



ASIA INTERNATIONAL MULTIDISCIPLINARY CONFERENCE

AIMC 2017

ASIA INTERNATIONAL MULTIDISCIPLINARY CONFERENCE 2017

TECHNOLOGY & SOCIETY:
A MULTIDISCIPLINARY PATHWAY FOR
SUSTAINABLE DEVELOPMENT

1-2 MAY 2017

UNIVERSITI TEKNOLOGI MALAYSIA

Life Sciences and Others

FOCUS AREAS

- Social Sciences and Humanities
- Science, Technology and Engineering
- Economics, Business and Management
- Life Sciences and Others



ASIA
ACADEMIA SOCIETY & INDUSTRY ALLIANCE

AIMC 2017
ASIA International Multidisciplinary Conference

Life Sciences & Others
(LSO 2017)

(LSO 2017)
Life Sciences & Others

TABLE OF CONTENTS

CHAPTERS	PAGE
Table of Contents	i
Pre-Conference Training Workshop	ii
Conference Program AIMC 2017	iii
Schedule for AIMC 2017	iv
Conference Gala Dinner	v
Welcome Messages from Conference Chair	vi
Guide to Session Chairs	vii
Session Chairs & Judges	viii
Editorial Team	x
Team ASIA	xiii
Team for AIMC 2017	xiv
Coordinators for AIMC 2017	xv
Our Dignitaries	xvi
Connecting Asia Conference Management System Network (CACMSN)	xix
Abstracts for AIMC2017	1-123
Future Conferences	124
Future Workshops	125

Pre-Conference Training Workshop

ASIA International Multidisciplinary Conference 2017

Pre-Conference Workshop Series



Workshop 1

Prof. Dr. Amran Md Rasli, Universiti Teknologi Malaysia, Malaysia
Topic “Underlying concepts and assumptions for SEM”
30 April 2017, UTM Johor Bahru

Workshop 2

Dr. Mohammad Imran Qureshi, Universiti Kuala Lumpur, Malaysia
Topic “Structural Equation Modeling (SEM) Using SmartPLS”
30 April 2017, UTM Johor Bahru



Single Workshop Fee = RM 125 - Both Workshops Fee = RM 200

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UTM
UNIVERSITI TEKNOLOGI MALAYSIA

Innovation and
Commercialisation
Centre
(ICC)

AIMC 2017

ASIA International Multidisciplinary Conference



ASIA

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ASIA
ACADEMIA SOCIETY & INDUSTRY ALLIANCE

AIMC 2017

ASIA International Multidisciplinary Conference

Conference Program

Schedule for AIMC 2017

Conference Theme: Technology and Society: a multidisciplinary pathway for sustainable development

Venue: Seminar Room 2, FAB, Universiti Teknologi Malaysia, Johor Bahru, Malaysia

Monday, 1st May 2017

Time	Event
07:30-08:45	Registration
08:45-09:00	Guests Seating
09:00-09:20	Opening Note by Prof. Dr Amran Rasli (UTM)
09:20-09:40	Keynote Speech by Prof. Dr Rajah Rasiah (UM)
09:40-10:00	Keynote Speech Prof. Dr Hadi Nur (UTM)
10:00-10:15	Introduction of Connecting Asia by Dr Muhammad Imran Qureshi (UniKL)
10:15-10:20	Group Photograph
10:20-10:45	Breakfast
10:45-13:00	Parallel Sessions / 5Slides 5 Minute 5 Slides (5S 5M)) Competition /Poster Presentation Competition
13:00-14:00	Lunch & Prayer Break
14:00-16:00	Parallel Sessions
	5Slides 5 Minute 5 Slides (5S 5M) Competition
	Poster Presentation Competition
16:00-16:15	Tea Break
16:15-18:15	Parallel Sessions
	5Slides 5 Minute 5 Slides (5S 5M) Competition
	Poster Presentation Competition

CONFERENCE GALA DINNER

AIMC 2017

ASIA International Multidisciplinary Conference

Venue: Pulai Spring Resort, Skudai, Johor Bahru^a

Date: 1 May 2017

Time: 19:00 – 22:00 Hours

Time	Program
19:00 – 19:30	Registration & Guest Seating
19:30 – 19:40	Welcome Speech by Conference Chairman Prof. Dr Amran Rasli
19:40 – 20:00	Keynote address by Vice Chancellor UTM, Prof. Datuk IR. Dr Wahid Bin Omar
20:00 – 20:05	Montage (ASIA Achievements & AIMC 2017)
20:05 – 20:15	About ASIA till Now and Future Plans of ASIA, Launch of ASIA Membership Campaign
20:15 – 20:30	Presentation of Awards and cash prize
20:30 – 21:15	Cultural Event
21:15 – 21:20	Photo Sessions
21:20 – 22:00	Networking & Dinner
22:00	End of the Event

Dinner Theme: Connecting People Globally

Dinner Attire: Traditional Attire^a

Tuesday, 2 May 2017

09:00-17:00	Virtual Conference (Audience is not allowed)
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^a20km, Jalan Pontian Lama, 81110 Pulai, Johor Malaysia

Tel : +607 521 2121, Fax : +607521 1818, Email: enquiry@pulaisprings.com

^b(The Guests are requested to wear their own Country's Traditional Attire)

WELCOME MESSAGES FROM CONFERENCE CHAIR

Professor Dr Amran Rasli

We welcome all respected Researchers to the AIMC 2017, ASIA International Multidisciplinary Conference on four sub-themes i.e. Social Sciences and Humanities, Life Sciences, Science, Technology and Engineering, Economics, Business and Management. AIMC 2017 received more than 1700 abstracts from 22 countries. However, after rigorous review process, 500 quality abstracts were selected for oral presentations. The presentations are divided into different categories including 5Slides 5Minute (5S 5M) competition which are a trademark of ASIA, poster presentation competition and oral presentations with a cash prize for winners. These papers cover a wide range of disciplines consisted of Social Sciences and Humanities, Psychology, Education, Linguistics, Civilization and Law, Anthropology, Life Sciences, Environmental Sciences, Biosciences, Pharmacy, Medical Sciences, Earth sciences, Geology, Agriculture, Anatomy, Genetics, Zoology, Science, Technology and Engineering, Civil Engineering, Mechanical Engineering, Chemical Engineering, Electrical Engineering, Energy, Marine Engineering, Information technology and Computer science, Bioinformatics, Geo-informatics and real states, Mathematics, Physics and Chemistry, Economics, Business and Management, Economics, Business Management, Accounting and Finance, Management, Marketing, Technology management, Human Resource and Operations Management, that bring new and general insights body of knowledge and research world. We are delighted that we will have Special Keynote Speakers Prof. Datuk Ir. Dr Wahid bin Omar Vice Chancellor UTM, Prof. Dr Rajah Rasiah. Professor Dr Hadi Nur and Dr Muhammad Imran Qureshi. They will deliver an insightful keynote on the emerging agenda of the conference. ASIA is a Research society intended to create a symbiotic partnership between academia and industry to provide sustainable solutions for social and industrial issues. ASIA Mediterranean network is a conference management system which aims to bring all respective stakeholders, including practitioners, educators, and professionals on one platform from all over the globe to share the latest developments and transfer the academic and tacit knowledge to make the society more sustainable and knowledgeable. Recently the ASIA Mediterranean Network conducted 2nd ASIA International Conference AIC 2016 at UTM Kuala Lumpur Malaysia. In addition, 2nd AFAP International Conference on Entrepreneurship and Business Management (AICEBM 2015) was successfully conducted at Kuala Lumpur Malaysia. In 2015 ASIA International Conference (AIC 2015) in collaboration with UTM-ICC was also successfully organised. In the same vein, ASIA extends the journey of success to organise ASIA International Multidisciplinary Conference AIMC 2017 in collaboration with UTM-ICC, and Universiti Teknologi Malaysia on four sub-themes i.e. Social Sciences and Humanities, Life Sciences, Science, Technology and Engineering, Economics, Business and Management. at Universiti Teknologi Malaysia, International Campus, Johor Bahru, Malaysia.

GUIDE TO SESSION CHAIRS

Before Session

1. Please arrive at the meeting room 5 minutes earlier before the session starts.
2. You can check the program on the official conference website in advance.
3. If there are any changes of the session time or presenting abstract, the working staff will notify you right at the registration desk.

During Session

1. Please divide the available time equally among all presenters. Each paper should be presented in ten minutes, followed by three minutes discussion time.
2. At the beginning of the session, briefly, introduce yourself, announce of your arrangement of the presentations to the presenters and the audience. Please make sure the presenters are aware that they will receive their certificate at the end of the session.
3. We will have our working staff ready at the end of each session to take a group picture of the participants, please help to gather everyone for the photo shoot.
4. Papers with more than one author do not get any extra time for the presentation.
5. Please remind the presenters of the remaining time they have three minutes before the end of their presentation. If a speaker goes beyond the allotted time, the session chair should ask him/her to close the presentation promptly and politely.
6. Confer the certificate of participation to every presenter at the end of the session.
7. Please try to make sure the session timely proceeds since some attendees need to move from session to session.
8. If any problem which affects the continuation of your session appears, please send someone to contact the organisers.
9. If any of the presenters fail to appear at the session, please return their certificates to the organising committee.

SESSION CHAIRS & JUDGES

Names	Area	University
Prof. Dr. Amran bin MD. Rasli	Management	UTM
Prof. Dr. Rajah A/l Rasiah	Business Economics	UM
Dr. Nurwina Akmal Binti Anuar	Biosciences and Health Sciences	UTM
Dr. Shafqat Ullah Khan	Communication/Electrical Engineering	UTM
Dr. Muhammad Adil Khattak	Mechanical and Nuclear Engineering	UTM
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Dr. Mastura Mahfar	Management	UTM
Prof. Madya Dr. Khairil Wahidin bin Awang	Economics and Management	UPM
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Dr. Aqeel Khan	Education	UTM
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Dr. Mehrbakhsh Nilashi	Computing	UTM
Dr. Zahid Sultan	Built Environment	UTM
Dr. Dodo Yakubu Aminu	Sustainable Architectural Education	UTM
Dr. Munirah Binti Onn	Applied Sciences	UiTM
Dr. Yulia Hendri Yeni	Business and Management	Unand,
Dr. Syed Zuhaib Haider Rizvi	Lasers Induced Plasma	UTM
Dr. Maqsood Ahmed	Nuclear Energy Physics	UP, Pakistan
Assoc. Prof. Dr. Mukhiddin Muminov	Analysis, Mathematical Physics	UTM
Dr. Mazlina Mustapha	Economics and Management	UPM
Dr. Jafri bin Mohd. Rohani	Industrial and Mechanical Engineering	UTM
Dr. Ani Bin Shabri	Mathematics/Statistics	UTM
Dr. Basheer Ali Ghazali	Business and Management	KFU, SA
Dr. Mohamed Ayyub Hassan	Human Resource Development	UTM
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Dr. Suresh Ramakrishnan	Accounting and Finance	UTM
Dr. Goh Chin Fei	Business and Management	UTM
Dr. Tan Sui Hong, Helen	Business and Management	UTM
Assoc. Prof. Dr. Ismail Said	Built Environment	UTM
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Dr. Inam Abbasi	Electrical Engineering	UTM
Dr. Qais Ali	Computing	UTM
Dr. Usman Ahmad	Computing	LCW, Pak

Names	Area	University
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Dr. Tan Owee Kowang	Management / Mechanical Engineering	UTM
Dr. Muhammad Imran Qureshi	Operation Management	Uni KL
Dr. Solomon Olayinka	Management	UTM
Dr. Monica Obi	Education	UTM
Asso. Prof. Dr. Hashanah Binti Ismail	Economics and Management	UPM
Dr. Susilawati Toemen	Chemistry	UTM
Dr. Salmiah Jamal Mat Rosid	Chemistry	UTM

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Dr Muhammad Imran Qureshi

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OUR DIGNITARIES



Prof. Datuk. Ir. Dr Wahid bin Omar
Vice-Chancellor,
Universiti Teknologi Malaysia

Datuk Wahid Omar is a Professor of Structural Engineering at the Faculty of Civil Engineering, Universiti Teknologi Malaysia (UTM). He was appointed as the Vice-Chancellor of UTM in September 2013. Wahid Omar obtained his PhD. in Structural Engineering from the University of Birmingham, his Master's degree in Bridge Engineering from the University of Surrey, and his Bachelor of Science in Civil Engineering degree from the University of Strathclyde, United Kingdom. He is a Fellow of the Institution of Engineers

Malaysia, a registered Professional Engineer with the Board of Engineers Malaysia and a member of various professional bodies. He is also an Honorary Member of the ASEAN Federation of Engineering Organization (AFEO). His areas of expertise include structural assessment, reinforced and pre-stressed concrete and ductility of high strength concrete and project management. Prior to his present appointment, he was the Deputy Vice-Chancellor (Development) (2011-2013) and the Director of the Office of Asset and Development (2008-2011). In his capacity as the then Director of the Office of Asset and Development, he was entrusted with a major task to manage UTM campus development projects worth RM1 billion.



Professor Dr Amran Rasli has a PhD in Society, Business & Globalisation from Roskilde University, Denmark. He is currently the Director of Innovation and Commercialization Centre, Universiti Teknologi Malaysia. His main task is to screen UTM research and development projects, and subsequently, create commercial ventures through licensing and/or formation of spin-offs companies. He is a director of two spin-off companies on behalf of UTM. He also liaises, plans and conducts entrepreneurship activities with funding

agencies to ensure the sustainability and impact for the entrepreneurs and the agencies concerned. At the Faculty of Management, Prof. Dr Amran Rasli teaches postgraduate students, supervise doctoral students, conduct research projects and write journals for publication as per the expectation of the university. Prof. Dr Amran Rasli is still active in doctoral supervision having graduated 31 PhD scholars so far. He had been invited as a visiting professor at University College of Engineering and Technology, Pahang, Indian Institute of Risk Management, Hyderabad, India, Hebei University, China, Kaunas Technological University, Lithuania, National Central University, Taoyuan, Taiwan, National Chen Kung University, Tainan, Taiwan and Universitas Sebelas Maret, Surabaya, Indonesia. He is currently an Adjunct Professor at Asia E-University.



Dr Rajah Rasiah is Professor of Economics and Technology Management at the Faculty of Economics and Administration, University of Malaya. He was the first holder of the Khazanah Nasional Chair of Regulatory Studies and a Professorial Fellow at UNU-MERIT and a member of the GLOBELICS scientific board, and an advisory member of the Industrial Development Research Centre, Zhejiang University. He is also a member of the National Science Research Council, Malaysia, and an advisory member of the Export Committee of the Ministry of International Trade and Industry, Malaysia. He has contributed extensively to projects commissioned by UNCTAD, World Bank, ILO, UNIDO, UNESCO, UNDP and WIPO in Africa, Asia and Latin America. He obtained his doctorate in Economics from Cambridge University in 1992 and was a Rajawali fellow at Harvard University in 2014. He is the 2014 recipient of the Celso Furtado prize from the World Academy of Sciences for his contributions to the field of social sciences. He has published more than 300 research articles in SCOPUS, ISI indexed and Impact factor journals. He has supervised 32 Doctoral Theses and 18 Master Theses. More than 100 scientific papers have been presented since 2007 at various international conferences. About 17 books have been published in national and international publishers. His work has been cited extensively (<3700) with 94 i10 index and h index 31.



Dr Hadi Nur is a Professor and specialised in advanced materials and heterogeneous catalysis. His main field of undergraduate and graduate studies was in chemistry and materials engineering at the Institut Teknologi Bandung. He obtained his B.S. and M.Eng. (cum laude) degrees in 1992 and 1995, respectively. Shortly after that, he continued his postgraduate studies in zeolite chemistry at the Universiti Teknologi Malaysia (UTM) as he received his PhD degree in 1998. His postdoctoral studies started with a year as a UTM Postdoctoral Fellow and with two years as a Japan Society for Promotion of Science (JSPS) Postdoctoral Fellow at Catalysis Research Center (CRC), Hokkaido University, Sapporo, Japan. He continued there as a Center of Excellence (COE) Visiting Researcher at CRC for half a year. In May 2002, he joined the Ibnu Sina Institute for Fundamental Science Studies, Universiti Teknologi Malaysia. He was a visiting scientist at the Institute for Heterogeneous Materials Systems, Helmholtz-Zentrum Berlin for Materials and Energy, Germany from July to September 2015. Currently, he is a full professor at UTM. He has supervised many postgraduate students studying for PhD and M.S. degrees in heterogeneous catalysis and advanced materials, for example, zeolite chemistry and catalysis, photocatalysis, semiconductor nanoparticle-polymer composite, bifunctional oxidative, and acidic catalysts and phase-boundary catalysis. Currently, he and his family enjoy living in Johor Bahru area and are glad that they made the move.



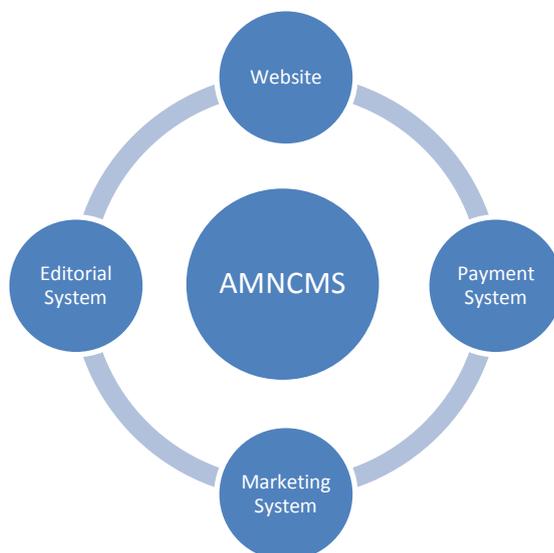
Muhammad Imran Qureshi is a doctor of management from Universiti Teknologi Malaysia. His doctorate research focused on the work practices for sustainable manufacturing under Socio-technical systems context. He is currently working as a senior lecturer in Malaysian Institute of Industrial Technology (MITEC), Universiti Kuala Lumpur. He is also founding Director of Connecting ASIA research network. He has ten years of teaching experience in the field of Operations Management, Strategic Management, Project Management, Total Quality Management, Statistical Process Control, Environmental Management, Logistic and

Supply Chain Management, Production Management and Operations Research, Statistics and Data Analysis. He is a professional trainer for data analysis. He has conducted several workshops on Structural Equation Modeling (SEM) using AMOS and SMART PLS, qualitative data analysis using NVIVO. On the research side, his research profile consists of more than 100 research publications in renowned journals with a cumulative impact factor above 34. He has written several impact factor publications with world renowned publishers like ELSEVIER and SPRINGER in the area of Operations Management, Environmental Management, Sustainability and Organizational Behavior. His work has been cited extensively with 15 i10 index and h index 12.

CONNECTING ASIA CONFERENCE MANAGEMENT SYSTEM NETWORK (CACMSN)

AMNCMS provides all solutions for the problems in managing conferences. This is a comprehensive system to manage conference website, marketing and payment system. AMNCMS also contains an integrated editorial system for submission and review of the conference articles. AMNCMS enables conference organisers to manage multiple conferences on the single web and provide hassle free easy to use interface for organisers and researchers over the globe. AMNCMS is undergoing the process for copyright protection as stipulated by the commercialization policy of Universiti Teknologi Malaysia (UTM). Many local and international conferences are using AMNCMS for hassle free conference management. Our team is committed to providing quality services to satisfy conference organisers needs.

CONNECTING ASIA CONFERENCE MANAGEMENT SYSTEM NETWORK



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Instagram: <https://www.instagram.com/asiamediterranean/>

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Address: UTM Innovation and Commercialisation Centre, Industry Centre, Technovation Park, Universiti Teknologi Malaysia, 81300 Johor Bahru, Johor, Malaysia.

5 Slide Minute
RESEARCH PRESENTATION COMPETITION

Call for Paper


UTM Innovation and Commercialisation Centre (ICC)

ipmi INTERNATIONAL BUSINESS SCHOOL

ASIA ACADEMIA SOCIETY & INDUSTRY ALLIANCE

International Conference on Management, Accounting, Business and Entrepreneurship (ICMABE 2017)

Tentative Dates: 15 - 18 October, 2017
Tentative Venue: Jakarta, Indonesia

Themes
Management, Accounting and Finance,
Entrepreneurship & Business

All accepted articles will be published in **Scopus** indexed journals 

For further information please visit: <http://asiamediterranean.org>
Our Facebook page: <https://www.facebook.com/infoconnectingasia/>

5 Slide Minute
RESEARCH PRESENTATION COMPETITION

Call for Paper


ASIA ACADEMIA SOCIETY & INDUSTRY ALLIANCE

UTM Innovation and Commercialisation Centre (ICC)

3rd ASIA International Conference 2017 (AIC-2017)

Tentative Dates: 16-17 December 2017
Tentative Venue: UTM, Kuala Lumpur, Malaysia

Themes
Marketing, Management, Finance, Economics, Sustainability,
Humanities & Education

All accepted articles will be published in **Scopus** indexed journals 

For further information please visit: <http://asiamediterranean.org>
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Abstracts for AIMC 2017

Abstract ID: AIMC-2017-LS-12

POPULATION SIZE AND HABITAT OF INDIAN GAZELLE (*GAZELLA BENNETTII*) IN NIZAMPUR AREA, DISTRICT NOWSHEHRA, KHYBER PAKHTUNKHWA, PAKISTAN

Corresponding Author: Saif ullah

PMAS-Arid Agriculture university Rawalpindi, Pakistan

Co-Authors: Muhammad Awais

Abstract

Introduction: *Conservation of Biodiversity* **Methodology:** *Vantage Points method and Vegetation sampling*

Findings: *Results will be discussed in the presentation* **Contribution:** *The research was helpful for the protection of the studied species*

Keywords: Indian gazelle

Abstract ID: AIMC-2017-LS-61

A NEW APPROACH FOR SOLVING EULER DECONVOLUTION EQUATION: DEPTH ESTIMATION TECHNIQUE

Corresponding Author: Nuraddeen Usman

Exploration geophysics section, Universiti Sains Malaysia, 11800 Pulau Pinang

Co-Authors: Khiruddin Abdullah; Mohd Nawawi

Abstract

Introduction: *Euler deconvolution is one of the most popular techniques for computing depth of the potential field's source that can process large amount of data within short period of time. It has a drawback that the user must input the structural index in order to linearized and solve the equation. The use of fixed structural index is ill-posed to the process because the real geology of the earth surface consists of so many structures. A new approach that estimates the structural index automatically using first order derivatives is presented.*

Methodology: *The new approach used in this research has been extensively applied in statistics to establish relationships among multiple variables (more than two) by fitting a linear line to the observed data. The concept is similar to simple linear regression in which an independent variable is used to predict the response of a dependent variable. In MLR, there are more than two variables, and the relationship cannot be established simply by using a 2D graph. The new methodology is independent on AS, it does not involve higher order derivatives and the derivatives are computed directly from the total field grid. This approach is built with some features that reduced spurious solutions in the estimate. The method is tested using both theoretical and field data.* **Findings:** *Synthetic model study has shown that for isolated anomaly, the new methodology is capable of providing perfect horizontal location estimate. For the depth and structural index, the error involved is within the acceptable limit. The methodology was applied to real data and the result obtained correlated well with the geology of the study area. It is observed that the present methodology have so many advantages; it provides a simple procedure for solving Euler deconvolution equation that does not requires manual input of SI. It filters out significant number of spurious solutions such as negative depth values and solutions outside the area under consideration. The preliminary results have indicated that the method provides reliable horizontal and vertical estimates. The technique is recommended for the delineation of geological boundaries and source parameter imaging (SPI) applications.*

Contribution: *This method solve position of potential field source, background and SI simultaneously. Unlike the past work, this technique involves the use of first order derivatives, independent of Analytic signal (AS) and it does not involve complex mathematical operations. It also comprises an automated filtering procedure that accepts/reject solutions based on convolution window, maximum regression error (in percentage) and the SI deviation is designed and used in this research.*

Keywords: Geophysics; Euler deconvolution technique; Filtering; Potential field modeling

Abstract ID: AIMC-2017-LS-67

MODERN STRAINS MYCOBACTERIUM TUBERCULOSIS BEIJING GENOTYPE LOW INDUCTION OF INTERLEUKIN-8 PRODUCTION OF PATIENT WITH MMR GENE G1186A MUTATION

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Abstract

Introduction: *The genetic diversity of Mycobacterium complex and host known to be involved in inducing cytokine production of pro and anti-inflammatory role in the host-pathogen immune response. Macrophage Mannose Receptor (MMR) gene mutation G1186A is a variation of the MMR gene most which is associated with the incidence of pulmonary TB was found in studies in Bandung. The aimed of this study to know the influence of ex vivo strains of Mycobacterium induction of interleukin-8 production in patients MMR gene mutation G1186A. Methodology:* *The study was case control design consisting 48 subjects consisting of 32 with MMR gene mutation G1186A and 16 with no mutation. Analysis of IL-8 with the induction of pathogenic nonpathogen Mycobacterium (M.bovis / BCG) and pathogens (Modern strains Beijing and non-Beijing), experiments were performed using 5 mL heparinized Blood, which is induced using the Nile (RPMI) as a negative control, M.bovis 50 µg/mL, Modern strain Beijing and non-Beijing with concentration 200 µg/mL with a method of stimulating Whole Blood Assays (WBSA) in RPMI medium, incubation 37°C for 24 hours. The supernatant examination IL-8 with quantitative technique colorimetric sandwich enzyme immunoassay. The study was conducted between February 2014-May 2016 at the Faculty of Medicine Teaching Hospital Padjadjaran University in collaboration with the research team study center TB-HIV, Tuberculosis and Diabetes Mellitus (TANDEM), and innate Factors in Early Clearance of Tuberculosis (INFECT). Statistical analysis using Chi-square test. Findings:* *There are differences in the levels of IL-8 with virulent pathogens Mtb stimulation (Non Beijing strain) between the groups with and without the mutation G1186A MMR gene median and minimum-maximum 665.9 (12-2458) pg / mL and 473.7 (26-1525) pg / mL, with p = 0.54. However, overall production of IL-8 induced the lowest median value by Modern strains of Mycobacterium tuberculosis Beijing obtained in patients who have mutations (578.7 pg / mL) or no mutation (379.6 pg / mL). Results induction using M.bovis concentration 50 µg/mL was able to induce the production of IL-8. This is in contrast to the induction performed using Mtb strains Modern Beijing and non-Beijing, requires concentration raises up to 4x the new folding optimal cytokine production. This is consistent with the differences in cytokine induction Theobserved point to a reduction in proinflammatory cytokine response as a possible contributing factor to the evolutionary success of modern Beijing strains.*

Conclusion: *Modern Strains of Mycobacterium tuberculosis Beijing genotype Induction IL-8 levels were lowest in patients with the MMR gene G1186A mutation and nonmutation.*

Contribution: *This study using Whole blood stimulating Assays method is a new methods in our lab in Bandung Indonesia and have advantages in terms of sensitivity and specificity also use blood tests materials were far fewer than previous methods such as using peripheral blood mononuclear cell (PBMC) or direct examination of serum cytokines. WBSA with induction strains Mycobacterium non pathogens (BCG) and pathogen (Non-Beijing and Modern strain Mycobacterium tuberculosis Beijing genotype for Interleukin-8 measurement.*

The mutation G1186A MMR gene is the Most mutations found in previous our studies associated with the incidence of pulmonary tuberculosis.

Keywords: Modern Strains of Mycobacterium tuberculosis Beijing genotype, IL-8, MMR gene G1186A mutation

Abstract ID: AIMC-2017-LS-78

IMPROVING FRESH FRUIT BUNCH PRODUCTIVITY OF OIL PALM PLANTATIONS USING SOIL AND WATER CONSERVATION TECHNIQUES

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Abstract

Introduction: Oil palm management on peat soil influences FFB result in high productivity. Oil palm on peat lands has problem of drainage Availability of water plays an important role in determining FFB productivity. A long drought may cause significant decrease of FFB productivity and male flowers production. In addition, water management is a key to the success of oil palm cultivation on peat soils in particular. Soil and water conservation is very important. It requires more attention in oil palm plantations. Good soil conditions will affect on the processes of water and nutrient uptake, root respiration as well as ease of maintenance, and harvest crops (Yahya et al., 2012). **Methodology:** Several treatments based on soil and water conservation have been applied in oil palm plantations. There were six treatment groups and one group without treatment. Manure conservation methodise applied to sandy soil. The applied manure is chicken manure with composition 0.5% N, 0.25% P₂O₅, 0.5% K₂O. For the application of 20Kg per unit Canal for SPH (Space per Hectare) 142tree/ha, it takes 2.8 tons of manure/ha. Organic silt pits and manure treatment was made for every oil palm tree in block. Organic silt pits, accommodate manure with dose 25 kg/silt pits and incorporate compost from the waste products of oil palm processing. It consists of Oil Palm Trunks (OPT), Oil Palm Fronds (OPF), Empty Fruit Bunches (EFB), Palm Pressed Fibers (PPF) and palm kernel shells, less fibrous material such as palm kernel cake and liquid discharged Palm Oil Mill Effluent (POME)(Alegre & Rao, 1996). The treatment combination combined soil and water conservation (Table 3).

Table 3

Combination treatment of soil and water conservation

Combination Soil and Water Conservation Code Treatment

- | | | |
|----|---------------------------------------|-----------------------------|
| a. | S0 + W0 | BAU |
| b. | S4 + S5 + S6 + W1 + W2 | Waste |
| c. | S2 + S3 + W1 + W2 | ManureOrg. |
| d. | S1 + W1 + W2 | Cover Crop |
| e. | S2 + S3 + S4 + S5 + S6 + W1 + W3 | ManureOrg-Waste |
| f. | S1 + S4 + S5 + S6 + W1 + W3 | Cover Crop-Waste |
| g. | S1 + S2 + S3 + W1 + W2 | Cover Crop-ManureOrg. |
| h. | S1 + S2 + S3 + S4 + S5 + S7 + W2 + W3 | Cover Crop-ManureOrg.-Waste |

Business As Usual (BAU) is a plantation land without any treatment of soil and water conservation. However, fertilizer, weeds, pests, and disease management are still given. Combination treatment of EFB, solid, boiler ash applications, with water conservation (Waste) is urgently needed. This treatment is important because of the benefits of EFB mulching. Solid and boiler ash on soil contribute to soil structure improvement due to better aeration, increment of water holding capacity, and an increment of soil pH. In addition, it prevents rain splash, wash and so reduces soil erosion and nutrient losses, and moderates soil Temperatures (Comte, 2012). Combination treatment of manure and organic silt pits by water conservation (ManureOrg) was applied to improve soil fertility, Cation Exchange Capacity (CEC), nutrient holding capacity, and as a carbon source (Amberger, 2006). Combination treatment of *Nephrolepis biserata* and *Mucuna sp.* planting with water conservation (Cover Crop) was necessary since it is kind of biological nitrogen fixation. It was able to retain and recycle soil nitrogen already present in the agro-ecosystem. The others 4 combination treatments are based on soil and water conservation. They are expected to increase the productivity of FFB further.

Data analysis was performed by analysis of variance (Two-way ANOVA), which was carried out in two stages. The first stage of analysis was done among treatments performed to determine the best treatment in oil palm plantations. The second stage determined significant differences between treatment combinations three years after the implementation of soil and water conservation in oil palm plantations.

Findings: This study gives a note that the increasing in FFB productivity from year to year has been different significantly in the 3rd year after the application of soil and water conservation was applied at the beginning (Table 8). All soil and water conservation treatment were able to increase FFB productivity.

Table 8

Soil and water conservation effect three years after application

No	(I) Treatment	(J) Treatment	Mean Difference
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(I-J)	Sig.c	(I) Mean	(J) Mean					
1	BAU 2014	CoverCrop2014	-9.200a,b,*	0.001	20.0	29.2		
		Cover Crop 2015	-7.883a,b,*	0.003	20.0	27.9		
		Cover Crop 2016	-6.891a,b,*	0.01	20.0	26.9		
2	BAU 2014	Cover Crop-ManureOrg.-Waste 2015	-5.029a,b,*	0.044	20.0	25.0		
		Cover Crop-ManureOrg.-Waste 2016	-6.498a,b,*	0.009	20.0	26.5		
3	BAU 2016	CoverCrop2014	-7.026a,b,*	0.009	22.2	29.2		
		CoverCrop2015	-5.710a,b,*	0.033	22.2	27.9		
4	Waste 2014	Cover Crop 2014	-6.759a,b,*	0	22.4	29.2		
		Cover Crop 2015	-5.443a,b,*	0.002	22.4	27.9		
		Cover Crop 2016	-4.450a,b,*	0.012	22.4	26.9		
5	Waste 2015	Cover Crop 2014	-6.408a,b,*	0	22.8	29.2		
		Cover Crop 2015	-5.091a,b,*	0.004	22.8	27.9		
		Cover Crop 2016	-4.099a,b,*	0.02	22.8	26.9		
6	ManureOrg. 2014	Cover Crop 2014	-8.410a,b,*	0	20.8	29.2		
		Cover Crop 2015	-7.093a,b,*	0	20.8	27.9		
		Cover Crop 2016	-6.101a,b,*	0.001	20.8	26.9		
7	ManureOrg. 2014	Cover Crop-Waste 2014	-2.727a,b,*	0.049	20.8	23.5		
		Cover Crop-Waste 2015	-3.144a,b,*	0.023	20.8	23.9		
		Cover Crop-Waste 2016	-5.125a,b,*	0	20.8	25.9		
8	ManureOrg. 2014	Cover Crop-ManureOrg.-Waste 2015	-4.239a,b,*	0.005	20.8	25.0		
		Cover Crop-ManureOrg.-Waste 2016	-5.708a,b,*	0	20.8	26.5		
9	ManureOrg. 2015	Cover Crop 2014	-6.166a,b,*	0.001	23.0	29.2		
		Cover Crop 2015	-4.850a,b,*	0.008	23.0	27.9		
		Cover Crop 2016	-3.857a,b,*	0.033	23.0	26.9		
10	ManureOrg. 2016	Cover Crop 2014	-5.050a,b,*	0.005	24.1	29.2		
		Cover Crop 2015	-3.733a,b,*	0.039	24.1	27.9		
11	Cover Crop 2014	ManureOrg.-Waste 2014	9.145a,b,*	0	29.2	20.0		
		ManureOrg.-Waste 2015	6.914a,b,*	0	29.2	22.7		
		ManureOrg.-Waste 2016	5.291a,b,*	0.003	29.2	23.9		
12	Cover Crop 2014	Cover Crop-Waste 2014	5.682a,b,*	0	29.2	23.5		
		Cover Crop-Waste 2015	5.265a,b,*	0.001	29.2	23.9		
		Cover Crop-Waste 2016	3.285a,b,*	0.04	29.2	25.9		
13	Cover Crop 2014	Cover Crop-ManureOrg. 2014	5.843a,b,*	0.03	29.2	23.3		
		Cover Crop-ManureOrg. 2015	6.383a,b,*	0.018	29.2	22.8		
14	Cover Crop 2014	Cover Crop-ManureOrg.-Waste 2014	6.051a,b,*	0	29.2	23.1		
		Cover Crop-ManureOrg.-Waste 2015	4.171a,b,*	0.015	29.2	25.0		
15	Cover Crop 2015	ManureOrg.-Waste 2014	7.829a,b,*	0	27.8	20.0		
		ManureOrg.-Waste 2015	5.598a,b,*	0.002	27.8	22.7		
		ManureOrg.-Waste 2016	3.974a,b,*	0.024	27.8	23.9		
16	Cover Crop 2015	Cover Crop-Waste 2014	4.366a,b,*	0.007	27.8	23.5		
		Cover Crop-Waste 2015	3.949a,b,*	0.014	27.8	23.9		
17	Cover Crop 2016	ManureOrg.-Waste 2014	6.836a,b,*	0	26.9	20.0		
		ManureOrg.-Waste 2015	4.605a,b,*	0.009	26.9	22.7		
18	ManureOrg.-Waste 2014	Cover Crop-Waste 2014	-3.462a,b,*	0.009	20.0	23.5		
		Cover Crop-Waste 2015	-3.879a,b,*	0.003	20.0	23.9		
		Cover Crop-Waste 2016	-5.860a,b,*	0	20.0	25.9		
19	ManureOrg.-Waste 2014	Cover Crop-ManureOrg.-Waste 2014	-3.094a,b,*	0.033	20.0	23.1		
		Cover Crop-ManureOrg.-Waste 2015	-4.974a,b,*	0.001	20.0	25.0		
		Cover Crop-ManureOrg.-Waste 2016	-6.443a,b,*	0	20.0	26.5		

The results of the Scheffe analysis on all treatments in each year indicate significant differences among treatments (Table 8). The difference in the results of the analysis by Scheffe analysis in Table 8 is the treatment of Cover Crop. Although FFB productivity is not significantly different in time scale, it becomes different significantly on many other treatments.

CoverCrop released significantly higher amounts of soil and water conservation than CoverCrop-Waste, and CoverCrop-ManureOrg.-Waste of decomposition in the field. Generally, among no treatment and conducted soil and water conservation techniques have significant differences in this experiment. Although among the treatments given there were not different significantly as shown in FFB production in 2014, 2015 and 2016.

Contribution: Findings of this research about applying the combination of soil and water conservations techniques can improve FFB productivity of oil palm plantation with integrated benefits

Keywords: Soil and Water Conservation techniques, FFB productivity, Oil Palm Plantations, Combination treatment, nutrient utilization

Abstract ID: AIMC-2017-LS-79

SUSTAINABILITY OF ABBATOIR WASTE WATER AND ITS IMPLICATIONS ON THE GROWTH, YIELD AND NUTRIENT COMPOSITION OF SOLANUM LYCOPERSICUM AND CAPSICUM ANNUM

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Abstract

Introduction: The incessant problem associated with abattoir waste water on the environment had become a recurring decimal occasioned by poor management practices. The sustainable use of abattoir waste water on the growth yield and nutritional composition of *Solanum lycopersicum* and *Capsicum annum* were investigated with the aim of promoting re-use and ameliorating potentials of abattoir waste water thereby contributing to sustainable agriculture. **Methodology:** Seedlings were raised in perforated plastic pots filled with 10kg of top soil and irrigated with abattoir waste water of different concentrations (20, 40, 60, 80, and 100%) respectively while those irrigated with tap water and completely free of waste water served as the control. **Findings:** The vegetables that were irrigated with abattoir waste water at various concentrations improved growth performances as there were significant increase in the number of branches, number of leaves and plant height compared to those irrigated with tap water. However, yield components and number of fruits/plant, fruit fresh weight and fruit dry weight were greatly enhance for *Solanum lycopersicum* as against *Capsicum annum*. Mineral nutrients including Nitrogen, Potassium and Calcium increased in *Solanum lycopersicum* with respect to the control. Protein, ash content, and lipids were not significantly affected. Also, proximate and nutritional composition of *Capsicum annum* were not significantly affected by the abattoir waste water. Heavy metal concentrations in fruit and soil samples was relatively high but not beyond the threshold and the assimilation capacity of the soil and fruit samples. Biomass accumulation of *Solanum lycopersicum* and *Capsicum annum* were significantly increased at 80% concentration as compared to the control **Contribution:** The sustainable use of abattoir waste water at 80% concentration cannot be over emphasized as it was adjudged to enhance growth performance of *Solanum lycopersicum* and *Capsicum annum* in most of the parameters investigated. Hence, adequate management practices should be encouraged not undermining the negative consequences that abattoir waste water portends to nature and environment.

Keywords: abattoir, assimilation capacity, potential, re-use, sustainable

Abstract ID: AIMC-2017-LS-98

PRODUCTION OF RESERPINE OF RAUWOLFIA SERPENTINA (L) KURZ EX BENTH THROUGH IN VITRO CULTURE ENRICHED WITH PLANT GROWTH REGULATORS OF NAA AND KINETIN

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Abstract

Introduction: The aim of this study was to find the most effective way of reserpine production. To affect the cultivation are utilized the Growth regulators {naphthalene acetic acid (NAA) and Kinetin}. They were applied to promote and to regulate the growth of explant of *R. serpentina* culture in vitro. **Methodology:** The study was conducted at laboratory of Bandung Institute of Technology (ITB). Nine formulation of NAA and Kinetin : the treatment were : 1) 1.5 ppm NAA+1.5 ppm Kinetin; 2) 1.5 ppm NAA+2.0 ppm Kinetin ; 3) 1.5 ppm NAA+2.5 ppm kinetin; 4) 2.0 ppm NAA+1.5 ppm Kinetin; 5) 2.0 ppm+2.0 ppm Kinetin; 6) 2.0 ppm NAA+2.5 ppm Kinetin;

7) 2.5 ppm NAA+1.5 ppm Kinetin; 8) 2.5 ppm NAA+2.0 ppm Kinetin; 9) 2.5 ppm NAA+2.5 ppm Kinetin. The treatments were arranged in completely randomized design with twice replications.

Weight of callus was measured at one, two, three and four weeks after induction of explants. Reserpine analysis was performed by High Performance Liquid Chromatography (HPLC). **Findings:** The result showed that the best callus induction was the treatment of 2.5 ppm NAA + 2.5 ppm Kinetin, and the highest content of reserpine was in root organ (0.0021 g / L), and in callus (0.0021 g / L) at the age of 4 weeks after induction. There was revealed that in vitro culture method was more effective in producing reserpine compound than the conventional plantation of *R. serpentine*. **Contribution:** Production of reserpine by callus culture was more effective and may be the basic for recommended effort.

