mountain in the west (Mt. Taegulyung), due to daytime uplifted thermal convection by the surface heating of sun, the ground based PM concentrations become very low by 15:00 LST compared to 09:00 LST within a relative lower TIBL thickness than the daytime one. At night, after particulates emitted from road vehicles and residential heating boilers combine with dust transported from Nei-Mongo by the northwesterly wind and descending dust uplifted during daytime hours, it becomes trapped inside a calm area produced by the IGW and easterly wind, and becomes confined to a thinner, stable nocturnal surface inversion layer than the daytime TIBL. This can result in the trapped dust being more concentrated near the surface, producing maximum PM$_{10}$, and PM$_{2.5}$ concentrations at 20:00 LST of March 30, except for PM$_{1.0}$ concentration at 09:00 LST.
Abstract
Plants, although immobile, have ability to adapt to a diverse surroundings, and are intelligent to have the ability to move in response to a given situation. In this process, they produce very diverse metabolites and products. Plants are important in our living, since they are sources of food and pharmaceuticals. Plants provide people a way to establish their shelters and aesthetic beauty, purify the air, and are significant factors in stress reduction in humans. In addition plants prevent erosion and provide habitat and cover for animals in the wild, and are an integral part of wetland purification of water. Horticulture deals with various plants used not only as food such as vegetables and fruits, but also as ornamentals including flowers, lawn, and many herbaceous and woody garden plants. Recently plants are recognized as a factor for promotion of our physical, mental and social health. Therefore, consumption of vegetables and fruits, which are sources of vitamins, minerals and many functional metabolites, reduces heart disease and neutralize free radicals involved in aging and some forms of cancers in our bodies. Many pharmaceuticals such as aspirin and taxol comes from the plants. Ornamental plants contribute for reduction of various types of human stress. Plants placed in areas where people congregate helps people to cope with the dark days, and the production and use of indoor plants has become a big industry. The plants are necessary or used for our survival and environment, and as ornaments.
Abstract
Culture has diverse definitions. Culture refers to the cumulative deposit of knowledge, experience, beliefs, values, attitudes, meanings, hierarchies, religion, notions of time, roles, spatial relations, concepts of the universe, and material objects and possessions acquired by a group of people in the course of generations through individual and group striving. Culture is a collective programming of the mind that distinguishes the members of one group or category of people from another. In this study, we discussed the flower cultural differences manifest themselves in different ways and differing levels of depth of flower application in Chinese traditional culture fields, such as in landscape architecture, flower decoration of flower arrangement and Penjing. The research of different layers of flower culture makes sense for cross-cultural communication.
## Brief Schedule for Conferences

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<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Event</th>
<th>Venue</th>
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<tr>
<td>November 9, 2015</td>
<td>10:00~17:00</td>
<td>Arrival Registration</td>
<td>Hallway outside Room 102 (Nuri Hall), Building 459, GNU</td>
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<tr>
<td>November 10, 2015</td>
<td>9:00~19:10</td>
<td>Arrival Registration, Keynote Speech, and Conference Presentations</td>
<td>Room 102 (Nuri Hall), Building 459, GNU</td>
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</tbody>
</table>

### Morning
- **Venue:** Room 102 (Nuri Hall), Building 459, GNU
  - Opening Remarks 9:00~9:10
  - Keynote Speech I 9:10~9:55
  - Keynote Speech II 9:55~10:40
- Coffee Break & Photo Taking 10:40~11:10
- Keynote Speech III 11:10~11:55
- Lunch 12:00~13:00

### Afternoon
- **Venue:** Room 102 (Nuri Hall), Building 459, GNU

**Session 1:** 13:00~14:15
- 5 presentations—“Biology” Topic

**Session 2:** 14:15~15:45
- 6 presentations—“Chemical& Environment” Topic
- Coffee Break 15:45~16:10

**Session 3:** 16:10~19:10
- 12 presentations—“Agriculture” Topic
- Dinner: 19:40

### November 11, 2015
- Academic Official Visit (Jinju International Agriculture & Food Expo 2015)

**Tips:**
Please arrive at conference room around 10 minutes before the session beginning to upload the PPT into the conference laptop.
### Detailed Schedule for Conferences

#### November 9, 2015 (Monday)

**Venue:** Hallway outside Room 102 (Nuri Hall), Building 459, GNU

<table>
<thead>
<tr>
<th>10:00-17:00</th>
<th>Arrival and Registration</th>
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</table>

Note: (1) You can also register at any time during the conference.
(2) The organizer doesn’t provide accommodation, and we suggest you make an early reservation.
(3) One best paper will be selected from each oral presentation session, and the certificate for best papers will be awarded at the end of each session on November 10, 2015.

#### Morning, November 10, 2015 (Tuesday)

**Venue:** Room 102 (Nuri Hall), Building 459, GNU

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<th>9:00-9:10</th>
<th>Opening Remarks</th>
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<tr>
<td></td>
<td>Prof. Byoung Ryong Jeong</td>
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<td></td>
<td>Gyeongsang National University, Republic of Korea</td>
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<tr>
<th>9:10-9:55</th>
<th>Keynote Speech I</th>
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<tbody>
<tr>
<td></td>
<td>Prof. Hyo CHOI</td>
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<tr>
<td></td>
<td>Dept. of Atmospheric &amp; Environmental Sciences, Gangneung-Wonju National University, South Korea</td>
</tr>
<tr>
<td></td>
<td>Topic: “Lee Side Internal Gravity Waves and Nocturnal Surface Inversion Layer Affected High PM Concentrations in Gangneung City for a Dust Period”</td>
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<tr>
<th>9:55–10:40</th>
<th>Keynote Speech II</th>
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<tr>
<td></td>
<td>Prof. Byoung Ryong Jeong</td>
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<tr>
<td></td>
<td>Gyeongsang National University, Republic of Korea</td>
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<td></td>
<td>Topic: “The Value of Horticultural Plants in Our Living”</td>
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<th>10:40-11:10</th>
<th>Coffee Break &amp; Taking Photo</th>
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<tr>
<th>11:10-11:55</th>
<th>Keynote Speech III</th>
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<tr>
<td></td>
<td>Prof. Caiyun Wang</td>
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<tr>
<td></td>
<td>Key Laboratory of Horticultural Plant Biology, Ministry of Education, Huazhong Agricultural University, Wuhan, China</td>
</tr>
<tr>
<td></td>
<td>Topic: “Flower Culture in China Traditional Aesthetics”</td>
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<tr>
<th>12:00-13:00</th>
<th>Lunch</th>
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</table>
Afternoon, November 10, 2015 (Tuesday)