Keywords: alkaloid, callus, content, effective

Abstract ID: AIMC-2017-LS-156

THE EFFECTS OF PSEUDOEPHEDRINE ADMINISTRATION IN EARLY GESTATION ON FETAL MICE TERATOLOGY

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Abstract

Introduction: Pseudoephedrine is one of the most common decongestant used to treat nasal congestion caused by colds, allergies, and influenza. About 25% of pregnant women exposed to this drugs during pregnancy. Vasoconstriction activity of pseudoephedrine in the uterine and fetal mesenteric arteries associated in increasing birth defects in the first trimester. The objectives of this study were to investigate the effect of pseudoephedrine administration in early gestation on fetal mice teratology. **Methodology:** This study is an experimental in vivo with a completely randomized design. Sixteen adult females mice (age: 8-10 weeks, weight: 25-30 g) were randomly divided into four groups: one control group that only received normal saline and three treated groups that received different doses of pseudoephedrine: 0.312 mg/24 hours, 0.624 mg/24 hours, 1.248 mg/24 hours for seven days from the 1st day of gestation. At 18th day of gestation, mice were sacrificed and dissected to isolate the fetuses. The observation of fetal mice was done immediately after the isolation process. The teratology parameters assessed in this study were number of death fetuses, number of live fetuses, number of fetal absorption, fetal body weight and length, and fetal external congenital abnormalities. **Findings:** The results showed that the administration of pseudoephedrine doses 0.624 mg/24 hours and 1.248 mg/24 hours can affect the overview of fetal mice teratology, there was a reduction in fetal body weight and length in both treated groups ($p < 0.001$; $p < 0.009$). Congenital abnormalities, such as gastroschisis and abdominal wall abnormality, were also observed in fetuses in both dosage groups although the results were not significant statistically. These findings suggest that the administration of pseudoephedrine affect fetal development. Vasoconstriction activity of this drug can interfere blood flow to the fetus so that enhance the risk of birth defects. **Contribution:** This study is expected to provide information about the effect of pseudoephedrine on fetal mice teratology so that it can be used as basis consideration to develop more advance pseudoephedrine-related research and other over the counter (OTC) drug that potentially teratogenic-related research.

Keywords: pseudoephedrine, gestation, fetal teratology

Abstract ID: AIMC-2017-LS-172

PRODUCTION OF VIRAL VACCINES AGAINST ANIMAL DISEASES USING CELL CULTURE

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Abstract

Introduction: The viral diseases in Livestock like Peste Des Petits Ruminants [PPR], Sheep Pox [SP] and Goat Pox [GP] are very common. These are acute in nature and responsible for low productivity resulting in huge economic losses to the farming communities. The only successful and cost-effective way to contain these diseases, in regions like Pakistan where these diseases are highly prevalent, is vaccination. In order to protect the animals from these diseases, freeze-dried vaccines against PPR, Sheep Pox and Goat Pox are produced at Center for Advanced Studies in Vaccinology and Biotechnology [CASVAB], University of Balochistan [UoB] Quetta. **Methodology:** The cell culture technology, which has been widely adopted for the production of viral vaccines, was used to produce high titer of viral harvest to get sterile, safe and potent vaccines. The Vero cells

adapted to one week split cycle were used for the inoculation of different viruses. The seed for PPR vaccine [PPR 75-1 lk6 Vero74] was obtained from CIRAD-emvt [Campus International de Baillarguet, UPR15, TA30/G, Montpellier cedex5, France] while seed for Sheep Pox and Goat Pox virus were obtained from Veterinary Research Institute [VRI] Lahore, which were RM-65 and Goregan 55, an Iranian, strains respectively.

Findings: The vaccines produced contain 102.5TCID₅₀, 103.2 TCID₅₀ and 103.2 TCID₅₀ viruses per dose for PPR, Sheep Pox and Goat pox virus vaccine, respectively. A total of 12.700, 8.687 and 4.439 million doses of PPR, Sheep Pox and Goat Pox vaccine were produced, respectively from 2005 to 2016. **Contribution:** These vaccines were given to Livestock and Dairy Development Department Balochistan [LSDDD], Government of Punjab, Government of Sindh and other National and International organizations working for the eradication and control of these diseases in Pakistan.

Keywords: Sheep pox, Goat pox, viral vaccines, PPR

Abstract ID: AIMC-2017-LS-173

CIRCULATING AUTOANTIBODIES AGAINST TUMOR ASSOCIATED ANTIGENS AS DIAGNOSTIC MARKERS IN PATIENTS WITH PRIMARY LIVER CANCERS

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Abstract

Introduction: Hepatocellular carcinoma (HCC) and Cholangiocarcinoma (CC) are primary liver cancers. HCC is a tumor in which the cancer starts during adulthood in hepatocytes while CC originates from bile duct epithelium. Due to the lack of early diagnosis, the incidence of HCC and CC are rising and the provision of effective therapy to the patients suffering from these cancers is impossible. A number of HCC tumor markers have been identified, but there is no

evidence which indicates the significance of clinical diagnosis of HCC by the detection of these markers. But today, there is no study which indicates the presence of specific autoantibodies in CC, at the contrary of HCC, has been reported. The aim of our study is to identify new immunological tumor markers for the diagnosis of HCC and CC.

Methodology: In present study we analyzed thirty three sera (28 male and 5 female, mean age = 62 years) from patients with HCC of different etiologies. Alcoholic (n=12), Hepatitis B virus infection (n=3), hepatitis C virus infection (n=8) and cryptogenic (n=10). Six sera (3 male and 3 female, mean age= 51 years) from patients with cholangiocarcinoma (CC) and sera from healthy subjects (n=15). Sera were tested on immunoblots performed with nuclear, mitochondrial, microsomal and cytosolic proteins. SDS-PAGE resolved gels obtained from rat liver homogenate. **Findings:** Several bands were stained by patient's sera and controls. But promising autoantibodies (AAb) were seen on immunoblots performed both with microsomal and cytosolic fractions. AAb showing double band of 54 kDa and 38 kDa microsomal proteins were found with 7 (21%) and 3 (9%) HCC sera respectively. With cytosol as antigen, a 72 kDa band reacted with 8 (24%) HCC sera, and a 54 kDa band with 10 (30%) HCC sera. These AAbs were not detected in the sera from healthy subjects. Concerning CC, we found cytosolic 72-kDa and 54-kDa proteins reacting only with 1 and 2 of 6 CC sera respectively, a 38-kDa microsomal protein stained by 2 sera and a 27- kDa nuclear protein by 1 serum.

Contribution: These protein specific antibodies in HCC and CC may be the future candidates for the diagnosis of these carcinomas and must be identified.

Such research has not been done before on same samples.

Keywords: Hepatocellular Carcinoma, Cholangiocarcinoma, Autoantibodies

Abstract ID: AIMC-2017-LS-174

MOLECULAR MECHANISMS OF CARBOHYDRATE AND LIPID METABOLISM AND PROGNOSIS OF DEGENERATIVE DISEASES IN RURAL AND URBAN POPULATIONS OF FAISALABAD DISTRICT

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Abstract

Introduction: *The rural and urban areas of Faisalabad District of Punjab province is inhabited with diverse ethnic populations constituting distinct genetic identity. The life style, traditions and dietary habits among these populations are varied. The physiological parameters of two diverse ethnic populations, their comparative adaptations in carbohydrate and lipid metabolism have been investigated in the present study.* **Methodology:** *One hundred subjects of rural and urban populations, apparently healthy volunteers, were sampled inhabiting three villages and urban areas of Faisalabad. The adult age groups of both genders in studied populations were sampled randomly. General characteristics of the populations according to their nutritional habits including, age, weight, height, body mass index (BMI), systolic blood pressure, diastolic blood pressure, total serum cholesterol, low density lipoprotein (LDL), high density lipoprotein (HDL), triglycerides (TG) and glycemia were measured.* **Findings:** *The characteristics of age, weight, height, BMI, systolic and diastolic blood pressures, LDL cholesterol did not exhibit significant differences between both populations. Total serum cholesterol and triglycerides were significantly greater in Rural population compared to Urban population ($P < 0.05$). A parameter of each total population was assorted into sub groups and significant relationships were compared with other sub groups of the parameter. Diastolic blood pressure in Rural population and systolic blood pressure in Urban population was significantly higher in subjects above 45 years of age compared to other sub groups. Similarly LDL cholesterol was greater in subjects' above 45 years in both populations.* **Contribution:** *In both populations there are similarities in the expression of some characteristics, however, there are a few distinct variations as well. The variations need to be investigated further on a molecular level. The type of study described here could be used as a model for investigating larger scale populations and the effects of migration on human health.*

Keywords: Lipid metabolism, carbohydrate metabolism degenerative diseases,

Abstract ID: AIMC-2017-LS-212

ASSESSMENT OF PHYSICO-CHEMICALS WATER QUALITY, SUBSTRATE COMPOSITIONS AND PHYTOPLANKTON IN RELATION TO THE DENSITY OF CORBICULA FLUMINEA IN PATTANI RIVER, SOUTHERN THAILAND

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Abstract

Introduction: *Corbicula fluminea or commonly known as Asian clam has been consumed by people in Asian countries as exotic food. People in Kelantan, Malaysia and Southern Thailand smoked the Asian clam and consumed it as snack. However, the ecology of Corbicula fluminea has not been fully explored in Malaysia and also in Southern Thailand. The objective of this study is to determine the influence of habitat elements on the density of C. fluminea in Pattani River.* **Methodology:** *C. fluminea, physico-chemicals water quality, substrate compositions and phytoplankton availability were sampled in Pattani River, Thailand. The water quality parameters involved in this study are dissolved oxygen, pH, temperature and the nutrient analysis which are phosphate and nitrate.* **Findings:** *The mean concentration of pH is 6.53 ± 0.06 , temperature is 31°C , dissolved oxygen (DO) is 3.3 ± 0.10 , phosphate is 0.07 ± 0.01 and nitrate is 0.31 ± 0.07 . On the other hand, Pattani River has a sandy loam substrate comprises of 84% of sand and 16% of clay. In terms of phytoplankton, there are 21 species identified from 15 different families. The density of C. fluminea recorded at Pattani River is 369 clams/m². Based on the results, it could be suggested that, the density of C. fluminea is likely to be influenced by the harvesting activities by the villagers for consumption since the water quality, substrate compositions and the availability of phytoplankton are favouring their growth.* **Contribution:** *Findings of this research are able to add to the existing knowledge of the ecology of C. fluminea nationally and internationally.*

Keywords: Corbicula fluminea, water quality, sediment, phytoplankton, density, Pattani River

Abstract ID: AIMC-2017-LS-228

ANTIBACTERIAL ACTIVITY OF EXTRACTS AND COMPOUNDS FROM THE ROOTS OF SESBANIA GRANDIFLORA (LEGUMINOSAE)

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Abstract

Introduction: All parts of *Sesbania grandiflora* (L.) Pers (Leguminosae) are traditionally used for the treatment of hepatitis, parasites, and different kinds of infections as well as inflammation of skin and mucous membranes. This study aimed to evaluate the antibacterial activity of extract/fraction and purified compounds from the root of *S. grandiflora* against four species of Gram-positive bacteria, and five species of Gram-negative bacteria, and verify scientifically their use in traditional medicine to treat diseases caused by bacterial infection.

Methodology: The extract/fraction and purified compounds were tested for antibacterial activity by using disc-diffusion method against bacterial strains: *Bacillus cereus* (ATCC 10876), *Streptococcus pyogenes* (ATCC 19615), *Staphylococcus aureus* (ATCC 25923), *Streptococcus pneumoniae* (ATCC 6303), *Haemophilus influenzae* (ATCC 10211), *Salmonella typhimurium* (ATCC 13311), *Shigella flexneri* (ATCC 12022), *Escherichia coli* (ATCC 25922), and *Klebsiella pneumoniae* (ATCC 13883). **Findings:** Four compounds, betulinic acid (1), 7,4'-dihydroxy-2'-methoxyisoflavan (2), 3-hydroxy-9-methoxypterocarpan (3), and 7-hydroxy-2',4'-dimethoxyisoflavan (4) were isolated from the root of *S. grandiflora*. The results showed that the antibacterial activity of the test components was dose dependent. The methanol extract inhibited the growth of *S. pyogenes*, *B. cereus*, *S. aureus*, and *K. pneumoniae*. The acetone fraction inhibited the growth of *S. pyogenes*, *B. cereus*, *S. aureus*, *S. pneumoniae*, *H. influenzae*, and *K. pneumoniae*. Compounds 2 and 3 similarly inhibited *S. pyogenes*, *B. cereus*, and *K. pneumoniae*; and compound 4 inhibited only *S. pyogenes* and *B. cereus*. **Contribution:** To the knowledge of the authors, all isolated compounds were isolated here for the first time from the roots of *S. grandiflora*. The results partially justify the use of *S. grandiflora* root in traditional medicine to treat diseases caused by bacterial infection. This study also indicates that *S. grandiflora* root could be used as a potential natural source for new antibacterial agents.

Keywords: *Sesbania grandiflora*; Antibacterial activity; betulinic acid; 7,4'-dihydroxy-2'-methoxyisoflavan; 3-hydroxy-9-methoxypterocarpan; 7-hydroxy-2',4'-dimethoxyisoflavan.

Abstract ID: AIMC-2017-LS-243

EFFECT OF EDIBLE CHITOSAN COATING ON THE SHELF-LIFE AND NUTRITIONAL VALUE OF MINIMALLY PROCESSED FOOD: A NARRATIVE REVIEW

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Abstract

Introduction: Nowadays, the demand of minimally processed food was increased significantly. However, the minimal processes of the food may result in physiological changes and shorter the shelf-life of the product. To solve this problem, edible chitosan coating was proposed to give an effect on improving shelf-life and quality of the food. The application of this substance is easy to produce, safe, and the price is affordable. This study was reviewing the previous literatures to analyse the effect of edible chitosan coating on the shelf-life (considering both sensory and anti-microbiological qualities) and nutritional value of minimally processed foods.

Methodology: The research was narrative review to identify the experimental and systematic review studies of edible chitosan coating from several electronic databases such as Elsevier, Scopus, ETH Bibliothek, and PubMed. Literature was selected based on the inclusion and exclusion criteria based on the relevance of the topic. Literature was included if it was: contemporary (2010-2015), full text only, using English language, types of article are experimental and review, and chitosan is the sole additive. Article was excluded if it was conference proceedings, leaflets, and power point presentations. The quality of the studies was assessed with three stages of critical appraisal. The first stage is assessment of relevance. In this stage, the articles evaluated based on the criteria of the relevance to the research questions and the type of study. The second stage was data extraction. Papers were evaluated to record the full details of the study to ensure the articles addressed the research questions and the method was appropriate. The third stage was scoring of methodological rigor. In this stage, the selected articles were graded by each empirical study (10 very poor; 40 good). This will allow the researcher to accept empirical studies with high reliability and indicate the strength and weakness of each study.

Findings: Twenty one publications met the criteria of this paper. Edible chitosan coating more than 2% has

ability to inhibit the growth of microbial. Chitosan coating (concentration 1% or higher) also has beneficial effect on improving characteristics of sensory quality (including weight loss of the food, texture, peel colour, respiration rate, titratable acidity, and phenol content) of minimally processed food. In addition, chitosan with concentration 1% or higher also can delay the vitamin C reduction of food during storage. However, the concentration of chitosan 2.5% or higher will decrease the sensory acceptance from consumers.

The current evidence about the effect of edible chitosan coating on minimally processed food conclude that chitosan is categorized as a safe and natural food additive that can be used for improving shelf-life and nutritional value of the food. The concentration of chitosan coating between 2% and 2.5% was proven give optimal impact as antibacterial, improving sensory quality, and improving nutritional value of the food while still acceptable in terms of sensory characteristics by the consumers. **Contribution:** Previous studies of the effect of chitosan have only focused on one or two of variables (sensory quality/ antimicrobial/ nutritional value) in each paper. Therefore, this study will review previous published information comprehensively to analyse the effect of edible chitosan coating on the shelf-life (considering both sensory and anti-microbiological qualities) and nutritional value of minimally processed foods. This study give contribution on alternative of active packaging technology which is environmental friendly, easy to produce, safe, the price is affordable, and can prolong the shelf-life while improving nutritional value of minimally processed food.

Keywords: edible chitosan coating; minimally processed food; antimicrobial; nutritional value; shelf-life; sensory quality

Abstract ID: AIMC-2017-LS-250

EFFECT OF THERAPEUTIC FEEDING CENTER PROGRAM IN NUTRITIONAL STATUS OF CHILDREN UNDER 5 YEARS IN SUKOHARJO, CENTRAL JAVA, INDONESIA

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Abstract

Introduction: Malnutrition is a major and growing concern in Indonesia. National Health Research (Riskesdas) in 2010 reports there are 17.90% underweight children under five years. The impact of malnutrition is so complex that the child may experience a problem in mental development, social, cognitive and growth. These problems, if not treated properly, can affect on the quality of human resources that would occur lost generation. The government is already handling malnutrition and poor nutrition by programs include Therapeutic Feeding Centre (TFC). The type of service in TFC include the routine weighing, nutrition counseling, nutritional consultation and referral. Sukoharjo is one of regencies in Central Java province whose government is already implementing programs TFC since 2014 but there has been no thorough evaluation of the benefits of this program **Methodology:** The type of research is an analytical observational with case control approach. Researchers analyzed the effects of TFC in nutritional status (weight / age and height / age) in stunting children during the three months from October to December 2016. Respondent selected from the malnutrition children that follows TFC program from : Gatak, Sukoharjo and Weru District based on location TFC held. A total of 35 infants were taken by purposive sampling. Anthropometric measurements of weight using a weight scale while the baby's height was measured using microtoice and baby board. Children selected with the following criteria: weight z score below -2, present at the weighing of each week, do not have any disease, aged under 5 years, participating the TFC program. The control group was taken from children with weight z score below -2 non-participating TFC. Paired T test is used to analyzed the data statistically. **Findings:** There are differences between the z score of children before and after the TFC program. There is increase in z score after follow TFC. There are differences between the Z score children who follow the program and did not follow the program TFC. Children who follow TFC has a higher z scores. However, there is no change in the nutritional status of a significant increase (from very underweight to underweight / from underweight to normal). **Contribution:** There is not a lot of district that apply TFC. The study has been rarely evaluated by continuous observation for 3 months each weeks and compared with a group that did not get the TFC program. The results of this study are expected to add an evaluation for the improvement of the TFC program conducted by the government in overcoming malnutrition in Indonesia

Keywords: Therapeutic Feeding Center, malnutrition in Indonesia

Abstract ID: AIMC-2017-LS-252

THE EXISTENCE OF INTERANNUAL KELVIN WAVE AND ITS RELATION TO IOD AND ENSO ALONG THE SOUTHERN COAST OF JAVA

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Abstract

Introduction: *The several previous research have studied the relation between atmospheric circulation and monsoon or the precipitation anomalies in the Indian Ocean (Qian et al., 2001). There are several variabilities of the Kelvin wave, namely intra-seasonal and semiannual along the southern coast of Java (Sprintall et al., 2000; Syamsudin et al., 2004; Iskandar et al., 2005). This study examined the existence of interannual Kelvin wave and its relation to IOD and ENSO along the southern coast of Java. In addition, this research used the 2D frequency-wavenumber spectral analysis to prove it by numerical method. **Methodology:** In this study, we applied the merged Topex/Poseidon and ERS-1/2 sea surface height anomaly (SSHA) datasets from the years 1992 to 2012 to identify the interannual Kelvin wave. We used low-pass filter and spectrum analyses to remove seasonal variation and observe the interannual variability. We also used the Hovmoller diagram and 2D frequency-wavenumber spectral analysis to observe the existence of interannual Kelvin waves. In addition, the used data in this study include tidal data at Benoa and Cilacap from 1984 to 2013 (a span of 29 years) obtained from the Geospatial Information Agency (BIG), Ocean Nino Index (ONI), and the Indian Ocean Dipole (IOD) index from the years 1992 to 2012 (21 years) (Saji et al., 1999). **Findings:** The results indicate that the SSHA along the south coast of Java in the span of 1992-2012 was affected by interannual (2 to 6 years) and decadal (10 years) periods. During El Niño events and IOD (+), the SSHA in the summer monsoon decreased by 17 cm and in the winter monsoon decreased by 9 cm. Meanwhile, during La Niña events and IOD (-), the SSHA in the summer monsoon increased by 25 cm and in the winter monsoon increased by 24 cm. The interannual Kelvin wave period (2 to 5 years) was observed along the south coast of Java with a phase velocity of 1.41 to 1.88 m/s. Kelvin wave is divided into two parts, upwelling and downwelling Kelvin wave and it has an interannual period (2 to 5 years). **Contribution:** Furthermore, this research is important to identify the condition of atmospheric - ocean relation, especially along the southern coast of Java. In addition, the determination of Kelvin wave characteristics will be continued by the the rainfall condition and its relation. It can be used for prediction.*

Keywords: Interannual, Kelvin wave, Two-dimensional frequency-wavenumber spectral analysis, IOD index, ENSO

Abstract ID: AIMC-2017-LS-266

POTENTIALS OF LOCALLY ISOLATED GLUCONACETOBACTER XYLINUM BCZM FOR THE PRODUCTION NANOCELLULOSE AS A VALUABLE MATERIAL IN BIOTECHNOLOGY

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Abstract

Introduction: *High demands for nanocellulose from plants results in deforestation and environmental imbalance. Bacterial nanocellulose (BNC) is renewable, natural and the biocompatible polymer with unique physical and chemical properties of biotechnological importance. BNC does not contains lignin, hemicellulose and other polysaccharides commonly found in plants. Hence, BNC production and purification steps are relatively simple and eco-friendly resulting in the formation pure form of nanocellulose. this research was aimed at exploring the potential of locally isolated bacteria for BNC production, followed by its characterisation to determined chemical, morphological and thermal properties of the BNC sheets **Methodology:** BNC production will be determine using Hestrin and Schramm medium 1954. The formation of gelatinous layer between liquid air surface will be observe after incubation for 7 days at 30 °C under static condition.*

Purification of BNC produced will be conducted using 0.1 M NaOH at 90 C for 3 hours, followed by extensive washing with distilled water at 200 rpm for overnight. The purified BNC will be subjected to freeze drying/oven drying to determine the dry weight and polymer in sheet form for further analysis.

Morphological features of purified BNC will be examined via Scanning Electron Microscope (SEM) and Transmission Electron Microscope (TEM). The chemical structure of the BNC will be determined by identifying the basic functional groups using Fourier Transform infra-red Spectroscopy (FT-IR). Thermogravimetric analysis (TGA) and X-ray powder diffraction (XRD) will be used determine the crystallinity, tensile strength, chemical bonds and thermos stability of the purified BNC.

Findings: BNC production was confirmed by the formation white gelatinous layer between liquid air surface of the medium. An average yield of 4 g/L under static condition at 30 °C was obtained after successful purification of the gel using modified treatment method with 0.1 M NaOH, followed by oven drying at 60 °C for overnight. Fourier Transform infrared spectrum (FTIR) analysis of the BNC has displayed strong absorption peaks at 2900 cm⁻¹ and 3335.36 cm⁻¹ indicating C-H and O-H stretching respectively. SEM and FTIR analysis of the BNC formed has revealed high purity and its crystalline nature **Contribution:** Biotechnological approach with a great deal of interest to produce cellulose from microorganisms has reduced production cost and environmental impacts to a minimum acceptable level as compare to cellulose production from plants. Bacterial nanocellulose obtained showed a high degree of purity and crystallinity and does not contains lignin and other polysaccharides commonly found in plants. BNC obtained in this research displayed a promising property requires for various forms of applications

Keywords: Bacterial Nanocellulose, Production, Purification, Biotechnological, FTIR, SEM, Lignin, Crystalline, Purity

Abstract ID: AIMC-2017-LS-268

PUNICA GRANATUM JUICE EXTRACT AS A POTENTIAL ANTIBACTERIAL AND ANTIOXIDANT AGENTS

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Abstract

Introduction: The increasing evidence of rapid global spread of resistant clinical isolates, has urged researchers to find a new antibacterial agent that are safe for human and exhibit lower side effect. Medicinal plants including pomegranate are the greatest source of all kinds of medicines including traditional and modern nutraceuticals. Its juice was popular among people as medicine in eliminating parasites and has been used as a diet in restoration after diarrhea. Thus, current study was conducted to determine the potential of Punica granatum (pomegranate) juice extract as an antibacterial and antioxidant agents. **Methodology:** The pomegranate arils juice was collected (pure juice) and serial dilution were done using sterile distilled water. Two gram negative bacteria (*Escherichia coli* and *Pseudomonas aeruginosa*) and two gram positive bacteria (*Bacillus subtilis* and *Staphylococcus aureus*) were used to test for its antibacterial activity through agar disc diffusion method and minimum inhibitory concentration method (MIC). The zone of inhibition were measured in agar disc diffusion method while in MIC method, the clear media were observed that indicate that concentration has 100% bacterial inhibition. The concentrations used were 1000 mg/ml, 100 mg/ml, 10 mg/ml, 1 mg/ml, 0.1 mg/ml and 0.01 mg/ml. As for antioxidant activity, the pomegranate arils juice extract were also tested at different concentrations ranging from 0.001 mg/ml until 10 mg/ml. DPPH assays were used to test for its antioxidant activity. **Findings:** From these two methods, it was found that the pomegranate arils juice extract has an ability to act as an antibacterial agent. The concentrations that have high inhibition activity were at 1000 mg/ml and 100 mg/ml. In addition, at 0.01 mg/ml, there were also has good inhibition zone especially in minimum inhibitory concentration (MIC) method. The extracts were better at inhibiting the growth of gram negative bacteria rather than gram positive bacteria. As for antioxidant activity, the pomegranate arils juice extract showed better antioxidant properties when compared to standard ascorbic acid. The percentages of antiradical activity were high at 10 mg/ml (82.75%) and 1 mg/ml (70.85%) of pomegranate arils juice extract. Thus, the pomegranate arils juice has been prove for its ability to act as an antibacterial agent especially for gram negative bacteria. In addition, pomegranate arils juice also has been prove to have high potential as an antioxidant agent. **Contribution:** This study has proven that pomegranate arils juice extract was better in inhibiting gram negative bacteria such as *Escherichia coli* and *Pseudomonas aeruginosa* rather than gram positive bacteria. So, from these results, pomegranate arils juice extract have shown medical important in treating diseases related to gram negative bacteria. This study can contribute to a scientific knowledge on its potential as nutraceutical product and the data can be used for future studies.

Keywords: Pomegranate arils juice, MIC, antibacterial, antioxidant, DPPH

Abstract ID: AIMC-2017-LS-271

TRENDS IN EVIDENCE-BASED TREATMENT AND MORTALITY FOR ST ELEVATION MYOCARDIAL INFARCTION IN MALAYSIA FROM YEAR 2006 TO 2013: TIME FOR REAL CHANGE

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Abstract

Introduction: *Background:* The administration of evidence-based pharmacotherapy and timely primary percutaneous coronary intervention have been shown to improve outcome in ST elevation myocardial infarction (STEMI). However, implementation remains a challenge due to the limitations in facilities, expertise and funding.

Objectives: To investigate adherence to guideline-based management and mortality of STEMI patients in Malaysia.

Methodology: *Design:* Retrospective analysis

Settings: STEMI patients from 18 participating hospital across Malaysia included in the National Cardiovascular Database-Acute coronary syndrome (NCVD-ACS) registry year 2006 to 2013.

Patients and Methods: Patients were categorized into four subgroups based on the year of admission (2006 to 2007, 2008 to 2009, 2010 to 2011 and 2012 to 2013). Baseline characteristics and clinical presentation, in-hospital pharmacotherapy, invasive revascularization and in-hospital/ 30-day mortality were analysed and compared between the subgroups.

Main Outcome Measure(s): Rate of in-hospital catheterization/ percutaneous coronary intervention.

Findings: *Results:* The registry contained data on 19483 patients. Intravenous thrombolysis was the main reperfusion therapy. Although the overall rate of in-hospital catheterization/ PCI more than doubled over the study period, while the use of primary PCI only slowly increased from 7.6% in 2006/2007 to 13.6% in 2012/2013. The use of evidence-based oral therapies increased steadily over the years except for the ACE-inhibitors and angiotensin-receptor blockers. The adjusted risk ratios (RR) for in-hospital mortality for the four sub-groups have not shown any significant improvement. The 30-day adjusted risk ratios however showed a significance albeit gradual risk reduction (RR 0.773 95% CI 0.679-0.881, $P < .001$).

Conclusion: Adherence to evidence-based treatment in STEMI in Malaysia is still poor especially in terms of the rate of primary PCI. Although there is a general trend toward reduced 30-day mortality, the reduction was only slight over the study period. Drastic effort is needed to improve adherence and clinical outcomes. **Contribution:** We examine the adherence to guideline-based management and the mortality of STEMI patients in Malaysia based on the registry.

Keywords: STEMI, percutaneous coronary intervention, NCVD-ACS

Abstract ID: AIMC-2017-LS-293

ANTICANCER ACTIVITY OF NOVEL SOURSOP LEAVES ACTIVE COMPOUND (SF-1603) THROUGH APOPTOTIC INDUCTION IN LIVER CANCER

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Abstract

Introduction: *There are no effective standard treatments for unresectable stage of liver cancer have been established. Apoptotic dysregulation of cancer cells is linked to tumor development and progression as well as resistance to treatment. These insights lead the pursuit of targeted therapeutic strategies for reactivating apoptosis and thus eradicate cancer cells. It was hypothesized that active compound in the soursop leaves will be able to induce apoptosis. The objective of the study is to explore the role of novel soursop leaves active compound (SF-1603) in apoptosis induction on liver cancer cell culture to find a new agent for liver cancer therapy. Methodology:* This study was a pure in vitro experimental study with complete randomized design to assess the ability of novel soursop leaves active compound SF-1603 to induced apoptosis on HepG2 cell line culture. HepG2 cell line were seeded into well in Medium (DMEM / F12) containing 10% Fetal Bovine Serum, previously release cells using trypsin 0.05% - EDTA 0,53mM, then added to the growth medium into a cell suspension. The cells were counted using a hemocytometer and planted with a cell density of 25,000 cells/mL. There were control group and intervention group given SF-1603 with concentration 0,5xIC50, IC50 and 2xIC50 incubated at 37oC with 5% CO2 atmosphere. Apoptosis detection was done using Terminal deoxynucleotidyl

Transferase-mediated dUTP Nick End Labeling (TUNEL) method by detecting cells undergoing apoptosis based on DNA fragmentation discovery. Observations were assessed in hours 0, 24, 48, and 72 using inverted microscopy to visualize apoptotic cells comparisons with living cells. The identification and quantification of the apoptotic cells in HepG2 cell line culture enhanced by statistical analysis. All qualitative data are representative of at least three independent experiments. Values are expressed as mean \pm SD. Statistical analyses were conducted using linear regression. **Findings:** *The result showed the number of cells undergoing apoptosis in the control group less than the groups that was treated with novel compound SF-1603. The apoptosis index value increased along with the increase in the concentration level of the compound SF-1603, with the highest apoptosis index value showed at concentration 2xIC50. To analyze the correlation between the concentration of pure compound soursop leaves SF-1603 and the rate of apoptosis number of HepG2 cell line culture, we carried out calculations using simple linear regression analysis. Based on the regression equation, there is a positive correlation between the rate of apoptosis and a concentration of pure compound soursop leaves. The greater the concentration administered, the rate of apoptosis will be higher with a correlation coefficient of 0.847. This result showed a very strong correlation level based on the interpretation of the correlation coefficient, reflected the apoptotic effect with a dose-dependent manner and in a typical time course. The study conclude that the novel soursop leaves active compound SF-1603 had the strong ability to induce apoptosis on HepG2 cell line culture, so it can be used as a candidate for new agent for liver cancer therapy. Contribution: This study managed to find a novel pure compounds were isolated from the leaves of the soursop which has strong anti-cancer activity on liver cancer cells. These compounds have a proven ability to induce apoptosis so that it can be used as a candidate therapeutic agent to eradicate the cancer cells, especially liver cancer. This research can be used as the basis of further research within the framework of the discovery of new drugs for cancer systemic therapy.*

Keywords: Apoptosis, liver cancer, soursop (*Annona muricata*) leaves, targetted therapy

Abstract ID: AIMC-2017-LS-296

DNA BARCODES FOR THE AUTHENTICATION OF FICUS DELTOIDEA HERBAL MEDICINAL PRODUCTS

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Abstract

Introduction: *A large number of Malaysian populations rely on herbal medicinal product (HMP) as an alternative medicine for their health needs and this has resulted in the increase in demand. Ficus deltoidea is among the important and popular herbs used for the treatment of diabetes, cough, sore throat rheumatism, and headache. With increasingly gaining popularity of this herb, they are now beings formulated in various forms such as tea or capsule which are available in the market. However, the efficacy and safety of such HMPs depend on the correct identification of the plant material as most of them are sourced from the wild. Consequently, it is suspected that the commercial HMP claiming to be authentic can be adulterated or contaminated with other plant species and this is not only a fraud but a threat to consumer safety. Methodology: In the present study, DNA barcoding was used to assess the authenticity of different Ficus deltoidea HMP sold in Malaysian market. A standard reference material (SRM) for the identification of authentic Ficus deltoidea HMP was developed using chloroplastic rbcL and nuclear ITS2 barcodes regions. The BLASTn and neighbour joining (NJ) tree criterion were used for the authentication of the HMP with the utilization of the SRM. Findings: The results revealed that out of the nine total number of the HMP claiming to contain Ficus deltoidea, seven satisfied the 2 criteria and were considered to be authentic. Only one was found to be mislabelled and amplifiable DNA could not be extracted in one of the tested samples. The overall amplification rate for ITS2 and rbcL was 88.8% and 66.6% respectively. On the whole, out of the total number of 14 barcodes generated, only 7 were identified at the species level and all are from the ITS2 barcodes. The ITS2 proved to be an ideal barcodes for the authentication of Ficus deltoidea HMP has it has greater variability that the rbcL. Contribution: The result from this study demonstrated that DNA barcodes could be effectively used as a regulatory tool for the quality control of Ficus deltoidea HMP. The information may also help to increase the consumers' overall confidence in the consumption of HMP more especially if they are of quality standard.*

Keywords: DNA barcoding, Ficus deltoidea, Authentication, Herbal medicinal products, ITS2, rbcL

Abstract ID: AIMC-2017-LS-344

USEFULNESS OF MULTILINEAR STATISTICS ON INTERPRETING THE EFFECTS OF DIFFERENT FACTORS INFLUENCING THE GROWTH OF MICROALGAE, BOTRYOCOCCUS SP. IN LABORATORY SET UP

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Abstract

Introduction: Optimization of the growth of microalgae is essential for bio-diesel industry due to demand for high biomass yields. Culturing microalgae requires consideration of numerous factors such as temperature, light, pH, and nutrients. These factors affect the growth rate of microalgae and also influence the activity of cellular metabolism and composition. Multiple linear regression analysis is an extension of simple linear regression analysis, used to survey the relationship between two or more independent variables and a single continuous dependent variable. **Methodology:** This review papers draws from all of this literature to describe the usefulness of multiple linear regression for analyzing the factors that affects the growth of microalgae involving different independent variables such as temperature, light, pH, and nutrients. **Findings:** Multilinear statistic can be applied for better understanding on factors influencing the growth of microalgae. **Contribution:** Description of the usefulness of multiple linear regression for analyzing the factors that affects the growth of microalgae involving different independent variables such as temperature, light, pH, and nutrients.

Keywords: microalgae, multiple linear regression, temperature, light, pH, nutrients

Abstract ID: AIMC-2017-LS-345

MICROALGAE AS BIOFERTILIZER: CHALLENGES AND INDUSTRIAL POTENTIAL

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Abstract

Introduction: Biofertilizer consists of living microorganisms which is applied on plant to increase its yield and quality. In addition it supplies the primary nutrients needed by the plant through complex biological processes. Microalgae as a biofertilizer could be employed in agriculture industries as a potential replacement for synthetic fertilizer which is more environmental friendly. Extensive use of synthetic fertilizer lead to decrease in soil fertility. The major challenge in microalgae biofertilizer industries is the massive production of microalgae at low cost. **Methodology:** this paper will provide an intensive review on the usefulness of wastewater for the mass production of microalgae for biofertilizer. In addition this review will discuss on the challenges in the biofertilizer industry. **Findings:** Cultivation of microalgae in wastewater is a potential strategy in the mass production of microalgae for minimum cost. **Contribution:** Provide intensive information on the usefulness of wastewater for the mass production of microalgae for biofertilizer and the challenges in the industry.

Keywords: microalgae, biofertilizer, wastewater

Abstract ID: AIMC-2017-LS-346

IMPACTS OF ORGANIC AND INORGANIC MATTER LOADING ON THE TROPICAL MARINE COASTAL FOOD WEB ALONG SEAGRASS ECOSYSTEM

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Abstract

Introduction: Seagrass has several functions in tropical marine coastal ecosystem. It provides food and habitat for flora and fauna. A seagrass ecosystem also acts as shoreline stabilization against wave, tidal currents and sediments. However, human activities and natural disturbance had affected the seagrass ecosystem by increasing organic and inorganic matter loading. **Methodology:** This paper reviews the anthropogenic and natural sources of organic and inorganic matter loadings affecting the stability of nearshore systems. In addition, the major threats to seagrass ecosystem and future research recommendation will be discussed in this paper. **Findings:**

Anthropogenic and natural sources of organic and inorganic matter loadings affecting the stability of nearshore systems. **Contribution:** Provide intensive information on the anthropogenic and natural sources of organic and

inorganic matter loadings affecting the stability of nearshore systems as well as the major threats to seagrass ecosystem and future research recommendation.

Keywords: seagrass ecosystem, food webs, organic matter, inorganic matter, anthropogenic activities

Abstract ID: AIMC-2017-LS-348

INVESTIGATION OF THE SIGNIFICANCE OF CARBOHYDRATE PATHWAY IN THE MAXIMIZATION OF BIOFUEL PRODUCTION IN BOTRYOCOCCUS SP: A BRIEF REVIEW

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Abstract

Introduction: *Botryococcus spp. are green microalgae (Chlorophyta) known to contain high amount of hydrocarbons, lipids and other bioactive constituents such as ether based lipids, fatty acids, polysaccharides and carotenoids which can be used for commercial applications. There has been a considerable study on the optimization of lipid biosynthetic pathways in microalgae for the purposes of biofuel production. Since Botryococcus spp. have been known to contain high amount of lipid in their cells, exploring the carbohydrates pathways which is also precursors for biofuel production was thereby overlooked. Methodology:* This brief review aims to provide insights into the need to explore carbohydrates in *Botryococcus spp.* for the purpose of maximizing biofuel production in microalgae. **Findings:** *Since Botryococcus spp. have been known to contain high amount of lipid in their cells, exploring the carbohydrates pathways which is also precursors for biofuel production was thereby overlooked. Contribution:* Insights into the need to explore carbohydrates in *Botryococcus spp.* for the purpose of maximizing biofuel production in microalgae will be provided

Keywords: Biofuel, Bioethanol, Botryococcus spp., Carbohydrate

Abstract ID: AIMC-2017-LS-349

THE USE OF IMMOBILIZED BOTRYOCOCCUS SP., A FRESHWATER GREEN MICROALGA IN THE BIOREMEDIATION OF HEAVY METALS FROM TEXTILE WASTEWATER

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Abstract

Introduction: *Heavy metal discharge into the environment has rather become a rapid practice as a result of the increasing trend in technology and also their use in different industrial processes Methodology:* The bioremoval of heavy metals (As, Cu, Cd and Cr) were studied using different concentrations of immobilized microalgal cells of *Botryococcus sp.* 3beads/ml (3.0×10^5 cells/ml), 10beads/ml (1.0×10^6 cells/ml) and 15beads/ml (1.5×10^6 cells/ml). Free cells equivalent to 6.4×10^5 cells/ml and the blank alginate beads were used as the positive and negative control. **Findings:** *The highest ($P < 0.05$) removal efficiency was recorded in the highest biomass concentration (i.e. 15beads/ml) for Arsenic, Cadmium and Chromium at 68%, 76%, and 67%. Whereas, the highest ($P < 0.05$) removal of copper was observed in the blank alginate beads at 84%. Contribution:* The results obtained from this study revealed that the immobilized cells of *Botryococcus sp.* are efficient in the bioaccumulation of heavy metals from wastewaters

Keywords: Botryococcus sp., heavy metals, bioremoval, immobilized microalgae, textile wastewater

Abstract ID: AIMC-2017-LS-351

EXFOLIATIVE VAGINAL CYTOLOGY AND VAGINAL ACIDITY PROFILE IN ETTAWA-SAANEN GRADE DOES IN YOGYAKARTA, INDONESIA

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Abstract

Introduction: *The knowledge of the reproductive physiology of estrus cycle is important for animal management. The stage of the estrus cycle was predicted through the morphologic, endocrine and secretary changes occurring in the ovaries and the tubular genitalia during the estrus cycle, which had been associated with the level of steroid sex hormone. Vaginal smear is a simple technique to determining the stages of estrus*

cycle and it is a useful tool in determining optimum standing heat in does. The aim of this study was to determine the proportion of exfoliative vaginal cell during the various stages of estrus cycle using vaginal smear techniques in Ettawa-Saenen grade does. **Methodology:** Thirteen healthy Ettawa-Saenen grade does with average weigh 35-40 kg, age of 3-4 years and had period of estrus 16-18 days in lactating period were used. All does were in natural estrus cycle without synchronization. A vaginal smear and pH vaginal were collected from swabbed vaginal epithelium in does. Smear was stained with 3% Giemsa and observed microscopically. Progesterone level in the collected blood serum was assayed by enzyme linked immunosorbent assay (ELISA) from vena jugular. All data were collected on day 0, 3, 12 and 15 of estrus. Period of estrus was predicted from the last three periods of the earlier recording of estrus cycles. Data pH level and progesterone level data were expressed as Mean and were subjected to one-way Analysis of Variance (ANOVA) and epithelium cell from vaginal smear were analyzed in General Linear Model with SPSS software. **Findings:** The result showed the proportion of vaginal cell was significant different in each phase of estrus cycle. Proportion of parabasal, intermediary, and superficial epithelium cell in the particular period of estrus cycle were 0; 8.2375 ± 6.1301 ; 91.7624 ± 6.1302 in estrus phase, 2.29 ± 6.87 ; 38.56 ± 31.39 ; 59.14 ± 34.37 in met-estrus phase, 83.22 ± 17.66 ; 15.08 ± 14.91 ; 1.70 ± 3.75 in diestrus phase 9.56 ± 18.13 ; 70.57 ± 31.86 ; 19.87 ± 26.77 proestrus phase respectively. The pH vaginal showed in estrus phase were 7.17 ± 0.54 , in met-estrus were 6.17 ± 0.30 , in diestrus phase were 5.79 ± 0.43 , and in proestrus phase were 5.92 ± 0.474 . Progesterone levels showed in estrus phase were 0.083 ± 0.15 , in metestrus phase were 0.084 ± 0.11 , in diestrus phase were 0.23 ± 0.11 and in proestrus phase 0.23 ± 0.11 . In conclusion dominant proportion of superficial cell, high level of pH vaginal and the lowest level of progesterone that occurred in estrus period might be used as the base for determining optimal time for insemination. **Contribution:** This study was found the proportion of exfoliative vaginal cell, pH level and progesterone during the various stages of estrus cycle in natural estrus cycle without estrus synchronization. **Keywords:** vaginal smear, vaginal cytology, pH vagina, progesterone, Ettawa-Saenen grade does

Abstract ID: AIMC-2017-LS-359

GREEN SYNTHESIS OF SILVER NANOPARTICLES USING LANTANA CAMARA FLOWER EXTRACT FOR ANTIOXIDANT AND ANTIBACTERIAL ACTIVITY

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Abstract

Introduction: Nanotechnology is the new recent development and implementation of new technology of the role of plants in bio and green synthesis of nanoparticles. Environment benign simple technique of Lantana camara yellow flower extract show unique properties when at nano scale. In this study, green synthesis of silver nanoparticles with Lantana Camara flower's extract was developed. **Methodology:** The synthesis was conducted by fast, simple, capable, and eco-friendly method consist of mixing and refluxing. The formation of nanoparticles were characterized by UV-Visible Absorption Spectroscopy, Particle Size Analyzer (PSA), and Transmission electron microscopic (TEM). Antioxidative activity was tested using DPPH method, and antibacterial activity was performed using Escherichia coli. **Findings:** UV-Visible spectra of silver nanoparticles and Lantana Camara flower extract exhibits the formation of silver nanoparticles and by Particle Size Analyzer (PSA) analysis it is confirmed that –the mean size of the nanoparticles is 62 nm. TEM analysis confirmed that the silver nanoparticles are spherical and the mean size of nanoparticles is 50-100 nm. The synthesized nanoparticles showed significant antioxidative and antibacterial activity against Escherichia coli (E.coli) bacteria. Silver nanoparticles express antioxidative effect of 56.18% while Lantana camara expresses the activity of 20.8%. The result suggest that the synthesis method meet with the green chemistry issue in correlation with sustainable development of antibacterial agent. **Contribution:** The research contribute to give green route as alternative for silver nanoparticles synthesis.