13:00-14:15

Venue: Room 102 (Nuri Hall), Building 459, GNU

SESSION–1 (5 presentations)

Session Chair: Prof. Chan Jin Park

Z0006 Presentation 1 (13:00~13:15)

Analysis of Internal Environment of the Pig House according to the Heat Recovery Ventilator

Ho Jun, Jung, Byeong Eun Moon, Hee Tae Kim, Kyu Dong Nah, Jin Hyun Kim, Hyeon Tae Kim

Gyeongsang National Univ. (Institute of Agriculture & Life Science), Korea

Abstract—In this study, a heat recovery ventilation system was applied to a model pig house. Upper, middle and lower layer ducts were placed in order to analyze the thermal efficiency of the optimum. Taking advantage of the basic data from actual pig house fuel cost reduction and the optimum calculation of a pig breeding environment, temperature sensors were installed at the entrance of Supply Air (SA), Outdoor Air (OA), Exhaust Air (EA) and Return Air (RA), according to the temperature change in order to measure the operation efficiency of the heat recovery ventilator. Ducts, from floor levels at 2.1 m (upper), 1.25 m (middle), in 0.4 m (below), install smiling spacing of 0.38m on the wall surface, and to compare the thermal efficiency of the best, and analyzed.

When not operating HRV, the temperature of duct 4 is the difference between the fine, but the difference was very small. depending on the day temperature is the temperature varies minutely, caught the upper experiments with similar graph patterns. The Ch14 is higher than the RA differently, the upper and middle section. This is determined by the measurement position, because the internal temperature is higher than the measured positions of RA ducts. Sensible heat exchange efficiency of the heat recovery ventilators were measured lower than about 70-80%. This is because it is determined by the outside air temperature is high in summer, when entering from the outside.
Afternoon, November 10, 2015 (Tuesday)

13:00-14:15

Venue: Room 102 (Nuri Hall), Building 459, GNU

SESSION–1 (5 presentations)

Session Chair: Prof. Chan Jin Park

Z0008 Presentation 2 (13:15~13:30)

Effect of Daily Gain in Pig under Indoor Environment on Windowless Pig-house


Gyeongsang National University, Korea

Abstract—The productivity of pig can be affected by concentration and distribution pattern of environmental parameters such as temperature, wind speed and humidity, harmful gases, dust in pig-house of environment. In this experiment we analyzed the effect of changes in environmental factors (temperature, humidity, wind speed, CO₂) on the daily weight gain of pigs grown in a windowless pig house. The temperature of the room was measured using a K-type thermocouple at 27 points at 1 minute interval using a Data logger (GL-820, GRAPHTEC, Japan). Temperature measurement position were installed on the upper floor (1.7m), center (0.95m), lower (0.2m). About 30kg of the pigs were raised in a total of three for these experiments. To analyze the environmental conditions of experimental pig house, indoor temperature, humidity, CO₂, ammonia, hydrogen sulfide and wind speed were measured. Biometric information, the body weight was measured using a load cell. The measured data are analyzed with the average, maximum and minimum values and the statistical analysis was performed using Excel 2010. No direct correlation was found among the primary measurement parameters.
Afternoon, November 10, 2015 (Tuesday)

13:00-14:15

Venue: Room 102 (Nuri Hall), Building 459, GNU

SESSION–1 (5 presentations)

Session Chair: Prof. Chan Jin Park

Z0010 Presentation 3 (13:30~13:45)

Analysis of Temperature in the Windowless Pig House by using UTC

Byeong Eun, Moon, Jong Goo, Kim, Young Sun, Ryou and Hyeon Tae Kim

Gyeongsang National University (Institute of Agriculture & Life Science), Korea

Abstract—In this study, two experimental pig houses; where the UTC system was applied and not applied, were manufactured and compared with regard to the changes in internal temperature depending on the application of UTC control system for utilizing them as the basic data for maintaining proper conditions for feeding environment and reducing heating energy depending on the UTC control system and program. The control system ranges T1~T4 and is made to control a total of five output signals O1~O5 in the way of On/Off control by using the algorithms within the program after measuring temperature scored 4 in total. Temperature setting is 28.0°C in the experimental pig house and 34.0°C in UTC plenum, and output signal was controlled by comparing it with the measured temperature. At the same time, the maximum temperature was measured 36.6°C in comparison to the pig house, and it was found to be 4.8°C lower in the experimental pig house in comparison to the pig house. Also, UTC plenum temperature increased to an average 50.5°C by operation of the control program.
Assessment of Aquaculture Biosecurity Measures in Bataan, Philippines

Rudy C. Flores, Mark Nell C. Corpuz, Felicisima E. Tungol, Armando A. Villafuerte, and Abraham S. Antonio

Bataan Peninsula State University (BPSU), Philippines

Abstract—An assessment of the biosecurity strategies of selected fishponds in Bataan was conducted to determine the present status of biosecurity measures being practiced by selected fishpond operators in Bataan, Philippines. It aims to evaluate the extent of implementation of the three thematic areas of biosecurity namely— physical facilities and pond design (1), biosecure aquaculture management (2), and disease control and prevention program (3) Forty (40) pond operators participated in the survey. The present study revealed an alarming deprived knowledge of the respondents regarding the aforementioned issue. Likewise, the compliance of most of the fish farmers in different biosecurity standards was observed to be poor (44.64%) to fair (12.61%). This study, however, was able to recognize risk areas that can still be further developed, and was able to identify stakeholders whom require capacity-building regarding the principles and measures of biosecurity for improved aquaculture production.
Afternoon, November 10, 2015 (Tuesday)

13:00-14:15

Venue: Room 102 (Nuri Hall), Building 459, GNU

SESSION–1 (5 presentations)

Session Chair: Prof. Chan Jin Park

Z3008 Presentation 5 (14:00~14:15)

Blended Organic Acids and Palm Vinegar (Acetic Acid) as Performance Enhancers and Inhibitor to Salmonella spp. in Poultry

Hermogenes M. Paguia, Eleazar G. Marabe, Mirasol M. Rosano, and Herren Donna P. Miguel

Bataan Peninsula State University Main Campus / Office of Extension Services, Philippines

Abstract—In study 1, the in vitro susceptibility testing of Salmonella typhimurium using disk diffusion was conducted. The treatments were: T1- Plain Water; T2- 1ml Acetic Acid/50 ml water; T3-1ml Blended Acidifiers /75ml water; T4- 1 ml Hypochlorite/100 ml water. The growth of S. typhimurium was affected by the extremely acid and moderately alkaline (P<0.01) and hypochlorite treated water (P<0.05). Infected samples were found to be negative to S.Typhimurium after the trial.