Keywords: Green Synthesis, Silver nanoparticles, Lantana Camara flower, E.Coli antibacterial activity

Abstract ID: AIMC-2017-LS-360

DETERMINATION ACTIVE COMPOUND OF ETHYL ACETATE FRACTION OF SONGGA WOOD (STRYCHNOS LIGUSTRIDA) AS ANTIMALARIAL USING POLYMERIZATION INHIBITION OF HEME

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Abstract

Introduction: Malaria is an infectious disease caused by Plasmodium parasites that invade erythrocytes, in Indonesia there are about 86.4% people infected by malaria. High mortality rates are due to their use of antimalarial drugs that cause resistance to the malaria parasites, songga wood (*Strychnos ligustrida*) is a medicinal plant that contains phenolic compounds, which have antimalarial qualities. This study aims to determine the active phenolic compounds in ethyl acetate fraction column chromatography within songga wood and the phenolic compounds in such activity. **Methodology:** Determination of the active compound was conducted by soxhletation at a temperature of 78oC with ethanol 96%, then fractionation using n-hexane and ethyl acetate was performed using column chromatography with eluent ethanol: ethyl acetate (1: 5), the identification of compounds by TLC analysis using spectrophotometry Uv -Vis, FTIR and H1 NMR polymerization inhibition of heme was then performed **Findings:** The results obtained a class of phenolic compounds, which can be confirmed through the results of spectral data with Uv-Vis absorption band 211 nm and 279 nm in the FTIR spectra obtained -OH group (3406 cm⁻¹), C=O (1708 cm⁻¹), and benzene group (1516 cm⁻¹) and H-NMR showed two aromatic proton signal at 6.55 ppm and 6.491 ppm and 2.145 ppm -OH signal, heme polymerization inhibitory phenolic compounds produce IC50 value of 1.391 mg / mL lower compared Chloroquine IC50 value of 5.311 mg /mL. It can be concluded that the phenolic compounds can be used as an antimalarial. **Contribution:** This research contribute to give an information that songga wood from Nusa Tenggara Timur have potential as antimalarial drugs

Keywords: Malaria, Polymerization of Heme, Songga wood, Phenolic

Abstract ID: AIMC-2017-LS-376

EFFECT OF VARIOUS CONCENTRATIONS OF NAA AND BAP ON SUCCESSFUL RATE CALLUS INDUCTION OF CIKONENG ST BIG ORANGE (CITRUS MAXIMA (BURM.) MERR.)

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Abstract

Introduction: Cikoneng ST Big Orange is a superior citrus variety that specific from Sumedang, Jawa Barat. However, its existence began experiencing dearth since the eruption of Mounth Galunggung and bout of Citrus Vein Phloem Degeneration (CVPD) disease. Therefore, it was necessary to mass propagation through tissue culture. This study purposed to the determine effect of concentration of NAA and BAP were used on calluss Cikoneng ST Big Orange. **Methodology:** Treatments consisted of 2 factors, namely NAA concentration with of 4 levels as well as the concentration of BAP which concisted of 4 levels, so was obtained 16 treatments repeated three times. Analysis of result was carried out by descriptive method. **Findings:** The results showed that using of NAA and BAP gave effect to explant growth. Average of the fastest callus initiation was obtained by treatment of NAA 0mg/L+BAP 2mg/L and NAA 0.3mg/L+BAP 0mg/L on 4 day after initiation. Average of the fastest shoot initiations was obtained by NAA 0.1mg/L+BAP 1.5mg/L at 7 day after initiation. **Contribution:** Cikoneng ST Big Orange can be tissue culture and This research can be used as an alternative in saving the endangered plants.

Keywords: BAP, Callus, Cikoneng ST Big Orange, NAA

Abstract ID: AIMC-2017-LS-391

ANTIOXIDANT AND ANTIBACTERIAL ACTIVITY OF PUNICA GRANATUM JUICE EXTRACT

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Abstract

Introduction: *The increasing evidence of rapid global spread of resistant clinical bacteria has urged researchers to find a new antibacterial agent that are safe for human and give low side effect. Medicinal plants including pomegranate are one of the greatest source of natural medicines. Its juice was popular among people as medicine in eliminating parasites. Current study was conducted to determine the potential of pomegranate juice extract on its antibacterial and antioxidant activity.* **Methodology:** *The pomegranate arils juice was collected (pure juice) and diluted into series of concentration ranging from 0.01mg/ml to 1000mg/ml for antibacterial test. Two gram negative bacteria (Escherichia coli and Pseudomonas aeruginosa) and two gram positive bacteria (Bacillus subtilis and Staphylococcus aureus) were used to test for its antibacterial activity. Agar disc diffusion method was tested for zone of inhibition and further antibacterial activity validation was performed by minimum inhibitory concentration method (MIC). As for antioxidant activity, different concentration of juice ranging from 0.001mg/ml to 10mg/ml were tested through DPPH assay.* **Findings:** *From these two methods on antibacterial test, it was found that the pomegranate arils juice extract has an ability to act as an antibacterial agent. For disc diffusion method, 1000 mg/ml of juice give the highest inhibition for all bacteria. However, it's showed better inhibition towards gram negative bacteria (E. coli and P. aeruginosa) with 11.33mm and 13.33mm inhibition respectively. In addition, as validated with MIC assay, the juice also showed better inhibition toward gram negative bacteria (E. coli and P. aeruginosa) with 0.01 mg/ml of minimum inhibitory concentration on both bacteria. As for DPPH assay, the highest concentration of 10 mg/ml of pomegranate aril juice showed the best antiradical scavenging effect with 82.75% of inhibition showing that it has a good antioxidant activity. Overall, we can conclude that the pomegranate arils juice has been prove for its ability to act as an antibacterial agent especially towards gram negative bacteria. It also able to be one of the best source of antioxidant agent.* **Contribution:** *From these results, pomegranate arils juice extract have shown to be a good source of antioxidant and can be medically important agent in treating diseases related to gram negative bacteria. This study can also contribute to a scientific knowledge on its potential as nutraceutical product and the data can be used for future studies.*

Keywords: Pomegranate arils juice, MIC, antibacterial, antioxidant, DPPH

Abstract ID: AIMC-2017-LS-394

DEVELOPMENT INTEGRATED CURRICULUM SEPAKBOLA UNTUK ANAK USIA 8-12 TAHUN

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Abstract

Introduction: *Achievement is the purpose of development and sports coaching Indonesia.*

The achievements of the national team and club football Indonesia diajang regional and international levels in the last 20 years is very alarming. Concerns about the achievements made worse by the negative character of the soccer player who competed in the competition from amateur level to the professional competition of Indonesian football. Youth development system is one of the roots of the problem. Youth coaching system which is the main implementing SSB (football schools) ternyata still far from the ideal coaching young players such as the concept curriculum is still partial and difficult to implement. This study aimed to develop an integrated curriculum on DIY soccer school for age groups 8 and

12 years old. The method used is the method of RDR (Research, Development, Research). The first phase of the research is a preliminary study, the second stage of curriculum development, and the third phase of field trials and implementation. The first year will produce a prototype integrated in the school curriculum hypothetical DIY soccer for age groups 8 and 10 years

Methodology: *Research and development* **Findings:** *The first year will produce a prototype integrated in the school curriculum hypothetical DIY soccer for age groups 8 and 10 years* **Contribution:** *prototype of curriculum integrated football*

Keywords: curriculum, football

Abstract ID: AIMC-2017-LS-401

POMEGRANATE JUICE INDUCED CELL CYCLE ARREST AND APOPTOSIS VIA MITOCHONDRIAL PATHWAY IN HUMAN LUNG ADENOCARCINOMA A549 CELLS

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Abstract

Introduction: Lung cancer is the most common type of cancer which the mortality rate increases year by year. Therapeutic drug could not control the progression of cancer effectively as it is contributing to the side effects. An alternative strategy such as chemoprevention using natural product should be investigated. We have demonstrated that *P. granatum* or pomegranate juice has induced anti-proliferative effect at IC50 2% (v/v) in human lung adenocarcinoma cells, A549. Thus, to further confirm its efficacy, this study aimed to investigate the type of cell death and its mechanism induced by pomegranate juice in A549 cells. **Methodology:** The effect of pomegranate juice on A549 growth curve was done using the trypan blue exclusion assay. Propidium Iodide staining was applied to determine the cell cycle profile changes induced by this juice. The determination of type of cell death was done using Annexin-V staining and later will be analysed using flowcytometer. The pathway to apoptosis was determined by analysing caspase 3, 8 and 9 activities. The findings was supported by mitochondrial membrane permeability assay which were analysed using flowcytometer. **Findings:** The study revealed that pomegranate juice caused growth inhibition of A549 cells after 48 hours exposure. The study also found that pomegranate juice induced cell cycle arrest at G0/G1 phase and apoptosis following 24 h treatment, loss of mitochondrial membrane permeability after 48 h and a release of cytochrome c in cytosol after 24 h and 48 h exposure. The activation of caspase-3 and 9 were seen after 48 h. It can be concluded that pomegranate juice has growth inhibitory effect by inducing cell cycle arrest and apoptosis through mitochondrial pathway. **Contribution:** This study provides the first evidence of type of cell death induced and the pathway analysis for well known medicinal fruit in lung cancer model, A549. This information is crucial to be presented or published, because every type of cancer reacts differently to range of natural product. Many studies has been done in other type of cancer, but this is about another specific cancer, A549 cells.

Keywords: Punica granatum, pomegranate, cell cycle arrest, apoptosis, lung cancer

Abstract ID: AIMC-2017-LS-444

EFFECTS OF X-RAY RADIATION EXPOSURE ON SOME CMI REGULATORY CYTOKINES IN X-RAY TECHNICIANS SERUM SAMPLES

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Abstract

Introduction: Abstract

Ionizing radiation is considered as immunosuppressive factor upon over dose of exposure. Radiation field workers represented by X-ray Technicians usually following a periodic checkup to monitor changes in their clinical status. Cell Mediated Immunity (CMI) has an important cytokines that regulate this specific immunological process. Methodology: This study estimated IL-2, IL-12 and IL-18 levels in serum samples using ELISA technique. Serum samples were collected from X-ray Technicians (Radiography, Fluoroscopy and Computed Tomography Scan or CT scan Technicians) working in AL-Muthanna governorate hospitals. A total of (60) technicians and (30) control were involved in this research. **Findings:** Results showed that IL-2 levels decreased significantly but IL-18 levels increased significantly in test groups (technicians) comparing with controls levels. While IL-12 levels did not show any difference and the obtained values were all within normal range. **Conclusion:** overdose of X-ray exposure caused CMI suppression via disturbing the levels of critical cytokines (IL-2 and IL-18) leading to CMI loss regulation; moreover; these two cytokines can be used as indicators for radiation overdose exposure. **Contribution:** This research has no financial commitment and it is original with no plagiarism

Keywords: X-Ray technician, IL-2, IL-12, IL-18, CMI and periodic checkup

Abstract ID: AIMC-2017-LS-446

THE IMPACT OF ANGINA PECTORIS ON PATIENT'S QUALITY OF LIFE

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Abstract

Introduction: Angina pectoris (AP) is defined as cardiac-induced pain arising from a lack of myocardial oxygen (Tobin, 2010). AP is an important clinical manifestation of coronary heart disease (CAD) which is associated with mortality and decreased quality of life (QOL) (Spertus et al., 2006). Risk of future cardiovascular (CV) events in angina patients can be prevented with aggressive secondary prevention. Therefore, this research target to study the impact of AP on patients' quality of life (QOL) so that emotional and physical supports can be given. **Methodology:** The study applied a cross-sectional design. It involved 170 patients with AP in Satellite Pharmacy, Serdang Hospital. The samples were chosen through convenient sampling. Seattle Angina Questionnaire (SAQ) was used to measure the impact of AP on patients' QOL. The questionnaire consists of 19 items measuring five dimensions of CAD: physical limitation, anginal stability, anginal frequency, treatment satisfaction and disease perception. The score for each dimension ranges from 0 (maximum negative impact of AP) to 100 (maximum positive impact of AP). The questionnaire had to be translated into Bahasa Malaysia and pilot study was conducted to validate the reliability and appropriateness of Bahasa Malaysia version questionnaire. Study subjects were screened for inclusion and exclusion criteria, and subjects were approached and given consent forms and patient's information sheet to fill up before being included in the study.

All patients above 18 years old who suffered from stable AP and on treatment or medication for at least 2 years and undergo follow-up in Cardio Clinic, Serdang Hospital were eligible to participate in this study. Data collected were analyzed using the Statistical Package for Social Sciences (SPSS) version 22.0. The level of significant is set as $p < 0.05$. **Findings:** There were 17 females and 153 males who participated in the research. The mean age (\pm SD) was 54.69 (\pm 10.53) years old. The overall mean (\pm SD) score for quality of life (QOL) was 56.18 (\pm 22.72) indicating that angina pectoris had moderately affected the QOL of the whole samples. Statistical analysis revealed that females in general had poorer QOL in comparison to males with mean (\pm SD) QOL score of 49.02 (\pm 23.91) and 56.97 (\pm 22.53) respectively. In addition, results showed that from the 5 dimension measured by SAQ, all dimensions were affected by AP. The dimension which had been greatly affected by AP was QOL. The rest of the dimension which were physical limitation, angina stability, treatment satisfaction and angina frequency had only been affected with AP slightly. **Contribution:** This "Research article" has not been published previously and is not under consideration elsewhere. The authors are responsible for the reported research, and have participated in the concept and design, analysis and interpretation of data, drafting or revising of the manuscript, and have approved the manuscript as submitted. The data, models, and methodology used in the research are proprietary.

Keywords: Angina Pectoris, Quality of Life(QOL), Seattle Angina Questionnaire (SAQ), impact

Abstract ID: AIMC-2017-LS-471

BIOSORPTION OF ARSENITE (AS +3) FROM AQUEOUS SOLUTION BY BACILLUS SP. NON-LIVING BIOMASS

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Abstract

Introduction: Arsenic has an atomic number of 33 and it comprises around 0.0005% of the crust of the earth. It has an atomic weight (74.9216) and it melts at 817 °C and boil at 613 °C at 28 atm. Moreover, it has a silver-grey brittle crystalline colour and vapor pressure 1 mm Hg at 372 °C with specific gravity of 5.73. It also exists in the oxidation states (+5, +3, 0, -3) [1]. Arsenic can be found in the environment as arsenious acids (H_3AsO_3 , H_3AsO_4 , H_3AsO_3). Moreover, As (V) is like a soft acid and can form complex with sulfides. On the other hand, As (III) is a hard acid and makes complexes with nitrogen and oxides [2].

The main forms of arsenic in natural water are arsenate (AsO_4^{3-}) and arsenite (AsO_3^{3-}). Inorganic types of arsenic can be discovered in water supplies. However, the most common forms for arsenate or pentavalent (V) are (AsO_4^{3-} , $HAsO_4^{2-}$, $H_2AsO_4^-$) while (AsO_3^{3-} , AsO_2OH^{2-} , $As(OH)_3$, $As(OH)_4^-$) for As (III). In addition, pentavalent forms dominate and stabilize aerobic environments but trivalent species take over in fairly reducing anaerobic environments like groundwater [2].

Due to the toxicity of arsenic, The World Health Organization (WHO) has changed the recommended concentration of its in drinking water from 50 ppb (0.05 mg/L) to 10 ppb (0.01 mg/L) also the standard concentration of arsenic in industrial effluents is 0.1 mg/L (0.1 ppm). However, many countries such as China still use the the previous (WHO) guideline of 50 ppb as an average in the drinking water due to technology and economic limitation [1].

The conventional techniques to remove As (III) from waste waters are filtration, flotation, flocculation with sulfide or ferric hydroxide and ion exchange. The disadvantages of these techniques are that they require pretreatment and oxidation of As (III) to As (V) and use large amount of reagents and thus are not economical for treating large amount of wastewater. To circumvent the limitations of the conventional techniques, an alternative method to remove arsenic from wastewater is biosorption (use of biomass as adsorbent). This method has received a great attention in the recent years due to its low cost and high capacities. The mechanism of adsorption by biomass can be described as a passive immobilization of metal ions. It is essentially based on physicochemical interaction between functional groups of the cell wall and metal. Likewise, the cell wall of bacteria generally consists of proteins, lipids and polysaccharides which contain functional groups, such as amino groups, phosphate, hydroxyl and carboxylate so these functional groups offer binding sites for metals [1]. *Bacillus sp.* was discovered by Cohn and Koch in the 19th century and they are gram positive rods [3]. In addition, the rod shape cells arranged in pairs or chains with rounded or square ends and usually have a single endospore. Endospores enable these bacteria to survive in extreme environment. *Bacillus sp.* currently comprise in excess of 60 species. Moreover, they are aerobic or facultative anaerobic, mesophilic, heterotrophic, and most species are motile. The optimum growth for *Bacillus sp.* is at 28 °C to 35 °C and the pH ranging from 4.9 to 9.3 [4]. **Methodology: Materials**

Strain of Bacteria

Bacillus sp. Which used to prepare the Biomass was previously isolated from arsenic contaminated gold mining wastewater.

Luria Bertani (LB) medium

(LB) was made by mixing (5 g) yeast extract, (10 g) sodium chloride and (10 g) Tryptone in (950 ml) dH₂O and the pH adjusted to pH 7.0 and the volume continued to 1 liter. After that, the mixture was autoclaved for 20 min at 121 °C. For solid LB, 1.5% agar powder was added to the LB broth before autoclave.

Biomass preparation

Bacillus sp. was grown as previously described in LB medium for overnight until the maximum growth was reached. Then, the fresh culture was incubated for 8 hr with shaking at 150 rpm at 30 °C. After that, the biomass was harvested from LB by centrifugation (9000 rpm) for 10 min at 4 °C. The supernatant thrown away and the biomass was re-suspended and washed twice with dH₂O and recentrifuged again. Afterward, the biomass was dried out for 15 h at 70 °C and powdered to particles using a mortar and pestle. The biomass was screened via (500 mesh) sieve to pick particles which less than 0.5 mm. Lastly, Non-living biomass was kept in desiccators till use [1].

Analysis of Arsenite

Modified molybdene blue method was used to measure the concentration of arsenite in the solutions [5].

Findings: Biosorption of arsenite using non-living biomass of *Bacillus sp.* and parameters affecting the biosorption of arsenite such as time, temperature, pH, different arsenite concentration and adsorbent dosage were investigated. The batch experiments were carried out using non-living biomass prepared from *Bacillus sp.* cultured in LB. Optimum conditions for arsenite removal were recognised, being 80 µM arsenite concentration at 30 °C also pH 7 in the solution and 3 hours of contact with (0.50 mg/mL) biomass. At optimum conditions, biomass achieved almost the maximal arsenite loading capacity of 10.49 mg arsenite/g (biomass) (88 % arsenite removal). FESEM-EDX shows big change in cell morphological of biomass after adsorption of arsenite. Also, The Fourier Transform Infrared spectroscopy (FTIR) test shows the envelopment of functional groups of amine, amide and hydroxyl in arsenite removal from the solution. **Contribution:** Biosorption is an important method for the treatment of heavy metals such as As (III) from wastewater resulting from natural or anthropogenic sources. Moreover, different microbes have different affinities and capacities to heavy metals and hence some biomass show preference for specific heavy metals while others have broad range due to the fact that they do not exhibit any specific binding [17]. Moreover, the Non-living biomass of *Bacillus sp.* has the ability to remove arsenite from water. These results indicated that biosorption using non-living *Bacillus sp.* biomass is a potentially cost-effective method for arsenite recovery from contaminated waters.

Keywords: Biosorption . Non-living biomass . Arsenic . *Bacillus SP.*

Abstract ID: AIMC-2017-LS-497

CULTURE-DEPENDENT AND INDEPENDENT APPROACHES CAPTURE DIFFERENT MICROBIAL COMMUNITY IN HIGH ARSENIC CONTAMINATED SOIL

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Abstract

Introduction: *Metagenomics is a novel and also rapidly developing science focused on the characterization and analysis of gene pool of microbial communities in their natural environment [1-3]. Environmental genomics, community genomics, ecogenomics or microbial population genomics are also used as synonyms for metagenomics.*

The conventional method of studying microbial diversity is by measurement of growth and metabolic processes. Until recently, this required microbiologist to grow and isolate pure cultures, which are characterized by determination of a series of physiological and biochemical traits [10]. Culture based methods, however, allow the selection or detection of only those organisms that are fast growing and/or are prevalent under the laboratory conditions employed. These cultured microbes only represent the weeds of the microbial world and they account for not more than 1% of the total prokaryote population [11] Furthermore, culture dependent and independent microbiological methods are usually used to study the biodiversity of bacteria from extreme environment whose main energy generation is via chemolithotrophy [12]. Until now no study yet for Malaysian gold mining environment and there is no any report have been put forward studying biodiversity in contaminated gold mining environments with relatively different concentrations of As by both methods **Methodology:** *Culture independent method (metagenomics)*

DNA Extraction

DNA was extracted from (1 g) contaminated mining field soil in 4 bead tubes using the PowerSoil DNA Isolation Kit (Mobio, USA) according to the manufacturer's instructions with some modifications. A 0.25 g soil sample was added to each tube, and the DNA was eluted in 100 ul of buffer C6 and run the DNA concentrator for 20 min at 40 °C and the final volume stored at -20°C before use. DNA samples are sent to (GENEION BIO SDN. BHD) in Petaling Jaya, Selangor, Malaysia for sequencing.

PCR amplicons purification and quantification

Amplicons were extracted from 2% agarose gels and purified using the AxyPrep DNA Gel Extraction Kit (Axygen Biosciences, Union City, CA, U.S.) according to the manufacturer's instructions and quantified using QuantiFluor™ -ST (Promega, U.S.).

Library construction

'Y' adapters have been Linked and adapters dimer removed by using beads. Then, PCR amplification was used for libraries concentration. Finally, single-stranded DNA fragments were generated by using sodium hydroxide.

Illumina sequencing

Sample libraries were pooled in equimolar and paired-end sequenced (2 × 250/300 bp) on an Illumina MiSeq platform (or other sequencer when necessary) according to the standard protocols.

Bioinformatics Analysis

Raw fastq files were demultiplexed, quality-filtered using QIIME (version 1.9.1) with the following criteria. Based on overlap relationship, paired-reads were merged in to a single read. The merged reads were used to OUT clustering, taxonomy classifying and community diversity assessing. The microbial community could be used to compare similarity or dissimilarity between different sample groups, analyses the relationship between microbial community and environmental factors, phylogenetic analysis, and other statistical analysis.

Culture dependent method

(3 g) sediment from TDS was added to Erlenmeyer flasks (250 ml) containing 30 mL of LB or CDM with either 2 mM As(III) or 5 mM As(V) and incubated at 37 °C, 150 rpm for 24 h. Then, after third transfer, a loopful of culturing bacteria are streaked onto LB or CDM agar plates contain 2mM As(III) and 5 mM As (V) to isolate an individual bacteria strain. Finally, after several times streaking, a single colony was transferred to Erlenmeyer flasks (250 ml) containing 30 mL of LB or CDM with either 2 mM As(III) or 5 mM As(V) and incubated at 37 °C, 150 rpm for 24 h.

Identification of bacteria via 16s rRNA

DNA Extraction

DNA extraction was done from overnight culture by using Promega Wizard Genomic DNA Purification Kit. Pellet of overnight cultured was harvested by centrifuged for 2 minutes at 16000 g. The pellet was resuspended by adding 600 µL Nuclei Lysis Solution. The resuspended pellet was incubated at 80 °C water bath for 5 minutes to lyse the cells; it was then cooled to room temperature after 5 minutes incubation period. 3 µL

RNase solution was added to the cell lysate. The microcentrifuge tubes were inverted several times to mix it well. The sample was incubated at 37 °C for 1 hour and was cooled to room temperature after incubation in 37 °C. 200 µL Protein Precipitation Solution was added into the sample and vortexed vigorously to mix the Protein Precipitation Solution with the sample. Sample was centrifuged at 16000 g for 3 minutes. The supernatant containing DNA was transferred to a clean 1.5 mL microcentrifuge tube contained 600 µL room temperature isopropanol. The tube was inverted gently and a visible mass was formed. Next, the tube was centrifuged again at 16000 g for 2 minutes. Ethanol was aspirated. The tube was drained on clean tissue paper and it was left to dry for 10 minutes in Laminar flow. The sample was rehydrated by adding 100 µL DNA Rehydration Solution to the tube and it was incubated for 1 hour at 65 °C. Finally, the incubated DNA sample was stored at 2 to 8 °C.

Findings: Bioremediation is a cost-effective and sustainable approach for removing arsenic from water, but our ability to improve on current bio-treatment strategies depends on our ability to isolate arsenic resistant microbes from arsenic contaminated samples. Although culturing is widely used in bioremediation research and applications, it is unknown whether the composition of cultured isolates closely mirrors the indigenous microbial community from contaminated soils. To assess this, we paired culture-independent (Illumina Sequencing) with culture-dependent (isolation using two different growth media) techniques to analyze the bacterial communities from arsenic contaminated soils. The cultivable bacteria (*Bacillus* sp., *Lactobacillus* sp., *pseudomonas* sp. and *Micrococcus* sp.) were affiliated with Firmicutes, Proteobacteria and Actinobacteria Phyla from Illumina sequencing results. This study is one of the most comprehensive comparisons of microbial communities from arsenic-contaminated soils using both culture dependent and independent methods.

Contribution: In this study, we first reported the bacterial diversity and community structure in the SGM gold mine using culture dependent and independent methods. In the 16S rRNA gene, bacterial diversity showed more abundance and was distributed throughout three phyla. With the LB and CDM cultivation Media, we isolated 11 genus from TDS soil sample belong to Firmicutes, Proteobacteria and Actinobacteria. Our study systematically investigated the bacterial diversity in the SGM to address the idea that high arsenic resistant bacteria must exist and play important roles in bioremediation of arsenic in the gold mine. Further studies of functional bacteria and potential new functional species need to be carried out to explore their specific contributions to arsenic resistant and treatment.

Keywords: Culture independent . Culture dependent . Arsenic . Illumina Sequencing.

Abstract ID: AIMC-2017-LS-498

VIABILITY OF LOCAL ENTOMOPATHOGENIC NEMATODES ON VARIOUS PH MEDIA AND ITS PATHOGENICITY TEST AGAINST TERMITES MACROTREMES SP.

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Abstract

Introduction: The local entomopathogenic nematodes (EPNs) of Semarang from genus *Steinernema* sp. is one of nematode which is being explored and developed in vitro to be commercial bioinsecticide. The optimum pH of media storage is one of the significant factors to be explored because in vitro mass culture of EPNs are commonly done in liquid media. This research would determine the optimum pH of storage media which is able to maintain the viability of local EPNs in a laboratory scale and its pathogenicity test on termites *Macrotermes* sp. **Methodology:** The objects studied were *Steinernema* sp. local EPNs isolated from the natural environments in Semarang, and will be compared with EPNs originated from the local commercial bioinsecticide. The research conducted was an

experimental design one-way classification at nine level pH and five doses treatment. Each local EPNs was propagated in vivo with larvae *Tenebrio molitor* followed by white trap technique. The cultured infective juveniles (IJs) then tested on nine pH levels of liquid media (5; 5,5; 6; 6,5; 7; 7,5; 8; 8,5; 9) and incubated for 48 hours. The IJs with the best viability then tested its pathogenicity on *Macrotermes* sp. The pathogenicity test was done by five treatments with different doses of IJs (0, 250, 500, 750, 1000 IJs/ml). The effect of the IJs on termites mortality was observed after infected for 24 hours. Data of IJs viability and termites mortality was analysed by ANAVA and LSD. T-test analysis showed the difference between two local EPNs. **Findings:** Statistical analysis shows that the pH variation in each local EPNs was significant to viability, either isolate from the natural environment or originated from the commercial bioinsecticide. At pH of 8, the viability of *Steinernema* sp. from the commercial bioinsecticide tend to be better and reached 97.14%, while *Steinernema* sp. from the natural environment only reached 91.50%. LSD test ($\alpha < 0.05$) shows that at the pH level of 7.5 and 8.0 both EPNs did not show significant differences, Thus the optimum viability for both local EPNs was

obtained at pH range of 7.5 – 8. The statistical analysis showed that pH media and doses IJs treatment was significant (LSD test; $\alpha < 0.05$). However, viability and pathogenicity between two local EPNs were not significantly (t -test; $\alpha < 0.05$). The optimum viability for both EPNs was obtained at pH range of 7.5 – 8. Whereas, the optimum pathogenicity after 24 hours reached on dose of 250 IJs/ml. **Contribution:** The findings obtained from this study will be used for development plan of local EPNs *Steinernema sp* on commercial production, especially at the Laboratory of Biology Faculty of Mathematics and Natural Sciences, Universitas Negeri Semarang

Keywords: local entomopathogenic nematodes, *Macrotermes sp.*, pathogenicity, *Steinernema sp.*, viability.

Abstract ID: AIMC-2017-LS-501

SPATIAL WATER QUALITY PREDICTION MODEL USING SIMILARITY BASED TECHNIQUE TO FACILITATE SUSTAINABLE LAKE WATER QUALITY MANAGEMENT

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Abstract

Introduction: This paper aims to describe similarity based modelling technique used to develop spatial based water quality prediction model to facilitate lake managers in lake water quality sustainable management. The lentic nature of lakes allow it to absorbed pollutants over a long period of time without any notice, causing symptoms to only appear at worst stage, meaning the risk of improper water quality management can be very high. Hence, failure to establish sustainable planning at watershed scale was found to be a major threat of water quality degradation, from extemporary approach practiced in lake management. **Methodology:** Selangor and Kuala Lumpur have been chosen as study area due to high population density, whereby recreational lakes has the high potential as alternative water supply sources during dry period. Moreover the intensified mixture of land use activities will provide good analysis to measure impact of physical, social and environment to the lake water quality. 85 recreational lakes in Selangor and 8 recreational lakes in Kuala Lumpur were selected in prediction model development. Those with missing or incomplete data, interpolation technique is applied using spatial analyst tool. Lake Putrajaya because of its comprehensive long term water quality data has been selected as based model to develop the similarity index. The geodatabase integrates the identified driving factors of physical, social and water quality that have significant influences on lake water quality status. A 1km buffer radius with percentage of built up, population, area, and rainfall is measured. Calculation of water quality index was then quantified based on similarity modeling technique, to produce range of values, categorising each range of values in classes of bad, poor, medium, good and excellent. **Findings:** 93 recreational lakes within Selangor and Kuala Lumpur has been selected as modeling point. Results indicated that similarity technique of spatial modeling is effective to be applied as early assessment indicator. From the 93 lakes selected in this study, none fell into category of either bad or excellent. The majority are in class 3 of medium water quality status, with only 4 considered as having a good water quality condition and the balance of 35 lakes are considered to have poor water quality. The model output is an indicator index, acting as classification guideline for water quality status of the assessed lake as an early assessment tools

Contribution: Impact of population density and proximity of land use activities to lake water is minimally studied. The application of similarity based modelling as the best alternative for sustainable lake water quality management under the circumstances of lack of data and limited fund for continuous lake water quality sampling and monitoring. The model output from this research: a lake management supporting tool to facilitate catchment-scale planning strategies, especially in identifying vulnerable areas and the best management practices including strengthening implementation of Integrated Lake Basin Management (ILBM) will be recommended.

Keywords: GIS, lake, spatial modeling, similarity based model, water quality management

Abstract ID: AIMC-2017-LS-523

ANTIBACTERIAL ACTIVITIES FROM ILLICIUM VERUM EXTRACTS

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Abstract

Introduction: *Illicium verum* (*I. verum*) had been widely used in traditional medicine to reduce stomachache, neurotropic, hypothermic and analgesic. Thus, the aim of this study is to investigate the antimicrobial potential of *I. verum* towards several Gram positive (*B. subtilis* and *S. aureus*) and Gram negative (*E. coli* and *S. typhi*) bacteria **Methodology:** The *I. verum* was extracted by using three different types of the solvent which are 70% of ethanol, 70% methanol and aqueous. The *I. verum* extract also had been diluted into several concentration which are 20 mg/ml, 40 mg/ml, 60 mg/ml, 80 mg/ml and 100 mg/ml. Results obtained were compared with Gentamycin, as the positive control. **Findings:** From the results, *B. subtilis* (20.0 ± 0.6) was found to be highly sensitive at 100 mg/ml on methanolic extraction followed by (19.0 ± 0.6) on 100 mg/ml ethanolic extraction and 12.8 ± 0.4 on aqueous extraction. In addition, *B. subtilis* showed the highest susceptibility compared to *S. aureus* followed by *S. typhi* and *E. coli* respectively. Hence, this study justify the potential of *I. verum* to be used as natural antimicrobial in medical industries **Contribution:** 1

Keywords: *I. verum*, antibacterial, methanol, ethanol, extraction

Abstract ID: AIMC-2017-LS-535

ENHANCEMENT OF COPRA OIL YIELD BY MICROWAVE-ASSISTED EXTRACTION

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Abstract

Introduction: In this study, the efficiency of oil extraction from *Cocos nucifera* copra will be evaluated from three different techniques namely soxhlet extraction (SXE), ultrasonic-assisted extraction (UAE), and microwave-assisted extraction (MAE). **Methodology:** Copra extraction by using soxhlet apparatus, ultrasonic, and microwave, and *n*-hexane as extraction solvents. **Findings:** The results obtained from those extraction techniques were compared. The SXE recover relatively high oil yield which 81.4% (400mL *n*-hexane, 48 hours). In comparison, the UAE and MAE recovered about 56.6% (100mL *n*-hexane, 1 hour) and 63.0% (100mL *n*-hexane, 0.15 hour), respectively. **Contribution:** SXE technique is more efficient in recovering *Cocos nucifera* copra oil (CNCO) in comparison to the UAE and MAE. However, MAE technique consumed the shortest time to extract oil from *cocos nucifera* copra.

Keywords: Copra oil; Extraction; *Cocos nucifera*; Microwave; Soxhlet; Ultrasonic

Abstract ID: AIMC-2017-LS-540

EVALUATION OF PATHOLOGICAL CONDITION OF MICE INFECTED WITH TOXOPLASMA GONDII RH-STRAIN

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Abstract

Introduction: *Toxoplasmosis* is a disease cause by an apicomplexan parasite known as *Toxoplasma gondii*. This parasite was discovered in 1908, about 100 years ago and become as an important food and waterborne opportunistic pathogen that can cause severe disease especially in immunocompromised patients and fetuses or new-born that congenitally infected. A susceptible host may be at risk of getting toxoplasmosis via ingestion of raw or undercooked meat or consumption of water contaminated with *T. gondii* oocyst. **Methodology:** This research was conducted to study the pathological condition of mice inoculated with tachyzoites of *T. gondii* RH-strain. In this study, 18 female BALB/C mice were used. The mice were divided into two groups. 12 mice were inoculated with four viable of RH strain *T. gondii* tachyzoite obtained from Parasitology Unit Institute of Medical Research (IMR). Whereas, the remaining mice served as normal control. After the inoculation, the mice were maintained under pathological-free condition in MSU animal house. **Findings:** After 24 hours of inoculation, the behavioural changes such as lower food intake and less activities observed. The loss of weight also obvious among infected mice and the abdominal part of the mice obviously bloated. All 12 mice infected

with RH Strain tachyzoites died as soon as day 4 and latest by day 9. The microscopic observation of the direct smear revealed the presence of large number of free moving tachyzoites. The Giemsa staining of peritoneal fluid smear show *Toxoplasma* tachyzoite-like organisms in the significant number in all mice inoculated with *T.gondii*. The infected white blood cell containing bradyzoites or known as cystozoites also present in the peritoneal fluid stained with Geimsa. **Contribution:** Collectively, this study should improve the understanding of the virulence and pathogenesis of acute toxoplasmosis in experimental mice model.

Keywords: Toxoplasmosis, *Toxoplasma gondii*, Tachyzoite.

Abstract ID: AIMC-2017-LS-541

EFFECT OF POLYETHYLENE IMINE (PEI) TRANSFECTION IN THE DELIVERY OF PCDNA.1/HIS B- MIC 3 GENE IN THE MICE AS A DNA VACCINE AGAINST TOXOPLASMOSIS

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Abstract

Introduction: *Toxoplasma gondii* (*T.gondii*) is an intracellular protozoan parasite cause common parasitic infection in human and other warm blooded animals. The parasite can be acquired by oral ingestion of the parasites tissue cysts containing their infective stages. **Methodology:** In this study, a recombinant plasmid pcDNA 3.1/His B-MIC3 gene is being tested with the aid of polyethylene imine (PEI) as a transfection agent through the route of administration via intramuscular injection in mice. DNA plasmid extraction and purification was done by using commercialise kit and was tested for its purity then administrated via Intramuscular route at week 0, 2 and 4 in four groups of mice each containing 7 mice per group. IgG level in serum sample measured using ELISA kit. The MIC 3 gene was amplified into the recombinant plasmid pcDNA3.1/His B which the extracted plasmid was reconfirmed with the Spectrophotometry Nanodrop. **Findings:** The results obtain shows that all the extracted plasmid was in a pure range and that was between 1.8 -2.0 OD. Using the Agarose gel electrophoresis analysis, showing that the MIC 3 having a base pair of 1080 was successfully inserted into the recombinant plasmid (pcDNA3.1/His B) into a new plasmid pcDNA3.1/His B-MIC 3. Group one act as normal control injected with distilled water, group two was injected with pcDNA3.1/His B-MIC3 with PEI, group three was injected with pcDNA3.1/His B with PEI and group four was injected with pcDNA3.1/His B-MIC3 only. Group two did elicit humoral immune response showing significantly increase of IgG production level after 2 weeks of injection. **Contribution:** Hope this finding will open a new promising vaccine for Toxoplasmosis.

Keywords: DNA vaccine, Toxoplasmosis, *T.gondii*, pcDNA 3.1/His B-MIC 3, PEI transfection.

Abstract ID: AIMC-2017-LS-554

THE DISTRIBUTION AND LENGTH SIZE OF CORBICULA FLUMINEA (ETAK) IN SUNGAI PERGAU AT GUNUNG RENG

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Abstract

Introduction: *Corbicula fluminea* (*Bivalvia: Corbiculidae*), locally known as “Etak” which is the favourite freshwater clams in the Kelantan state. This study was conducted to study on Etak distribution in Sungai Pergau at Gunung Reng which is known as recreational spot. **Methodology:** The numbers, weight and the length measurement of *C. fluminea* was identified as *C. fluminea* parameters. In addition, water quality used (conductivity, pH, turbidity, salinity, temperature, DO and nitrate) and type of substrate was also studied to identify the habitat characteristics that affect the distribution of this species. As there was no documentation of distribution and density of *C. fluminea* in Sg. Kelantan, it would be difficult to compare the density and distribution of Etak in the others river in Kelantan.

Findings: In total 166 individuals of *C. fluminea* (77g) found at middle streams with 11-12.5mm in length. As the finding shows that, the distribution of *C. fluminea* at Gunung Reng was not affected by water quality. In this study shows that the most substrate ranged from 0.25mm and 0.71mm which represent sand (sand-coarse and sand-fine). It is believed that the smaller substrates helps to trap more suspended materials as food for *C. fluminea* and the harvesting activities reduce the time for the clams to grow mature with larger size in length.

Contribution: As it is the favourite freshwater clam in the state, the data could be helpful in monitoring its presence and if in decline, remedial and replenishment could be introduced.

Keywords: Corbicula fluminea, etak, Gunung Reng, length size, substrates type

Abstract ID: AIMC-2017-LS-561

HER2-TARGETING HEPATITIS B VIRUS CORE PARTICLES AS SIRNA-NANOCARRIERS TO TREAT CANCER

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Abstract

Introduction: Hepatitis B Virus core (HBc) particles have been studied for their potential as drug delivery vehicles for cancer therapy. HBc particles are hollow nanoparticles of 30-34 nm diameter and 7 nm thick envelopes, consisting of 180-240 units of 21 kDa core monomers. They have the capacity to assemble/disassemble in a controlled manner allowing encapsulation of various drugs and other biomolecules. Moreover, other functional motifs, i.e. receptors, receptor binding sequences, proteins and element recognising low molecular mass substrates can also be expressed. This study focuses on the development of genetically modified HBc particles to specifically recognise and target human epidermal growth factor receptor-related (HER2)-expressing cancer cells, *in vitro* and *in vivo* for siRNA delivery for future cancer therapy. **Methodology:** HBc particles were prepared using the *E. coli* expression system. HBc particles morphology was confirmed by atomic force microscopy (AFM) and cryo transmission electron microscopy (Cryo-TEM). Protein specificity was confirmed by Western blotting. A range of cells expressing different levels of HER2 were treated with fluorescently labelled HBc particles and the cell uptake was assessed using flow cytometry. HBc particles were then radiolabelled with technetium-99m (^{99m}Tc), using the previously reported hexahistidine sequence (His-tag) labelling protocol. Single-photon emission computed tomography/computerised tomography (SPECT/CT) imaging and quantitative gamma counting were performed to characterise the organ biodistribution profile of the HER2 specific-targeting HBc particles in tumour-bearing mice. siRNA was encapsulated into HBc particles using dis-assembly/re-assembly by DTT/CaCl₂. siRNA encapsulation efficiency was determined by gel retardation and aldehyde sulphate latex beads assay. Cancer cells were treated with HBc-siRNA hybrid particles and the cell uptake was assessed by flow cytometry. Cell cytotoxicity and gene silencing of cancer cells, treated with HBc-siPLK1 hybrid particles were assessed using MTT assay and immunostaining by Western Blotting. Intraperitoneal injection administration was used to establish if HBc-based siPLK1 delivery is able to achieve *in vivo* PLK1 silencing, and if so, whether this is sufficient to result in tumour growth delay in HER2-expressing tumour-bearing in-traperitoneal mice models. **Findings:** The non-specific binding capacity of wild type HBc particles was reduced by genetic deletion of the sequence encoding arginine-rich domains. Additionally, a specific HER2-targeting was achieved by expressing the ZHER2 Affibody® on the HBc particles surface. *In vitro* studies showed specific uptake of ZHER2-ΔHBc particles in HER2-expressing cancer cells. *In vivo* studies confirmed positive uptake of ZHER2-ΔHBc particles in HER2-expressing tumours, compared to non-targeted ΔHBc particles in intraperitoneal tumour-bearing mice models. In order to formulate HBc particles for the delivery of siRNA aiming to achieve gene silencing *in vitro* and *in vivo*, siRNA was encapsulated within the HBc particles following its dis-assembly/re-assembly using a reported method (Method III). ZHER2-ΔHBc-siRNA hybrids were able to protect the encapsulated siRNA from serum and nucleases *in vitro*. Enhanced siRNA uptake in HER2-expressing cancer cells treated with ZHER2-ΔHBc-siRNA hybrids was observed compared to the non-targeted HBc-siRNA hybrids, in a time- and dose-dependent manner. A successful *in vitro* polo-like kinase 1 gene knockdown was observed in cancer cell lines treated with ZHER2-ΔHBc-siPLK1 hybrids, to levels comparable to commercial transfecting reagents. However, in *in vivo* studies, the siPLK1 dosage administered is low to observe a relevant effect in mice. Interestingly, ZHER2-ΔHBc exhibit intrinsic capability of reducing the solid tumour loading, independently of siPLK1 therapy, in a semi-adherent intraperitoneal tumour model following intraperitoneal injection.

Contribution: We developed a new siRNA delivery carrier composed of recombinant HBc particles and ZHER2 affibody. ZHER2 affibody on the particles surface allowed the recombinant HBc particles to be recognised by the HER2 receptors overexpressed on the cancer cell surface and be subsequently internalised. Furthermore, gene silencing studies with siPLK1 revealed that HBc particles were able to efficiently silence PLK1 genes to levels comparable to cationic lipid-nanocarriers *in vitro*. Following intraperitoneal administration in

intraperitoneal xenografts, combination of HER2-targeted Hbc particles and siPLK1 did not observed any delay of tumour growth in vivo; however, targeted Hbc particles induced a reduction in the weight of solid tumours. ELISA assay showed that our Hbc particles did not induce any immune response in the mouse serum, indicating our Hbc particles are biocompatible in vivo. Western blotting results observed a small reduction of PLK1 expression levels treated with ZHER2-ΔHbc-siPLK, however further experiments are required to confirm the findings. Overall, findings from this work is still at early stage, in which further studies are needed to achieve a better local gene delivery, specifically, gene therapy in the future.

Keywords: virus-like particles; hepatitis B virus core particles; human epidermal growth factor receptor 2; affibody; active targeting; siRNA

Abstract ID: AIMC-2017-LS-568

ISOLATION, IDENTIFICATION AND ANALYSIS OF PROBIOTIC PROPERTIES OF LACTIC ACID BACTERIA ISOLATED FROM SELECTED MALAYSIAN FERMENTED FOODS

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Abstract

Introduction: A variety of traditional fermented foods and beverages are prepared and consumed all around the world. Fermented foods are associated with desired and edible microbes which are beneficial for health. Lactic acid bacteria are the most common studied and dominant micro flora of fermented foods. However, the probiotic potential of lactic acid bacteria naturally occurring in Malaysian fermented foods still remains unexplored. Therefore, present study aimed on isolation of lactic acid bacteria from Malaysian fermented foods and examination of various phenotypic identification and study characteristics related to the probiotic potential of these microorganisms. **Methodology:** Lactic acid bacteria isolated from pekasam (fermented fish), jeruk maman (fermented vegetable), tapai (fermented glutinous rice) and tempoyak (fermented durian) were identified their colonies morphologies and some biochemical tests. Twenty selected strains were then evaluated for probiotic potential with the resistance to low pH and bile salts. Further all selected strains were determined antibiotic susceptibility to selected eight antibiotics and auto aggregation activity. All the selected strains showed various susceptibilities toward antibiotics. **Findings:** All strains were gram positive, catalase negative and rod shaped bacteria. They were mesophilic and showed good growth at 1.5%, 2.5%, 5%, 7.5% and 10% of NaCl concentration. Five strains were grow well at acid condition (pH 3.0). Moreover all twenty strains showed good tolerance to 0.6% bile salt. All the selected strains showed various susceptibilities toward antibiotics. All selected strains showed high auto aggregation percentage after being incubated at room temperature for 24 h. **Contribution:** The probiotic potential of lactic acid bacteria naturally occurring in Malaysian fermented foods still remains unexplored. The availability of lactic acid bacteria isolated from pekasam (fermented fish) had potential application in functional foods and health-associated products. Moreover, source of probiotic can be clearly stated and it might be a cheaper sources of probiotics that give benefits to human and also enhance the value to the Malaysian fermented food itself.

Keywords: lactic acid bacteria, probiotic, fermented foods

Abstract ID: AIMC-2017-LS-574

PHYTOREMEDIATION POTENTIAL OF HEVEA BRASILIENSIS IN BENTONG, MALAYSIA

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Abstract

Introduction: Biomonitoring uses living organisms to assess environmental quality and being preferred over conventional methods that use fully or semi-automatic gauges for its lower cost and practicality. Recently, higher plants are widely used for biomonitoring purposes by means of their species identification simplicity, larger availability of biological substantial, and easy to sample. **Methodology:** In this study, samples of *Hevea brasiliensis* from outskirts of Pelangai, Bentong (i.e leaves, barks, and latex as well as surrounding soils) were tested for heavy metals by inductively coupled plasma optical emission spectroscopy (ICP-OES) and polycyclic aromatic hydrocarbons (PAHs) by gas chromatography with flame ionization detector (GC-FID). Series of methods were developed to extract the highest heavy metals concentrations such as maceration, microwave-acid

digestion, ash drying technique and sonication. **Findings:** Enrichment factor of soils indicated that some heavy metals were anthropogenic (B, Ca, Cu, Mn, Pb, Zn, As and Na) that most likely originated from traffic emissions. In addition, leaves trapped the most heavy metals compared to barks and latex. PAHs content analysis of samples yielded phenanthrene detection in barks that probably came from cigarette smoke and fuel combustion of vehicles. **Contribution:** The accumulation of pollutants in those samples has specified insights of biomonitoring abilities of *Hevea brasiliensis*.

Keywords: biomonitoring, pollutants, heavy metals, PAHs, *Hevea brasiliensis*

Abstract ID: AIMC-2017-LS-587

IDENTIFICATION OF CRY1C AND CRY1FA BINDING PROTEINS IN SPODOPTERA FRUGIPERDA USING PROTEOMICS

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Abstract

Introduction: *Bacillus thuringiensis* (Bt.) is gram positive endospore forming rod bacterium which forms endospores and produces parasporal crystals. These parasporal crystals are solubilized in the midgut of insects at alkaline pH and converted to active toxins by midgut proteases. This activated toxin then binds with the receptors (mainly known receptors are alkaline phosphatase (ALP), aminopeptidase N. (APN) and cadherin-like in the the brush border membrane vesicles (BBMV) of the midgut microvilli and forms the pores in the membrane of midgut epithelial cells. When pores are formed then water enters the epithelial cells by osmosis and lyse the cells by osmotic pressure, when epithelial cells are lysed then gut is disrupted, larvae stop feeding and die due to septicemia. **Methodology:** We have mainly focused on finding some new receptors/binding proteins in BBMV from *S. frugiperda* with cry1C and cry1F.

Toxin-receptor/binding-protein interaction was analyzed by using two different cry proteins (cry1C and cry1F) and BBMVs from *S. frugiperda*. Western blotting, ligand blotting and alkaline Phosphatase (ALP) assay was performed to identify binding-proteins/receptors. **Findings:** Multiple bands (30-240KDa) were observed in ligand blots and western blots while isolated bands were seen in ALP assays (68-240KDa). From LC-MS/MS data we concluded that the proteins which are possibly important in the mechanism of action of cry proteins are Vha100-2, isoform B [*Drosophila melanogaster*], vacuolar ATP synthase subunit E [*Bombyx mori*], juvenile hormone epoxide hydrolase [*Helicoverpa armigera*], vacuolar proton-translocating ATPase subunit D [*Drosophila melanogaster*], elongation factor-1 alpha [*Coenonympha mahometana*], shock protein 90, aminopeptidase N-like protein [*Tribolium castaneum*], GAI4484 [*Drosophila pseudoobscura pseudoobscura*], 60S ribosomal protein L15 [*Spodoptera frugiperda*], glycerol-3-phosphate dehydrogenase [*Bombyx mori*] and HSP 70 [*Trichoplusia ni*]. **Contribution:** We are reporting these proteins for the first time which can be probably the receptors of Cry proteins. Further study is required to confirm their role as receptors.

Keywords: Cry proteins, *Bacillus thuringiensis*, *S. frugiperda*

Abstract ID: AIMC-2017-LS-594

INFLUENCE OF SULPHUR ON NITROGEN USE FICIENCY, YIELD AND QUALITY OF BRASSICA SPECIES.

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Abstract

Introduction: Brassica commonly known as sarson belongs to the family Cruciferae and genus Brassica, is the oil producing crop in Pakistan. It is generally refers to *Brassica campestris*, *Brassica juncea* and *Brassica napus* (Nazir, 1994). It is grown in rabi season in irrigated and barrani areas of Sindh, Punjab and Khyber Pakhtunkhwa. Brassica is a rich source of oil and protein and it contains more than 40% oil and 20% protein (Weiss, 1983). Brassica grows best under relatively cool temperatures up to flowering. After flowering it can tolerate high temperature but heat and water stress may result in a reduction of seed size, crop yield and oil contents (Rehman et al., 1987). Pakistan is chronically deficient in the production of edible oil and 70% of the country's requirements are meet through imports costing huge amounts of foreign exchange. Higher yield per

unit area can be achieved by high yielding species and adapting modern cultural practices with better nutrients management. Nutrients management of the soil on sustainable basis includes fertilizer types, amounts, time and methods of their application. Proper amount and time of fertilizer application is considered a key to the collide crop (Ahmad, 2006). Nutrient stress can be a serious limiting factor for crop production in irrigated as well as in dry land agriculture. Keeping in view the importance of N and S in brassica production, the present experiment was carried out to study the response of brassica to nitrogen and sulfur levels. **Methodology:** The experiment entitled "Influence of sulphur on nitrogen use efficiency, yield and quality of brassica species" was conducted at New Developmental Farm, Khyber Pakhtunkhwa Agricultural University Peshawar during rabi season 2012. The following treatments were compared in the experiment.

Factor A:	Nitrogen (kg ha-1)
	N1 = 0
	N2 = 50
	N3 = 100
	N4 = 150
Factor B:	Sulphur (kg ha-1)
	S1 = 0
	S2 = 30
Factor C:	Species
	Sp1 = Brassica compestris (Var. E12)
	Sp2 = Brassica juncea (Var. E10)
	Sp3 = Brassica napus (Var. Altex)

The experiment was carried out in randomized complete block design with split plot arrangement having three replications. Combination of nitrogen and sulphur were allotted to main plots and species to subplots. The crop was sown on 16th October 2012. Soil analysis for nitrogen and sulfur were conducted before sowing of the crop. The soil of the experimental field was sandy loam, moderately calcareous, low in nitrogen (0.016%), low in organic matter (0.33%), low in available sulfur (8.31 mg kg-1) and slightly alkaline having a pH of 7.7.

A uniform seed rate of 5 kg ha-1 was used in all plots planting manually through hand hoe. In each sub plot there were 6 rows 3.5 m long and 0.45 m apart. Basic quantity of phosphorus and potassium at the rate of 60-60 kg ha-1 was applied in the form of triple super phosphate and murate of potash before sowing at the time of seedbed preparation. Nitrogen was applied in the form of urea. Sulphur was applied as foliar spray in two split pumps at flowering stage. The amount of ammonium sulfate was calculated to supply the required level of S. Then the quantity of N supplied by the calculated amount of ammonium sulfate was calculated, the remaining N was then supplied by urea. Thinning was done at 20 days after sowing and a distance of 5 cm was maintained between plants. Weeds were removed manually. Crop was irrigated when needed. The crop was harvested in the month of April. Data were recorded on the following parameters.

- 1) Thousand grains weight
- 2) Biological yield
- 3) Grain yield
- 4) Oil content
- 5) Protein content
- 6) N-use efficiency

Procedure for data collection.

For Thousand grains weight randomly sample of 1000-seeds from the sundried and clean seeds was taken from each treatment and their weight (g) was calculated with the help of electronic balance. Biological yield (kg ha-1) was recorded by selecting four central rows in each sub plot which were harvested, dried and weighed. For grain yield (kg ha-1) eight central rows from each sub-plot were harvested, dried, threshed, cleaned and weighed. Finally the grain yield per hectare was converted by the formula:

$$\text{Grain yield (kg/ha)} = \frac{\text{Grain yield (harvested area)}}{\text{No. of rows} \times \text{row length} \times \text{row spacing}} \times 10000$$

Random seed samples from each plot were collected and analyzed for percent oil content by FOSS Routine Near Measurement System (35RP-3752F) TR-3657-C Model 6500 at oilseed laboratory, Nuclear Institute for Food and Agriculture, Peshawar. Protein content was obtained by FOSS Routine Near Measurement System (35RP-3752F) TR-3657-C Model 6500, at oilseed laboratory, Nuclear Institute for Food and Agriculture, Peshawar and nitrogen use efficiency was derived by the following formula;

$$(\text{N fertilized plot}) - (\text{control plot})$$

----- x 100

Rate of N applied

Statistical analysis

The recorded data was analyzed statistically according to RCB design and upon obtaining significant differences, least significant differences (LSD) test was employed (Steel and Torrie, 1980).

Findings: Thousand grain weight was significantly affected by nitrogen, sulphur and species. Maximum 1000 grain weight was recorded in plots fertilized with 100 kg N as compared to control plots. Sulphur application significantly increased 1000 grain weight. These results were confirmed by Subhani et al. (2003) who stated that 1000 grain weight was increased with the application of 30 to 50 kg S ha⁻¹. Govahi et al. (2006) also reported that 1000 seed weight increased with increasing levels of S application. Maximum 1000 grain weight was recorded in E12 as compared to Altex which produced minimum grains. SxSp interaction showed maximum 1000 grain weight in specie E12 with S application. Biological yield is an important consideration for a crop. Table 2 revealed that biological yield was significantly affected by nitrogen, sulphur and species. All the interactions except SxSp showed significant impact on biological yield. Maximum biological yield was recorded in plots fertilized with 100 kg N as compared to control plots. The possible reason for increased biological yield may be due to increasing N rates which increases vegetative growth resulting in more photosynthesis which increases the growth and development of brassica and thus resulted in the increased biological yield. These results are confirmed by Uddin et al. (1992) who stated that biological yield increased with increasing rate of N up to 150 kg N ha⁻¹. Kutcher et al. (2005) also stated that biological yield of brassica significantly increased with increasing N rate up to 120 kg N ha⁻¹. Sulphur application significantly increased biological yield. The increase in biological yield with the increase in S application may be due to the positive response of brassica to applied sulfur. Sharma and Gupta (1991) reported that increase in biological yield with S application may be due to the fact that S boost up vegetative growth, starch and grain formation. Maximum biological yield was recorded in E12 as compared to Altex which produced minimum biological yield. Grain yield is a final function of integrated impact of all individual genetic makeup of fertilizer applications during the growth period. Nitrogen and sulphur application along with species significantly affected the grain yield of brassica. Table 12 showed that maximum grain yield was recorded in plots fertilized with 100 kg N ha⁻¹ as compared to control plots. The expand in grain yield with the elevated N and S levels could be the aftermath of the increase in yield components like branches, pods plant⁻¹ and seeds pod⁻¹. Sulphur application significantly increased grain yield. These results are in line with Khan et al. (2002) who stated that maximum seed yield was obtained from 120 kg N ha⁻¹. This statement was confirmed by Subhani et al. (2003) who stated that maximum seed yield was obtained from 40 to 50 kg S ha⁻¹. Maximum grain yield was recorded in E12 as compared to Altex which produced minimum grain yield. The interaction SxSp showed that E12 produced maximum grain yield with S application as compared to Altex in control plots.

Oil content of brassica was significantly affected by nitrogen, sulphur and species. The data showed that increasing N significantly decreased oil content. Maximum oil content was recorded in control plots in comparison with minimum oil content noted in plots fertilized with 150 kg N ha⁻¹. Sulphur application significantly increased oil content. Maximum oil content was recorded in plots sown with E12 as compared to Altex. All the interactions showed negative impact on oil content of brassica. These findings are in line with Tahir (2002) who observed a significant decrease in oil content with increasing rates of fertilizer application (especially N) reflects an inverse relationship between oil concentration and seed protein contents. Biswas et al. (1995) reported that oil content in brassica seed was increased by S and decreased by N. Ahmad et al. (1998) got maximum oil yield from the combined application of 40 kg S and 100 kg N ha⁻¹. Protein content of brassica was significantly affected by nitrogen, sulphur and species. Maximum protein content was recorded in plots fertilized with 100 kg N ha⁻¹ as compared to control plots. Sulphur application significantly increased protein content. These findings are matching to Zhao (1993) who stated that sulphur application increased seed protein content at the high N rate. Maximum protein content was recorded in E12 as compared to Altex which produced minimum protein content. The interaction SxSp showed that E12 produced maximum protein content with S application. Nitrogen, sulphur and species significantly affected N-use efficiency in brassica. Maximum N-use efficiency was recorded in plots fertilized with 100 kg N ha⁻¹ as compared to control plots. Sulphur application significantly increased N-use efficiency. Fismes et al. (2000) reported that N increase vegetative growth and S improve N use efficiency. Maximum N-use efficiency was recorded in plots sown with E12 as compared to Altex which showed minimum N-use efficiency.

Contribution: The results indicates that nitrogen application at the rate of 100 kg N ha⁻¹ produced highest grain yield (1872 kg ha⁻¹). Nitrogen application of 150 kg N ha⁻¹ ranked second in grain yield. Sulphur application at the rate of 30 kg S ha⁻¹ produced higher grain yield of 1818 kg ha⁻¹. Brassica specie E12 gave highest grain yield (1890 kg ha⁻¹) as compared to lowest grain yield (1595 kg ha⁻¹) from Altex. Oil content

decreased and protein content increased with nitrogen application at the rate of 100 kg N ha⁻¹. It is revealed that brassica specie E12 fertilized with 100 kg N ha⁻¹ in addition to sulphur application at the rate of 30 kg S ha⁻¹ as foliar application is recommended for better grain yield.

Keywords: Brassica species, sulphur, nitrogen use efficiency, yield and quality.

Abstract ID: AIMC-2017-LS-597

BIODIVERSITY OF CORAL-REEF (COELENTERATA : ANTHOZOA) IN MENJANGAN ISLAND KARIMUNJAWA ARCHIPELAGO OF JEPARA

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Abstract

Introduction: The aim and benefit from this research is to know the variety of coral-reef and percentage of closing coral-reef in order to support the policy stages in processing and developing the area in Karimunjawa Nasional Park. **Methodology:** Taking sample is done in each station by drawing horizontal line then pulling vertical line. Make some plotting in 20 x 5 metre, then divided by four at random. Noting the coral-reef in transek, photographed, noting the characteristic. **Findings:** The result of identification obtained twenty five type of coral-reef there are *Dendronephthya sp*, *Acropora humilis*, *Acropora yongei*, *Acropora nasuta*, *Acropora formos*, *Acropora squarosa*, *Acropora sp*, *Montipora capricornis*, *Heliopora coerulea*, *Porites lutea*, *Poecilopora damicornis*, *Montipora digitat*, *Merulinia sp*, *Fungia*, *Herpolitha*, *Platygyra sp*, *Pachyseris sp*, *Symphyllia sp*, *Goniopora malaccensis*, *Acropora hyarnithus*, *Sarcophyton*, *Meliopora sp*, *Porites cylindrical*, *Favia*. Percentage of closing coral-reef at 5 station show : very good : nothing; good : nothing; medium : one station 26 – 50% and destroy : 4 station 0 – 25%. **Contribution:** The suggestion coral-reef conservation is given by inviting local society to care and participate to preserve the variety of life including coral-reef.

Keywords: Anthozoa, coral reef, Karimun Jawa, Biodiversity, Menjangan Island

Abstract ID: AIMC-2017-LS-599

POTENTIAL OF EDIBLE SEAWEEDS AS A-GLUCOSIDASE INHIBITOR: IDENTIFICATION OF A-GLUCOSIDASE INHIBITORS BY COMBINED USE OF HIGH-RESOLUTION A-GLUCOSIDASE PROFILING AND THEIR KINETIC STUDIES

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Abstract

Introduction: Alpha-glucosidase inhibitor is an inhibitor used to control blood glucose levels for people suffering from hyperglycaemia. The inhibitor delayed the breakdown of carbohydrate into simple sugars thus help to lower blood glucose levels in people who have high blood glucose after eating. In this study, five species of dried edible seaweeds were tested for α -glucosidase inhibitory effect. **Methodology:** Five milligram per millilitre of methanolic, acetone and water extracts of seaweeds were used for inhibitory activity assay through high-resolution α -glucosidase inhibition assays combined with hyphenation of high performance liquid chromatography-mass spectrometry (HPLC-ESI-MS). **Findings:** Results showed that acetone extracts of *Undaria pinnatifida* had the strongest inhibitory effect of α -glucosidase activity with IC_{50} 0.08 ± 0.02 mg/mL. The active compound was identified and was associated with fucoxanthin (IC_{50} 0.710 ± 0.021 mM). The inhibition kinetic study indicates that fucoxanthin is mixed inhibition. These results suggest that *Undaria pinnatifida* has a potential to inhibit α -glucosidase and may be use as a therapy for glycaemic control. **Contribution:** In this study, edible seaweeds were selected based on their availability. We selected five of the most commonly consumed seaweeds in Asia and Europe. The seaweeds included were brown and red seaweeds. Active compounds were extracted using three different polar and non-polar solvents: methanol, acetone and water respectively. The main aim was to investigate the potential of crude extracts from edible seaweeds in inhibiting α -glucosidase activity. Secondly, we wanted to identify potent bioactive compounds for α -glucosidase inhibitory effects and finally to evaluate the kinetics of inhibition. In addition, efficient techniques were applied to identify targeted α -glucosidase inhibitors using a high resolution α -glucosidase inhibition assay with hyphenation of high performance liquid chromatography-mass spectrometry (HPLC-ESI-MS).

Keywords: Edible Seaweed, glycaemic control, hyperglycaemia, High-resolution profile, α - glucosidase, mixed type inhibition

Abstract ID: AIMC-2017-LS-602

EXPLORING AFFORDABLE HOUSING GOVERNANCE IN MALAYSIA

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UTAR

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Abstract

Introduction: Malaysia, in the era of increasingly globalisation and rapid pace of urbanisation, coupled with socioeconomic inefficiency are resulting in severe affordable housing problems. This mainly exemplified by the prominence and persistence of the mismatch between housing supply and demand, corollary to exceeded 3.0 house-price-to-income-ratios. Several prescribed measures in terms of policies, incentives, and schemes attempting to alleviate with the affordable housing crisis, yet, the result seen ineffective. **Methodology:** This paper reports part of a study in achieving the aim by literature reviewing the critical factors involved for public developer, private developer and home-buyer that negatively influence the Malaysia affordable housing development. **Findings:** It was identified that there are 34 indicators that are extracted which obstruct the smooth development of affordable housing in Malaysia. **Contribution:** The housing industry today has become more complex and fragmented, with one-side decision made on housing and related policies, it is believed that, this is not applicable to the current housing environment. Furthermore, with the rise of governance' prescriptions, bringing together both public and private stakeholders in a collective decision-making has been seen a prerequisite for dealing with the Malaysia affordable housing shortage. In many instances, there has been much discussion about governance in urban development, land delivery, construction projects or related services with positive effect bring. However, the housing industry in Malaysia has not adopted this approach to the same extent, particularly in the affordable segment. In order to fill this gap, this study aims to propose a governance framework for the Malaysia affordable housing industry.

Keywords: affordability, barriers, median income

Abstract ID: AIMC-2017-LS-632

BIODIVERSITY OF CORAL-REEF (COELENTERATA : ANTHOZOA) IN MENJANGAN ISLAND KARIMUNJAWA ARCHIPELAGO OF JEPARA

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Abstract

Introduction: The aim and benefit from this research is to know the variety of coral-reef and percentage of closing coral-reef in order to support the policy stages in processing and developing the area in Karimunjawa Nasional Park. **Methodology:** aking sample is done in each station by drawing horizontal line then pulling vertical line. Make some plotting in 20 x 5 metre, then divided by four at random. Noting the coral-reef in transek, photographed, noting the characteristic. **Findings:** The result of identification obtained twenty five type of coral-reef there are *Dendronephthya sp*, *Acropora humilis*, *Acropora yongei*, *Acropora nasuta*, *Acropora formos*, *Acropora squarosa*, *Acropora sp*, *Montipora capricornis*, *Heliopora coerulea*, *Porites lutea*, *Poecilopora damicornis*, *Montipora digitat*, *Merulinia sp*, *Fungia*, *Herpolitha*, *Platygyra sp*, *Pachyseris sp*, *Symphyllia sp*, *Goniopora malaccensis*, *Acropora hyarnithus*, *Sarcophyton*, *Meliopora sp*, *Porites cylindrical*, *Favia*. Percentage of closing coral-reef at 5 station show : very good : nothing; good : nothing; medium : one station 26 – 50% and destroy : 4 station 0 – 25%. The conclusion formulated that it's obtained 25 type of coral-reef with closing the coral-reef with category medium : 26 – 50% and destroy : 0 – 25%. **Contribution:** The suggestion coral-reef conservation is given by inviting local society to care and participate to preserve the variety of life including coral-reef.

Keywords: Anthozoa, coral reef, Karimun Jawa, Biodiversity, Menjangan Island

Abstract ID: AIMC-2017-LS-643

CHARACTERIZATION OF PLANT GROWTH PROMOTING BACTERIA FROM OIL PALM RHIZOSPHERE

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Abstract

Introduction: *Oil palm (Elaeis guineensis Jacq.) is the most important industrial crop in Malaysia (Othman, 2014). Rapid increase in hectare for oil palm cultivation increased from 5.4 X 10⁴ ha in 1960 to 4.7 X 10⁶ in 2009. (Paterson et al., 2013). It has been reported that rhizospheric bacteria such as Acetobacter diazotrophicus, Herbaspirillum spp., Azorarcus spp., Pseudomonas spp., Proteus mirabilis and Azospirillum spp., which colonises the root of palm trees enhances plant growth and protect the plant from disease. This has led to a considerable interest in exploiting plant – microbe interactions (Reis et al., 2000). Results from different experiments showed 50 to 70 % increment of yield when plants were inoculated with growth promoting rhizobacteria (Lucy et al., 2004). Other reports on influence of plant growth promoting rhizobacteria in enhancing crop yield were also recorded for sugar beet, sugarcane, wheat, oil palm, maize, pineapple, kallar grass and rice (Malik et al., 1997; Elbeltagy et al., 2001; El Zembrany et al., 2006; Suman et al., 2005; Cakmakci et al., 2006; Baldani et al., 2000). Therefore, application of plant growth enhancer or microbial fertilizer can be considered as potential alternatives to mineral fertilizers (Vestberg et al., 2004).* **Methodology:** Soil collected from oil palm plantation, in Temerloh, Pahang.

Isolation of rhizobacteria

Characterization of Plant growth promoting bacteria (screening)

16S rRNA gene sequencing

Green house study **Findings:** A total of 137 bacterial strains were successfully isolated from rhizosphere of oil palm. Isolates were screened for production of a number of different useful enzymes and hormones including indole-3-acetic acid, siderophore, nitrogenase and phosphatase production. Some of the microbes have multiple function to solubilise phosphate, fixing nitrogen and produce siderophore. BLAST searches of 16S rRNA gene sequences revealed that active isolates are *Rhizobium sp.*, and *Pseudomonas sp.* **Contribution:** *Oil palm (Elaeis guineensis Jacq.) is the most important industrial crop in Malaysia (Othman, 2014). It has been reported that rhizospheric bacteria such as Acetobacter diazotrophicus, Herbaspirillum spp., Azorarcus spp., Pseudomonas spp., Proteus mirabilis and Azospirillum spp., able to colonises the root of specific type of plant and enhances plant growth and protect the plant from disease. So far, there are limited research involving plant growth promoting bacteria with oil palm, eventhough we know the interaction between bacteria and plant are specific. Therefore, we need to find the specific type of bacteria that can work as biological enhancer for oil palm growth, hence can be considered as potential alternatives to mineral fertilizers*

Keywords: Plant growth promoting bacteria; rhizosphere; oil palm

Abstract ID: AIMC-2017-LS-663

FARMERS' ADAPTATION TO FLOODING IN FISHERY SECTOR IN LAMONGAN, EAST JAVA

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Abstract

Introduction: *Adaptation to flood needs to be done to reduce the damage and loss. Flood disaster occurred regularly in Lamongan. Flood occurred in residential areas and agricultural land resulting in huge losses. This journal aims are to identify and assess the impact of floods and farmers' adaptation (autonomous adaptation).*

Methodology: *The research's methods used were survey, mapping, interviews, and spatial analysis.* **Findings:** *The results indicate that the impact of floods includes loss on asset life and disrupt community activities. Aoutonomous adaptation by the farmers include the rotation of fish farming, diversification or selection of the type of fish, the management of the fields, the use of the technology, livelihood diversification, financial management of agriculture, migration, buying or processing of organic fertilizer, new business, daily and seasonal weather predictions, and changing the intensification of production to cope with variations in the environment, mobility, looking for information* **Contribution:** *The ability to adapt will be important to reduce the impact of floods. Therefore, the development of adaptation policy framework is needed to support the adaptation process, to protect and improve the livelihoods of communities in the face of flood disasters.*

Keywords: Adaptation, Farmers, flood

Abstract ID: AIMC-2017-LS-690

COMPARISON OF AN EFFECTIVE WORKING HOUR AND HARVESTING COST BETWEEN MANUAL HARVESTING (CHISEL AND SICKLE) AND MECHANIZED HARVESTING (CKAT AND MOTORIZED CUTTER) IN OIL PALM PLANTATION.

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Abstract

Introduction: *Agricultural sector act as the main contributor of Malaysia economy, especially for the first 30 years after our nation achieved independence (Kamruddin et al., 2007). The agriculture sector, especially oil palm was playing a prominent role in consolidating national economy since the production is expected to contribute RM 100 billion by 2020 (Veloo and Hitam, 2011). Oil palm (*Elaeis guineensis*) becomes a priority to be planted because of the suitability of the plant that can grow with the Malaysia climate and the cash can be generated from the oil palm production. Development of oil palm basically to provide employment for local people and to meet the demand of human for oil palm by product such oil and fat (Wastie and Earp, 1972) food and others.*

Oil palm was planted commercially by producer in Malaysia for commercial purpose has approximately in 5.0 million hectares. According to Basiron (2007), oil palm production was shown to significantly increase from 94,000 tonnes in 1960 to 15 million tonnes that recorded in 2005. This shows that the production was increased up to 160 times for 45 years. The increasing world demand, especially for oil and fat and stable price makes the palm oil become popular to be chosen than other commodity crops such as rubber, cocoa and pineapple. For that reason, the expansion of the oil palm plantation area leads to the needs of labors to accomplish tasks in the field. Since the oil palm producers are facing a shortage of labor to harvesting process, an alternative is required to reduce the manpower energy to the harvesting process. Harvesting is the most important operation because the productivity depends on the efficiency of harvesting.

Now days, on plantation sector mostly still using manual harvesting, which is slow and use a lot of labor energy. So, there has some plantation is try to applying mechanize harvester for oil palm. The main advantages of mechanized harvesting are speed and the reduced costs per ton harvested.

Mechanization practices were compromised from fully mechanized and semi-mechanized that implementing in the plantation was conducted from planting, manuring, weeding, pesticides and chemical application, harvesting until transported the yield to processing mills. By that, precision agriculture in plantation such as the motorized cutter is recommended to solve the problem that faced oil palm producer in the harvesting operation. According to Rijk (1999), the use of mechanization can increase labor productivity in the plantation sector. This innovation can be lead plantation to reduce the dependency on labor and acquire labor cost saving for long term period. Other than that, the uniformity and higher worker productivity by using the mechanization can give advantages since the plantation wants to achieve the sustainability of profit and reduce the cost involved.

In view of the present pattern, an unbeneficial stage might be achieved by the oil palm plantation in order to suit supplementary increments in worker cost. Consequently, there is a requirement to boost the used of mechanization in oil palm plantation to diminish work reliance and expense of production. Mechanization has likewise been proposed as a way to enhance efficiency and reduce the portion of the difficult job now being performed manually.

For example, harvesting process in oil palm plantation nowadays has been through the process utilization of mechanization. Harvesting the fresh fruit bunches can divide into two sections which are manual harvesting technique and mechanical harvesting technique. The manual harvesting technique usually will use the chisel or sickle to harvest the fresh fruit bunches and mechanical harvesting technique will use mechanized tools such as CKAT or CANTAS designed by the Malaysian Palm Oil Board (MPOB) in order to increase the productivity of harvester and reduced worker requirement in oil palm plantation.

Methodology: RESEARCH METHODOLOGY

Location of study

The comparison of manual harvesting technique by using a chisel, sickle and mechanical harvesting technique by using CKAT and motorized cutter were conducted in the various oil palm site owned by smallholder located in Bukit Lintang, Melaka. The available criteria on the oil palm site such as young palm trees, height of palm trees just reached approximately 4 to 5 feet and early harvesting years caused that this oil palm site is suitable to carry out for this case study. Moreover, the owner of motorized cutter already used the CKAT for two years facilitates the further process of data collection for this case study.

This study compares two types of manual harvesting tools for palms which is chisel and sickle.

Table 1

Item	Chisel	Sickle
Specification of a Length	1.5 m	3.5 -5.5 m
Weight	4.0 kg	7-8.5 kg
Price	RM 80.00	RM 143.00

The manual harvesting technique of short palms is typically complete by utilizing a chisel attached to a hollow metal pole, usually galvanized iron. Length of chisel blade is 7 inch and width of chisel blade is 4 inch. This types of harvesting tool are suitable to harvest fresh fruit bunches from palm that have height below 3 m. Hitting chisel at a fast to frond or fresh fruit bunches stalk is a consequence during the harvesting process by using manual harvesting tools. To finish the harvesting operation, the harvester needs adequate distance around him so he can create sufficient force to hit the chisel and cut through the material. The level of success depends significantly on the efficiency of the chisel utilized with harvester experience and skills.

Traditionally, the oil palm fresh fruit bunches were harvested using a sickle. The sickle is attached to an aluminum pole. The length of the aluminum pole depends on the average height of the palm oil in the harvesting area and the length of pole can be adjusted depends on the height of the tree. The sickle is placed at the base point of the bunch and the harvester will pull the aluminum pole several times to accomplish the cutting process. It took about 386 seconds to complete one cycle of harvesting activity (D. Adetan et al., 2007). By using traditional harvesting technique, it was recorded that the ratio of worker to the area of land (ha) was 1:18 and oil palm productivity was 11.60 tonnes/day (2.2). However, the traditional harvesting technique consumes a lot of time of the harvester and could reduce the rate of harvester.

Table 2

Item	CKAT	Motorized Cutter
Specification of a Length	2.1 m	1.2 – 2.4 m
Weight	6.0 kg	7.5-8.5 kg
Price	RM 1,500.00	RM 4,500.00

CKAT utilizes the same engine and head as CANTAS but it's attached with sickle for harvesting fresh fruit bunches. CKAT includes a pole, cutting head and 2-stroke petrol engine of 25.4 cc (1.3 hp). It was formed for harvesting palm from 1.2 m to 2.4 m. This mechanized cutter can give a quick, simple and safe pruning and harvesting for those difficult to achieve operation. The light weight model and easy controls can guarantee the maximum comfort to the harvester when utilize CKAT. Besides, the extendable shafts and optional tension give added reach to cutting adaptability of frond base and bunch stalk. Motorized cutter is being adapted with fast acceleration gear along balanced transmission for optimum cutter success.

Data collection

Data collection can be defined as the process of accumulating data for a specific objective from different types of sources which include observation, interview, questionnaire, existing records and electronic devices. This process is for initial to statistical analysis of the data. The study used direct personal investigation in order to accumulate data. The meaning of direct personal investigation is the collection investigator accumulate data personally which sources relevance. Therefore, the investigator has to be concerned, polite, and alert must be there at study area when inquiry is being conducted. The different parameters were assessed for these two types of harvesting technique and a comparison was measured to decide which harvesting technique that can give more benefit to harvester in order to fulfill harvesting task.

The collection of data for comparison between manual harvesting technique by using a chisel and mechanical harvesting technique by using CKAT was gathered through record the time taken of harvesting fresh fruit bunches and the number of fresh fruit bunches productivity. The time consumption to harvest palm tree and the number of fresh fruit bunches productivity was all recorded. The recorded time of these two harvesting techniques by using a chisel and CKAT were obtained to compare the time taken for the cutting operation. Time consumption was the time taken by the harvester to cut fronds and bunches from starting point to end point. The process of recording the time consumption data have done for one month for each of harvesting technique.

Besides, the collection of data also gathered through interviews the owner of motorized cutter about cost needed to complete each harvesting task. There are different types of cost which have to take consideration and record to fulfill the harvesting cost calculation. Cost of repair, fuel, lubricant and labor is an example of cost that need to record properly in order to determine which harvesting technique that can give more benefit to harvester in order to fulfill harvesting task.

Findings: Data analysis

The collection of data will be calculated by using the average data for simpler the way to get the results. All data recorded will transfer to Microsoft Excel Software for easy to analyze. Microsoft Excel used as the first place to record the data needed in achieve the objective of case study. Bar chart also produced from the Microsoft Excel software.

TABLE 3 Effective field capacity (EFC)

No	Sickle	Chisel	Motorized Cutter	CKAT
1	Coverage area	2 minute/palm		
	30 palm/hr x 5 hr working			
	=150 palms / 136			
	=1.1 ha	1.38 minute/palm		
	83 palm/hr x 5 hr working			
	= 415 palms / 136			
	=3.05 ha	1.5 minute/palm		
	40 palm/hr x 8 hr working			
	=320 palm / 136			
	=2.35 ha	1.22 minute/palm		
	73 palm/hr x 8 hr working			
	=588 palm / 136			
	=4.32 ha			
2	Time taken	5 hr	5 hr	8 hr
3	Effective field capacity (EFC)	1.1 ha / 5 hr		
	=0.22 ha per hour	3.05ha / 5 hr		
	=0.61 ha per hour	2.35 ha / 8 hr		
	= 0.29 ha per hour	4.32 ha / 8 hr		
	= 0.54 ha per hour			

Effective field capacity for both harvesting operations is shown in Table 3. The same formula was used to calculate the coverage area for both operations in the field. Times taken will be converted from second (S.I unit) into hour basis. Time taken for motorized cutter practices to complete the overall task is better than the manual practices. For manual harvesting the workers an work 5 hours per day because of exhausted of energy and motorized cutter can work up to 8 hours because the motorized cutter need less of energy during operation compare to manual harvesting. Effective field capacity for manual sickle harvesting can cover an area of 0.22 ha per hour and 0.29 ha per hour for motorized cutter operation.

As shown in table 3, the field capacity by manual harvesting technique higher than mechanized harvesting technique. Field capacity for manual chisel harvesting technique is 0.61 ha per hour and field capacity for mechanized harvesting technique is 0.54 ha per hour.