For Study 2, a total of 224 heads of Lohmann LSL white, 115 week-old hens were used and distributed in four treatments with seven replications in completely randomized design such as: T1- Control; T2- 3.0% hypochlorite; T3-3.5% Blended Organic Acids; T4- 5.0% Acetic Acid. The production performance of the old hens did not influence by the treatments except for the yolk color, 4.71-4.93, pale yellow (Roche Yolk Color Fan). The acidifiers (P<0.01) improved the FCR of the 119-123 week-old layers with significant effect on additive and feed cost during the first month of the study. This study proved that acetic acid is economically viable and practical alternative to maintain layers health conditions and performance.

Let's move to Session 2!
Tips: The exact time for each presentation is only for reference, it may be changed. We strongly suggest you attend the whole session for your presentation.

Afternoon, November 10, 2015 (Tuesday)

14:15-15:45

Venue: Room 102 (Nuri Hall), Building 459, GNU

SESSION–2 (6 presentations)

Session Chair: Prof. Hyo CHOI

S0001 Presentation 1 (14:15~14:30)

Analysis of Recycled-Glass Immobilised and Suspended TiO₂ in the Photocatalytic Oxidation of Chlorophenols in Batch Processes

Zack Khuzwayo and Evans Chirwa

Water Utilisation Division, University of Pretoria, South Africa

Abstract—The photocatalytic oxidations of multi-substituted chlorophenols were studied in mixed-reactor batch systems. Glass supported immobilised titanium dioxide photocatalysis was investigated for degradation efficiency in comparison to photolysis. The project aim was to determine preliminary effectiveness of advanced oxidation process principles in a theoretically non-optimised installation, by applying low cost materials to counter the principal recovery shortfall of suspended catalyst in photocatalytic applications. Titanium dioxide catalyst mounting onto glass units was achieved through furnace heating of a thin-film coating layer. Kinetic profiles were determined for singular compound transformations. The overall performance of the immobilised catalyst data set recorded promising findings and showed significant efficiency in treatment of higher level chloride-substituted phenols by registering near complete oxidation.
Afternoon, November 10, 2015 (Tuesday)

14:15-15:45

Venue: Room 102 (Nuri Hall), Building 459, GNU

SESSION–2 (6 presentations)

Session Chair: Prof. Hyo CHOI

S0004 Presentation 2 (14:30~14:45)

Metagenomic Analysis of Bacteria Community in Activated Sludge of Domestic Waste Water Treatment Plant

Nang Hein Nandar Htwe, Miyanaga Kazuhiko, Analiza P. Rollon, and Yasunori Tanji

University of the Philippines-Diliman, Philippines

Abstract—Biological treatment of the domestic waste water relies on the functioning of microbial community in its conventional activated sludge. The pyrosequencing of 16S rRNA approach is used to monitor the bacterial population pattern. The viable bacteria community directly related to performance of activated sludge is also evaluated by using Ethidium monoazide (EMA) treatment comparison with non-treatment sample prior to sequence 16S rRNA gene. The fecal bacteria group Spirochetes and unassigned “other” bacteria are totally disappear in the viable community. Half of the relative abundance of Actinobacteria and Chloroflexi are also overestimated in non-EMA treated sample. In conclusion, the bacterial community in activated sludge share similar viable pattern at phylum level. Moreover, qPCR is applied to quantify the 16S rRNA gene copies of population.
Afternoon, November 10, 2015 (Tuesday)

14:15-15:45

Venue: Room 102 (Nuri Hall), Building 459, GNU

SESSION–2 (6 presentations)

Session Chair: Prof. Hyo CHOI

S0005 Presentation 3 (14:45~15:00)

Dynamics of Hydrological Regime in Permafrost Zone of Central Siberia

Tamara Burenina, Alexander Onuchin, Georg Guggenberger, Anastasia Musokhranova, and Dmitri Prisov

V. N. Sukachev Institute of Forest, Siberian Branch of the Russian, Russia

Abstract—It was analyzed the runoff for northern rivers to find that it varies both spatially and temporally. Its spatial variability is determined by the locations of the rivers of interest, which relationship is clearly manifested in the seasonal dynamics of the hydrological regimes of the rivers. The more to the north the river, the more pronounced the snowmelt flood and rain-caused stream rise peaks. The flow of the river having small basins may increase many times after even small rains. The study of river flow in permafrost zone showed that trends of river flow dynamics are differ during 1950-2000 and 2001-2012 years. In 2001-2012, winter low water was increasing considerably. Correlation of the annual flow with precipitation and air temperature of the particular years was obtained. The role of precipitation, as a factor in the flow formation is enhanced from the boreal forest to tundra zone, and the role of summer temperatures on the contrary weakens.
A Comparative Study on the Efficiency of SRF and Different Kinds of Source-Separated Household Wastes as a Solid Fuel

Chan-Jin Park, Hyun-Jeong Park, Min-Jeong Gu, Da-Young Nam, and Min-Gyeong Gu
Bugae Girl's High School, South Korea

Abstract—The purpose of study is to compare efficiency of solid fuels among 11 types of combustible household wastes segregated from SRF (Solid Refuse Fuel). As a result of studying three contents, it has turned out that among 12 types of combustible wastes, plastic substance (Styrofoam, PS, PE, PP) holds high combustible materials and low moisture content. And from the results of analyzing elements, it turned out that combustible household wastes have no heavy metal content other than 0.60% of titanium (Ti) in PP. Based on the revised fuel quality standard (heating value of 3500Kcal/kg or more), coffee sludge and green tea wastes proved unsuitable as solid fuel.
Afternoon, November 10, 2015 (Tuesday)

14:15-15:45

Venue: Room 102 (Nuri Hall), Building 459, GNU

SESSION–2 (6 presentations)