TABLE 4 Summary of cost involved

No	Cost component,	Sickle	Chisel	Mechanical Cutter	CKAT	
RM day ⁻¹	Cost (RM)	Cost (RM)	Cost (RM)	Cost (RM)	Cost (RM)	
1	Fixed cost	0.48	0.51	5.00	2.40	
2	Repair and maintenance		0.14	0.08	4.50	1.50
3	Fuel consumption-		-	2.96	4.2	
4	Lubricant cost		-	0.44	0.14	
5	Operators	42.07	100	52.08	100	
	Total cost, RM day ⁻¹		42.69	100.59	64.98	108.24
	Total cost per tonne, RM ton ⁻¹		10.14	22.35	8.78	24.05

FIGURE 4.3 Comparison on cost of both harvesting applications

Cost of both harvesting tools operations that shown in Figure 4.3 is different compared to each other. The motorized cutter is low compare to manual sickle with pole. The rate to cover one ton by using manual approach is RM10.14 and by using motorized is RM8.78 per ton.

The time taken and proportional for these two different harvesting tool is shown in this table 4.12. The proportional transferring the FFB and loose fruit to platform task for both tools has the highest time consuming compared to other tasks, with manual tools 40.3% and 50.2% for motorized. Travelling to others palm has the lowest proportional which recorded 3.6% and 4.5% for manual and motorized.

FIGURE 4.4

Time consumption graph

Time consumption of each task for both practices is shown on figure 4.4. The difference between this two practices can be seen on the pruning and harvesting the oil palm (task 1 and task 2). There is no different time consuming for others task.

Paired T-Test and CI: manual, motorized

Paired T for manual - motorized

	N	Mean	StDev	SE Mean
manual	6	46.3	35.4	14.5
motorized	6	37.2	38.8	15.9
Difference	6	9.17	14.29	5.83

95% CI for mean difference: (-5.83, 24.16)

T-Test of mean difference = 0 (vs not = 0): T-Value = 1.57 P-Value = 0.177

The study highlighted and calculated the results based on the objectives of the case study and calculated the data that has been collected. Data collection for comparison between manual harvesting technique and mechanized harvesting technique was taken for 6 months. Example of data collected is time consuming to harvest the fresh fruit bunches for one hectare per day and total harvesting cost needed to harvest the fresh fruit bunches for both harvesting techniques.

All the collected data for manual and mechanized harvesting technique will be calculated by using average data and transfer to Microsoft Excel Software in order to determine the proper result. Effective working hour per hectare, time taken to cut a bunch, average fresh fruit bunches per hour and cost per ton is the example of a result that need to be calculated and compare for both manual and mechanized harvesting techniques.

DISCUSSION

Effective Field Capacity

Until nowadays there is still no any tools or a specific equipment that efficient to use for harvesting FFB. From this study there is no practice can meet all the needs of oil palm plantation because of the different management, field condition and terrain that is available in the field area. Since this study comparing just two methods or tools for harvesting operation, careful consideration is required to ensure the plantation can achieve an optimum performance of harvesting tools. The estate normally chooses whether to implement manual sickle or motorized cutter in their estate. The estate will select the best practices that can give a better productivity with lowest cost to gain a maximum profit. Based on the results, it can be included that the motorized cutter are more productive than manual sickle. Effective field capacity(EFC) for manual is much lower than motorized cutter ($0.22 < 0.29$ hectare per hour).

According to the results, field capacity by utilizing manual harvesting technique is 0.61 ha hr⁻¹ and field capacity by utilizing mechanized harvesting technique is 0.54 ha hr⁻¹. This shows that field capacity by utilizing manual harvesting technique is increase by 11% compared to utilizing mechanized harvesting technique.

Comparison of cost per ton between manual harvesting technique and mechanized harvesting technique also was calculated. Cost per ton by utilization chisel is RM 22.35 and cost per ton utilization CKAT is RM 24.05. The result shows that cost per ton for manual harvesting technique is lower compared to mechanized harvesting technique.

The result shows that manual harvesting technique by utilizing the chisel is practical and effective to harvest palms below 3 m height compare to the mechanized harvesting by utilizing CKAT. The harvester feels more comfortable when using the chisel and have been able to work fast as compared to them using CKAT. According to that, it will be time-consuming for them to familiarize themselves with the new tools. Besides that, the motorized cutter has a drawback such as the vibration transferred to operate is not agronomic ally suggestible for a longer period of contact. The vibration transferred by CKAT will cause the side effect of health to the harvester when utilizes it for a long period compare to utilization of the chisel.

Times consumption on harvesting operation task.

Based on the result the time consumption for manual sickle is much bigger than motorized cutter. The biggest differences in the time consumption can be seen on the pruning and harvesting task. The entire paired sample task in both practices shows that each task does not correlate with each other. Pruning the fronds is the most consuming time. For the overall harvesting operation, it required average 50 seconds for manual and 20 seconds for motorized.

The difference between both practices was influenced by field condition, palm canopy, operator skill and topography or harvesting path. For the canopy factor if the palm canopy is heavy the time consuming for pruning will be bigger that casual. The harvesting path will affect the time consumption this is because the harvester will hard to move.

Productivity

Effective field capacity (EFC) brings in the factor of efficiency of the sample test. EFC is a way to determine the number of hectare actually covered or handled over a long period of time. The efficiency of both practices will be differentiated based on worker's productivity and hectare covered. By that, the EFC for manual covered 0.22 hectare per hour and for motorized cutter can cover 0.29 hectare per hour. Hence this study indicates that the worker's productivity for manual is lower than motorized cutter in term of field capacity. In addition, it can save time and workforce, a motorized cutter practice seen can increase the worker's productivity. Furthermore, both practices can be seen have different productivity. The manual can get 4.21 tonnes per day compared to motorized can get until 7.4 tonnes per day.

Coverage area

The coverage area depends on the number of FFB from palm and canopy palm. The number of FFB per palm is different each palm to others palm. This different will affect the coverage area for harvesting operation. The higher the number of FFB per palm can minimize the coverage area and vice versa.

Cost

The cost for both practices are differentiated by the additional motorized to moving the motorized sickle. It's different to the manual practice just have a sickle and pole to operate. The used of this engine will give additional operating cost such as fuel and lubricant, repair and maintenance. Besides that the producer or estate will also bear to other additional fixed cost.

The engine maintenance cost is considered high because compare to the manual sickle it just required little maintenance to sharpening the sickle and adjustable pole. The regular maintenance required for the motorized cutter to ensure the cutter will perform with full ability for harvesting. The total cost which is include operating and fixed cost for motorized significantly higher than manual sickle. RM64.98 per day for motorized and RM42.69 for manual sickle. But the most important is the cost per ton for manual sickle is RM10.14 per ton and RM 8.78 per day for motorized. We can conclude that the best cost for harvesting operation is motorized because its much lower than manual sickle. Although the cost for manual is much higher, the company is still wants the manual labor to do the harvesting operation in some area. In addition the company is still implement the manual sickle because of other restraints such as topography, harvester skill and other factors that the company still can't manage properly.

Contribution: *From this paper, it is an effort to investigate the most efficient harvesting tools that must be applied by all oil palm producers. It is similarly to identify which harvesting tools is the most efficient that reflected to the labor productivity and cost management for harvesting operation. The motorized cutter, mechanized CKAT, manual chisel and manual sickle were tested based on capacity and cost involve. Effective field capacity for CKAT, manual sickle, motorized cutter and manual chisel is 1.84, 1.64, 0.29 and 0.22 ha per hour respectively. In addition as for the cost involved in all harvesting tools starts with CKAT, sickle, motorized cutter and last with chisel are RM 24.05, RM 22.35, RM 8.78 and RM 10.14 per ton.*

Therefore, by using CKAT and motorized cutter the estate would reduce 50% of its labor requirement in the harvesting operation.

Keywords: mechanization in plantation, harvesting oil palm, motorized cutter, manual sickle, manual chisel, CKAT and operating cost.

Abstract ID: AIMC-2017-LS-691

THE EFFECT OF BIOCHAR APPLICATION ON NUTRIENT AVAILABILITY OF SOIL PLANTED WITH MR219

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Abstract

Introduction: *This study compared the use of different types of biochars which are the rice husk (RH) and empty fruit bunch (EFB) applied in soil planted with MR 219.*

*This study aims to determine the effect of biochars on the soil pH, nutrient content in soil and the growth performance in terms of height of paddy and number of tiller in a field experiment. **Methodology:** There are three treatments applied to the MR219 paddy – EFB biochar, rice husk biochar and conventional NPK fertiliser as control. Treatment was applied on 3rd, 5th and 7th week. Data on paddy growth were collected on weekly basis and nutrient content in soil was tested the week following application of treatment. The nutrient content of biochar was tested using dry ashing method while nutrient content was tested using acid digestion method. Samples from both tests was analysed using the Perkin Elmer's Inductively Coupled Plasma – Optical Emission*

Spectrometer (ICP-OES). All data and ICP's result are further analysed using Minitab software. **Findings:** From the result we can estimate that biochars from EFB is better than RH in term of its nutrient content. But from the ANOVA test, it shown that there is no significant difference between both treatment in term of its nutrient content and plant growth (plant height and tiller). So we can choose to apply either NPK fertilizer, EFB or RH biochars to the field since it end up with the same results. For future study, rate of biochars and NPK fertilizer application need to be increased and varied so that a more significant result can be achieved from the treatments. To the farmers that are concerned towards the environment, the use EFB or RH biochars are recommended. In term of cost, both EFB and RH biochars come as a cheaper alternatives to the conventional practices of using the chemical fertilizer. Plus the use of biochars can also reduce toxicity to the soil (Dong, 2014). **Contribution:** Biochars as a new soil amendment has a potential in controlling the fate of trace elements in the soil system. However, the production of biochar from different types of biomass resulted in variable biochars properties which have an influence on trace elements availability in soil. Both biochars type was tested at equal rates respectively. The results detailing the nutrient content and growth performance of paddy showed that the application of both RH and EFB improve biomass production. The results show that the addition of EFB biochar to soil has a positive effect in growth performance and nutrient content. However, after running the statistical analysis on data, it shows that there is no significant difference between the treatments either in soil pH, nutrient content, plant height and the number of tiller on paddy ($P > 0.05$).

Keywords: biochar, MR219, rice husk, empty fruit bunch and growth performance

Abstract ID: AIMC-2017-LS-692

AN EVALUATION OF THE WHITEFLY PARASITOID (ENCARSIAHITAM) ACTIVITIES ON THE TREATED BRINJAL PLANT (SOLANUMMELONGENA L.) WITH SELECTED CHEMICALS

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Abstract

Introduction: A field study was conducted to evaluate the effect of insecticides on newly found whitefly parasitoid, *Encarsiahitam* (Hymenoptera: Aphelinidae) on brinjal (*Solanum melongena*) when the plant was sprayed with three different insecticides; abamectin, malathion and diafenthiuron to control the whitefly, *B. tabaci*. The number of unparasitized whitefly at all stages (egg, first instar nymphs, second instar nymphs, third instar nymphs, pupae and adult) and number of parasitized whitefly pupae on the underside of leaf were identified and sorted under a dissecting microscope and their numbers recorded. **Methodology:** Study area This experiment was carried out at Relau Agriculture Station in Penang Island, Malaysia. The area received 54.2 to 402.6 millimeter rainfall per month. Ambient temperature was 27.6 ± 0.16 °C and relative humidity was 81.3 ± 0.93 % during the period of study.

b) Duration of the study

This study took eight months to complete two cropping periods of brinjal. Each crop took about four months from the preparation of the experimental plot until completion of data collection at fruiting stage. The first crop of planting began on March 2011 until June 2011 and the second crop of planting started in September 2011 until December 2011.

Findings: Compositions of parasitized whitefly on brinjal leaves in insecticide treated and control plants in the second cropping period are shown in Figure 3 and Table 3. Symptom of parasitization of *En. hitam* on whitefly was first detected at 4 WAT in diafenthiuron treated plants (1.01 % per leaf) at flowering period (4 WAT), earlier than in untreated plants. Parasitization on diafenthiuron treated plants was a little higher (1.14% per leaf) compared to the untreated with 0.52% per leaf at 5 WAT. Meanwhile, during this week, abamectin and malathion showed no symptom of parasitization on whitefly. It was only observed on malathion treated plants during late flowering stage (6 WAT). Parasitization of whitefly on untreated plants also increased abruptly at 6 WAT, peaked at 8 WAT (> 10 per leaf), then decreased at 9 WAT and 10 WAT. The highest parasitization was observed at harvesting stage (8 WAT), with 10.00% per leaf in untreated plants. It also showed high parasitizations for both 9 WAT and 10 WAT with 6.45% and 6.9% per leaf respectively. Among insecticides treated plants, parasitization of *En. hitam* on whitefly was highest in diafenthiuron treated plants. During this cropping period, higher toxicity was observed on abamectin than diafenthiuron, while malathion was the most toxic. **Contribution:** Percentages of parasitism by *Encarsiahitam* (Hymenoptera: Aphelinidae) was high on *Bemisia tabaci* (Hemiptera: Aleyrodidae) nymphs, in untreated control plants in the first and second cropping periods (3.17% - 12.82%) and (0.52% - 10.00%) respectively compared with insecticide treated plants (0.62% - 12.50%) and (1.01% - 8.00%) respectively. All insecticides affected the parasitization of whitefly although no

significance difference ($p > 0.05$) was observed among treatments. Among the insecticides, diafenthiuron maintained slightly higher parasitism activity of *Encarsiahitam* in the field during both first and second cropping periods with 12.50% and 8.00% respectively.

Keywords: *Encarsiahitam*, Bemisiatabaci, brinjal, insecticides

Abstract ID: AIMC-2017-LS-695

EMERGING SUSTAINABLE TECHNOLOGIES FOR TRANSFORMATION OF GELATIN AND GELATIN-BASED FILMS

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Abstract

Introduction: *The consumers are interested in authentication of food ingredient (most especially gelatin) due to some health risks and the adoption of Halal and Kosher eating cultures. Maillard reaction is a non-enzymatic browning leading to formation of numerous compounds when protein (including gelatin) is heated in presence of sugar. Maillard reaction products (MRP) have fluorescence and browning capability that can be used to measure reaction progress [1]. The degree of browning during Maillard reaction has been shown to depend on the type of sugar, temperature, pH, reaction time, concentration of reactants, presence of inorganic compounds and most especially amino acids profiles in the protein [1-3]. This research investigated the development of browning and the effect of enzymatic hydrolysis and Cu^{2+} on the development of browning during Maillard reaction of gelatin from fish, porcine and bovine. **Methodology:** Production of gelatin hydrolyzates*

Gelatin hydrolyzates were produced using chymotrypsin to digest gelatin from fish, porcine and bovine. The digestion was carried out for 4 h at 25°C and enzyme-gelatin ratio of 1:250 (w:w). The reaction was stop by heating the mixture at 100°C for 10 min. The solutions were centrifuged at 3000 rpm for 15 min and the supernatants were discounted off and referred to as gelatin hydrolyzates solution.

Non-enzymatic browning of gelatin and gelatin hydrolysate

Equal volume of 0.25 % xylose solutions and 1.0 % of gelatin/hydrolyzates were thoroughly mixed to make a final solution containing 0.125 and 0.5 % of xylose and gelatin/hydrolyzates, respectively. In another set of experiment, about 2mM of CuCl_2 was added to the mixture. The non-enzymatic browning was carried out by heating the mixture at 95°C for 6, 12 and 24 h. The mixture was allowed to cool at room temperature before the determination of browning index.

Determination of browning index

The browning index (Bindex) of cooled mixture of gelatin/hydrolyzate containing xylose with or without Cu^{2+} was measured at 420 nm using micro-plate spectrophotometer. The change in browning index (Δ Bindex) was used to determine the effect of enzyme hydrolysis and presence of Cu^{2+} .

Findings: *The rate of browning index during Maillard reaction of gelatin samples was in two phases – the rapid and slow – in all the gelatin samples. The changes browning index ($\Delta\Delta$ Bindex) was increased (>100%) in presence of Cu^{2+} for all the gelatin samples. Enzymatic degradation of gelatin prior to Maillard reaction caused difference in the production of browning products among the species. Fish gelatin hydrolyzate displayed > 400% increase in browning in the first six hours compared to gelatin hydrolyzates from porcine (200%) and bovine (140%). The variation in $\Delta\Delta$ Bindex of chymotrypsin digested gelatin in presence of Cu^{2+} could be valuable for development of efficient UV-spectroscopic method for gelatin differentiation. **Contribution:** Maillard reaction of gelatin from different sources exhibited similar reaction phases – the slow and the fast. Enzymatic degradation of gelatin prior to maillard reaction caused difference in the production of browning products among the species. Fish gelatin hydrolyzate displayed multi-fold increase in browning in the first six hours compared to gelatin hydrolyzates from porcine and bovine. Although, the catalytic effect of Cu^{2+} during Maillard reaction was relatively similar in all the gelatin samples, Cu^{2+} affect gelatin hydrolyzates differently. The variation in $\Delta\Delta$ Bindex of chymotrypsin digested gelatin in presence of Cu^{2+} could be valuable for development of efficient UV-spectroscopy method for gelatin differentiation. Future works will investigate the effects of other reaction conditions on $\Delta\Delta$ Bindex of enzymatic hydrolyzates from gelatin.*

Keywords: enzyme, hydrolysis, Maillard, gelatin, Halal authentication, catalysis

Abstract ID: AIMC-2017-LS-701

THE ASSOCIATION OF MATERNAL DIET AND POLYAMINES IN HUMAN MILK: A STUDY AMONG NURSING MOTHERS IN PAHANG, MALAYSIA

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Abstract

Introduction: An exclusive breastfeeding practice rate in Malaysia was at 14.5%, according to National Health and Morbidity Survey III in 2006. This disappointing low rate of exclusive breastfeeding was due to many breastfeeding challenges. Mother with these challenges will potentially to give up from breastfeeding because they have less knowledge and awareness regarding the benefits of breast milk. Breast milk contains a lot of nutrient and it offers many advantages to infant age less than six months. Nutritional component in breast milk like polyamines will accelerate the process of infants' gut maturation and protect the babies from the harsh environment. Polyamines such as spermidine, spermine and putrescine involve in the various process of cell growth and cell differentiation. Maternal diet is one of the factors which can affect the polyamines variability among nursing mothers. It was hypothesized that different maternal diet gives various effects to the composition of polyamines in breast milk. Thus, the aim of this study was to identify if there is any association between maternal diet and composition of polyamines in breast milk. **Methodology:** Thirty nursing mothers were selected from nurseries and health care clinics in Kuantan, Pahang and each mother was requested to record their 24-hours food consumption in a food diary for three selected days within a week. Maternal diets were recorded in Nutritionist Pro software and their macronutrients were calculated automatically. Besides, three human milk samples were also collected 24 h after each time of food diary was recorded. Polyamines such as putrescine, spermidine and spermine in the human milk were extracted using 0.4 M perchloric acid, dansylated and quantified using High Performance Liquid Chromatography (HPLC). Finally, both maternal diet and each type of polyamine composition were analyzed statistically with SPSS. **Findings:** The mean age of the respondent was 30.13 years ($SD= 3.145$). From the study, nursing mothers consumed a high carbohydrate (41.4%) diet intake compared to fat (23.1%) and protein (13.7%). There was no correlation between maternal education levels with maternal diet intake and breastfeeding practice in this study ($p=0.657$). Therefore, there is no association between maternal educational background and the type of maternal intake. Besides that, it was found that spermidine (49.1%) was the highest polyamines in the breast milk samples. This was followed by putrescine (36.97%) and spermine (11.23%). Other than that, a significant correlation were shown between putrescine and dietary carbohydrate ($p=0.027$), spermidine and protein ($p=0.020$) and putrescine and dietary protein ($p=0.031$). Thus, based on this study, it is suggested that polyamines composition in human milk may be modulated by carbohydrate and protein intake among maternal mothers. **Contribution:** Many studies has been conducted to evaluate the maternal diet on human milk content such as fatty acids in Malaysia. To the best of our knowledge, this preliminary investigation was the first time conducted in Malaysia to identify if maternal diet can be modulated in order to optimize the polyamines composition in human milk. Since polyamine is crucial for infant's growth and accelerating of gut maturation in infant, it is important to know that the quality of human milk is actually can be controlled by maternal diet.

Keywords: polyamines, maternal diet, Malaysia, human milk

Abstract ID: AIMC-2017-LS-702

IMPLICATION OF IP TOOLS TO FOSTER HEALTH ACCESS TO WORLD'S NEGLECTED POPULATION

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Abstract

Introduction: Epidemics outbreaks develop in acute emergency situations, where a large number of people, weakened by financial circumstances, live in close proximity to each other and in poor sanitary conditions. Prevalence of cholera, avian influenza, measles and meningitis can spread rapidly especially where living conditions are not up to the mark. Malaria is endemic in more than 100 developing countries. Millions are living with HIV/AIDS and tuberculosis. Hundreds of thousands of people are infected with lesser-known diseases such as kala azar, sleeping sickness and chagas disease. And while viral hemorrhagic diseases such as Ebola are rarer, with potentially fatal consequences.

There are some critical issues and problems that continue to plague the health care delivery system of the poor countries that, despite the best efforts the world is unable to reduce this avoidable disease burden. Some of these include: i) unavailability of new drugs, diagnostics, vaccines and other biologicals for the so called diseases of the poor; ii) little R&D to develop new products; iii) inadequate funding from both the governments of developed and developing countries and negligible support from the pharma industry; iv) inability of many countries to even make use of some new innovations and technologies made available; and v) inadequate infrastructure for testing, evaluation, clinical trials of new products and poor infrastructure for taking these 'products' to poor people.

Therefore, in a present project IP-related information in the area of health with special reference to diseases of the poor has been initiated to collect, compile and disseminate information by scanning international patent databases to identify inventions in biomedical sciences.

Methodology: Utilized free patent databases such as *espace.net*, *ipindia.nic.in*, WIPO, USPTO, Google patents for scrutinization of IP data with specific key words for the generation of relevant information in majority of epidemic diseases such as Avian Influenza, HIV, Tuberculosis, Malaria, Leishmaniasis etc and finally interpreted the data with suitable graph to give clear, consolidated results of information with respect to patenting and respective innovation in each of the individual epidemic diseases of poor. **Findings:** Results indicates the patent databaes on different categories like assignee country, major players etc. **Contribution:** Research is based on data collected exclusively from European patent system

Keywords: Patent landscaping of epidemic diseases

Abstract ID: AIMC-2017-LS-706

EFFECT OF FERMENTATION ON NUTRIENT AND ANTINUTRIENT CONTENTS OF FERMENTED WHOLE AND GROUND AFRICAN BREADFRUIT (*TRECVLIA AFRICANA*) SEEDS

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Abstract

Introduction: The rapid increase in population in developing countries and the subsequent shortage of animal proteins call for urgent search for potential local crops which can serve as economically as possible substitutes. Under utilization of some plants containing nutrients has contributed significantly to low income and dietary intake by the poor in the rural areas. Hence, the need to exploit some of these legumes in which African breadfruit seeds s one of them. **Methodology:** Each sample was poured into a sterile plastic bucket in triplicates. Five hundred millilitres of sterile distilled water was added to the ground seed samples while 1000 ml was added to the whole seed samples. The samples were allowed to ferment for 72 hours at ambient temperatures. Microbiological analysis was carried out on the samples on daily bases. The pH, TTA and the temperature of the samples were also monitored on daily basis. Proximate composition, antinutrient contents and the mineral contents of the fermented and the fermented samples were also determined. Organoleptic properties of the fermenting samples were determined with respect to colour, texture, slimness, flavor (aroma), appearance and overall acceptability with fermentation using panellist, **Findings:** The isolates were *Bacillus subtilis*, *B. pumulis*, *Staphylococcus aureus*, *Lactobacillus plantarum*, *L. bulgaricus*, *Leuconostoc* species, *Staphylococcus aureus*, *Aspergillus niger*, *Aspergillus flavus* and *Saccharomyces cerevisiae*. *Bacillus subtilis* and *L. plantarum* occurred throughout the fermentation process. . The pH of the ground samples decreased from 6.53 to 5.25 while the whole samples decreased from 6.42 to 5.73. The TTA of ground and whole fermenting African breadfruit samples increased from 2.34% to 3.60% and from 2.43% to 3.12% respectively. The temperatures of both samples increased as the fermentation progressed up to the end of the fermentation period. The temperature of the ground sample increased from 27.6oC to 30.8oC while the whole sample increased from 27.8oC to 31.2oC . The crude protein content of the ground and the whole fermented samples increased from 18.40% to 25.71% and 24.39% while crude fat contents reduced from 5.45% to 2.61 and 3.47% respectively. The crude ash contents had higher content in fermented ground sample (3.13%) than fermented whole sample (2.13%) while fibre contents significantly reduced from 2.66% to 1.47% and 1.87% and carbohydrate contents from 61.53% to 54.87% and 55.63% respectively. All the antinutrient contents significantly reduced in both fermented samples with more reductions in fermented ground sample **Contribution:** Apart from the potential of the fermented seeds as food and feed supplements, the research work also compared the ground and the whole seeds with respect to improvement to their nutrient and antinutrient contents after fermentation

Keywords: Breadfruit, fermentation, nutrient, antinutrient, supplement

Abstract ID: AIMC-2017-LS-707

TIME ONSET OF OXIDATIVE STRESS IN WISTAR RAT'S BRAINSTEM TREATED WITH ROTENONE

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Abstract

Introduction: *The oxidative stress concept is as the cause of neurodegenerative disease, including Parkinson's disease. The research aim was to determine the time onset of oxidative stress in rat's brainstem treated rotenone with sub-acute and sub-chronic exposure* **Methodology:** *This research was an experimental study, the independent variables: (i) Group: blank, solvent-rotenone and rotenone; (ii) treatment: 9, 19, 28 days; (iii) Observation times: day 10, 20, 30, 40, 50 and 60; (iv). The location in the brainstem: upper and lower brainstem and measurable variables: ROS, SOD and ISO* **Findings:** *The results were: (i) The average SOD concentration in the upper brainstem were 11.23±2.05; 13.93±4.06 and 11.83±3.92 ng/mg wet brain weight, whereas in lower the brainstem were 18.27±7.63; 12.94±2.88 and 13.74±4.51 ng/mg wet brain weight respectively; (ii) The average ISO in the upper brainstem were 0.95±0.28; 0.71±0.28 and 0.81±0.38, whereas in the lower brainstem were 0.78±0.33; 0.62±0.23 and 0.41±0.18 respectively; (iii) The average ROS density in the upper brainstem were 60.23±17.12; 56.48±9.71 and 52.25±13.80 mm²/mg wet brain weight, whereas in the lower brainstem were 50.73±7.9; 47.06±10.30 and 35.61±6.19 mm²/mg wet brain weight respectively. **Contribution:** *In Rotenone group SOD concentration increases, while the ROS density decrease and oxidative stress occurred from day 10. Rotenone induction caused imbalance redox system in the neuron. Sub-acute and sub-chronic exposure caused oxidative stress tend to increase. The oxidative stress in a long time could potentially α -synuclein protein oxidized.**

Keywords: Anti-oxidant, Free radicals, ISO, Oxidative stress, ROS, SOD,

Abstract ID: AIMC-2017-LS-710

CADAVERIC LIPIDS OF A CLANDESTINE GRAVE: A BURIAL STUDY UNDER TROPICAL CLIMATE

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Abstract

Introduction: *Clandestine grave is extremely difficult, costly, time consuming and labour intensive to be found and locate. Prior to changes in soil organic compositions (particularly lipids) that released at each stage of decomposition, it is potentially be developed as a useful forensic tool to locate the origin of a clandestine grave, subsequently, the postmortem interval (PMI) and age of the grave itself. This research focused on three aspects which convey to significant outcomes; rate of decomposition, total lipid extraction (TLE) and pH. **Methodology:** Domestic pig (*Sus scrofa*) flesh was buried in laboratory-based simulated burial experiment in mangrove soil for duration of 60 days. At several sampling point correspondence to each stage of decomposition processes, the flesh tissue was taken out and subjected to soil post-experimental pH and lipid extraction.*

The rate of decomposition was obtained by finding the difference of final and initial mass of flesh, whereas then being divided each decomposition event. By using the method established by Rayment and Hagginson (1992), a ratio of 1:5 (soil: water) was prepared and pH of the detritosphere soil of each sampling point was measured. Whilst the extraction of lipid compounds was performed using Modified Bligh-Dyer Extraction procedure. The soil was treated with DCM/Methanol solvent system, Bligh Dyer solvent, buffered water and chloroform. Techniques involved in Modified Bligh-Dyer Extraction procedure were sonicated and centrifuged.

Findings: *The highest decomposition rate was on day 5 with 1.7568g/day, followed by a fluctuated pattern of graph and decreased constantly, began day 49 toward the day 60. pH was slightly neutral at the beginning of study period, gave highest reading on day 28 and showed fluctuated reading. Begun from day 49 onwards, pH of soil been more acidic. Next, the highest reading of difference in TLE was on day 35 with 0.6615g and also shown minor fluctuation pattern of reading throughout the study period. **Contribution:** *Perhaps, these findings will assist researchers, scientist and police party to solve the crime mystery which involved missing people and murder, specifically in term of clandestine burial in shallow grave.**

Keywords: Postmortem interval, forensic studies, fatty flesh, cadaver, mangrove soil, total lipid extraction, rate of decomposition, pH

Abstract ID: AIMC-2017-LS-711

POLYAMINES DEFICIENT DIET IS A COMPLEMENTARY STRATEGY IN FIGHTING CANCER: AN INVESTIGATION ON SELECTED MEDICINAL FRUITS

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Abstract

Introduction: Polyamines are one of the oldest substances known in biochemistry consist of putrescine, spermidine and spermine. They are essential components of all living cells primarily involve in cell growth and proliferation. Mammalian cells are able to synthesize polyamines but are predominantly acquire them from exogenous sources such as intestinal flora and diets. However, the dietary sources provide a larger quantity of polyamines than the endogenous biosynthesis. Polyamines are tightly regulated by systematic biosynthesis and catabolism. Dysregulation of this system is highly associated with various diseases, including cancer. Therefore, polyamines deficient has become one of the strategies to inhibit carcinogenesis by targeting each biosynthetic and catabolic step in polyamines metabolism. Polyamine deficient diet (PDD) is a part of nutritional cancer therapy that recommends foods with low polyamines intake by cancer survivor and patients. In some cases, the plants might show anticancer effect but since the polyamines is high, it should not recommend for patients to avoid recurrence of cancer. Thus, this study was aimed to determine the polyamines content in selected anticancer fruits and plants in Malaysia and the effect on polyamine biosynthetic and catabolic enzymes was explored using human lung carcinoma cells (A549) as in vitro model. **Methodology:** In this study, the selected fruits and plants are *Phoenix dactylifera* (ajwa dates), *Beta vulgaris* (beetroot), *Ziziphus jujube* (jujube), *Vitis vinifera* (raisin) and *Punica granatum* (pomegranate). The selected fruits and plants were initially grouped into classes based on total polyamines content using High performance Liquid Chromatography (HPLC). The ability of selected fruits to reduce A549 intracellular polyamines was quantified using the same technique. Accordingly, changes in polyamine metabolic enzymes activities; ornithine decarboxylase (ODC) and spermidine/spermine N-acetyltransferase (SSAT) were measured correspondingly using quantitative polymerase chain reactions (qPCR). **Findings:** Results suggested polyamines content of selected fruits were ranging from low to high polyamines. Beetroot, ajwa dates, pomegranate and raisin are classified as low polyamines fruits while jujube demonstrate high content of polyamines (219.6 ± 4.43) nmol/mg. Significant decreased of total intracellular polyamine content after 24 h of treatments with selected fruits were identified when compared with untreated A549 cells ($p < 0.001$). Ornithine decarboxylase activity showed changes upon treatment with *P. dactylifera* (ajwa dates), *Z. jujube* (jujube) and *V. vinifera* (raisin) while SSAT activity displayed alterations in *B. vulgaris* (beetroot) and *Z. jujube* (jujube) treated cells. Thus, we concluded that *B. vulgaris* (beetroot), *P. dactylifera* (ajwa dates) and *V. vinifera* (raisins) are the promising candidates for food-based chemoprevention strategy for their low polyamines and ability to reduce A549 intracellular polyamines **Contribution:** The studies above strengthened the potential of polyamine reduced diet in cancer prevention. The polyamine deficient diet strategy is being documented as complementary step in chemoprevention in other countries. In United Kingdom, USA, Japan and Sweden, the database and investigation on local food and herbs has been established and being practiced. It is hope that this finding is beneficial for cancer patient, cancer survivor and even high risk of population who have higher chances to get cancer via genetic alteration and environmental exposure. We have investigated several local plants in Malaysia in our laboratory, however for this report, we focus on selected medicinal fruits as recommended by Rasulullah SAW.

Keywords: polyamines, chemoprevention, polyamine deficient diet, cancer

Abstract ID: AIMC-2017-LS-736

DISTRIBUTION AND ECOLOGY OF RAFFLESIA IN ROYAL BELUM STATE PARK, PERAK, MALAYSIA

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Abstract

Introduction: *Rafflesia*, the biggest flowers in the world are considered as majestic and are made as ecotourism icons for several places in the South East Asia. Currently, a total of 34 species of *Rafflesia* were recorded in this region. 7 species of *Rafflesia* are found in Peninsular Malaysia alone. This study was executed in Royal Belum State Park in the state of Perak. An updated on distribution of *Rafflesia* and its ecology are provided.

Methodology: The *Rafflesia* population was mapped using Global Positioning System (GPS). While the size of *Rafflesia* host-plant was measured with the measuring tape and the amount of rainfall was obtained from the meteorological department of Malaysia. **Findings:** During this study, there were 2 species of *Rafflesia* encountered in Royal Belum State Park, namely *Rafflesia cantleyi* and *Rafflesia kerri*. The species were recorded at X-Ray trail, Sg. Gadong, and Sg. Kooi. A total of 8 populations were set up from these locations. It was found that the population and the distribution decreased in accordance with the habitat interruption by human intervention and natural factors such as wildlife trampling on the immature buds. Besides, it was found that the number of *Rafflesia* buds increases with the class size for host-plant of *Rafflesia* with coefficients of determination of $R^2=0.9866$. **Contribution:** However, various physiological and environmental factors were taken into consideration in efforts of conserving this unique flower. This study is important in order to preserve the population of *Rafflesia* at Royal Belum State Park.

Keywords: *Rafflesia* distribution, ecology, Peninsular Malaysia

Abstract ID: AIMC-2017-LS-741

BIOSYNTHESIS OF SILVER NANOPARTICLES USING WHITE LANTANA CAMARA AND ITS ACTIVITY AS ANTIOXIDANT

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Abstract

Introduction: Many recent studies have indicated the potential of silver nanoparticles (Ag NPs) for some medical applications such as cancer detection, cancer treatments. Nanoscale materials such as metal nanoparticles are currently being employed for more excellent activity of metals. Due to its development, the method to obtain metal nanoparticles is widely studied, one of these is within the green synthesis scheme, i.e. the use of plant extract as bioreductor. In this paper, the use of shrub; white *Lantana camara* flower as bioreductor in silver NPs synthesis was conducted. **Methodology:** Bioreductor of white *Lantana camara* extract was prepared by maceration of dried *Lantana camara* flowers. The extract was mixed with 1mN of Ag solution followed by reflux. The nanoparticle formation was measured by using UV-Vis spectrophotometry and scanning electron microscope. The nanoparticle solution was tested for antioxidant activity by DPPH method and its measurement by using UV-Vis spectrophotometer. **Findings:** The result indicates that the extract of white *Lantana camara* is potential to be used as bioreductor in silver nanoparticle synthesis. The nanoparticles are found to have particle size in between 20-100nm. Nanoparticles are active as antibacterial agent as well as antioxidant. The antioxidant activity of derived nanoparticles is 97.505% which is in the strong antioxidant scale. **Contribution:** The research gives new perspective of the use of *Lantana camara* extract as safe reagent in nanoparticle synthesis.

Keywords: nanoparticle, *Lantana camara*, antibacterial, antioxidant

Abstract ID: AIMC-2017-LS-743

THE USE OF PURPLE LANTANA CAMARA AS BIOREDUCTOR IN SYNTHESIS OF SILVER NANOPARTICLE AND ITS ANTIBACTERIAL AND ANTIOXIDANT ACTIVITIES

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Abstract

Introduction: Nanotechnology is an interesting topic recently due to some unique properties of nanomaterials for excellent applications. Physical and chemical methods are being used extensively for production of metal and metal oxide nanoparticles. However, this production requires the use of very reactive and toxic reducing agents such as NaBH_4 or other reductor. In this paper the use of purple *Lantana camara* was reported to be active as bioreductor in silver nanoparticle. **Methodology:** Bioreductor of purple *Lantana camara* extract was prepared by maceration of dried *Lantana camara* flowers. The extract was mixed with 1mN of Ag solution followed by reflux. The nanoparticle formation was measured by using UV-Vis spectrophotometry and scanning electron microscope. The nanoparticle solution was tested for antibacterial activity for *E.coli* bacteria and antioxidant activity by DPPH method. **Findings:** The result indicates that the extract of purple *Lantana camara* is potential to be used as bioreductor in silver nanoparticle synthesis. The nanoparticles are found to have particle size in

between 20-100nm. Nanoparticles are active as antibacterial agent as well as antioxidant. The antioxidant activity of derived nanoparticles is 98.18% . **Contribution:** The research gives new perspective of the use of *Lantana camara* extract as safe reagent in nanoparticle synthesis.

Keywords: nanoparticle, *Lantana camara*, antibacterial, antioxidant, nanosilver

Abstract ID: AIMC-2017-LS-748

OPTIMIZATION OF ULTRASOUND ASSISTED EXTRACTION CONDITIONS FOR HIGH EXTRACT YIELD USING RESPONSE SURFACE METHODOLOGY IN THE ROOT OF CASSIA SIEBERIANA (FABACEAE)

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Abstract

Introduction: The harmful and irreversible side effect exerted by synthetic drugs have forced people back into the use of extracts from plant origin as medicine. Many medicines of plant origin are greatly appreciated for their high efficiency and low toxicity, hence they are widely used commercial products. In view of these facts, there is a high and increasing need for efficient extraction procedure of medicinal plant materials for assessment of their bioactivity and chemical constituents in order to ascertain their therapeutic effect in good time and at low cost. **Methodology:** Air-dried root of *Cassia sieberiana* was extracted in methanol using ultrasound assisted extraction (UAE) method. The Box Behnken design (BBD) was utilized to optimize the extraction conditions; time, temperature and solvent to sample ratio. UAE, soxhlet and maceration extraction techniques were compared under the optimized conditions obtained from the model. **Findings:** The model was well described by a quadratic polynomial model ($R^2 = 0.9920$). The optimum conditions were validated using analysis of variance (ANOVA) and compared between UAE, soxhlet and maceration extraction. The UAE method gave a higher yield at low cost and less time.

Contribution: The study has shown that UAE is an effective and cheap extraction technique for high throughput screening of root of *C. sieberiana*.

Keywords: *Cassia sieberiana*, ultrasound assisted extraction, soxhlet, Box Behnken design,

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REPORT ON FIVE SPECIES OF HARPACTICOID COPEPODS FROM VEGETATIVE AREA OF SUNGAI PULAI JOHOR

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Abstract

Introduction: Some taxonomic notes on the species of harpacticoid copepods from Malaysia coast has been reported by Zaleha (2008). Zaleha et al (2010) later reported the species of harpacticoids associated with seaweeds in tide pool. A total of six Porcellidiidae species were recently reported from the seagrass bed of Sungai Pulai (Zaleha, 2013). It is hypothesized that this area would support both the phytal harpacticoids at the same time those epibenthic type which could be found in the sediment. Thus investigation was made to identify some common benthic harpacticoids from the area. The information would contribute to the knowledge on the diet and feeding of fish and other marine commercial species inhabiting and feeding in Sungai Pulai coastal habitat. **Methodology:** Field samplings at Sungai Pulai Johor were carried out as described in Zaleha et al. (2009). Hand core was used to collect bottom sediment at the sampling stations in Pulau Merambong, Kg. Pendas and Sungai Duku in the coastal area of Sungai Pulai. Cores were preserved in formalin 5% and brought to the laboratory for further process.

In the laboratory, individual core was mixed with water and stirred carefully before decanted to extract all meiofauna trapped in the sediment. Decanted water was sieved through a series of 500 and 62microns sieve. Those retained on the 62microns sieve were considered as meiofauna and further isolated and sorted for harpacticoid copepods. Harpacticoids were processed for identification purpose as described in Zaleha (2008). All observation were made after microscopic dissection of each copepod sample using a compound microscope attached with Lucida tube.

Findings: Species: *Ameira* sp.

Materials: sample obtained from Sg. Duku, Johor.

Description

Body shape of the harpacticoid sample is slender with intermediate cephalotorax. The antennae or A1 with 8 segmented.

Leg 1 with Exopod 3 segmented. The Exp. Segment 2 is much shorter than the entire endopod segment 1. The endopod has a claw like structure for grasping or seizing. The endopod 1 is much longer than the ex.1 and ex. 2 combined. the end of endopod P1 is much wider than longer Exopod without inner bristle and has 3 spines at the end.

Legs 2 to 4 have the following setal formula:

Leg	Exopod	Endopod
P2	0.0.122	0.1.122
P3	0.1.123	1.1.120
P4	0.0.012	1.1.121

Leg 5 with triangular like exopod with 5 terminal bristle/setae. The baseoendopod shape is more likely square shape with 5 setae impaled at the terminal segment

Species: *Parastenhelia* sp.

Materials: sample obtained from Sg. Pulau Johor. The harpacticoid sample obtained was female with attached brood chamber.

Description

The body shape of the harpacticoid is slender and elongated. The back of the body has the same length as the entire body. The antennae have 8 segmented. The brood chamber still attached at the urosome. End. of P1 has 2 segmentation while the Exp. of the P1 has 3 segmentation. The End.-1 is much longer than the whole exopod. The exp. of P1 has 3 terminal bristles.

Legs 2 to 4 have the following setal formula:

Legs	Exopod	Endopod
P2	1.1.122	1.1.123
P3	1.1.122	1.1.122
P4	1.1.121	1.1.222

Leg 5 finely shaped with oval exopod. The baseoendopod is square like shaped with 3 terminal setae impaled on it.

Species: *Paradactylopodia* sp.

Materials: sample taken from Sg. Pulau, Johor.