Session Chair: Prof. Hyo CHOI

S0008 Presentation 5 (15:15~15:30)

On the Application of Ion Clusters for Treatment of Odors

Ji Ye Yoo, Jin Yong Choi, Eun Ji Woo, and Chan Jin Park

Incheon National University, Republic of Korea

Abstract—Wastewater treatment plants and residential areas are closely located in residential region developed by urbanization. Therefore, complaints of wastewater treatment plants near local residents have been increasing continuously. So, this study is related to an ion cluster application device for removing the complex odors from wastewater treatment plants. It was designed that mechanical framework based on electrochemical property and applied to the work site in which to properly generate a non-thermal. Therefore, it was studied that making the ion clusters suitable in wastewater treatment plants, and handling the main malodorous/substances occurring ions generated by using the ion clusters. To handle the major malodorous substances that occur in wastewater treatment plants a dielectric barrier discharge was adopted by utilizing such characteristics using is one of the principles of non-thermal plasma in this study. In this research, the main goal of is compared batch type and continuous type. And then, we are going to find the method by applying the appropriate method in the process of removing a variety of malodorous substances.
Afternoon, November 10, 2015 (Tuesday)

14:15-15:45

Venue: Room 102 (Nuri Hall), Building 459, GNU

SESSION–2 (6 presentations)

Session Chair: Prof. Hyo CHOI

S1002 Presentation 6 (15:30~15:45)

The Pattern of South Equatorial Current and Primary Productivity in South Java Seas

Rizky M. Utamy, Noir P. Purba, Widodo S. Pranowo, and Henhen Suherman

Padjadjaran University, Indonesia

Abstract—South Equatorial Current flows throughout the year and be strong in The East Monsoon between latitudes 10°LS–20°LS, focus of this study lies at the changing patterns of SEC associated with water mass around it. The aim of this research is to knowing the correlation between SEC with the distribution of phytoplankton in these waters. The observation was conducted by looking at the conditions of horizontal and vertical of the data main (the current and phytoplankton) and supporting data (temperature and salinity) in time series during 2014 using INDESO’s data. Result from this observation showed that the correlation between SEC and primary productivity exists although known as a weak correlation. Other than that, SEC is known have some spatial and temporal variations in every season as well, which is located at the northern latitude during Eastern Monsoon in a range 5°S-15°S for latitude and 90°E-113°E for longitude, and SEC will be located at the southern latitude during First Transitional Season with range 8°S-18°S for latitude and 90°E-115°E for longitude.
Tips: The exact time for each presentation is only for reference, it may be changed. We strongly suggest you attend the whole session for your presentation.

Afternoon, November 10, 2015 (Tuesday)

16:10-19:10

Venue: Room 102 (Nuri Hall), Building 459, GNU

SESSION–3 (12 presentations)

Session Chair: Prof. Byoung Ryong Jeong

Z0001 Presentation 1 (16:10~16:25)

A Simple Bacteriophage-based Detection Kit for Detecting *Escherichia coli* on Post-harvest Agricultural Product

Febrian E S Iriyanto, Wahyu C. Yuliasari, Arie Rahmawati, Muhammad Sholehuddin, Angga A. Ramadhan, Hardian S. Addy

University of Jember, Indonesia

Abstract—Contaminating food-borne pathogen such as *Escherichia coli* become one problem in food safety especially for agricultural product. Detection of the presence of pathogen may help customers to protect themselves against food-borne disease. Several simple techniques have been developing including the use of Total Plate Count (TPC). However, this method is time consumed resulting developing new approach in detecting *E. coli* including the use of specific bacteriophage. This research was aimed to isolate, formulate, and test the potency of bacteriophage in detecting *E. coli* isolated from post-harvest horticultural crops. About ten isolates were isolated from 5 traditional vegetable markets in Jember area. In addition, 2 kind of bacteriophages were also isolated from vegetables and sewage for Pst-1 and KR-1, respectively. Formulation of detection solution were based on Luria Bertani (LB) modification medium (LBMM) composted by LB + 1% Glucose (Glu) and 0.1% of Bromothymol Blue (BTB) which was selected based on stability of green-color at 570 nm. Detection assay was also done using mixture of detection solution, sample, bacteriophage PsT-1 and was incubated at both room temperature and 37°C. The result showed that, the kit was able to determine the presence of *E. coli* about 4-5 hours depend on the incubation temperature. Positive result was shown by no color change while negative result by the changing of color from green to yellow. Through this result we claimed that the technique is more efficient that TPC methods.
Afternoon, November 10, 2015 (Tuesday)

16:10-19:10

Venue: Room 102 (Nuri Hall), Building 459, GNU

SESSION–3 (12 presentations)

Session Chair: Prof. Byoung Ryong Jeong

**Z0005 Presentation 2 (16:25~16:40)**

CO\textsubscript{2} and CH\textsubscript{4} Purification Technology of Livestock Biogas and Greenhouse Utilization of Purification CO\textsubscript{2}  

Kim Hee Tae, Ho Jun Jung, Chung seop Lee, Young Sun Ryou, Hyeon Tae Kim 

Gyeongsang National Univ. (Institute of Agriculture & Life Science), Korea

Abstract—Currently, 97% of national energy consumption, including agriculture, relies on foreign energy resources. In addition, the rate of use of the retention waste energy converted into energy is only about 3.7%. Even if the energy production is sufficient, treatment of produced energy is insufficient. Currently livestock treatment facilities to collected biogas by removing CO\textsubscript{2}, water, etc. and use CH\textsubscript{4} as an energy source. Therefore, the separation, liquefaction and storage technology establishing of CO\textsubscript{2} and CH\textsubscript{4} is very important. This study carried out research on developing systems for separating CO\textsubscript{2} and CH\textsubscript{4} from livestock biogas. Purified CO\textsubscript{2} was supplied to a greenhouse to study its the effect on crop growth.
Session Chair: Prof. Byoung Ryong Jeong

Z0007 Presentation 3 (16:40~16:55)