Description

The body has long limbed. The shape of the body is slightly rounded but flattened. The posterior of the body is much narrower than the anterior. Abdominal segment well develop. The exp P1 has 3 segmented. The entire exp P1 is much shorter than the entire endopod. The endopod P1 has no segmentation. Both endopod and exopod has no inner bristle. The terminal segment of exp 1 has 3 spines.

Leg 2 to 4 has the following setal formula:

Legs	Exopod	Endopod
P2	1.2.122	-.0.121
P3	1.1.1.122	1.1.021
P4	1.1.123	0.1.122

Baseoendopod of P5 has square in shape with 5 terminal segment impaled on it. Exp. of P5 has 4 terminal setae with inner bristles.

Species: *Idyanthe* Sp.

Materials: obtain from Sg. Pulau, Johor.

Description

General shape of the body is compact with the abdomen distinctly demarcated, somewhat narrower than the thorax. The cephalotorax has ovoid shape and the abdomen length has the same length as the cephalotorax. The whole shape of the body is slightly curved. Antennule has 8 segments. The exp.P1 has 3 segments and the length of the exp.P1 is much shorter than the the end.-1 of P1. The terminal segment of the P1 has 4 setae/bristles impaled on it. The end.P1 has 3 segments. The first segment of the end.P1 has the length of 3 segments of exp.P1 combined. Both rami do not have inner setae. The end.P1 has claw like bristle at the end of it.

Leg 2 to 4 has the following setal formula:

Legs	Exopod	Endopod
P2	1.1.122	1.0.121
P3	1.0.110	1.1.122
P4	1.1.123	1.1.122

The baseoendopod of P5 has 4 bristles protruding and the exopod has 5 bristles protruding. The exopod of P5 has square like shaped.

Species: *Stenhelia* sp.

Materials: sample obtained from Sg.Pulai, Johor.

Description

The body shape of the harpacticoid is laterally compressed but defines. The urosome is slightly elongated and narrow. The P3 of segment 2 has inner setae. Antennae with 8 members of segmentation. Exopod possess 3 member of segmentation. Exopod P1 consist of 3 bristles protruding from it terminal segment. Endopod of P1 also has 3 member of segmentation. The first segment of endopod P1 is longer than the entire exopod. The terminal segment of endopod P1 has 3 setae and has claw-like structure for grasping.

Leg 2 to 4 has the following setal formula:

Legs	Exopod	Endopod
P2	1.1.121	0.0.111
P3	1.1.121	0.0.110
P4	1.1.223	1.1.122

Exopod of P5 has 5 bristles and has a square-like shape, the baseoendopod has 5 bristle and the shape is irregular oval.

Contribution: Total five families were obtained from this studies which are family Ameridae, family Parastenhallidae, family Dactylopusiidae, family Tisbidae and family Diosaccidae. All of these families show unique and different characteristics which suit and related to their occurrence habitat. Taxonomic work on benthic copepods in Malaysia is rarely found. Thus the data will add to the present knowledge on Sungai Pulai which is now under the threats of human disturbance. This study will lead to further study that could provide an insight on the harpacticoids copepod distribution in the area and directly will improve the concern on the crucial of vegetation in protecting the coastal ecosystem.

Keywords: harpacticoid copepod, identification, bottom vegetation, Sungai Pulai

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ASSESSMENT OF METAL POLLUTION USING ENRICHMENT FACTOR (EF) AND POLLUTION LOAD INDEX (PLI) IN SEDIMENTS OF SELECTED TERENGGANU RIVERS, MALAYSIA.

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Abstract

Introduction: Anthropocentric activities that happen in Terengganu River were contributed to sediment pollution at that area. The sediment pollution occurred when sediment are additional influenced with chemical adsorption between the metals, grain size, and organic matter **Methodology:** Thus, this study was conducted to assess the metal pollution using Enrichment Factor (EF) and Pollution Load Index (PLI) and compared with the previous study. A total of 15 sediment samples were collected from 5 different rives and metal concentration were analyzed using flame Atomic Absorption Spectrometer (ASS). **Findings:** The metal concentration ranged as followed: Cr (0.48-12.80 mg/kg), Cu (0.38-15.20 mg/kg), Mg (222.00-2769.00mg/kg), K (72.44-1730.00 mg/kg), Fe (1269.00-10113.00 mg/kg), Mn (4.27-33.70 mg/kg), Zn (2.05-31.30 mg/kg) and Cl (141.00-584.00 mg/kg) respectively. Enrichment Factor (EF) and Pollution Load Index (PLI) were used as a pollution indicator to access the sediment pollution in selected Terengganu Rivers. The mean Enrichment Factor (EF) value indicated in decrease order Cl (7.01) > Cr (1.34) > Cu (1.07) > Zn (0.99) > Mg (0.55) > K (0.32) > Mn (0.26). Meanwhile, Pollution Load Index (PLI) value showed below than 1 in all sampling stations. When compared with previous study, several metals such as Mg, K, Fe and Mn need to take further action due to dramatically increased within six years. **Contribution:** The output from this study will be useful for environmental management at Terengganu Rivers.

Keywords: Enrichment Factor (EF) ; Pollution Load Index (PLI)

Abstract ID: AIMC-2017-LS-787

IMMOBILIZATION OF LIPASE CANDIDA RUGOSA ON NYLON 6 POLYMER GRAFTED WITH POLY VINYL BENZYL CHLORIDE (PVBC)

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Abstract

Introduction: Enzyme is well known as an excellent catalyst for many biological systems. In spite of that, enzyme properties such as high activity, selectivity and specificity should be enhanced to improve products yields and reusability. Hence, immobilization of enzymes on carrier supports is gaining attention as alternative for free enzymes. In this study, lipase *Candida rugosa* was immobilized on nylon 6 polymer grafted with poly vinylbenzyl Chloride (PVBC). Nylon 6 polymer was selected for its strength, low cost and high loading capacity of enzyme meanwhile grafted with PVBC will improve the performance by selecting a functional group for enzyme binding. **Methodology:** The polymer was activated with ethanolamine prior to immobilization. Fourier transform infrared spectroscopy (FTIR) was carried out for band characteristics after activation step. Next, response surface methodology (RSM) was applied to optimize the parameters of immobilization process such as incubation time, enzyme concentration and pH with lipase activity as respond. Besides, the characterization of lipase in terms of temperature and pH was performed to identify the optimum conditions for lipase activity for both immobilized and free enzyme.

Findings: The model resulted with R-squared and predicted R-squared of 0.9823 and 0.9419, respectively. Meanwhile, P-value was < 0.001 which is less than 0.05 indicating that the model is significant. **Contribution:** Support system for immobilization of enzyme by grafting is expected to allow high retention of protein loading and result with high lipase activity.

Keywords: Immobilization, Lipase *Candida rugosa*, Grafted PVBC, Response surface methodology

Abstract ID: AIMC-2017-LS-813

STATISTICAL ANALYSIS ON BIODIESEL PRODUCTION USING IMMOBILIZED CANDIDA RUGOSA IN PVA-ALGINATE-SULFATE BEADS

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Abstract

Introduction:

Palm oil is the most efficient edible oil-producing crop in Malaysia and has been used as a main cooking oil. Production of biodiesel from waste cooking oil (WCO) is one of the better ways to utilize them efficiently and economically. The most common way to produce biodiesel is by transesterification through chemical and enzymatic reaction. Chemical transesterification has several drawbacks: it is energy extensive, glycerol recovery is difficult and requires wastewater treatment and leading to undesirables byproducts. The used of lipase is reckoned to be an effective way to overcome all these problems that related to the chemical transesterification.

Methodology: The study were conducted using two level factorial design with four parameters reaction temperature (A), enzyme loading (B), methanol/oil ratio (C), and water content (D), on FAME conversion using Design Expert software version 6.0.4. The total number of experimental runs was calculated using the formula: 2^K where K designates the number of independent variables. Fractional design was used to reduce the number of experiments. The number of experiments for the current study was 11, where 8 experiments and 3 imitation tests at the design centre were conducted randomly to estimate the error.

The transesterification was performed in 100ml stoppered flask as a three step methanolysis process. The flask was placed in an incubator shaker for agitation and warming. Appropriate amounts of immobilized enzyme, methanol and water were added and incubated according to the experimental design. The temperature varied from 35°C to 45°C, amounts of enzymes 20%-60%, water content 5%-15% and substrate molar ratio 1:4-1:6. At the end of the reaction hours, samples reaction mixture was extracted and centrifuged. The sample was then withdrawn from the supernatant and analyzed using gas chromatography. Each test was carried out in triplicate to ensure reproducibility.

Findings: ANALYSIS OF VARIANCE (ANOVA)

From the ANOVA analysis, the $Prob > F$ value is less than 0.05, which indicates the factorial model is significance. It showed that there was a statistical relation between the response and the selected variables at 95% confidence level. ANOVA results for biodiesel conversion were generated by the design expert software.

The value of the determinant coefficient, *R squared* is 0.9753 which is closer to value one. *R-squared* presents a determinant of variability of the response observed values to be described by the experimental factors and interactions. It implies that the model can exactly show the effect of the variables towards the response. The "Pred *R-Squared*" of 0.9044 is in reasonable agreement with the 0.9580 of Adjusted *R-squared*. Adequate precision measures the signal to noise and a ratio larger than 4 is desirable. The linear model was significant to represent the actual relationship between the response and significant variables.

The experimental results indicated that 84.93% of biodiesel conversion was obtained under the reaction conditions of 8:1 substrate molar ratio, temperature 45°C, water content 15wt% and 6 wt% of enzyme loading.

Contribution: This is the first time PVA-alginate-sulfate beads is used to produce biodiesel from waste cooking oil by immobilizing *Candida rugosa*. This matrix is a suitable immobilization matrix due to its high mechanical strength and good chemical stability. This immobilization matrix also helps to improve the enzyme activity. Besides, it can be also reuse up to 14 cycles

Reusing WCO can reduce the burden of the authority in disposing the waste, maintaining public sewers and treating the oily wastewater. Thus will benefit human in term of environmental concern, economic value and effective waste management.

Keywords: Waste cooking oil, biodiesel, tranesterification, immobilized lipase, ANOVA

Abstract ID: AIMC-2017-LS-852

THE USE OF VEGETATION TO REDUCE LANDSLIDE HAZARDS IN MALAYSIA AS AN ALTERNATIVE SOLUTION FOR CIVIL ENGINEERING.

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Abstract

Introduction: The use of vegetation as slope cover becomes an alternative solution for slope stabilization instead of using shotcrete cover. Use of vegetation in civil engineering is a way to reduce the impact of civil engineering works and increase the landscape quality. Engineers usually are not familiar with engineering properties of vegetation to reduce slope instability and shallow landslide. Therefore, in this research, the soil engineering properties of two tropical species were studied. **Methodology:** Eight trees of similar age of *Acacia mangium* and *Macaranga tanarius* were selected along the East-West highway, Malaysia. The direct shear tests were used to analyse the effect of tree roots on soil mechanical properties (soil cohesion and internal friction angle). **Findings:** The results showed that the existence of roots has more impact on the soil cohesion than the soil internal friction angle. In conclusion, slope stability improvement is provided by increasing the additional soil cohesion due to root.

Contribution: In order to improve our knowledge of tropical plant root properties which are important when investigating the plant effects on mass movement and shallow landslide, soil mechanical properties (soil cohesion and internal friction angle) data of two tropical species are collected to rank their ability to resist the shear stress and shallow slope failure.

Keywords: Civil engineering, vegetation, soil cohesion, root cohesion, Malaysia

Abstract ID: AIMC-2017-LS-869

EVALUATION OF ANTIOXIDANT PROPERTIES OF PHYCOBILIPROTEINS AND PHENOLIC COMPOUNDS EXTRACTED FROM *BANGIA ATROPURPUREA*

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Abstract

Introduction: *Bangia atropurpurea* is a freshwater red filamentous alga species.

B. atropurpurea contains phenolic compounds such as gallic acid, quercetin and catechol, which are not the only contributor to the antioxidant activities of this alga. In addition, presence of phycobiliproteins such as phycoerythrin and phycocyanin showed remarkable antioxidant capacity. The light harvesting chromophores of phycoerythrin and phycocyanin confer the pigments their characteristic colours, red and blue, respectively. In this study, we report on the recovery yield of the purified phycobiliproteins, the total phenolic content (TPC) and their antioxidant properties. **Methodology:** Phycoerythrin and phycocyanin are water-soluble phycobiliproteins,

which were extracted from *B. atropurpurea*, purified and evaluated its antioxidant activity. Phenolic compounds which have limited solubility in water were extracted with pure methanol to exhibit its antioxidant activity. *B. atropurpurea* in sodium phosphate buffer (pH 7.2), were sonicated and rotated on orbital shaker at low temperature before centrifuge to enhance the total phycobiliproteins extraction. The extracts, precipitated with ammonium sulphate, dialysed and further purified the proteins by gel filtration with Sephadex G-200. The phycoerythrin and phycocyanin yield were estimated by Bradford protein assay. The sodium dodecyl sulphate polyacrylamide gel electrophoresis (SDS-PAGE) with protein marker, were used to identify the phycobiliproteins and their molecular weight. Folin–Ciocalteu method were used to determine the TPC, while 1, 1-diphenyl-2-picrylhydrazyl (DPPH) radical scavenging and ferric-reducing antioxidant power (FRAP) assay were used to quantitate the antioxidant activity of phycobiliproteins and the phenolic compounds.

Findings: *B. atropurpurea* mainly contains phycoerythrin, 52.30% of the total protein extracted at purity ratio A562 to A280 of 4.45. Phycocyanin displayed 20% yield at purity ratio A615 to A280 of 2.18. The SDS-PAGE of purified phycoerythrin and phycocyanin showed apparent single band with molecular weight of 19.6 kDa and 17.5 kDa, respectively. The TPC reading was 80.97 ± 0.53 mg gallic acid equivalents (GAE) per 1g extracts. 50% of the DPPH degradation required 14.63 ± 0.79 $\mu\text{g/mL}$ of methanol extracts. The FRAP was 37.81 ± 0.04 mg GAE/1g methanol extracts. The purified phycoerythrin and phycocyanin in average exhibited 50% inhibition concentration, ($\text{IC}_{50} = 8.54 \pm 0.9$ $\mu\text{g/mL}$), which was slightly lower than synthetic antioxidant ascorbic acid, ($\text{IC}_{50} = 6.78 \pm 0.28$ $\mu\text{g/mL}$). The FRAP was 48.49 ± 0.28 mg GAE/1g. The antioxidant property of purified phycobiliproteins was 13.30% higher than methanol extraction which contains phenolic compounds.

Contribution: The extraction and purification of phycobiliproteins from *B. atropurpurea* showed, this red alga contains significant amount of phycoerythrin. In correlation analysis, the antioxidant capacity of *B. atropurpurea* extracts, demonstrated a positive relationship with extracted pigments. The presence of both phycobiliproteins and phenolic compounds, folded the antioxidant property. Hence, the results indicated that *B. atropurpurea* could be attributed as a potential source of natural antioxidants for food and pharmaceutical applications.

Keywords: *Bangia atropurpurea*; Antioxidant activity; Phycoerythrin; Phycocyanin; Phenolic compounds

Abstract ID: AIMC-2017-LS-896

A REVIEW ON HYDROXYAPATITE EXTRACTION METHODOLOGY FROM BOVINE BONE

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Abstract

Introduction: In material sciences the most rewarding and thrilling research area is the medical application. Our daily life examples are screws in orthopedics, orthodontic wires, sutures, pacemakers, heart valves, breast implants, catheters, fracture fixation plates, dental and nails filling materials as well as replacement of total joint prostheses. During the past eras, active life style, sport activities and long life duration have led to a surge of bone fractures and bone associated diseases that must be cured by implants. It is essential to prepare all implantable items from distinct class of materials, called biomaterials or biomedical materials so as to be accepted by the living body (Dorozhkin, 2011). **Methodology:** Biomaterials are generally utilized in form of implants (joint replacements, sutures, vascular grafts, bone plates, ligaments, etc.) and medical devices (blood tubes, pacemakers, artificial hearts, biosensors, etc.). In different applications these forms of biomaterials are extensively used throughout the body (Best, Porter, Thian, & Huang, 2008; Jandt, 2007; Vallet-Regí, 2010) to restore/replace and the function of damaged or traumatized organs or tissues, to correct abnormalities, to support in healing, to improve function and consequently to improve the quality of patients life (Tripathi, G. Choudhury, P Basu, 2010). Due to great number of research review articles this review is limited to only major types of biomaterials, its evolutions and biomedical application **Findings:** The material that have very close contact with living system and used to replace or repair the living system is generally states as biomaterials (Mustafa, 2012). According to (Migonney, 2014) the latest definition of a biomaterial is “Material intended to supply or to replace all or a part of a deficient organ”. Conferring to above mentioned definition a biomaterial is now defined as “a material that is used for repair and reconstruction of lost”. The biological performance of materials can be judge by the words ‘biomaterial’ and ‘biocompatibility’ these words are created by researchers. The fundamental and important requirements of a biomaterial used for medical application is its biocompatibility, which is the “ability of a material to perform with an appropriate host response in a specific application” (Nair & Laurencin, 2007). **Contribution:** The first recognized biomaterial was used during the Egyptian time (around 200 A.D.) where suture material was made from linen. It wasn't the result of heavy

injuries in World War II's that considerably drove the growth of biomaterials (Wong, Bronzino, & Peterson, 2012). In recent years, the biomaterials for bone implant have gain much attention in the field of science due to large number of rail and road accidents, new trauma and tumors cases, decay of teeth due to poor diet and stress (M.N.Stefanut, A.Cata, I.M.C.Ienascu, C. Tanasie, D.Ursu, & M.C.Dobrescu., 2015).

Keywords: Biomaterial, Bovine Bone and Hydroxyapatite

Abstract ID: AIMC-2017-LS-903

ARRANGEMENT OF ELECTRICAL CONDUCTIVITY ON VEGETATIVE AND GENERATIVE PHASE TO INCREASE GROWTH AND YIELD OF CHILLI CROP (CAPSICUM ANNUUM L) IN NUTRIENT FILM TECHNIQUE SYSTEM

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Abstract

Introduction: *Increased production of chilli crop to meet demand for the commodity which is always increase and the narrowing of agricultural land, require use of technology that saving land and soilless cultivation . System Nutrient Film Technique (NFT) as one of the hydroponic system reliable for the purpose. With the supply of nutrients from the nutrients circulation origin from thin water layer of 3-4 mm in make the crop roots more effective in nutrients absorption.*

Crops require different nutrients amount in every phase of its growth. In the early stages the needs is low and increase in line with its growth phase. It is therefore necessary nutrient supply arrangement in the form of Electrical Conductivity (EC) at early vegetative, middle vegetative and generative for crop to grow better and maximum yields.

Methodology: *Green house trial at Padjadjaran University experimental station at 735 m above sea level have been carried out in July-September 2016 using a completely randomized design (CRD) 4 treatments and 6 replications The treatments were A = EC (Va = 1.2 mS cm-1, Vt = 2 mS cm-1, G = 3 mS cm-1); B = EC (Va = 1.2 mS cm-1, Vt = 2 mS cm-1, G = 3.5 mS cm-1); C = EC (Va = 1.5 mS cm-1, Vt = 2 mS cm-1, G = 3 mS cm-1); D = EC (Va = 1.5 mS cm-1, Vt = 2 mS cm-1, G = 3.5 mS cm-1). Parameters evaluated were crop height was measured at 2, 4, 6 and 8 Weeks After Planting (WAP), the amount of flower observed since the beginning of its appear to fruit arise, fruit number in 82days after planting (DAP), and fruit wet weight 82 DAP. Data were analyzed with ANOVA followed by Duncan's Multiple Range Test at 5% level. **Findings:** Different EC values did not significantly affect crops height at 2 WAP because the crops were adapting. At the age of 4 and 6 WAP treatments C and D with a higher EC value increased the crop height. At the age of 8 MST showed slowing growth and photosyntat allocation more to flowering, so that the treatment effect did not significant on crop height.*

In flower number paramater, the treatment gave significantly effect at 4 WAP, with the highest flower number resulted from treatment C that was successfully supply P for flowering. At the age of 6 and 8 WAP the crops entered the middle vegetative phase and got the same EC (1.2 MS cm-1) generating flower number were not significantly different.

Application of different EC values on vegetative and generative phase increased fruit number. Treatment C provided the highest fruit number and the largest fruit wet weight . It is associated with the provision of larger EC (1.5 mS cm-1) in earlier vegetative phase and the EC generative phase 3 mS cm-1. With these EC composition nutrient supply was in sufficient amount to support the growth and yield of chilli crop.

Contribution: *The results showed that the composition of the EC value in early vegetative, middle vegetative and generative had an effect on the growth and yield of crop. The composition of EC value at the initial vegetative phase of 1.5 mS cm-1, EC middle vegetative phase of 2 mS cm-1 and EC generative phase 3 mS cm-1 has increased crop height, flower number, fruit number and chilli wet weight .*

From the experiment results obtained important findings, namely in regulating nutrient supply for chilli cultivation in NFT system needs arrangement of EC values in the vegetative phase and generative phase. The bigger EC value of vegetative phase had better effect than the generative phase EC value and nutrient accumulative calculating as represented by EC value was become a factor influenced on the growth and yield of chilli crop.

Keywords: EC, vegetative, generative, chilli, NFT

Abstract ID: AIMC-2017-LS-911

PRELIMINARY STUDY ON PHYSICAL ACTIVITY LEVEL AMONG ADULTS WITH ABDOMINAL OBESITY IN UNIVERSITY OF MALAYA, KUALA LUMPUR

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Abstract

Introduction: *Obesity epidemic is the result of physical inactivity and energy imbalance in which both developed and developing countries experienced. This includes the challenges of obesity and its commodities such as diabetes mellitus and cardiovascular diseases. Later, it will affect an individual's physical and social functioning as well as quality of life as a result of non-communicable diseases. Abdominal obesity is one of the predispose factor that may lead to development of non communicable disease such as diabetes mellitus and cardiovascular diseases. Thus, the aim of the study is to identify the level of physical activity among subjects with abdominal obesity.* **Methodology:** *This cross-sectional study was carried out among a sample of 94 overweight and obese adults (aged 23–59 years) from University of Malaya. Participation in the study was voluntary and informed consent was give from each subject. Subjects were required to complete the questionnaire regarding physical activity.*

*Waist circumference (WC) was measured using 3D body scanner. All subjects were requested to wear a special scan-wear which consisted of two-piece garments. These scanning garments were made from light brown fabric with a mixture of lycra and cotton and came in five different sizes: extra-small (XS), small (S), medium (M), large (L) and extra-large (XL). Subjects then took the standardize standing position and held the stabilizing handholds of the scanner to maintain the correct positions during scanning in the NX-16 body scanner (Cary, North Carolina, USA). These procedures were repeated twice to obtain reliable and consistent scanning measurements. The 3D scanner was well calibrated to avoid false positive readings. The circumference measurements of WC from each scan were automatically extracted using MS ISO8559 from the Body Measurement System Software (ver.5.3, [TC]2). The WC categories are as follows: (i) mild abdominal obesity, 80–90 cm for women and 85–95 cm for men; and (ii) severe abdominal obesity, ≥ 90 cm for women and ≥ 95 cm for men. **Findings:** *With 3D body scanner measurements it was discovered that majority of candidates suffered from severe abdominal obesity. Result showed that 8 out of 14 male subjects recorded high physical activity. In contrast, only 18 out of 80 female subjects recorded high physical activity. As for the low and moderate physical activity, the numbers of candidates were almost the same for both genders. There was only slight different of subjects who scored low, moderate and high physical activity level. The present result shows that individuals with abdominal obesity still scored high physical activity level. This indicated that even having abdominal obesity they still considered physically active. This result contradicted with some other studies which reported that those with sufficient activities are less likely to develop abdominal obesity. However, there were also previous research which found that those who active were noted to be more likely to develop abdominal obesity. This finding probably due to the nature of cross sectional study in which pre-existed sedentary lifestyle may determine the anthropometric characteristics that were found in this study.² It might also because of the dietary intake that influence the development of obesity **Contribution:** *This study incorporated the use of 3D body scanning machine that as far as the researcher concern only available in University of Malaya to obtain waist circumference measurement. This study will help to promote the important of doing physical activity that will help to prevent individual to develop non communicable disease even the individual suffering from abdominal obesity. This study found that even with abdominal obesity, they have scored high physical activity level. This indicate that, the important to promote the quality and effective techniques of physical activity in daily lifestyle for better outcome.***

Keywords: abdominal obesity, physical activity, waist circumference, non communicable disease

Abstract ID: AIMC-2017-LS-942

THE EFFECT OF A. FUMIGATUS SK1 AND TRICHODERMA SP. ON THE BIOGAS PRODUCTION FROM COW MANURE

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Abstract

Introduction: *Lignocellulosic material consists of lignin, cellulose and hemicellulose. Converting lignocellulosic biomass such as cow manure (CM) into value-added products provides a potential alternative.*

During Anaerobic Digestion (AD) of lignocellulosic biomass, hydrolysis of cellulose and hemicellulose is considered as a rate limiting step. Lignin in lignocellulosic biomass is the barrier for hydrolysis, thus limits the biogas production. A pre-treatment is needed to alter or remove these structural and compositional hindrance to hydrolysis in order to improve the rate of enzymatic hydrolysis and increase the biomethane potential. **Methodology:** Two set of anaerobic digestion assays were carried out, with a working volume of 500 mL at $35 \pm 2^\circ\text{C}$ and 120 rpm. First set of experiment was mixed with *A.Fumigatus SK1* until 10 days of fermentation and then it was mixed with POME until 30 days of digestion. The other set was defined as control, without adding fungi. Several analyses were conducted to determine the biomethane potential (BMP), reducing sugar and COD reduction of CM before and after pre-treatment. **Findings:** Results showed that there are significant difference ($P < 0.05$) were observed in biomethane potential between the untreated and treated CM with *A.Fumigatus SK1*. To note, the result of biomethane potential of both untreated and treated CM was in line with reducing sugar and COD removal efficiency. **Contribution:** Many studies had been done on enzymatic hydrolysis using other substrates such as cassava bagasse (Gaewchingduang & Pengthemkeerati, 2010); rice straw (Matthews, 2016; Viji & Neelanarayanan, 2015); sugarcane bagasse (Batalha et al., 2015); oil palm trunk (S.K. Ang, E.M., Y., A.A., & M.S, 2013); lemongrass leaves (S. K. Ang et al., 2015) and other lignocellulosic wastes (Mtui, 2009) . However, limited knowledge has been seen on hydrolysing of animal manure specifically CM through *A.Fumigatus SK1* and *Trichoderma sp.* Therefore, the aim of this work was to investigate the effectiveness of enzymatic hydrolysis through *A.Fumigatus SK1* and *Trichoderma sp.* on CM by finding out: (1) the influence of lignin removal on reducing sugar; and (2) the highest methane production potential.

Keywords: Anaerobic mono digestion, Cow manure, *A.Fumigatus SK1*, *Trichoderma sp.*, biogas

Abstract ID: AIMC-2017-LS-975

URBAN AGRICULTURE PROGRAM: THE INTENTION OF PARTICIPANTS TO REMAIN AS VOLUNTEERS

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Abstract

Introduction: Community garden program is a program where people from a residential area practice urban agriculture together in a common place. The definition of urban agriculture is production of crop and livestock within cities and towns. Currently, community base urban agriculture program is one of the most popular initiatives by Malaysian government in enhancing urban agriculture. Nevertheless the program is facing with challenges in attracting volunteers and to retain them to make the program sustainable. Therefore, this article aims to identify the association between socio-eco-demographic characteristics of the volunteers and their intention to remain as volunteer for urban agriculture program as a step in understanding the behavioural and decision making of volunteers who actually intended to remain as volunteer in urban agriculture program.

Methodology: The sampling frame of the study was individuals who volunteered at the urban agriculture programs in Klang Valley area. Survey was conducted using structured questionnaire in order to collect information and data among 375 volunteers. Descriptive analysis, reliability analysis and chi-square test for independence analysis were conducted to describe and to test the association between the socio-eco-demographic of volunteers towards having intention to remain as volunteer. **Findings:** The results from descriptive analysis shows that most participants have the intention to remain as volunteers. The Cronbach's Alpha test specified that the internal consistency of intention to remain items was excellent. Additionally, chi-square test for independence indicated that elder male with high income are more likely to remain as volunteers for the urban agriculture program. **Contribution:** This study expand the existing literature on volunteerism among the urban dweller in term of participating in community based urban agriculture program. It contributes to a better understanding of volunteerism in the urban agriculture program and the demographic profile of volunteer that are really intended to remain as volunteer for the program in the future.

Keywords: Community garden program, Chi-square test for independence, Intention, Volunteerism

Abstract ID: AIMC-2017-LS-990

LOSS OF INHBA GENE EXPRESSION ATTENUATE HCA-46 CELLS PROLIFERATION

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Abstract

Introduction: *New diagnosed cases of colorectal cancer (CRC) are continued arising on yearly basis. Hence, CRC will become a major health threat for Malaysian in future. However, current practice for CRC treatment is still unsuccessful, better prognostic and treatment is needed to manage increasing CRC cases. We have identified gene INHBA as a potential target gene for CRC in our previous preliminary research. Thus, the purpose of this study is to determine the effect of INHBA gene silencing on HCA-46 cells.* **Methodology:** *The INHBA gene of HCA-46 cells was silenced in triplicate using 50nM small molecule interference RNA (siRNA) for 24 hours. The effect of silencing was assessed using cell proliferation assay and FITC CycleTest plus assay.* **Findings:** *HCA-46 cells proliferation was attenuate after silenced INHBA gene for 24 hours ($32 \pm 0.21\%$; $p = 0.0031$). Further analysis using FITC CycleTest plus assay found that loss of function INHBA gene affected the HCA-46 cells cell cycle in G0/G1 phase (86%).* **Contribution:** *Our results indicate significant attenuate cell proliferation was observed when the INHBA gene of HCA-46 cells was silenced.*

Keywords: Colorectal cancer; FITC; interference RNA

Abstract ID: AIMC-2017-LS-1027

DEVELOPMENT OF BIODIESEL CATALYST FROM MODIFIED CAO DERIVED FROM SNAIL SHELL

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Abstract

Introduction: *Renewable energy resource is still the hot issue recently along the prediction on fossil resource depletion. Within the scheme, biodiesel is one important energy resource so the exploration and optimization for biodiesel production are main interest of some energy investigations. The use of heterogeneous catalyst and low cost material as catalyst are interesting topic. By those consideration, in this research the use of agricultural waste; snail (*Pilla ampullacea*) shell was applied. The conversion and modification of snail shell to be strong heterogeneous catalyst for biodiesel conversion was studied. Study was aimed to characterize and evaluate catalyst activity in biodiesel conversion from rice bran oil at varied time of reaction.* **Methodology:** *Catalyst was prepared by calcining snail shell followed by modification by potassium fluoride immobilization at 20% wt.. Characterization of material was conducted by using x-ray diffraction, scanning electron microscope and solid basicity by titration method. The catalytic activity of prepared catalyst was tested in rice bran conversion at varied methanol: oil ratio. Catalytic conversion was determined by using GCMS and titration method.* **Findings:** *From preparation and characterization, it is found that derived material showed the composite of KF/CaO fit to the relevant material prepared from CaO standard. Prepared material showed excellent activity in biodiesel conversion from rice bran oil. The conversion was affected by methanol: oil ratio and catalyst was reusable as shown by the comparison of fresh and reused catalysts.* **Contribution:** *The research gives alternative for low cost heterogeneous and reusable catalyst for biodiesel conversion.*

Keywords: Catalyst, Biodiesel, Pila ampullacea, CaO.

Abstract ID: AIMC-2017-LS-1034

FEED COMPOSITION ANALYSIS AND REPRODUCTIVE STATUS OF DAIRY COWS RAISED IN YOGYAKARTA

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Abstract

Introduction: *Feed is an important factor in a farm. Without a good and a sufficient feed then dairy cow will be less able to show a good performance. Various alternatives are needed to increase milk production, including aspects of feed, health and reproduction. Things that many complained of dairy farmers today is the balance between feed and milk prices were very unfavorable. The condition has cause many bad things to the management of maintenance and the overall condition of dairy cows. The purpose of this study was to determine the content of the feed given and reproductive status of each animal.* **Methodology:** *This research was conducted on local dairy farm in Yogyakarta, Indonesia. Feed samples were composited for each collection period and analyzed for DM, Ash, EE, CF, CP, NDF and ADF. Analysis of feed samples was conducted in*

Forage and Pasture Science Laboratory, Faculty of Animal Science, Universitas Gadjah Mada. The study was carried out during 2 weeks starting on April 2016. This research used seven early lactation Friesian Holstein cows. Reproductive status of dairy cow obtained from the records of farmers. Reproductive parameters were observed include the Post-partum Estrous (PPE) and service per conception (S/C) then analyzed descriptively using IBM SPSS program version 24. **Findings:** Results of proximat and van soest analysis from feedstuff consist of elephant grass (*Pennisetum purpureum*) and concentrate feed from feed mill. The elephant grass (*Pennisetum purpureum*) containing dry matter (DM) 86.27%, Ash 18.63%, extract eter (EE) 3.84%, crude fiber (CF) 30.62%, crude protein (CP) 13.05%, neutral detergent fibre (NDF) 73.73% and acid detergent fiber (ADF) 45.31%. concentrates feed containing dry matter (DM) 89.24%, Ash 15.36%, extract eter (EE) 5.37%, crude fiber (CF) 17.11%, crude protein (CP) 12.76%, neutral detergent fibre (NDF) 58.23% and acid detergent fiber (ADF) 19.20%.

The results obtained from the average post partum estrus (PPE) is 121.43 days with standart deviation 16.672, and average from the service/conception (S/C) is 2.14 with standart deviation 0.690. **Contribution:** This study is an exploratory phase to determine nutritional status from the feed and reproductive status of dairy cows reared traditionally in tropical climates. This research is expected to make a benchmark for improvement of nutritional status, so as to improve the performance of dairy cows in Indonesia.

Keywords: feed analysis, dairy cows, reproductive status, tropical climates.

Abstract ID: AIMC-2017-LS-1052

DIVERSITY OF BRYOEPHYTE AT MOUNT TELOMOYO, CENTRAL JAVA, INDONESIA IN DRY SEASON

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Abstract

Introduction: Mount Telomoyo has tropical forest with diversity of Bryoepiphyte. Diversity and abundance of Bryophytes depend on the altitude and ephyphyte host tree (phorophytes). Nowadays, Mt. Telomoyo has been undergoing land forest constriction due to settlement and agriculture by the locals. It impacted to diversity of Bryoepiphyte was growth on phorophytes. This research aims to identify the diversity of Bryoepiphyte in dry season. **Methodology:** The collecting method of bryophyte samples was performed by exploration method, that was by taking bryophyte samples from eight stations at 1120 to 1340 metres above sea level. In addition, the measurement of environmental parameters were including, air temperature, altitude, humidity and light intensity. Then, the samples were collected with dried herbarium techniques, and to be identified with a semi-permanent preparations and analyzed using literature. The identification results were presented descriptively and made determination key. **Findings:** This research shows that there are 17 species of Bryoepiphyte at Mt. Telomoyo, namely *Lejeunea flava* (SW) Nees, *Lejeunea holtii* Lind, *Lejeunea aloba* V.D. SD. Lc, *Hygrolejeunea*, *Frullania riojanerensis*, *Porella* sp., *Isopterygium albescens* (Hook) Jaeg, *Leucobryum javense* (Brid) Mitt, *Macromitrium reinwardtii* Schwaegr, *Octobleparum albidum* Hedw. *Rhizogonium spiniforme* (L.) Bruch, *Sematophyllum saproxylophyllum* (CM) Fleisch, *Sematophyllum tristiculum* (Mitt) Fleisch, *Thuidium investe* (Mitt) A. Jaeger, *Aerobryopsis longissima* (Doz & Mdk) Fleisch, *Meteriopsis ancistrodes* Renault & Cardot, and *Rhacopilum spectabile* Reinw & Hornsch. Bryoepiphytes could be classified into 3 groups as Hapticopsida, Bryopsida acrocarpus, and Bryopsida pleurocarpus. Bryoepiphyte species which have been broadly distributed along Mount Telomoyo was *Leucobryum javense* and *Octobleparum albidum*. **Contribution:** Until now, research about the diversity of Bryoepiphyte in Mt. Telomoyo along dry conditions has never been done. The results was important as database about resistent genes of bryophyte on dry conditions. These genes could be improved as basic research for plant breeding.

Keywords: Bryoepiphyte, Mount Telomoyo, Dry season

Abstract ID: AIMC-2017-LS-1060

MALAYSIAN HOUSEHOLDS' ATTITUDES, PERCEIVED NORMS AND CONTROL, AND PERSPECTIVES TOWARDS SOURCE SEPARATION FOR RECYCLING

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Abstract

Introduction: *With an uncontrollable increase in the amount of solid waste generated and as an attempt to achieve national recycling rate target of 22% by 2020, mandatory source separation for recycling strategy is formally enforced under Act 672 on September 1st, 2015 with compound taking effect beginning June 1st, 2016 in majority states of Malaysia. This paper focuses on source separation for recycling practice among Malaysian households. Specifically, this paper assessed the current attitudes, perceived norms and control, and perspectives of households in Johor, the most populated state under Act 672 in Malaysia. **Methodology:** Face-to-face questionnaire survey is adopted. The format of the adapted instrument consists of close-ended categorical questions and Likert scale of 5-point. In order to measure households' attitudes, and perceived norms and control, Theory of Planned Behaviour is adopted. Stratified random sampling strategy was employed, where population density is considered as stratification sampling point. The instrument was pilot-tested by 48 random individuals while the content and format of instrument were evaluated by 10 independent experts of either academic or professional backgrounds in terms of appropriateness, comprehensiveness, and accuracy. The actual sampling was conducted between November 2015 and January 2016, which was at the peak of the government's aggressive promotional campaigns on source separation for recycling. Sampling successfully gathered 589 completed questionnaire sets from all 15 areas of jurisdiction under local authorities in Johor. Collected survey responses were coded in Excel spreadsheet before these data were analyzed using IBM SPSS software (Ver. 20). Using Geographic Information System (GIS) fundamental tools and techniques, obtained data from questionnaire survey were incorporated into ArcMap (ArcGIS software - Ver. 10.2.2) for data presentation. Besides that, to observe the necessary trend, monthly data on solid waste generated by households in Johor from 2010 to 2015 are obtained. **Findings:** Majority are supportive of the introduced source separation for recycling strategy but preferred it to be on voluntary basis, rather than mandatory approach. Nevertheless, the overall responses regarding their attitudes towards source separation for recycling are rather positive, where a large percentage of respondents indicated agree or strongly agree to the statements provided. Cross tabulation analysis revealed significantly higher percentage (>50%) among respondents with lower education level or those with children, indicated their agreement with the usefulness and need of the practice. Unlike attitudes, respondents generally indicate mixed responses in their perceived norms. Large percentage of respondents are not affected or influenced by perceived subjective norms but regard practicing source separation for recycling is in line with their moral stand. The overall positive responses suggested that respondents are rather confident and have control on performing source separation for recycling despite possible constraints that may hinder their intention. Time, space, and opportunities to separate solid waste at source for recycling mainly affect households despite their motivation and willingness to contribute or participate. Chi-squared test for independence suggested an association between the type of house and challenges in terms of recycling drop-off facility, local recycling collection services, space, and control issues. **Contribution:** Households are the primary source of solid waste generation in Malaysia and the generated solid waste is a rich source of recyclable materials. Households' participation plays a crucial role for recycling and other sustainable means. Focusing on Malaysian households' needs and perspectives, this study provides insights on salient factors that encourage their participation and commitment in source separation for recycling practice. It is regarded as an initial effort to fill the gap in source separation for recycling practice in Malaysia, especially with the enforcement of mandatory source separation for recycling strategy.*

Keywords: Solid waste management; Mandatory source separation; Recycling; Survey; Malaysia

Abstract ID: AIMC-2017-LS-1095

PROPERTIES OF GELATIN FILM FORTIFIED WITH MORINGA OLEIFERA SEED EXTRACT

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Abstract

Introduction: *Over the past decades, natural polymer based film materials have been utilized for packaging to prevent external contamination, maintain quality, ensure food safety and increase shelf-life in food industries. A lot of research have been conducted by food scientist, over the years, with the aim of improving both sensory properties and nutritional values of food by the addition of some additives to enhance biopolymers like gelatin. Gelatin, a biodegradable polymer is obtained from collagen through thermal denaturation, chemical or physical degradation. It is an important biopolymer that plays significant roles in food including stabilization, gelling, film-forming ability, emulsifying, improvement of water holding capacity, encapsulation/entrapment of active compounds and adhesive property. While gelatin films are biodegradable matrix useful for incorporating wide*

variety of functional applications, it can also improve food quality and extend shelf life by minimizing microbial growth in the product.

On the other hand, *Moringa oleifera* also known as drumstick tree is a fast growing tree whose parts are consumed for both nutritional and medicinal purposes. It has phytochemicals that are important in food and nutraceutical industries. The leaves, roots, flowers are studied for their application in treating inflammation, liver and cardio-vascular diseases. It provides cheap and assessable source of bioactive compounds and biopolymers. The seed extract has been extensively studied as a coagulant for water purification and previous researches show that it exhibits antimicrobial activities against microorganisms.

Methodology: The aim of this paper was to characterize a novel edible film produced from gelatin fortified with *Moringa oleifera* seed extract. The physical properties such as moisture content, film thickness, water vapour permeability, light transmittance and film opacity were measured. Mechanical properties of the film like the tensile properties were investigated, and the antimicrobial activities of the film was evaluated. **Findings:** The results from this research shows that *Moringa oleifera* seed extract greatly improved the properties of gelatin in terms of its film thickness, tensile properties, antimicrobial and the chemical characterization using FT-IR analysis reveals the presence of distinct peaks of the seed extract and characteristic bands associated with gelatin. **Contribution:** This research opens opportunities in using *moringa oleifera* seed extract to enhance the properties of gelatin which can be useful in antimicrobial packaging.