The Study of Cutting Speed Optimization on the Working in Combine

**Jin Seok Jo, Ho Jun Jung, Byung Ok Jin**

Gyeongsang National Univ. (Insti. of Agri. & Life Sci.), Korea

*Abstract*—Experiments were performed using straw, 5 row Daedong industry combines cutting knife, and 5 row Kuboda combines cutting blade. Cutting the straw and cutting performance was measured. 3times repeated to proceed. Steps of cutting the straw shape, angle, the number of the none cutting and biting were quantified by measuring the total of three. The difference between the smallest straw size and the highest straw size was measured. The distance between the highest straw and the lowest straw was calculated to obtain the angle. The number of truncated & broken straw was measured to quantify the cutting shape. The feed rate and the cutting speed of Korean and Japanese combine were identified according to the cut shape, by using high-speed camera. If the feed rate and cutting speed was increased, number of cutting was lower, there was a less load on the cutting blade between the blade and the cutting target, and the cutting shape was not clean cut shape. However, when the feed rate and the cutting speed were lower, the cutting shape was clean, but much higher cutting force was exerted and a higher power was consumed, which was a burden on the combine. As a result, it was confirmed the results for the optimal speed for each interval.
Assessed Effect of Change Nutrients and Heavy Metal Content in Swine Composts on Plants


Gyeongsang National Univ. (Institute of Agriculture & Life Science), Korea

Abstract—The effect of animal composites on improving soil productivity is effected by physical characteristics and chemical compounds - pH value, electric conductivity (EC), nutrients (N, P, K) and total carbon - of the organic waste substrates in the compost. In this study, we examines the use of different application ratios of swine compost on the improved soil qualities in greenhouse conditions and, found that by significantly increasing the total carbon (C), total nitrogen (N) and phosphorus (P) under the high compost application ratios of 100%, 75%, 50% and 25%, respectively, we can alter the soil qualities but, the potassium (K) level in the soil increased non different with control. Although, these nutrients increase following high compost application ratios, which is important for lettuce growth, high salinity in composites inhibit root absorption of water in the soil, resulting in a reduction of biomass. The weights and leaf areas of the lettuces in the study were reduced by 100%, 75%, 50% and 25%, respectively. In order to reduce the accumulation of heavy metals such as Zn and Cu present in compost, an application ratio of 25% is suggested. However, this ratio is considered to be high cost when compared with plant production parameters. Therefore, application ratios lower than 25% that is found to be appropriate.
Effect of Storage Period, Temperature, and Plant Growth Regulator on Seed Germination of *Ixeris dentata*: Plant Growth and Secondary Metabolites Accumulation

Sandeep Kumar Verma, Hye Min Kim, Young Jin Kim, and Seung Jae Hwang

Gyeongsang National University, Korea

Abstract—This study was conducted to determine the effect of storage period, temperature, and gibberellic acid (GA3) on the germination, growth and accumulation of phytochemicals in *Ixeris dentata*, a medicinal plant commonly known as a sowthistle in *Asteraceae* family. This species is widely distributed in Korea, Japan, and China. In this study, seeds stored at 4°C for 24 hr (new) or 2 years (old) were treated with different temperatures (-20°C to 45°C) and concentrations of GA3 (0 to 1 mg·L⁻¹) to test their effect on seed germination. The highest percentage germinations were achieved at 25°C. While there was no effect of GA3 on germination of old seeds, new seeds germinated well in all GA3 concentrations. Among growth parameters measured at one month after seed germination. The number of leaves and leaf width were not significantly affected. However, shoot dry weight, contents of anthocyanin and carotenoids were slightly higher in plants obtained from old seeds, while photosynthesis rate was slightly higher in plants obtained from new seeds. Germination percentage in seeds stored for two years at 4°C decreased. However, the optimum temperature for germination was 25°C for both old and new seeds, and 0.1 and 0.5 mg·L⁻¹ GA3 was the best for germination of new seeds.
Session Chair: Prof. Byoung Ryong Jeong

Z1004 Presentation 6 (17:25~17:40)

Seed Germination and Seedling Growth of Watermelon as Affected by Medium

Hye Min Kim, Young Jin Kim, and Seung Jae Hwang

Graduate School of Gyeongsang National University, Korea

Abstract—A study was conducted to examine the efficiency of different media on seed germination and seedling growth of watermelon. Seeds of watermelon [Citrullus lanatus (Thunb.) Manst.] ‘Sambokggul’ were sown in the different media, phenolic foam LC 1, phenolic foam LC 2, urethane foam #1 (Smithers Oasis Korea Co., Seoul, Korea), and phenolic foam #2 (Smithers Oasis France Co., Labaroche, France) on April 09, 2015. A commercial plug medium (Tosilee Medium, Shinan Grow Co., Jinju, Korea), coir (Dutch Plantin Co., Boekel, The Netherlands), and rockwool (Grodan Co., Roermond, The Netherlands) were used as the control. Tosilee medium and coir were used in 288-cell plug trays (Bumnong Co., Jeongeup, Korea). Rockwool, phenolic foam LC 2, and urethane foam #1 were used in a form of 200-cell formed sheet, and phenolic foam LC 1 and phenolic foam #2 were used in a form of 276-cell formed sheet. In total, seven types of medium were used, and 3 replicates were set in a randomized complete block design in a Venlo-type glasshouse. Initial germination percentage (taken at 10 days after sowing), final germination percentage (taken at 27 days after sowing), T50 (days to 50% of the final germination percentage), and germination speed were measured as germination parameters. Plant height, stem diameter, number of leaves, leaf area, root length, compactness, and fresh and dry weights of shoot and root were measured as growth parameters. Percent water content in the medium was recorded at an interval of 24 hours for 12 days. Initial germination percentage was the highest in the phenolic foam LC 2. Final germination percentage and T50 were the lowest and the slowest in the urethane foam #1 and phenolic foam #2, respectively, and there were no significant differences in other media. Germination speed was the highest in the phenolic foam LC 1, phenolic foam LC 2, and rockwool. Plant height, stem diameter, and fresh and dry weights of shoot were the greatest in the rockwool. Number of leaves, dry weight of root, and root length were the greatest in the phenolic foam LC 1. Leaf area was the greatest in the coir. There were no significant differences in compactness. Percent water content of the Tosilee medium and coir decreased most rapidly over time. The best results for seed germination and seedling growth of watermelon were achieved in the phenolic foam LC 2 and rockwool, respectively.
Afternoon, November 10, 2015 (Tuesday)

16:10-19:10

Venue: Room 102 (Nuri Hall), Building 459, GNU

SESSION–3 (12 presentations)

Session Chair: Prof. Byoung Ryong Jeong

Z3010 Presentation 7 (17:40~17:55)