Keywords: *Moringa oleifera* seed extract, gelatin, biopolymer, phytochemicals

Abstract ID: AIMC-2017-LS-1115

PREPARATION AND CHARACTERIZATION OF SILVER NANOPARTICLES-IMMOBILIZED HALLOYSITE

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Abstract

Introduction: Indonesia is a country with many natural resources and various concerning life and has potential for research that related to clay material usage exploration as nanoparticles agent. Basically nanoparticles synthesis can be conducted with top down (physics) and bottom up (chemistry) methods. Physics method is the manner of breaking metal solid into nano sized small particles, meanwhile chemistry method is conducted by forming nanoparticles from molecular precursor or ionic. In textile industry, methylene blue is one of thiazide colour substances that frequently used due to it is relatively inexpensive cost and easy to acquired. The use of methylene blue is causing some effects, such as digestion irritation when swallowed, cyanosis when inhaled, and irritation when it touched by skin. As we mention before, in this research carried out the silver nanoparticles synthesis which is dopped with halloysite by chemical reduction. As silver precursor, it is used nitrate silver that carried by halloysite, while as reduction substance is using natrium borohydride. **Methodology:** The preparation of Ag-Halloysite was conducted by wet reduction method by using NaBH₄ as reducing agent. It was needed to find out the changes silver nanoparticles character after immobilized halloysite. The results were measured by XRD, FTIR, UV-VIS, TEM. The investigation also confirmed and indicated the formation of silver nanoparticles on halloysite surface from TEM image. Photocatalytic activity tested in methylene blue under photocatalysis mechanism is synergistically with adsorption mechanism. **Findings:** The treatment of Silver Nanoparticles-Immobilized Halloysite was successfully, the TEM characterization indicated having a diameter of 20-50nm, From XRD pattern, it is confirmed the presence of silver nanoparticles, FTIR showed the presence of Ag ions in the bands 776.12 cm⁻¹ and Photodegradation with Ag-Halloysite catalyst showed the reducing optimal time is 60 minutes compared to the non catalyst. **Contribution:** The preparation and characterization of silver particles immobilized halloysite has been investigated. The aimed of this investigation is prepare highly active photocatalyst as degradation from dispersed silver nanoparticles.

Keywords: Halloysite; Photocatalysis; Silver nanoparticles

Abstract ID: AIMC-2017-LS-1140

DEVELOPMENT OF DECISION SUPPORT SYSTEM FOR FLORISTIC EVALUATION IN DAM PROJECT

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Abstract

Introduction: *Ecological issues such as the loss of value and viability of natural ecosystem and species are one of the main concerns in the dam development projects which will lead to ecosystem loss and ecosystem fragmentation at the potential dam construction area. Addressing those issues amicably is critical for attaining sustainable development and vital for the future environmental management. This paper focuses on the floristic evaluation where assessment on the flora species is being developed in the Decision Support System (DSS) with the aim to conserve the exotic flora species at the potential dam construction area. (95 words)* **Methodology:** *DSS prototype development started with knowledge acquisition from multiple expertise on floral species diversity, the knowledge acquired was coded into computer programming language through Macromedia Dreamweaver 8, a web based developing tool. It is divided into five stages where different formulas are applied in order to determine the important value index, species diversity indices, ecosystem loss, ecosystem fragmentation and dam site. The encoded formula at the first stage was to determine the level of importance of vegetation in each ecosystem by using important value index. The data were then subjected to determine their species richness, diversity, evenness and dominance through species diversity indices, for instance Margalef's, Shannon-Wiener's, Shannon's and Simpson's index at the second stage. At the subsequent third stage, the calculated important value index was then being called back from the database to calculate ecosystem loss by quantifying the rarity of the vegetation in each ecosystem. Furthermore, core area, isolation and disturbance were used to measure ecosystem viability to determine ecosystem fragmentation. At the fifth stage, the ecosystem loss and fragmentation impact scores were utilised to determine the best alternative dam construction area that contributes the least adverse impact on the environment. (193 words)* **Findings:** *The developed DSS prototype is being tested and verified by the secondary data from Bungoh catchment. There are four types of ecosystem found, namely primary forest, old secondary forest, young secondary forest and agroforest where 22, 72, 37 and 17 floral species found in the respective ecosystems. The floristic data are being inserted into the data entry interface of each ecosystem. Then, important value index, species diversity indices, ecosystem loss and ecosystem fragmentation are being calculated for each floral species in each ecosystem at their respective formula coded interface through the first four stages. In the final stage, five dam site alternatives are being assessed based on the calculated ecosystem loss and fragmentation impact scores. Alternative 1 has the highest ecosystem loss and fragmentation that is 9.851km² and 4.353km² which makes it ranked last. Alternative 2 has the ecosystem loss and fragmentation lower than alternative 1 which is 9.629km² and 4.296km². Alternative 3 and 5 have the ranking of third and second where their ecosystem loss and fragmentation are 5.148km² and 2.286km²; 4.191km² and 2.539km² respectively. Alternative 4 is chosen to be the most suitable dam site with least ecosystem loss and fragmentation which is 3.308km² and 1.476km². (198 words)* **Contribution:** *The proposed methodological approach of floristic evaluation in this paper can be applied to other dam project and the impact of dam development can be addressed in a precise way. The developed DSS prototype is a helpful assistance to the authorized agency in Malaysia. This enables environmental conservation can be carried out in the midst of development. It will certainly contribute to the literature and knowledge on floristic evaluation that is regarded as an initial effort to fill the gap in addressing the way to salvage the exotic floral species as they are usually being compromised along the development process. (100 words)*

Keywords: Decision Support System; Floristic evaluation, Ecosystem loss; Ecosystem fragmentation

Abstract ID: AIMC-2017-LS-1144

RECYCLABLES WASTE COLLECTION THROUGH IMPLEMENTATION OF WASTE BANK PROGRAMME IN KUNDASANG COMMUNITY

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Abstract

Introduction: *The world is now erotically changing era with the deepening in economic globalization and emerging technologies. Malaysia is witnessing the convergence of traditional society with modernization. This*

broad transformation is changing the ways how Malaysian life, think and act. Nowadays, 30,000 ton of waste was produced per day in Malaysia which 10,950,000 ton waste per year was generated. These striking facts and figure poses challenges to the government, community and public to deal with the solid waste issues. This is due to the poorly managed of solid waste as in cases where waste is abandoned, not collected, disposal sites are inadequate and waste is contaminated with hazardous materials. Poor waste management can lead to some significant environmental and health hazard. Therefore, this paper will discuss the potential of recyclables waste collection through implementation of waste bank among the community in Kundasang, Sabah. The importance on the recyclables collection due as the current national recycling rates was 10.5% comparatively low compare to other developing countries and planned to increase 22% in year 2020. **Methodology:** There are 53 members that involve in 6 months of waste bank implementation which has been operating in two-phase which is in phase 1 (July until October 2016) and phase 2 (January until Mac 2017). Waste bank operation includes five steps. The first steps need the client or community who send their recyclables to register as waste bank member. Each member will get a waste bank book. Then the recyclables waste will be sorting and weighing by category. Then, the weighing date will be record in the waste bank book. Incentives of money will be given according to the weight and types of recyclables waste. **Findings:** From the data collection, total recyclables waste collected are 2501.30 kg, included 1114.50 kg of paper, 672.20 kg of box/cardboard, 258.30 kg of plastic, 102.45 kg of aluminum cans, 231.40 kg of metal and 122.45 kg of glass collected from July 2016 until Mac 2017 with total sales achieved RM 599.44. Based on the data collected, total waste bank profit had achieved RM 249.81 with average for each member collect 47.19 kg of recyclables waste and gain RM 11.31 each. **Contribution:** The waste bank program has bring positive impact to the communities as it creates opportunity to generate side income and increase knowledge and awareness regarding the proper way in handling solid waste at source. Thus, the implementation of the waste bank as an accessible recycling centre encourages recycling and has high potential in minimizes the solid waste generation.

Keywords: recyclables waste, waste bank, solid waste minimization, community

Abstract ID: AIMC-2017-LS-1152

THE EXISTENCE OF INTERANNUAL KELVIN WAVE AND ITS RELATION TO IOD AND ENSO ALONG THE SOUTHERN COAST OF JAVA

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Abstract

Introduction: The several previous research have studied the relation between atmospheric circulation and monsoon or the precipitation anomalies in the Indian Ocean (Qian et al., 2001), and has shown that it exhibits decadal or interdecadal variability. The Kelvin wave propagates along the coast of Sumatra, the southern coast of Java and Bali (Syamsudin et al., 2004). The Kelvin wave has been observed with the intraseasonal and semiannual variabilities (Sprintall et al., 2000; Syamsudin et al., 2004; Iskandar et al., 2005). This study examined the existence of interannual Kelvin wave and its relation to Indian Ocean Dipole (IOD) and El Nino and Southern Oscillation (ENSO) along the south coast of Java. **Methodology:** In this study, we applied the merged Topex/Poseidon and ERS-1/2 sea surface height anomaly (SSHA) datasets from the years 1992 to 2012 to identify the interannual Kelvin wave. We used low-pass filter and spectrum analyses to remove seasonal variation and observe the interannual variability. We also used the Hovmoller diagram and 2D frequency-wavenumber spectral analysis to observe the existence of interannual Kelvin waves. **Findings:** The results indicate that the SSHA along the south coast of Java in the span of 1992-2012 was affected by interannual (2 to 6 years) and decadal (10 years) periods. During El Niño events and IOD (+), the SSHA in the summer monsoon decreased by 17 cm and in the winter monsoon decreased by 9 cm. Meanwhile, during La Niña events and IOD (-), the SSHA in the summer monsoon increased by 25 cm and in the winter monsoon increased by 24 cm. The interannual Kelvin wave period (2 to 5 years) was observed along the south coast of Java with a phase velocity of 1.41 to 1.88 m/s. Kelvin wave is divided into two parts, upwelling and downwelling Kelvin wave and it has an interannual period (2 to 5 years). **Contribution:** Determining the Kelvin wave and its relation to IOD and ENSO will give the impact to climate condition. The one of the example is the rainfall distribution and variability.

Keywords: Interannual, Kelvin wave, Two-dimensional frequency-wavenumber spectral analysis, IOD index, ENSO

Abstract ID: AIMC-2017-LS-1153

A REVIEW ON SEED DISPERSAL OF RAFFLESIA IN SOUTHEAST ASIA

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Abstract

Introduction: Some researchers suggest that elephants, mice and pigs are potential dispersers of *Rafflesia* seeds. However, these arguments puzzle them as the data on *Rafflesia*'s seed dispersal agents are seriously lacking and scientists still do not find any evidence and clues from the scientific findings at *Rafflesia* study site.

Methodology: This paper reviews chronologically the seed dispersal of *Rafflesia* in the Southeast Asia since 1958 to 2013 including a recent study about seed dispersal in 2016, where a total of 240 trapping hours (using boxtraps) and 96 trapping hours (using camera traps) were done. **Findings:** The three previous study recorded tree shrews, squirrel and ants as *Rafflesia*'s seed dispersal agents. The result for the 2016 study revealed *Leopoldamys sabanus* as another potential seed dispersal agents for *Rafflesia*. **Contribution:** Only three previous studies discussed the potential seed dispersal agents for *Rafflesia*. Other essential aspects of *Rafflesia*'s reproductive biology including morphology and development of fruits, development and dispersal of seeds have remained poorly known. The information gained from these studies is very crucial for the species's conservation efforts.

Keywords: Seed dispersal, *Rafflesia*, Southeast Asia

Abstract ID: AIMC-2017-LS-1156

BIOCONTROL OF BASAL STEM ROT (BSR) DISEASE OF OIL PALM USING ENDOPHYTIC FUNGUS, HENDERSONIA SP.

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Abstract

Introduction: Five hundred endophytic fungi were isolated from roots of healthy palms standing in disease foci of the basal stem rot (BSR) disease of oil palm. These fungi were screened *in vitro* for their antagonistic properties towards *Ganoderma boninense*, the causal pathogen of BSR. Based on screening using dual culture and liquid culture assay, *Hendersonia* sp. isolate GanoEF1 proved effective in controlling the growth of *G. boninense* in both bioassays. In dual culture assay, isolate GanoEF1 gave a percentage inhibition of radial growth (PIRG) value against *G. boninense* at 89.3%, and in liquid culture assay the same isolate gave a percentage mycelial dry weight (PMDW) value of 49.8%. The study was extended to the nursery to evaluate the efficacy of *Hendersonia* sp. isolate GanoEF1 in controlling basal stem rot (BSR) disease incidence in oil palm seedlings artificially inoculated with *G. boninense*. After 6 months of treatment, BSR incidence was reduced by 37.0% to 55.2% in seedlings applied with *Hendersonia* sp. isolate GanoEF1 compared to untreated seedlings. The study clearly demonstrated that *Hendersonia* sp. isolate GanoEF1 has a promising role as a biocontrol agent of BSR of oil palm. **Methodology:** The endophytic fungus was isolated from roots of symptomless oil palms standing in BSR disease foci in high incidence disease areas in Teluk Intan, Perak, Malaysia by the method of Schena *et al.*, (2003) with some modifications. The antifungal activity of the endophytic fungi against *G. boninense* was tested on PDA plate at 28°C using dual culture technique and culture filtrate test. The potential isolate (*Hendersonia* sp. isolate GanoEF1) was further tested for the suppression of basal stem rot disease by under greenhouse conditions according to the method of artificial inoculation of the oil palm seedlings. The assessment on the effect of *Hendersonia* sp. isolate GanoEF1 on BSR incidence were carried out based on quantitative assessment measured as percentage of disease incidence (DI), severity of foliar symptom (SFS) and dead seedlings (DS) at monthly intervals. All percentage data (DI, SFS and DS) were transformed by arcsine transformation and subjected to analysis of variance (ANOVA) with the means compared by the least significant difference (LSD) at $P \leq 0.05$ using SAS® software (SAS Institute Inc., 1995). **Findings:** Antifungal activities of the 500 isolates were first tested against the agent of BSR disease, *G. boninense* by dual culture test and culture filtrate test. Isolate GanoEF1 was selected for nursery trial because it showed strong competitive ability *in vitro* against *G. boninense*. The results of our study indicate that the use of endophytic fungus, *Hendersonia* sp. isolate GanoEF1 isolated from the oil palm roots can control *Ganoderma* disease. The *Hendersonia* sp. isolate GanoEF1 showed good antagonistic properties against *G. boninense* in both *in vitro* assays. The lower percentage of DI, SFS and DS from the seedlings treated with this isolate over the control treatment suggested that the inoculated seedlings with endophytic fungus had built some form of tolerance to the physical damage by

G. boninense. This study also found that isolate *Hendersonia* sp. was able to significantly suppress *Ganoderma* disease based on its DR at the average of 46.1%. Overall, disease development was faster in the untreated seedlings compared to the seedlings treated with *Hendersonia* sp. isolate GanoEF1. In this study, disease reduction in the seedlings treated with *Hendersonia* sp. isolate GanoEF1 after challenge with *G. boninense* suggested that the endophytic fungus could play a role by inhibiting the penetration of *Ganoderma* fungus into the vascular systems via the roots of oil palm. **Contribution:** *Hendersonia* sp. isolate GanoEF1 gave the best results in controlling *G. boninense* in both bioassays. This fungus overgrew the pathogens in the in vitro assay and reduced the incidence of *Ganoderma* disease in the nursery study. To the best of our knowledge, this is the first report on the isolation of *Hendersonia* sp. from oil palm to control BSR. Due to the encouraging results were obtained in using *Hendersonia* sp. isolate GanoEF1 as BCA against *Ganoderma* disease, further studies should be conducted in the very near future to confirm their effectiveness in the field.

Keywords: Oil palm, endophytic fungus, basal stem rot, biological control

Abstract ID: AIMC-2017-LS-1163

ANALYSIS OF CONSONANT /M/, /N/ AND /NG/ IN MALAY LANGUAGE USING ELECTROPALATOGRAPHY

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Abstract

Introduction: Highly complex and versatile systems of coordinated muscular movements such as articulators are involved during normal speech. Tongue plays the important role as articulator and produces a majority of consonants and all vowels. During articulation and speech, the tongue is typically in contact with hard palate. Electropalatography (EPG) is a device that can measure the contact between tongue and hard palate. This paper aims to analyse the production of three consonants in the Malay language; /m/, /n/, and /ng/ by nine Malay-speaking adults with age ranging 20-35 years old (mean age of 28 years old). **Methodology:** In this research study, nine healthy subjects were selected. A Reading Palate was used to monitor the tongue-palate contact during the speech. A connector board attach to the Reading Palate was plugged into a board reader called a multiplexer. For analysing the data, Articulate Assist 1.18 software was used. The Reading Palate is made up of 62 silver contacts embedded in an acrylic resin that covers the palatal surface. For ensuring the palate to maintain in its position, stainless steel Adams clasps clips were attached to the first permanent molar teeth.

A conventional dental impression is used to imprint the subject's upper palate impression before recording. Then, the acrylic plate was cast on a study model and a training plate was prepared. During the procedure, patients were required to read and produce the sound of a word provided to them. Data was recorded in a studio laboratory with a soundproof system. The information that has been recorded through the tongue-palate contact during speech production will be transmitted by the artificial palate to the computer. Data were recorded as the subjects read out the consonant /m/, /n/, and /ng/.

Findings: There were altogether nine subjects selected for this analysis; subject 1 (S1), subject 2 (S2), subject 3 (S3), subject 4 (S4), subject 5 (S5), subject 6 (S6), subject 7 (S7), subject 8 (S8) and subject 9 (S9). All subjects are required to read and produce the sound of consonants /m/, /n/ and /ng/.

In the production of consonant /m/, there was a total of 11 contacts for S8 followed by S2, S7 and S9 with ten contacts, S4 and S5 with nine contacts, S3 with six contacts, S1 with five contacts, and S6 with two contacts. According to the electrode pattern for these subjects, it is observed that the tongue has not touched the alveolar part during the production of consonant /m/.

Meanwhile, for the production of consonant /n/, S9 recorded with the highest number of contacts which is 30. S8 has 29 contacts, S7 with 28 contacts, S2 with 25 contacts, S5 and S6 with 21 contacts, S1 and S4 with 19 contacts, and S3 with 18 contacts. Referring to the electrode pattern produced, alveolar and post-alveolar zone have been mostly touched by the tongue of the subjects.

Contribution: EPG has been used to observe the pattern of electrodes contact between the tongue and palate. In this research, nine adult Malay speakers are required to produce the sound of consonants /m/, /n/ and /ng/. During the sounds production, EPG is used to identify the tongue-palate contacts. Different consonant will produce different pattern of electrodes contacts between the tongue and palate. Additionally, there is no available database of the production of consonants /m/, /n/ and /ng/ among the Malays speakers. Thus, this study is aimed to create an EPG database that can be used for speech therapy among Malay cohort.

Keywords: Consonant /m/, /n/, /ng/, Malay Language, Electropalatography

Abstract ID: AIMC-2017-LS-1165

IDENTIFICATION AND CHARACTERIZATION OF NOVEL GENETIC REGION IN RHODOCOCCUS JOSTII RHA1 THAT IS IMPORTANT FOR POLYCHLORINATED BIPHENYL (PCBS) DEGRADATION

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Abstract

Introduction: *The rapid development of industries in the past decades has tagged along with environmental pollution issues, including product containing polychlorinated biphenyls (PCBs). PCBs are classified as persistent organic pollutants (POPs). For the first time, this study provides insight into the genome of microbe combining with transcriptomic analysis in the microorganism, Rhodococcus jostii RHA1 that capable to degrade Polychlorinated biphenyl (PCB). Our research focused specifically on intragenic open reading frames and the novel genetic region was identified based on the previous transcriptomic data that shown higher expression on biphenyl but without annotation. **Methodology:** Two candidates which are highly expressed region without annotation on biphenyl compared to pyruvate in previous transcriptomic data was chosen and it was label as CD01 and CD02. We can say that we could see other DNA regions are highly expressed under biphenyl condition, but we are still not sure what is the function of these regions. That is why we hypothesized that these regions may have vital function for PCB degradation as to understand PCB degradation by RHA1 completely. The primer was created based on the open reading frame and it was then amplified by Polymerase Chain Reaction (PCR). The target region that successfully amplified was ligated into pGEM-t and recombinant DNA was formed. Recombinant strains were grown in LB media at 37C with shaking. Absorbance (OD600) was monitored and samples were collected for every 2 hours after induction by Isopropyl β -D-1-thiogalactopyranoside (IPTG). Total protein lysates were generated in protein loading dye supplemented with β -mercaptoethanol. Total protein lysates were fractionated by SDS-PAGE using a Precision Dual Color protein marker (Bio-rad) as the references. Negative control lysates were included. In the second part, several genes were characterized to identify a protein which involved in biphenyl degradation under several criteria. **Findings:** Target region CD01 failed to produce any translation product suggesting that this DNA region express as untranslated small DNA or regulatory DNA. Auspiciously, CD02 had encoded some protein that we have tested in this study. This gene product might be important for PCB degradation. These results indicated that it is very possible that numerous small genes are yet to be discovered within the genomes of many organisms. The sensitivity of RNA-Seq will be a function of both molar concentration and transcript length. We therefore quantified transcript levels in reads per kilobase of exon model per million mapped reads. At the second part, we defined and characterized that RPKM (Reads Per Kilobase Million) more than 100 and fold change is more than 2 are significant to PCB degradation. These are important criteria that we select to identify number of gene or protein that involve in biphenyl degradation. Total 268 new genes that suppose to be important for PCB degradation was identified with 85 genes are hypothetical protein and the other have another function. Since gene that are involve in PCB degradation such as bph, ben, cat, and etb are included in this criteria, our data is convincing enough.*

Contribution: *This research exhibits an alarming possibility that even though the genome sequence of the microorganism has been analyzed, there is still not ample information we can get from the microorganism. New approach was found by combining genome of microbe with transcriptomic data. Moreover, the novelty of identification the genetic region in the previous transcriptome data is unmistakable because this proves that the raw transcriptome data is not enough to tell everything about the microorganism exclusively to identify protein that involved in biphenyl degradation. To sum up, we expect that by study this knowledge thus far will contribute to the effective and rapid remediation of polluted environments.*

Keywords: bioremediation, degradation, genome, polychlorinated biphenyl, transcriptomics

Abstract ID: AIMC-2017-LS-1177

AN OVERVIEW OF RADIOISOTOPES STUDY IN WATER POLLUTION

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Abstract

Introduction: Radioisotopes can be defined as the radioactive isotopes of an element. They refer to the atoms that contain an unstable combination of neutrons and protons. The combination can occur naturally or by altering the atoms. **Methodology:** Nowadays, radioactive materials have become major contributing pollutants for a lot of cases of disability and mortality in all over the world. They have become serious fear of the human, environment, and aquatic organism, although they are exposed to low levels of exposure. Therefore, to overcome these problems, the effective and easier prevention strategies should be taken and encouraged by all related parties such as industries, residents and government. Radioisotope become as an essential part in medical, radiography and other fields of research including the environmental study. **Findings:** One of the applications is they can be used as the indicators in order to identify the pollutant sources. This method can be applied in surface water around industrial area, too. The study regarding radioisotope usually use analytical instruments, for example Inductively Coupled-Plasma Mass Spectrometry (ICP-MS) and X-Ray Fluorescence (XRF). **Contribution:** Basically, this paper will give ideas on overview of radioisotope study and reference for acquiring better quality of surface water in the present and future by using the environmental forensic study application.

Keywords: radioactive materials, radioisotope tracing, pollutant sources

Abstract ID: AIMC-2017-LS-1178

CHARACTERIZATION AND PATHOGENICITY ASSESSMENT OF MOTILE AEROMONADS SEPTICEMIA (MAS) PATHOGEN, AEROMONAS HYDROPHILA ISOLATED FROM LOCAL FRESHWATER FISHES

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Abstract

Introduction: *Aeromonas hydrophila* is ubiquitous in aquatic habitat but frequently causes ulcerative disease known as red sore disease, red rot disease and motile *Aeromonas septicemia* (MAS) disease in cultured and feral fish. The disease is common worldwide and resulted in million dollar economic losses in the freshwater fish farming industry. The knowledge of haematological, biochemical and tissue changes in fish organs have become an important tool for monitoring outbreaks of bacterial fish diseases in laboratory studies. Through the analysis of blood cells, the status of the disease could be determined as for example hypochromic microcytic anemia caused by *A. hydrophila*, decreased was due to a erythrocyte counts and hemoglobin concentration. The objectives of this study were: (i) to determine the changes in haematological and biochemical parameters of the red hybrid tilapia experimentally infected with *A. hydrophila*; (ii) To describe the histopathological findings associated with experimental infection **Methodology:** The *Aeromonas hydrophila* isolate (AHFH40) which contains virulence genotype (lip+, exu+, ast+, act+, hly+, aer+, ser+) was chosen for experimental infection in *Oreochromis* sp. Naive *Oreochromis* spp. were injected intraperitoneally with 0.1 ml of *A. hydrophila* suspension containing 10^3 , 10^4 , 10^5 , 10^6 , 10^7 and 10^8 cfu/ml. Susceptibility to experimental infection was expressed as LD50 calculated by the method of Reed and Muench (1938). For experimental infection, the fish were divided into five groups. Each group consisted of ten fish was kept in a 40 L plastic aquarium. Fish in the first four groups were inoculated intraperitoneally (IP) with 0.1 ml of 1×10^5 cfu/ml of *A. hydrophila*, while the fish in the fifth group were injected with 0.1 ml of physiological saline and designated as the control. The bacterial stock was diluted in a sterile saline solution (0.85% NaCl) to reach the concentration of 1×10^6 cfu/ml by a 10-fold serial dilutions (1:10). All inoculated fish were observed daily for any clinical signs, abnormal behaviour or mortalities for a period of seven days post infection. Then, blood samples were collected from the infected fish at 0, 1 and 3 days- post infection. Later the fish tissues were fixed in 10% buffered formalin, processed and embedded into paraffin wax blocks. The sections were stained with haematoxylin and eosin. **Findings:** In this study, the LD50 of red hybrid tilapia injected IP with selected *A. hydrophila* (AHFH40) within 120 h was between 10^4 to 10^5 cfu/ml. Based on the present findings, the inoculation of red hybrid tilapia with a local *A. hydrophila* (AHFH40) isolate caused significant reductions in the haematological and biochemical

parameters, which include total erythrocyte count, haematocrit level, Hb concentration, AST level, and ALT level. By contrast, a significant increase was observed in the total leucocyte counts and TP level in the circulating blood of tilapia. The clinical signs and histopathology observed in these infected fish were similar to other descriptions of fish Aeromoniasis in published studies. Vessel congestion, inflammatory cellular infiltration, haemorrhage, and hemosiderin accumulation in the kidney, liver, and spleen were the main symptoms. Despite these symptoms, histopathological changes in infected fish were observed. Thus, histopathological, haematological and biochemical parameters are useful tools for the early diagnosis of this disease. **Contribution:** The consumption of tilapia fish is high in Asian markets. Hence, the use of histopathology for controlling diseases is useful by understanding the sequential pathology and pathophysiology of causative agent. As a result, treatment of tilapia diseases is more accurate, translating into higher profits in the aquaculture industry. Under favourable environmental conditions, *A. hydrophila* seems to multiply and produce higher levels of ECP toxins in fish, which can cause sudden disease outbreaks and mortalities. So, immunohistochemistry technique can be done for further study.

Keywords: Motile Aeromonads Septicemia, virulence, Lethal dose (LD50)

Abstract ID: AIMC-2017-LS-1182

DISASTER MANAGEMENT POLICIES IN SRIGADING VILLAGE

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Abstract

Introduction: Disaster is a public enemy to be overcome so that the damages and losses can be minimized. Disaster management can be done by community-based approach. Srigading Village in Sanden Subdistrict, Bantul Regency, Yogyakarta Province, Indonesia is an example of the village that has been conducting community-based disaster risk reduction because of tsunami prone area. This activity was initiated by BPBD (Regional Disaster Management Agency) to develop Srigading Village into Resilient Village. **Methodology:** This research aims to determine disaster management policies in Srigading Village and to determine the level of conformity with the implementation of Resilient Village according to Perka BNPB No 1/ 2012 (Chief Law of National Disaster Management Agency) regarding the resilient village guideline. Methods used are through field survey and in-depth interview with members of the disaster risk reduction forum. Questions and survey comprise legislation, planning, institutional, funding, capacity building, and disaster management. **Findings:** The result shows that Srigading Village is categorized as Pratama Resilient Village (the third level of resilient village) which means some policies still need to be improved, particularly related to funding. There were no clear provision about budgeting management. In addition, community has not fully become the main actors since this resilient village program was pioneered by government. However, in terms of legislation, disaster risk reduction (DRR) forum has been legitimated through the Srigading head village decree no. 20 of 2014. In the context planning, several planning documents have been made. **Contribution:** To sum up, this research provide some recommendations regarding disaster management policies in accordance with the conditions of Srigading Village.

Keywords: resilient village, policy, disaster management, Srigading Village.

Abstract ID: AIMC-2017-LS-1184

EFFECTS OF EURYCOMA LONGIFOLIA STANDARDIZED EXTRACT ON ESTRADIOL VALERATE-INDUCED TERATOGENICITY IN FEMALE RATS

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Abstract

Introduction: Estradiol valerate, a synthetic and steroidal estradiol is used as prescription for the treatment of certain female reproductive disorders as well as contraceptive drugs. Consumption of estradiol valerate during early pregnancy may produce abortifacient effects especially in cases of unknown pregnancy. Teratogenic effects have also been detected at toxic levels of the agent. This study therefore aims to investigate the possible effects of standardized extract of *Eurycoma longifolia*, TAF 273, on foetus development in female rats exposed to estradiol valerate. **Methodology:** Pregnant female rats on day 12 of gestation (GD12) were administered with a single

subcutaneous injection of estradiol valerate (0.15 mg/kg) and were randomly divided into 3 groups of 5 dams each which then received treatment of TAF 273 at doses of 25, 50 and 100 mg/kg body weight orally from day 12 gestation (GD12) until day 19 gestation (GD19). Pregnancy was terminated on day 21 of gestation (GD21) and uterus of each dam was carefully excised and the foetuses were examined for morphological observations. **Findings:** Results showed that exposure to estradiol valerate decreased the number of live foetuses with high number of pre-implantation loss and early resorption. Foetuses in the group treated with 100 mg/kg TAF 273 extract showed high number of live foetuses but with decreased body weight and crown-rump length as the number of embryo in the uterus also affect the availability of space for embryonic development and blood supply which relates to nutrition received by the foetuses. Observations of abnormalities in the form of kyphosis, scoliosis and kinky tail in EV group were more pronounced than in control and treatments group. **Contribution:** The present study suggests that *Eurycoma longifolia* may have potential in ameliorating the teratogenic effects of estradiol valerate by reducing external abnormalities in the rat foetuses. *Eurycoma longifolia* may have prospective use in the treatment of female-linked disorders and complications.

Keywords: *Eurycoma longifolia*, TAF 273, Teratogenicity, Estradiol Valerate, Foetus

Abstract ID: AIMC-2017-LS-1188

CHARACTERIZATION OF SECONDARY METABOLITES PRODUCTION FROM ACTINOMYCETE, RHODOCOCCLUS JOSTII RHA1

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Abstract

Introduction: Microorganisms like microbes have been invaluable producers of useful natural products. The significant portions of these microbial products are devoted to the secondary metabolites discovery. For instance, antibiotics are secondary metabolites derived from microbes in the soil that play an important medicine to prevent and treat various diseases. Approximately 43% of 23,000 known microbial secondary metabolites are produced by actinomycetes (1). The presently used bioactive metabolites (streptomycin, gentamycin, rifamycin and erythromycin) are the products of actinomycetes (2). Indeed, the most gifted actinomycetes have the capacity to discover more than 50 secondary metabolites from the large genome sequencing of microbes (3) due to the presence of biosynthetic genes secondary metabolites, polyketide synthase (PKS) and non-ribosomal polyketide synthetase (NRPS). *Rhodococcus jostii* RHA1 is an actinomycete genus that has been identified as the largest bacterial genomes to date with 67% G+C in 9.7 Mbp (4). Recently, interest in *Rhodococcus* has increased due to the discovery of 7 PKS and 24 NRPS genes in RHA1 genome (5), thus providing evidence of an extensive and uncharacterized secondary metabolism. These genes can be expressed under specific environmental conditions to promote the production of secondary metabolites. So, there are possibilities that the same bacterial strains of RHA1 can produce different kinds of secondary metabolites depending on the culture conditions. With the availability of full genome sequences, the structure of secondary metabolites can be predicted based on PKS and NRPS gene clusters using the anti-SMASH program. In this study, we evaluate the ability of RHA1 to produce different kinds of secondary metabolites in rich nutrients under different osmotic pressure and study their antibacterial activity. **Methodology:** 2.1. Cultivation of RHA1 *R. jostii* RHA1 was cultured in liquid and solid Luria-Bertani (LB) with different osmotic pressure and incubated for 7 days at 30°C with shaking at 160 rpm. The visible pellets, clumps and turbidity of the liquid media will confirm the growth of RHA1 in the flask.

2.2. Extraction of RHA1 Cultures

The whole broth cultures of RHA1 were centrifuged at 10,000 rpm for 10 min to separate the cell pellets from the supernatants. The cell-free supernatant from the culture broth was extracted twice with 30 mL of ethyl acetate in a separation funnel and shaken vigorously to recover the antimicrobial metabolites in a pure form. The ethyl acetate phase with antimicrobial metabolites was separated from the aqueous phase by using solvent extraction method.

2.3. Analytical methods

The RHA1 extracts were analyzed qualitatively using HPLC-DAD and UPLC Q-TOF-MS.

2.4. Antimicrobial Susceptibility Testing

Antimicrobial activity of the crude metabolites RHA1 was determined using agar disc diffusion method by testing against Gram-positive, *Bacillus subtilis* and Gram-negative bacteria, *Escherichia coli* to test their effectiveness against bacterial pathogens. **Findings:** 3.1. Detection of unique peaks of secondary metabolites

The production of secondary metabolites in six RHA1 extracts were detected by the presence of the unique peaks in the HPLC chromatograms based on eight selected UV-Vis wavelengths; 220nm, 250nm, 275nm, 300nm, 325nm, 350nm, 375nm and 400nm to allow qualitative information of all peaks from six RHA1 extracts beyond simple identification by retention time.. The HPLC chromatograms of RHA1 extracts were matched across retention times. The extra peak and highly expressed peak from the compared HPLC chromatograms was considered as “unique peak” of the secondary metabolites.

3.2. Analysis of chemical constituents of unique peaks of secondary metabolites

The characterization of secondary metabolites from the unique peaks of liquid RHA1 extracts including retention time, m/z value and possible responsible genes were presented in Table 1. The analysis of unique peaks of LMOP RHA1 extract at the retention time of 8.03 min produce the chemical constituents of the molecular ions with m/z value of 625.177. The possible responsible genes for the production of secondary metabolites were identified based on correlation data from the previous data. In this case, Type II PKS genes (ro00739 or ro01257) might be the possible responsible genes for the production of secondary metabolites in the LMOP RHA1 extract with m/z value of 625.177 at the retention time of 8.03 min. These metabolites are quite similar to Rhodostreptomycin A and Rhodostreptomycin B with m/z 625.281. In the case of negative ionization, the unique peaks of secondary metabolites from the LHOP RHA1 extract were synthesized by Type II PKS genes (ro00739 or ro01257) at the retention time of 16.81 min with m/z value of 831.157. By comparing their MS data with those reported in the literature, this metabolite was quite similar to Rhodobactin with m/z value of 830.37.

Table 1: The m/z value of unique peaks from TIC spectra in positive and negative ionization.

Out of about sixteen unique peaks of secondary metabolites, approximately two of these unique peaks had quite similar m/z values with those reported in the literature. The other unique peak of secondary metabolites could not be identified based on the previous literature or mass spectral library. Thus, it could be stated that the m/z value of these unique peaks might be represented as new secondary metabolites in RHA1. In order to predict the structures of secondary metabolites in the liquid RHA1 extracts, the anti-SMASH program was used by correlating their chemical structures with the domains and modules in the corresponding of PKSs or NRPSs.

3.3. Antimicrobial Activity

Six ethyl acetate RHA1 extracts were tested against two indicator bacteria, *Bacillus subtilis* and *Escherichia coli* by disc diffusion method. All liquid RHA1 extracts (LLOP RHA1, LMOP RHA1 and LHOP RHA1 extracts) showed clear inhibition zones against Gram-positive bacteria, *Bacillus subtilis* after 24 hours incubation at 30°C. This indicated that the antimicrobial compounds were constitutively produced in any kinds of LB nutrients and osmotic pressure. The inhibition zone that was seen around the paper discs showed that Gram-positive bacteria, *Bacillus subtilis* was more sensitive indicator bacteria than Gram-negative bacteria, *Escherichia coli*. **Contribution:** This research will undoubtedly add valuable insights into RHA1 secondary metabolite biosynthesis, which is currently little studies related to novel secondary metabolites production from PKS and NRPS in RHA1. By changing the cultivation conditions, may be more than 20 secondary metabolites can be discovered from any actinomycetes already known without new isolation of actinomycetes anymore. So, this is an initiative to cut the cost, energy and time saving without go out for sampling. This research is very beneficial for the optimization of different culture conditions as the components of culture media may affect secondary metabolite production. Thus, the productions of several kinds of secondary metabolites are very beneficial and can be used in medicine directly or used in the rational drug design in the future.

Keywords: Actinomycete, Rhodococcus, Secondary metabolites, PKS, NRPS, environmental condition

Abstract ID: AIMC-2017-LS-1197

EFFECT OF DIFFERENT SOIL PHS ON CADAVER DECOMPOSITION: A BURIAL STUDY UNDER TROPICAL CLIMATE

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Abstract

Introduction: Burial environment has significant effect on the decomposition process. The most influential environmental factors that determine the fate of the process are temperature, moisture, pH and partial pressure of oxygen. In this study, we investigated the decomposition of a cadaver in soils with contrasting pHs as the effect of soil pH on decomposition of cadavers especially under tropical climate is not well known. **Methodology:** A controlled laboratory experiment was carried out where commercial pig (*Sus Scrofa*) fatty flesh were allowed to decompose in mangrove (pH mild alkaline) and palm oil plantation (pH acidic) soils, mimicking a burial in

shallow graves. Soils were collected on different sampling points, corresponding to the different decomposition stages. Modified Bligh-Dyer Extraction method was used to extract the soil lipids. Gas-Chromatography Flame Ion Detector (GC-FID) was used to identify the obtained lipids. A similar trend in the rate of decomposition was observed for both soil. **Findings:** The rate was higher at the initial and putrefaction stages. A sharp increase was observed between day 3 and day 5 of burial interval. However, alkaline soil showed a higher in the rate of decomposition. Concentrations of palmitic (C16:0), stearic (C18:0) and oleic (C18:1) acids were higher in alkaline soil compared to the acidic soil. **Contribution:** The significant differences observed between these contrasting pH soils indicate that difference soil pH will eventually impose different effect on decomposition process. The results of this study demonstrate a greater need of considering soil pH in taphonomy studies.

Keywords: Cadaver decomposition; Soil pH; Clandestine Grave; Decomposition rate; Fatty acids

Abstract ID: AIMC-2017-LS-1201

MOLECULAR CLONING AND SEQUENCE CHARACTERIZATION OF A PUTATIVE MONOTERPENE SYNTHASE GENE FROM BANGUN-BANGUN PLANT (PLECTRANTHUS AMBOINICUS)

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Abstract

Introduction: *Plectranthus amboinicus* (Lour.) Spreng, or locally known as Bangun-bangun, is an aromatic medicinal herb known for its therapeutic and nutritional properties. This is mainly due to the presence of monoterpene compounds such as carvacrol, thymol, α -terpineol, γ -terpinene and p -cymene identified in its essential oil. Up until now, research on terpenoids biosynthesis has focused on a few species with economic importance such as thyme and oregano, yet the terpene synthases responsible for monoterpene production in *P. amboinicus* plant have not been described. **Methodology:** This present work describes the isolation and sequence characterization of *P. amboinicus* cDNA encoding for monoterpene synthase that involve in monoterpene biosynthesis. The full-length transcript of *P. amboinicus* monoterpene synthase was isolated using rapid amplification of cDNA ends (RACE) and sequence analysis characterization was conducted using bioinformatic tools such as ExPASy ProtParam tool, BLASTx algorithm, Clustal Omega and ChloroP 1.1 Prediction Server. **Findings:** A putative gene encoding monoterpene synthase from *P. amboinicus* plant was isolated and was designated as *P. amboinicus* terpene synthase 1 gene (*PamTps1*). The transcript *PamTps1* represented an open reading frame of 1,794 nucleotides encoding a predicted protein of 598 amino acids with molecular weight of 69.5 kDa. The *PamTps1* was predicted to contain an N-terminal plastid targeting peptide according to the ChloroP 1.1 Prediction Server which is a typical feature for monoterpene synthases. Besides, the deduced amino acid sequence contained conserved motifs characteristics of terpene synthases notably the DDxxD and (N,D)D(L,I,V)x(S,T)xxxE which are involved in the coordination of divalent cations. It also displayed the N-terminal sequence motif of RRx₈W which is essential for the enzymatic activity of monoterpene synthases. BLASTp analysis showed *PamTps1* shared 50-70% similarities to other monoterpene synthases available in Genbank database. **Contribution:** The *PamTps1* cloned herein provides a molecular basis for the monoterpenoids biosynthesis in this local herb that can be exploited for valuable production using metabolic engineering in both microbial and plant systems.

Keywords: Monoterpenes, *Plectranthus amboinicus*, Rapid amplification of cDNA ends, Terpene synthase, Terpenoids

Abstract ID: AIMC-2017-LS-1208

ANTIOXIDANTS AND A-GLUCOSIDASE INHIBITORY ACTIVITIES FROM PEELS OF SALAK (SALACCA ZALACCA) FRUIT

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Abstract

Introduction: *Salacca zalacca* or salak is a species of palm tree which

belongs to *Arecaceae* family and native to Indonesia and Malaysia. Normally salak grows in clusters and produces an edible fruit also known as snake fruit due to the reddish brown scaly skin. Although traditionally used as an antidiabetic, it needs scientific validation for this indication.