In vitro Propagation of *Scrophularia kakudensis* and Quantification of Its Acacetin Content Using High Performance Liquid Chromatography

**Abinaya Manivannan**, Prabhakaran Soundararajan, and Byoung Ryong Jeong

Gyeongsang National University, Korea

*Abstract*—*Scrophularia kakudensis* is a potential medicinal plant with pharmaceutically-important secondary metabolites. Due to over-exploitation and narrow environmental adaptability, this plant species is under the threat of extinction. Therefore, for the first time an efficient in vitro propagation protocol has been established in the present study. In addition, the analysis of antioxidant property and estimation of acacetin content in *S.* *kakudensis* have been performed. Organogenesis was achieved from the nodal explant with the highest number of adventitious shoots per explant (17.4) on the Murashige and Skoog medium (MS) fortified with 2.0 mg·L⁻¹ 6-benzyladenine (BA) and 0.5 mg·L⁻¹ indole-3-acetic acid (IAA). The greatest number of roots per plant (16.5) was noted in the half strength MS medium supplemented with 0.5 mg·L⁻¹ IAA. Somatic embryogenesis was accomplished from the juvenile and mature leaf explants. The greatest frequency (91.6 %) of somatic embryogenesis was produced from the adaxially oriented juvenile leaf explants inoculated on the MS medium supplemented with 1.5 mg·L⁻¹ 2,4-dichlorophenoxyacetic acid (2,4-D). Embryo development occurred on the MS medium containing 0.5 mg·L⁻¹ gibberellic acid (GA₃). Further, 100% plantlet conversion was achieved on the plant growth regulator-free MS medium and the regenerated plantlets displayed a successful survival ratio (95%) in the greenhouse. Moreover, the clonal fidelity assessment using random amplified polymorphic DNA (RAPD) and inter sequence specific repeats (ISSR) markers revealed the true-to-type nature of the micropropagated plants. Phytochemicals and free radical scavenging assays revealed the occurrence of higher amounts of antioxidants in the extract of shoots cultured in vitro. Correspondingly, the highest acacetin content, a pharmacologically-important flavonoid, was observed in the shoot extract (32.8 µg·g⁻¹ FW). Thus, through the present study an efficient methods of micropropagation and large scale production of antioxidants in *S.* *kakudensis* were established.
Impact of Silicon as a Nutrient Supplement in Chrysanthemum Plants Transformed with Silicon Transporter Genes LSI1 and LSI2

Chung Ho Ko and Byoung Ryong Jeong

Gyeongsang National University, Korea

Abstract—Silicon is the second most abundant element in the Earth’s crust and is contained in most plant species. The beneficial effects of Si on growth, development, yield, and disease resistance have been observed in a wide variety of plant species. Nevertheless, it is still not considered as an essential nutrient for plants. Silicon mitigates fungal infection and pest attack, alleviates lodging and other abiotic stress, improves the light-interception ability, and minimizes transpiration losses. Soluble Si in plants also has an active function in enhancing host resistance to plant diseases by stimulating one or more defense reaction mechanisms. However, plant species differ greatly in Si accumulation, ranging from 0.1 to 10% of shoot dry mass. This difference is attributed to the difference in the ability of roots to take up silicon. Physiological studies have shown that silicon uptake by rice roots is mediated by transporters such as Low Silicon Rice 1 (Lsi1) and Low Silicon Rice 2 (Lsi2). Both Lsi1 and Lsi2 are localized at the plasma membrane of both exodermal and endodermal cells of the rice roots. In the present study an Agrobacterium-mediated genetic transformation system for Chrysanthemum morifolium ‘Sumi’ using the leaf explant was developed. For transformation, an A. tumefaciens strain LBA4404 containing pGreenII 0049 (Lsi1 and Lsi2) was used. In the first experiment, the leaf explants were precultured for 0, 1, 2, or 3 days. Then the explants were submerged in a 30 mL Agrobacterium suspension (O.D. 0.05, 0.1, or 1.0) for 10, 20, or 30 min and co-cultured for 1, 2, or 3 days on the preculture medium at 25°C in the darkness. A preculture period of 2 days significantly reduced the percent explant mortality (18.2%) and enhanced the transformation frequency (8.6%). Inoculate in the OD 0.05 treatment displayed 11.2% mortality and the highest transformation frequency (7.6%). The highest frequency of transformation (5.7%) was achieved when the explants were treated for 20 min. It was also found that the 2 days co-cultivation duration was better than 1 or 3 day co-cultivation treatment. In the second experiment, the leaf explants of the non-transformants and
transformants (*Lsi1* and *Lsi2*) were segmented into 1 cm x 1 cm and planted on the shoot induction medium. After 4 weeks, shoots obtained from the explants were used for the salinity stress assessment. The experiment was conducted in a 2 x 2 factorial design with potassium silicate (K$_2$SiO$_3$) (0 or 100 mg·L$^{-1}$) and sodium chloride (NaCl) (0 or 200 mM). After 4 weeks, growth, nutrient contents, enzymatic antioxidants, and oxidative stress parameters were analyzed. Compared with the control, NaCl treatment decreased the growth in both non-transformed and transformed plants. However, supplementation of Si alleviated the growth retardation caused by NaCl. Therefore, transformation of Si transporters in chrysanthemum helped the plant to overcome the oxidative damages caused by salt stress by improving the uptake of Si.
Afternoon, November 10, 2015 (Tuesday)

16:10-19:10

Venue: Room 102 (Nuri Hall), Building 459, GNU

SESSION–3 (12 presentations)

Session Chair: Prof. Byoung Ryong Jeong

Z3012 Presentation 9 (18:10~18:25)

Comprehensive Analysis of Root Proteome on Tolerance to Silicon-Induced Salinity Stress in *Rosa hybrida* ‘Rock Fire’

**Prabhakaran Soundararajan**, Abinaya Manivannan, Sowbiya Muneer, and Byoung Ryong Jeong

Gyeongsang National University, Korea

*Abstract*—Although silicon (Si) is beneficial for the plants under stress conditions, studies on the effect of Si in rose are limited. In our previous studies, supplementation of exogenous Si was found to ameliorate NaCl stress in hydroponically-grown *Rosa hybrida* ‘Rock Fire’ by improving photosynthesis, gas exchange, and antioxidation mechanisms. In this study, changes in root proteome and ultra-structure of cell organelles were examined in order to gain a deeper insight into Si-induced tolerance against salinity stress. A proteomic analysis followed by a 2-DE gel electrophoresis depicted 600 protein spots consistently expressed among all the combined NaCl and Si treatments. Among 600 reproducible protein spots, 220 proteins were differentially-expressed more than 2.5-fold among the treatments. Protein spots identified using MALDI-TOF MS were found to be involved in several metabolic processes viz., photosynthesis, redox homeostasis, phospholipid binding, binding of metal ions, protein synthesis, regulation of transcription/translation, and maintenance of cell integrity. Most of the classified proteins down-regulated in the NaCl alone treatment were up-regulated upon the addition of Si. Furthermore, a transmission electron microscopic (TEM) analysis revealed that the structures of chloroplasts and mitochondria were greatly affected by the salinity stress. However, addition of Si made the plant to recover from the deleterious effects of NaCl on ultrastructures of the chloroplasts and mitochondria. To best of our knowledge this is the first study that investigated the dynamic changes in root proteome of rose plant, demonstrating that Si augmentation changes the expression of proteins involved in vital metabolic processes to mitigate the salt stress.
Afternoon, November 10, 2015 (Tuesday)

16:10-19:10

Venue: Room 102 (Nuri Hall), Building 459, GNU

SESSION–3 (12 presentations)

Session Chair: Prof. Byoung Ryong Jeong

Z3013 Presentation 10 (18:25~18:40)

Optimization of Hydroponic Growing Systems for Nutritional and Phytochemical Improvement of *Ligularia fischeri*, an Important Medicinal Plant

Hao Wei, Yuze Chen, Abinaya Manivannan, and Byoung Ryong Jeong

Gyeongsang National University, Korea

Abstract—*Ligularia fischeri* (Ledeb.) Turcz. is a perennial herb belonging to the composite family. The extracts of *L. fischeri* contain several pharmaceutically important secondary metabolites. However, the conventional cultivation of *L. fischeri* after seed propagation is not only difficult but also has very low productivity. In order to improve the productivity and medicinal value of *L. fischeri*, the present study was aimed to identify the optimal growing medium for *L. fischeri*. For the nutrient uptake analysis, forty days old seedlings were transplanted into 350 mL Magenta boxes, one plant per box with a 300 mL nutrient solution and aerated with a vacuum pump. At last day of each week, elements of the nutrient solution were measured by inductively coupled plasma-atomic emission spectroscopy (ICP-AES). For phytochemical analysis, forty days old seedlings were transplanted into a recirculated hydroponic system, a commercial medium (Tosilee Medium, Shinan Precision Co., Jinju, Korea), or natural soil. All the plants were maintained at day/night temperatures of 25/18°C and 80% relative humidity under a controlled glasshouse at the Gyeongsang National University. After four weeks, growth parameters, total phenol content, total flavonoid content, total antioxidant activity, and 2,2-diphenyl-1-picrylhydrazyl (DPPH) radical scavenging activity of the leaf, petiole, and root were determined. The elemental analysis revealed the improvement in the uptake of essential nutrients by *L. fischeri* in the hydroponic system. Moreover, the phytochemical results illustrated that the recirculated hydroponic system significantly increased the phytochemical contents and total antioxidant capacity in the leaf, petiole, and root extracts as compared to the soil treatment. Thus, the results suggest that the recirculated hydroponic system can benefit the cultivation of *L. fischeri* with enhanced nutrient contents and medicinal values.
Physiological and Proteomic Analysis Reveals Novel Insight into the Mechanisms Involved in Adaptation to Varied Temperatures in Graft Unions of Tomato Seedlings

Sowbiya Muneer, Chung Ho Ko, Hao Wei, Yuze Chen, Prabhakaran Soundarajan, Byoung Ryong Jeong

Gyeongsang National University, Korea

Abstract—Grafting is an established practice for asexual propagation of horticultural and agricultural plants. The transfer during graft healing of genetic materials, between root to shoot and vice versa, has recently become of interest for investigating signal transduction pathways in plants using proteomic and microarray techniques. However, grafting is known to induce abiotic or biotic stresses. Using physiological and proteomic analyses, we investigated graft unions (rootstock and scions) of tomato genotypes exposed to standard (23/23°C day/night), normal (25/18°C day/night), or high-low temperatures (30/15°C day/night). Graft unions had varied responses to the diverse temperatures. High-low temperatures, but not standard or normal temperature, induced the production of reactive oxygen species (ROS) in the form of H$_2$O$_2$ and O$_2^{-}$ in both the rootstocks and scions. Many cell protection molecules, including antioxidant enzymes and their immunobLOTS, such as superoxide dismutase (SOD), catalase (CAT), and ascorbate peroxidase (APX), were also induced. The rootstock and scions thus actively defended against stress by modifying their physiological and proteomic responses to establish a new cellular homeostasis. As a result, many proteins for cellular defense were regulated in graft unions under varied temperatures, in addition to the regulation of photosynthetic proteins, ion binding/transport proteins, and protein synthesis. Moreover, biomass, hardness, and vascular transport activity were evaluated to investigate the basic connectivity between the rootstocks and scions. Our study provides physiological evidences of the grafted plants’ response to varied temperatures, including novel insight into the mechanisms used to adapt the varied temperatures in graft unions (rootstock/scion).
A Study of the Effect of Pasak Bumi to Increase Androgen Levels

Hurip Pratomo

Universitas Terbuka/ State Open University of Indonesia

Abstract—Background: One cause of reproductive disorders in men and experimental male rat is a decrease in testosterone levels. Materials of pasak bumi root (*Eurycomalongifolia* Jack) increased libido behavior of experimental male rat. There is an association between libido and higher levels of testosterone. Therefore it is necessary to study the effect of pasak bumi on the primary androgen levels such as testosterone. Methods: Two groups of male rats at 9.00 am were treated using aquadest as controls and pasak bumi in boiled water as experiments, then at 14.00 pm tempted with estrus female rats 10 minutes. Then, both control and pasak bumi blood samples were collected from male rat heart on day 1 and day 3 at 14.15 pm. Measurement of testosterone levels used radioimmunoassay (RIA). Results: An increase in testosterone serum levels in the blood on day 3 of administration of pasak bumi in boiled water with 18 mg/200 g dose was significantly different from the control group within day 1 to 3. The average levels of testosterone administration control (boiled water of aquades) day 1 = 0.50 ng/ml, day 3 = 2.46 ng / ml, increased significantly on pasak bumi treatment day 1st = 4.00 ng / ml and day 3 = 9.73 ng / ml, (Duncan test, α=0.05). Conclusions: Testosterone levels can increase significantly after the consumption of the pasak bumi in boiled water for 3 days.
Gyeongsang National University is located near the southern coast of the Republic of Korea (South Korea) in Jinju City, which is located in South Gyeongsang Province. Jinju is less than an hour’s drive from Korea’s southern coast and is about an hour’s drive from Korea’s famous Chiri Mountain. The city has a population of about 340,000 (including surrounding communities), which is relatively small by Korean standards. Nevertheless, the city has a long, rich history, modern infrastructure, and good public transportation (including a busy domestic airport). Surrounded by mountains and pine- and bamboo-covered hills and divided by the winding South River, Jinju is one of Korea’s most beautiful cities.
Academic Official Visit

Jinju International Agriculture & Food Expo 2015

9:00-17:00, November 11, 2015

Free for all the conference participants

We will start from the Gyeongsang National University in the morning, please arrive at the University on time.
# APCBEEES Forthcoming Conferences

[http://www.cbees.org/events/](http://www.cbees.org/events/)

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<td><strong>Jan. 23-25, 2016, Pattaya, Thailand</strong></td>
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| **ICFEE 2016** | 2016 6th International Conference on Future Environment and Energy (ICFEE 2016)  
http://www.icfse.org/ | Journal of Clean Energy Technologies (JOCET, ISSN: 1793-821X)  
Or  
Journal of Environmental Science and Development (IJESD, ISSN:2010-0264)  
Or  
International Journal of Structural and Civil Engineering Research (IJSCER, ISSN: 2319-6009), |
| **ICBBB 2016** | 2016 6th International Conference on Bioscience, Biochemistry and Bioinformatics (ICBBB 2016)  
http://www.icbb.org/ | The volume of MATEC Web of Conferences (ISSN: 2261-236X)  
Or  
International Journal of Bioscience, Biochemistry and Bioinformatics (IJBBB, ISSN: 2010-3638) |
| **ICCCH 2016** | 2016 5th International Conference on Climate Change and Humanity (ICCCH 2016)  
http://www.iccch.org/ | International Proceedings of Chemical, Biological and Environmental Engineering (IPCBEE) |
| **Feb. 01-02, 2016, Rome, Italy** |
| **ICESD 2016** | 2016 7th International Conference on Environmental Science and Development (ICESD 2016)  
http://www.icesd.org/ | Journal of Environmental Science and Development (IJESD, ISSN:2010-0264)  
Or  
International Proceedings of Chemical, Biological and Environmental Engineering (IPCBEE, ISSN: 2010-4618) |
| **ICCGE 2016** | 2016 5th International Conference on Clean and Green Energy  
http://www.iccge.org/ | Journal of Clean Energy Technologies (JOCET, ISSN: 1793-821X) |
| **Feb. 24-25, 2016, Ho Chi Minh, Vietnam** |
http://www.icere.org/ | The volume of MATEC Web of Conferences (ISSN: 2261-236X)  
Or  
The Journal Water Conservation Science and Engineering (ISSN: 2364-5687 under Springer) |
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<tr>
<td>ICBET 2016</td>
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<td>Tokyo, Japan</td>
<td><a href="http://www.icbet.org/">http://www.icbet.org/</a></td>
<td>International Journal of Pharma Medicine and Biological Sciences (IJPMBS, ISSN: 2278-5221)</td>
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<td>ICEII 2016</td>
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<td>Antalya, Turkey</td>
<td><a href="http://www.iceii.org/">http://www.iceii.org/</a></td>
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<td>ICESE 2016</td>
<td>May 11-13, 2016</td>
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<td><a href="http://www.icese.org/">http://www.icese.org/</a></td>
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### 2015 APCBEES JINJU CONFERENCES

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| **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) |
| **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 (PCBEE, ISSN: 2010-4618) |
| **ICAAA 2016** | 2016 6th International Conference on Asia Agriculture and Animal (ICAAA 2016)  
http://www.icaaa.org/ | Conference proceeding |

### May 25-27, 2016, Jeju Island, Republic of Korea

### June 25-27, 2016, Bali, Indonesia

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| **ICWT 2016** | 2016 2nd International Conference on Water Technology (ICWT 2016)  
http://www.icwt.org/ | International Proceedings of Chemical, Biological and Environmental Engineering (PCBEE, ISSN: 2010-4618)  
Or  
Journal-Water Conservation Science and Engineering (ISSN: 2364-5687) under Springer. |
| **ICBBS 2016** | 2016 5th International Conference on Bioinformatics and Biomedical Science  
(ICBBS 2016)  
http://www.icbbs.org/ | Journal of Life Sciences and Technologies (JOLST, ISSN: 2301-3672)  
Or  
International Journal of Pharma Medicine and Biological Sciences (IJPMBS, ISSN: 2278-5221) |

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Feedback Information
(Please Fill this Form and Return it to us any Time during the Conference Days)

### Personal Information

<table>
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<tr>
<th>Conference Name and Paper ID</th>
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<td>Full Name</td>
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<td>E-mail Address</td>
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<td>Area of Research</td>
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### Please indicate your overall satisfaction with this conference with “✓”

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<th>Very Satisfied</th>
<th>Somewhat Satisfied</th>
<th>Neutral</th>
<th>Somewhat Dissatisfied</th>
<th>Very Dissatisfied</th>
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<td>Conference Content</td>
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<td>Presentation and Paper Value</td>
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Are You A Member of APCBEES

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(If “No”, you may apply membership from http://www.cbees.org/membership.htm)

Do You Willing to Receive APCBEES Future Conferences Information Via E-mail

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<th>No □</th>
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Where did you get the conference information?

Would you please specify the main reason for attending this conference?

Did the conference fulfill your reason for attending?

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<th>Yes – Absolutely □</th>
<th>Yes- But not to my full extent □</th>
<th>No □</th>
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(If “No”, please tell us the main reason)

Would you please list the top 3 to 5 universities in your city?

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Thank you for taking time to fill the conference evaluation form. Your comments will enable us to better plan and execute future conferences and tailor them to your needs!