Methodology: The aims of this study is to evaluate the antioxidant and α -glucosidase inhibitory activities of different extracts of peels of Salak fruit. The extracts were prepared successively through maceration process at room temperature with different percentile of ethanol: water (100% ethanol to 0% ethanol). Preliminary phytochemical screenings conducted on different extracts followed by the estimation of total phenolic and flavonoids contents. Free radical scavenging activity was determined using DPPH as well as α -glucosidase inhibitory activity was performed using α -glucosidase enzyme.

Findings: Contribution: The economic and pharmaceutical values are anticipated to increase its incredible contribution to the Malaysian population.

Keywords: Salak; *Salacca salacca*, Antioxidant, alpha-glucosidase, diabetic

Abstract ID: AIMC-2017-LS-1222

AGRICULTURAL WASTE MANAGEMENT CHALLENGES TOWARD FARMING ACTIVITY IN KUNDASANG, SABAH

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Abstract

Introduction: Agricultural waste management is a challenge for the local authorities in Kundasang, Sabah mainly due to the increments of waste generation which is indirectly burden the local authority budget as a result of the high cost associated to its management. This paper presents an overview of the current situation of agricultural waste management, an existing problem in waste collection, recycling and disposal, and some suggestions for improvement of agricultural waste management in the future. **Methodology:** Finding was collected from scientific literature, existing data bases, observations made during visits to study area and an interview with relevant respondent. **Findings:** Agriculture sector in Kundasang, Sabah is dominated by small farm which is around 80% of the sample vegetable farmers, on the average; cultivate 2 acres of vegetable farms. However, the rapid expansion of the agriculture industry during recent day in this area has led to the increased production of agricultural waste. Therefore, environmental management is placing the greatest emphasis in recycling the waste at source. Thus, in this study suggests composting is a best method for treatment of agricultural waste. **Contribution:** The existing problem and current situation of agricultural waste management in Kundasang Sabah can be the preliminary study for others.

Keywords: Agricultural waste, local authority, agricultural waste management, challenge

Abstract ID: AIMC-2017-LS-1247

FOOD WASTE TREATMENT AND TECHNOLOGY IN MALAYSIA: COMPOSTING AS AN EXPERIENCES FROM OTHER DEVELOPING COUNTRIES.

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Abstract

Introduction: Every year food waste has recorded higher rate than other components mainly disposed at the landfills. Food waste is an environmental issue because it is not segregated well from Municipal Solid Waste, which increasing greenhouse gas emissions in landfills, and might produce GHG emissions impact on climate change. In 2015 15,000 tonnes is daily waste of households and 3,000 tonnes of food waste is essentially untouched, still edible to eat and the amount is enough to feed two millions starving people. Thus, this study aimed to overview composting as food waste treatment and technology in Malaysia by following some case studies and other countries experiences. **Methodology:** There are five popular treatment methods that have been widely applied in developing countries: animal feeding, composting (or organic fertilizer), anaerobic digestion, incineration and landfills. Based on documented data of current food waste treatments in developing countries,

the common food waste treatment method presently is dumps/ landfills (with there being an over 90% use rate for food waste treatment) and the second common method is composting with a rate ranging from 1% to 6%). Anaerobic digestion (with use rate of under 0.6%) and other treatments such as incineration and animal feeding are rarely used. Composting is an old method of treating solid waste which overtime has evolved into an environmentally sound system of waste processing. Composting is the biological decomposition of organic waste (biodegradable materials) consisting of complex animal and vegetable materials into their constituent components. Composting can be doing at home, restaurants, industrial factories, schools and others. One of the basic composting were suggested at home is Takakura method. The Takakura Method, developed by Mr. Koji Takakura, is a composting technique used to turn yard debris (leaves) and food scraps into a nutrient-rich soil additive. The method uses two fermented solutions, containing microorganisms that are cultured from locally available materials, and a fermenting bed to create a seed compost. **Findings:** In developing countries, there are several composting types as food waste technologies such as backyard or home composting, vermicomposting, windrow composting, in vessel composting and other. Composting is an efficient method for disposal of food waste in developing countries. In India, 70 composting facilities treating mixed municipal solid waste which recycles up to 5.9% of a total food waste amount to generate about 4.3 million tonnes of compost each year. In Thailand the utilization system recycles about 0.59 million tonnes of food waste that have been composted to produce organic fertilizer and biogas. Moreover, composting process offers the benefits of resource efficiency and producing a useful product of economic value from the organic waste, without sending to a landfill. **Contribution:** The food waste treatment and technologies will contribute to addressing the food waste issue. It will helps in prevent (GHG) emissions. The role of government agencies in the promotion of compost products is also limited. New technologies allow compost companies to tailor their products to specific end-uses, increasing market value of the material. Moreover, the compost offers a wide range of environmental, economic, other benefits. With composting it will enriches soils, helps remediate contaminated soils, helps to prevent pollution, to facilitates reforestation, as a low cost alternative and technologies and composting food will reduce the volume of garbage sent to landfills.

Keywords: Food waste, Food Waste Technology, Composting

Abstract ID: AIMC-2017-LS-1250

EFFECT OF PROBIOTIC ON THE HAEMATOLOGICAL PARAMETERS OF JUVENILE AFRICAN CATFISH, CLARIAS GARIEPINUS (BURCHELL, 1822) DURING PRE AND POST CHALLENGE AGAINST AEROMONAS HYDROPHILA

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Abstract

Introduction: The widespread use of antibiotics has directly led to an increase of antibiotic resistance bacteria. As an alternative strategy to replace and reduce the use of antibiotics, the prophylactic use of beneficial bacteria (probiotic) has appeared to improve health and survival of cultured aquatic species. Moreover, World Health Organization encourages the usage of probiotic to substitute or reduce the use of chemicals as the global trend are going back to the nature. Probiotics are define as live microorganisms, which when consumed in adequate amounts; confer beneficial effects on the health and well-being of the host by modifying the host associated or ambient microbial community of the gastrointestinal tract. It is very well known that probiotics have positive effects of health in humans and animals, even though a well-performed clinical trials are very scarce to find which investigate these effects. Lactic acid bacteria (LAB) are potential probiotic candidates in aquaculture and are also known to be as a normal inhabitant in the intestine of healthy fish. The present study was carried out to evaluate the influence of dietary supplementation of probiotic bacteria (*Enterococcus faecium*) on haematological parameters of juvenile African Catfish, *Clarias gariepinus* during pre and post challenged with aquatic pathogen, *Aeromonas hydrophila*. **Methodology:** The probiotics were previously isolated from vegetables wastes (Mung bean sprouts, *Vigna radiate*) and cucumber, *Cucumis sativus*) which have been fermented for 7 days. The experimental fish with the average weight of 5.13 ± 1.03 g were distributed and divided randomly into i) control, fed with commercial diet ii) E1, fed with practical diets containing diets supplemented with bacterial suspension of *Enterococcus faecium* isolated from fermented cucumber, iii) E2, fed with practical diets containing diets supplemented with bacterial suspension of *Enterococcus faecium* isolated from fermented mung bean sprouts. The feeding trail were conducted for 50 days. All fish were challenge with *Aeromonas hydrophila* (1.5×10^6 cfu/mL) via intraperitoneal injection on day 51st.

Then, blood samples were randomly collected from five fish from each groups on 51st days of pre-challenge and after 72 hours of post-challenge with *Aeromonas hydrophila*. The haematological parameters such as total erythrocyte count (RBC), total leucocyte count (WBC), packed cell volume (PCV), haemoglobin (Hb) and haematological indices (MCV and MCHC) were examined. Data obtained from the experiment were analysed using one-way analysis of variance (ANOVA) and significant differences among treatment means were compared using Duncan's multiple range test. Significance were tested at 5% level and all statistical analyses were carried out using the SPSS Version 21. **Findings:** Haematological profiles pre- and post-challenge infected juvenile African catfish were compared the control groups. RBC, Hb, WBC, PCV, MCV and MCHC showed higher significant difference ($P < 0.05$) of compared to control groups. In the recent study, high level of RBC and WBC during pre- and post-challenge showed the capability of the probiant in disease resistance. Further, by enhancing the level of RBC and WBC levels, adding *Enterococcus faecium* as feed additive may have a positive role in increasing juvenile African catfish immunity against *A. hydrophila* and prevent an anaemic condition. Additionally, the significant increase of red cell indices like MCV and MCHC also happened in the fish fed with supplemented probiotics diets. These might be due to the fact that, the probiotics used as feed additive increased the blood parameter values as a result of hematopoietic stimulation. The result suggests that *Enterococcus faecium* could be used effectively as a probiotics for the use in aquaculture. **Contribution:** Today probiotics are quite prevalent in health promoting "functional foods" for therapeutic, prophylactic and growth additives in animal production. Generally, lactic acid bacteria (LAB) is well known for their usage and researched for human and terrestrial animal purposes. Besides, LAB are also known to be present in the intestine of healthy fish. The development of probiotics related to commercial use in aquaculture is a comprehensive and multidisciplinary task demanding both verifiable and fundamental research, full-scale trials, and an economic assessment of its use. However, in Malaysia, the insufficiency of data about their efficacious performance in practice makes the practical relevance of probiotics in aquaculture vague as yet. In addition, there is still a lack of knowledge about the exact modes of action involved in probiotic reactions. For aquaculture industry in Malaysia, it will lead to high return and income since this industry is expanding throughout the region. Therefore, the aim of this study are to evaluate the status of potential probiotic as an element to introduce live cells of probiotic to the host animal gut in order to establish a balanced gastrointestinal microbial flora and to improve digestive function or immune system responses as well as a strategy for solving microbial problems in promoting fish health against pathogen. The assay will be done on juvenile African catfish (*Clarias gariepinus*) but the results are also applicable to other fish species and organisms relevant to fisheries and aquaculture.

Keywords: *Clarias gariepinus*, *Enterococcus faecium*, Probiotics and Haematological parameter

Abstract ID: AIMC-2017-LS-1256

THE ADVANCEMENTS OF UTILIZING ANTHOCYANIN PIGMENT FROM CLITORIA TERNATEA AS NATURAL BLUE DYE

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Abstract

Introduction: Anthocyanin dyes from *Clitoria ternatea* is a new source of natural blue dye to any industrial areas. *Clitoria ternatea* or known as Butterfly pea flower is commonly originated from tropical Asia and it is widely distributed in America, South Africa and Australia. **Methodology:** *C. ternatea* is easy to be maintained and grow at low cost, which can cultivate in the garden. Today's clothing in textile industry contains toxics, which slowly but surely kills the consumer due to the uses of synthetic dye nowadays. The dyeing process by using synthetic dye present extreme health risks for the worker and consumer, as well as affecting the environment recently. The link of using artificial or synthetic dye and health problems become a concern today, as it carries adverse effects such as ranging from cancer to hypersensitivity. Synthetic dye also allowed the manufacturers to release their waste into a river which can pollute to a local water source. **Findings:** Therefore, the natural pigment of *C. ternatea* can be applied for pharmaceuticals, textiles, medicinal and food industries. Anthocyanin is a blue, purple and red flavonoid pigment which is responsible for giving the colors to the flowers of *C. ternatea* depending on their pH conditions. The anthocyanin pigments in *C. ternatea* has been observed as an anti-viral, anti-inflammatory, antioxidant, anti-allergic, anti-microbial, anti-diabetic, to protect from cardiovascular damage and loss of eye vision. **Contribution:** Hence, this paper reviews the potential application of anthocyanin pigment as natural dye colorant in industrial sectors because its effectiveness and safety.

Keywords: *Clitoria ternatea*, anthocyanin, antioxidant activity, natural dyes

Abstract ID: AIMC-2017-LS-1258

EVALUATION OF NUTRIENT STATUS OF PHOSPHORUS AND POTASSIUM WITHIN SOIL AND PADDY CROPS IN IRRIGATED AND NON-IRRIGATED FIELDS IN NORTH ACEH DISTRICT.

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Abstract

Introduction: North Aceh has a different production between rainfed and irrigated. Total production of the both is still fluctuating. Main factor is the availability of phosphorus and potassium. Mostly phosphorus has been bonded by clay minerals such Al, Fe, Ca, and Mg, and potassium has been eroded by precipitation and transported by the straw. The availability of phosphorus and potassium in soil, often being unavailable because of less or excessive fertilizing. As a result, both phosphorus in the complex adsorption and potassium in mineral fixation like montmorillonite, vermiculite and Illite are hard to be absorbed by the paddy plant. **Methodology:** This research would be conducted by survey method and quantitative analysis through three stages. The first stage was the preparation phase includes literature, permit research, and secondary data collection. The second stage was a field study that biophysical data from a sample of soil and plant to be analyzed in the laboratory and in the evaluation based on the soil chemical properties PPT, 1983. The last stage was data analysis which was processed and evaluated using multiple linear regression evaluation and multiple linear correlations using SPSS. **Findings:** The results of the research stated that the status of P-total is very low to medium, the lowest was in rainfed Beurandang Seupeng. P-available status is very low in most locations, except the field Irrigation in Reuleut Barat with medium status. P uptake by rice plants ranged from 0.05% to 0.09%. The highest is in the field of irrigation in Alue Keujruen. Furthermore, the nutritional status of K-total is low to very high, the low status not only in the field of irrigation in Reuleut Timu but also in Paya Beurandang. Thus the nutritional status of K-exchange is low to medium, only in rainfed Asan Krueng Kreeh the intermediate status. K uptake by rice plants ranged from 0.49% to 0.71%, and the highest in the field of irrigation in Reuleut Timu. Therefore this research needs to continue to mapping P and K in order to support a balanced fertilizer program in Indonesia specifically in Aceh. **Contribution:** This research has much benefit for students in Agriculture faculty as a reference to do further research on phosphorus and potassium and its relationship with paddy. Data from this research are crucial information for agricultural institutions of agricultural technology assessment (BPTP) Aceh, to know the amount of phosphorus and potassium which had been stored in the soil, thus it support the proper innovation in fertilizing. Moreover the local governments have begun to build irrigation networks in several rainfed research locations. Therefore it should be done more research to support government programs to increase rice production in Aceh.

Keywords: irrigated and rainfed fields, phosphorus and potassium, P-total, P-available, K-total, K-exchange, P and K uptake by Paddy.

Abstract ID: AIMC-2017-LS-1269

POST-FIRE IMPACT ON UNDERSTORY PLANT COMMUNITIES IN PEATLAND ECOSYSTEM

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Abstract

Introduction: The establishment of understory plants during early post-fire succession may be an essential factor affecting the rate of natural post-fire succession. More than fifty percent of fire incidents in Riau, Sumatera, Indonesia occurred in shallow peatlands. This study aims to the understory plants species and diversity in post-fire peatland in Kampar regency, Sumatera, Indonesia **Methodology:** By Using survey method, the observations were conducted on 150 plots which were distributed randomly over four locations based on the year after fire: 2009, 2014, 2015 and 2016. **Findings:** We found respectively 12, 14, 19 and 17 species at the site in 2009, 2014, 2015 and 2016 with respective Shannon Wiener diversity index 84.48, 86.68, 77.53 and 36.44. All the site is dominated by *Stenochlaena palustris* (Burm.). Coverage percentage of understory vegetation were respectively 28.87%, 25.50%, 51.60% and 54.13%. Overall, we found 32 species of 17 familia. It can be concluded that the species composition, diversity index and coverage percentage of understory plant are likely to decrease in line with the length of time after the fire. Post peatland fires in Rimba Panjang, Kampar regency of Riau Province still shows the characteristics of the peat swamp ecosystem habitat which were characterized by the dominance of *Stenochlaena palustris* (Burm.). Ecological restoration is very possible, but it is necessary to

consider technological and socio-economical aspects of local communities. **Contribution:** We declare that this study is original. The findings will contribute to post-fire peatland conservation in ecological perspectives

Keywords: post-fire, peatland, understory plants, structure and composition, diversity index

Abstract ID: AIMC-2017-LS-1284

POST-FIRE IMPACT ON UNDERSTORY PLANT COMMUNITIES IN PEATLAND ECOSYSTEM

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Co-Authors: Nursal; Sri Wulandari; Yuslim Fauziah; Wan Syafii

Abstract

Introduction: The establishment of understory plants during early post-fire succession may be an essential factor affecting the rate of natural post-fire succession. More than fifty percent of fire incidents in Riau, Sumatera, Indonesia occurred in shallow peatlands. This study aims to analyze the understory plants species and diversity in post-fire peatland in Kampar Regency, Sumatera, Indonesia. **Methodology:** Field study by using survey method, the observations were conducted on 150 plots which were distributed randomly over four locations based on the year after fire: 2009, 2014, 2015 and 2016. **Findings:** We found respectively 12, 14, 19 and 17 species at the site in 2009, 2014, 2015 and 2016 with respective Shannon Wiener diversity index 1.72, 2.00, 2.14 and 2.40. All the site is dominated by *Stenochlaena palustris* (Burm.). Coverage percentage of understory vegetation were respectively 28.87%, 25.50%, 51.60% and 54.13%. Overall, we found 32 species of 17 familia **Contribution:** This work is original. The findings will contribute to post-fire peatlands conservation

Keywords: post-fire, peatland, understory plants, structure and composition, diversity index

Abstract ID: AIMC-2017-LS-1307

SUGARCANE BAGASSE POWDER AS BIOSORBENT FOR REACTIVE RED 120 REMOVAL FROM AQUEOUS SOLUTION

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Abstract

Introduction: Reactive red 120 was used as textile dye for fabric colouring. The dye waste produced during textile finishing process subsequently released directly to water bodies which giving harmful effects to the environment due to carcinogenic characteristic. **Methodology:** Adsorption process becomes an effective treatment to treat textile dyes. This research emphasizes the treatment of textile dye namely reactive red 120 (RR120) by using raw sugarcane bagasse powder. Batch study was carried out under varying parameters such as contact time (60 minutes), pH (1-8), initial dye concentration (5-25 mg/L), particle sizes (125-500 micron) and biosorbent dosage (0.01-0.2 g/L). **Findings:** The maximum adsorption percentage of RR120 was 94.62% respectively. The adsorption of the dye was increased with the decreasing of pH, initial dye concentration and particle sizes meanwhile the percentage of dye adsorption decreased with the increment of biosorbent dosage. Langmuir isotherm model was determined to have best fitting for the adsorption of RR120 at 298 K. Highly effective low-cost biosorbent was established using Fourier Transform Infrared (FTIR) and scanning electron microscopy (SEM). **Contribution:** This locally agricultural waste could be upgraded into useful material which is biosorbent that promising for decolourization of coloured textile wastewater.

Keywords: Adsorption, sugarcane bagasse powder, reactive red 120

Abstract ID: AIMC-2017-LS-1316

ENGAGEMENT IN COMPUTERIZED COGNITIVE BEHAVIOURAL THERAPY

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Abstract

Introduction: Rate of depression among adolescents is increasing each year but only few received evidence-based treatment due to limited access. Computerized cognitive behavioural therapy (CBT) is invented to address this problem and is proven efficient to treat depression in adults. However, its effectiveness to treat adolescents still remains a question as attrition rate among computerized CBT targeting adolescents is relatively high. The aim of this study is to discover current computerized CBT developed to treat adolescents with depression,

identify and discuss the issues of engagement in computerized CBT. **Methodology:** This study is done by conducting literature review on researches documenting evaluation of available or developed computerized CBT. All studies retained for analysis need to meet the study inclusion criteria outlined. As a complement to the literature review, interview with professionals was conducted and questionnaires also were distributed to them. The results were analysed qualitatively and feedbacks from the interviews were grouped by themes. **Findings:** Findings in this study show that engagement is a key element in computerized interventions. Both literature review and feedback noted the same concern in engaging adolescent patients when using computerized CBT which is the program is not tailored to the patient; contradicting the conventional CBT. The findings also reported that therapeutic relationship needs to be formed between the patient and “therapist”. Further research is needed in personalization and adaptation in computerized intervention for mental health. **Contribution:** This study is part of the ongoing study for developing an adaptive model for computerized CBT for adolescents with depression. The findings in this study provides some insights and will help increasing further research in area of engagement in computerized interventions for adolescents especially. This effort will help in improving healthcare provider services and hence decreasing the depression rate among adolescents.

Keywords: Adolescent; Computerized; CBT; Depression; Engagement

Abstract ID: AIMC-2017-LS-1317

ANALYSIS OF MANGROVE VEGETATION IN THE COASTAL AREA OF TOMINI GULF DISTRICT OF PAGUYAMAN PANTAI

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Abstract

Introduction: Coastal water at District of Paguyaman Pantai in Gorontalo Province is part of the Gulf of Tomini has great fishing potential. One of the very important resources is the coastal mangrove forest ecosystem. To support of effort its management, data on type and structure vegetation and other ecological supporting data are required. Scientific information about it in that coastal still very limited. This study aims to determine the structure and diversity of mangrove vegetation at coastal areas of Tomini Gulf in the District of Paguyaman, Boalemo Regency covering Apitalao, Lito, and Limbatiu villages. **Methodology:** The study was conducted at three villages namely Apitalao, Lito and Limbatiu where two stations were placed in each village. Data is collected in July-August 2015 by using line transect method with quadrat transect of terraced plot (Nested Quadrat). The quadratic terraced plot laid by 4 plot in each transect lines spaced plot $\pm 20m$ and the distance between the transect line $\pm 30m$. the plot size of $10m \times 10m$ is for observation of the tree; the plot size of $5m \times 5m$ is for observation of sapling, and a plot size of $1m \times 1m$ for observation of seedlings. The data collected is of mangrove species, the number of individuals of each kind for each category of growth rate (trees, sapling and seedlings), stem diameter (DBH) to the level of the tree, the condition of substrate, and the data of physical-chemical parameters which includes pH, temperature, and salinity. Additionally, the point coordinate at each substation is recorded using GPS. The measurement result of vegetation data were tabulated and analyzed. Data analysis included the composition, density, IVI, equality, diversity, distribution patterns, and zonation.

Findings: Number of mangrove species found in the study site is 11 species consists of six genera which are *Ceriops* (2 species), *Rhizophora* (3 species) *Bruquiera* (one species), *Sonneratia* (one species), *Avicennia* (2 species), and *Xylocarpus* (2 species) with the highest value of composition for seedling is *Rhizophora apiculata*, while for sapling and trunk categories is *Ceriops decandra*. Based on the analysis of species density it can be said that the mangroves in the study site are in the category of very dense and in good conditions. *Rhizophora apiculata* is a species that has the highest IVI (Important Value Index) value for seedling category and *Ceriops decandra* is a species with the highest IVI value for sapling and trunk categories. High degree of similarity between stations is exhibited by Station Limbatiu I and Limbatiu II. Diversity levels of seedling and sapling categories are average, while for trunk category is high (Stations Lito I and Limbatiu II) and average level for other stations. Zonings that formed are varied between stations, but generally areas overlooking the sea are *Rhizophora* zones and areas near the land are *Ceriops* zones. **Contribution:** The benefits of this research are expected to provide basic information in the management of mangrove forests and the basic for government policy making about the conservation of mangrove forests. is also expected to be a reference for determining government policy management planning and development of coastal areas and can be reference for further research. further research is necessary, especially in areas that have not been covered in this study to predict or anticipate the occurrence of damage/degradation of mangrove forest area, thus allowing the management in the future become easier. effort to maintain the condition of mangrove forests at the research sites are necessary.

Keywords: mangrove, structure of vegetation, IVI, diversity, zonation

Abstract ID: AIMC-2017-LS-1341

ECONOMIC EVALUATION OF LANDSCAPE INTEGRATED PEST MANAGEMENT PROGRAMS IN BANYUMAS DISTRICT, CENTRAL JAVA, INDONESIA

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Abstract

Introduction: *The massive use of chemicals in food production process has a negative impact on the aspect of cost, ecology and health specifically. Landscape Integrated Pest Management (LIPM) Program is one of the technology applications targeted to minimize the chemicals. In Indonesia, only 6 districts have applied LIPM. The objective of this study is to compare the use of pesticides, production costs, productivity, revenue, profit and financial feasibility between rice farms applying and not applying LIPM. Methodology:* Primary and secondary data were obtained during the investigation. The location of research was determined purposively focusing on Pliken Village as it is the only village actualizing LIPM in Banyumas district. Sample was decided by using random sampling methods involving LIPM and non-LIPM farmers with 30 respondents each. One Sample t-test was exerted to compare pesticides application, production costs, productivity, revenue, profit and financial feasibility. **Findings:** *The results indicate that pesticides application and farm costs in the rice farm applying LIPM were less than the rice farm not implementing LIPM. However, productivity, revenue, profitability and feasibility in the rice farm applying LIPM were higher than in the rice farm not implementing LIPM. Contribution:* In Indonesia, only 6 districts have applied LIPM and one of the potential regions is Banyumas district. Therefore, the results can be a reference to encourage farmers in applying Landscape Integrated Pest Management Program that can lead to sustainable agriculture.

Keywords: Economic, Evaluation, LIPM, Banyumas, Central Java, Indonesia

Abstract ID: AIMC-2017-LS-1349

FOOD SECURITY OF FARM HOUSEHOLD IN INDONESIA BORDER AREA, SEBATIK ISLAND

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Abstract

Introduction: *Every nation has to ensure that all of its citizens can fulfill their daily diet. Many border areas of Indonesia face challenges in fulfilling food demand, i.e. accessibility and high cost of farming. This study aimed; (1) to know food security level of farm households, (2) to know determinants of that food security level. This study was conducted in Sebatik Island, North Borneo Province, Indonesia. Purposive sampling were employed to define location of this study, while simple random sampling were used to define a sample of 81 farmer households who are living and cultivating in Sebatik Island. Methodology:* Data were collected with structured questionnaire. Food security level was identified by combination amount of food consumption and share of food expenditure as the Johnson and Toole approach. Moreover, Logistic model was employed to define determinants of food security level. **Findings:** *The result revealed that only 18.95% of farmer households were 'food secure'. Meanwhile, 24.21% and 21.05% of farmer households were categorized as 'vulnerable' and 'food insecure'; respectively. Other 35.79% of farm households were known as 'questionable' which were lack of food, but they have ability to increase food consumption. Other result identified that size of household, caloric availability, and non-food expenditure determined food security level of those farm households. Contribution:* The result was recommended that controlling population growth, increasing access of food, and raising household income may improve food security level of farm households in Sebatik Island, Indonesia Border Area

Keywords: Food Security, Border Area, Farm Household, Sebatik Island

Abstract ID: AIMC-2017-LS-1372

FORMULATION AND CHARACTERIZATION OF SELF-NANO EMULSIFYING DRUG DELIVERY SYSTEMS OF LEMONGRASS (CYMBOPOGON CITRATUS) ESSENTIAL OIL

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Abstract

Introduction: *The aim of this research was to characterize the formulation of self-nanoemulsifying drug delivery systems (SNEDDS) for lemongrass essential oil. **Methodology:** The observed variables included: particle size, zeta potential, and morphology. Materials consisted mixtures of oils (lemongrass essential oil and carrier oil), surfactants, and co-surfactants. Carrier oils were screened as candidates for SNEDDS and the formula was evaluated for transmittance and emulsification time. **Findings:** The value of formulation component was lemongrass essential oils, carrier oil (Virgin Coconut Oil), surfactant (Tween 80), and co-surfactant (PEG 400) = 8.34, 8.34, 71.43, and 16.67 % respectively. The formulation had a mean nanoemulsion droplet diameters of 20,7 nm with polydispersity index (PI) 0,378 and potential zeta -73 mV. Transmission electron microscopy demonstrated spherical droplet morphology. **Contribution:** This research produced snedds of lemongrass essential oil with nano particle size that can be used as feed additive in poultry.*

Keywords: Cymbopogon citratus, essential oil, SNEDDS

Abstract ID: AIMC-2017-LS-1373

OPTIMIZATION OF ACID SOLUBLE COLLAGEN (ASC) EXTRACTION FROM INDONESIAN LOCAL "KACANG" GOAT SKIN AND PHYSICO-CHEMICAL PROPERTIES CHARACTERIZATION

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Abstract

Introduction: *Acid soluble collagen (ASC) from Indonesian Local of "Kacang" Goat skin was extracted and characterized. The skin was obtained from local slaughter house. **Methodology:** Optimization of collagen extraction was investigated using one factor of response surface methodology. One hundred grams of skin was extracted with 0.5 M acetic acid for 24, 48, 72 h. The extract was filtered with whatman No.1 paper. The collagen was precipitated by adding NaCl to final concentration of 2,6 M. The resulting sediment was collected by centrifuging at 7000 g for 30 min and then re-dissolved in 0,5 M acetic acid. The resulting solutions were dialysed against 0,1 M acetic acid and distilled water sequentially. The properties of Goat skin collagen was characterized by amino acid analysis, FT-IR, and scanning electron microscopy (SEM). The optimal condition to obtain the highest yield of acid soluble collagen was 48 h hydrolysis. **Findings:** The result of the research showed collagen contained 30,52 glycine residues/1000 residues amino acid and this amino acid is a major amino acid residues in collagen. FT-IR spectra showed regions of amides A, I, II, and III were 3433,04, 1631,66, 1550,65, and 1404,07cm⁻¹ respectively. The scanning electron microscopy of goat skin collagen revealed a complicated network. **Contribution:** Indonesian local "Kacang" goat skin displayed suitable source of collagen. The physico-chemical research revealed that extracted collagens could have promising in the food, medical, and cosmetic industries.*

Keywords: Collagen; Goat skin; Optimization; Response surface methodology; Physico-chemical property

Abstract ID: AIMC-2017-LS-1387

OPTIMIZING OF PROTEASE PURIFICATION FROM BACILLUS CEREUS TD5B BY AMMONIUM SULFATE PRECIPITATION

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Abstract

Introduction: *Each protease enzyme derived from microbes has different specifications, so it is necessary to optimize the purification process to obtain specific enzyme activity data. **Methodology:** The material used was*

protease enzyme from *Bacillus cereus* TD5B. It produce and purified in liquid medium using ammonium sulfate precipitation. Optimization performed using various levels (50, 60, 70 and 80%) of ammonium sulfate as a precipitation agent on microbial rough enzymes. Separation of precipitate and supernatant was conducted by 3,000 rpm centrifugation for 30 min at 4 °C. the specific activity of protease enzyme and protein content were observed on precipitate and supernatant for at each of the ammonium sulfate levels treatment. **Findings:** Based on specific enzyme activity and protein content measurement showed that 70% ammonium sulfate level treatment has the highest specific enzyme activity (78.296 U/mg) and highest protein content (2.689 mg/ml). This specific enzyme activity was three times higher compared to specific enzyme activity before purification treatment (24.12 U/mg). In conclusion, the purification rough *Bacillus cereus* TD5B enzyme by ammonium sulfate purification able to increase the specific enzyme activity. **Contribution:** This research has never been done before. The contribution of this research is as reference about method of protein hydrolysis using *Bacillus cereus* TD5B protease enzyme.

Keywords: Enzyme, Protease microbial, Precipitation, Ammonium sulfate, Purification, *Bacillus cereus* TD5B

Abstract ID: AIMC-2017-LS-1388

CHARACTERIZATION OF EXTRACT OF OLIBANUM OBTAINED USING SUPERCRITICAL FLUID AND HYDRODISTILLATION EXTRACTION METHODS

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Abstract

Introduction: Frankincense, also known as olibanum, is the resin from the genus *Boswellia*, commonly located in Arabian Peninsula and India. It has a long history of use in religious ceremonies and for perfume production and its medicinal properties have now been appreciated for its healing properties. Frankincense is an exudate, the ooze out from cortex of plants after an injury or natural crack in the bark. Many plant exudates have characteristic of fragrance, appearance and colour (sometimes golden yellow) which can change after sun drying. The Olibanum specie consists mainly of an acid resin (56-60%), gum (30-36%) and volatile oil (3-8%). The main content of the resin is Boswellic acid and olibanoresene in equal proportions (Chowdary, Mohapatra, & Murali, 2008). The genus *Boswellia* is among the 17 genera of the family Burseraceae, and its species extend from Ivory Coast to the Horn of Africa and southwards to northern Madagascar. It can also be found in the Middle East as well as India. The centre of geographical diversity of the genus is located in northeast tropical Africa within the dry lowland areas where more than 75% of its species are widespread

. **Purpose:** The aim of this paper is to investigate the DPPH inhibition property of Olibanum extract obtained using different solvents (ethyl acetate, ethanol, chloroform, methanol, petroleum ether and hexane). The yields of the extracts were also determined. in exudate the ooze out from cortex of plants after an injury or natural crack in the bark. **Methodology:** Extraction of Olibanum

About 10 g of Olibanum powder was subjected to supercritical fluid extraction and hydrodistillation extraction. Prior to hydrodistillation, the unground sample was initially soaked for one day. Then, hydrodistillation was conducted using clevenger apparatus for fourteen hours then the essential oil was separated with separation funnel using diethylether as a solvent. The oil extract was passed through filter paper and then dried with sodium sulfate anhydrous and stored at 4oC until needed for further analysis. The sample was ground using pestle and mortar and alcohol was used as co-solvent. The supercritical fluid extraction was carried out at a temperature of 50oC for 3 hr.

Determination the percentage yield

The yield was calculated according to the below equation:

$Wt\ of\ the\ yield = (wt\ of\ flask + sample) - (wt\ of\ the\ flask)$

$Percentage\ of\ the\ yield = \frac{yield\ (g)}{initial\ weight\ of\ the\ sample\ (g)} * 100$

Determination of DPPH Inhibition property

The DPPH antioxidant activity of different concentrations (350 – 21.875 µg/ml) of extract conducted according to Dey & Dora (2014) with slight modification. Equal volume of extract solution and DPPH solution (0.1mM) were thoroughly mixed together. The mixture was incubated at room temperature in the dark for 30 min. The absorbance value at 517 nm was obtained. 10µg/ml ascorbic acid was used as a commercial control and the blank was water. The percentage inhibition was calculated using Equation 1.

$Percentage\ Inhibition = \frac{Ac}{Ac_0} * 100$

Where Ac = absorbance of water

As = absorbance of samples

FTIR analysis

About 10 uL of extract was mixed with KBr and made into disc. The IR spectra of the disc was collected using FTIR.

Statistical Analysis

The data were collected in triplicate, which showed the average values of the raw data. The SPSS version 12 was used to determine the significantly differences in the readings using Analysis of Variance (ANOVA) technique and means were separated using Duncan Multiple Test.

Findings: *The percentage yield of the Olibanum extracts obtained using SFE is more than that of hydrodistillation. This is possible because SFE made use of polar and nonpolar solvents hence both polar and nonpolar composition of the plant will be extracted unlike the polar composition that were only extracted during hydrodistillation. The yield of SFE is about 6 times that of hydrodistillation.*

In order to determine the antioxidant activities of Olibanum extracts, the percentage inhibition of DPPH at different concentrations of extracts was determined and the result is presented in Figure 2. The result shows that as the concentration of the extract of hydrodistillation and supercritical fluid extraction increased the antioxidant activities increased. Hydrodistillation gave higher antioxidant activities in the three different concentrations in comparison to supercritical fluid extraction with the same concentration.

*The FTIR spectra of Olibanum oil extracts obtained using hydrodistillation and SFE are shown in Figure 3. The result shows that the extracts have similar spectra peaks except the presence of a broad peak around 3460 cm-1 in SFE extract. The following peaks that are similar to both spectra include: 2927-2555 cm-1 for methylene asymmetry and symmetry groups, 3471 cm-1 for glyceride ester carbonyl, 1653 cm-1 for acyl groups C=C and 31461 cm-1 for aliphatic groups CH2 and CH3 and 11000 cm-1 for C=O group of ester. **Contribution:** *The FTIR spectra reveal that the structure of extracts obtained from Olibanum obtained from SFE and hydrodistillation is responsible for their antioxidant activities. The method of production of Olibanum extract has effect on their inhibition of DPPH properties. The yield of extract was higher in SFE compared to hydrodistillation.**

Keywords: Olibanum, antioxidant, extraction, rasin, Frankincense

Abstract ID: AIMC-2017-LS-1404

LABISIA PUMILA VAR ALATA: A POTENTIAL ALTERNATIVE TO ESTROGEN IN MANAGEMENT OF POSTMENOPAUSAL OSTEOPOROSIS

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Abstract

Introduction: *Due to increasing life expectancy, postmenopausal osteoporosis is now a primary public health problem posing huge economic and social burden. Reports showed that over 200 million women suffer from this condition and 1 out of every 3 women above 50 years will experience fractures secondary to osteoporosis. Due to associated adverse side effects such as cancer (breast, colorectal and endometrial), treatment of that this condition with estrogen as replacement therapy (ERT), a gold standard, has been discouraged. Thus safer alternative medicines are being sorted for. Labisia pumila var alata (Lpva), a herb rich in estrogen-like phytoconstituents called phytoestrogens, have been reported to protect bones of estrogen-deficient rats against osteoporosis. In this article, the potentials of Lpva to be used as a safe alternative to estrogen in management of postmenopausal osteoporosis were evaluated. **Methodology:** *Published research data on the osteoprotective properties, toxicological reports and other related pharmacological activities of Lpva were searched from reliable databases such as Pubmed, Cochrane library, Scopus, Web of Science and Natural Medicines, screened and reviewed. **Findings:** *Lpva protected femora bone of estrogen-deficient rats by preserving bone micro-architecture, mineral density and improved mechanical bone strength of ovariectomized rats. Toxicological studies in animal revealed a no-adverse-effect-level (NOAEL) at doses lower 50 mg/kg for Lpva while clinically trials. **Contribution:** *From the abundant data of efficacy in animal and safety in animal and human subjects, it can be concluded that Labisia pumila var. alata is a potentially safer alternative to estrogen in managing postmenopausal osteoporosis worthy of further researches that will push it from bench to bedside.****

Keywords: Labisia pumila, postmenopausal osteoporosis, osteoprotection, phytoestrogens, bone biomarkers.

Abstract ID: AIMC-2017-LS-1411

THE ROLE OF AGRICULTURE EXTENTION FOR ORGANIC PADDY FARMING (CASE STUDY IN NGOMBOL DISTRICT, PURWOREJO REGENCY, CENTRAL JAVA, INDONESIA)

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Abstract

Introduction: Agriculture extention is one of change agent in agricultural sector. This role has an important to increase the welfare of farmers. The research is located in Ngombol District, Purworejo Regency, Central Java, Indonesia. This research aims are: 1) to determine the characteristics of organic paddy farmers in Ngombol District, Purworejo Regency, Indonesia, 2) to determine the role of agriculture extention on organic paddy farmers in Ngombol District, Purworejo Regency, Indonesia, and 3) to determine the role of agriculture extention for increasing the crops of organic paddy farmers in Ngombol District, Purworejo Regency, Indonesia.

Methodology: This research are analyzed by descriptive analysis and likert scale. In this research are using purposive sampling for tehnnique sampling. The total sample are 32 organic paddy farmer. **Findings:** The result shows that: 1) the characteristic of organic paddy farmers are included to productive age, the farming experience is more than 10 years, self-owned, and the size of paddy yields is approximately 0,38 Ha, 2) the role of agriculture extention of organic paddy farmers in Ngombol District, Purworejo Regency, Indonesia is not enough to role, it means that the role of agriculture extention have to improve with connecting researcher and farmer assistance and 3) the role of agriculture extention for increasing the crops of organic paddy farmer in Ngombol District, Purworejo Regency, Indonesia is not enough to role also, it means that the role of agriculture extention needed to increase. In this research for increasing the crops can doing by agriculture extention are fertilization, certified seed, and attendance at farmers group meeting **Contribution:** This research has focused in the role of agriculture extention of organic paddy farmer in Ngombol District, Purworejo Regency, Indonesia.

Keywords: Role, Agriculture Extention, Organic Paddy, Ngombol District, Purworejo Regency

Abstract ID: AIMC-2017-LS-1424

SYNTHESIS, CHARACTERIZATION & BIOLOGICAL ACTIVITY OF S-BENZYL DITHIOCARBAZATE AND ITS SCHIFF BASES DERIVATIVES

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Abstract

Introduction: Dithiocarbazate is a nitrogen sulfur containing compound with chemical formula NH_2NHCS_2 . This property enables dithiocarbazate to form versatile and interesting series of ligands whose properties can be modified by introducing different organic substituents through its nitrogen atom. The slight changes in the structure of the ligands have been linked to contribute to the different biological activity in the ligands, such as antibacterial, antifungal, anticancer, antitumour, wound healing, cell motility as well as antioxidant activities. This study aims to synthesize, characterize and evaluate the biological activity of the dithiocarbazate ligands.

Methodology: Parent ligand, S-benzyl dithiocarbazate was reacted with 2-acetylpyridine, 3-acetylpyridine, 4-acetylpyridine, p-anisoyl chloride, o-anisoyl chloride, vanillin via condensation reaction to produce six dithiocarbazate Schiff bases derivatives, abbreviated as SB2AP, SB3AP, SB4AP, SBPAC, SBOAC, and SBVN. All the dithiocarbazate Schiff bases derivatives were characterized using CHNS elemental analyses, Fourier Transformed Infrared (FTIR) Spectroscopy and Nuclear Magnetic Resonance (NMR) spectroscopy. All the Schiff bases derivatives were evaluated for their antibacterial activity using disc diffusion assay against *Bacillus cereus* (ATCC 11778), *Staphylococcus aureus* (ATCC 25923), *Staphylococcus epidermidis* (ATCC 14990), *Streptococcus pyogenes* (ATCC 19615), *Escherichia coli* (ATCC 8739), *Klebsiella pneumonia* (ATCC 700603), *Pseudomonas aeruginosa* (ATCC 27853), and *Salmonella typhimurium* (IMR S974/05 B) using streptomycin as the standard antibiotic. The cytotoxic activity was also evaluated using MTT assay against human breast adenocarcinoma cell line (MCF-7) using cisplatin as the standard drug. **Findings:** CHNS elemental analysis of the ligand and its derivatives are comparable to their theoretical values. FTIR of the ligand and its Schiff base derivatives recorded in the range 400-4000 cm^{-1} showed absorbance peaks of $\nu(C=N)$ in the range of 1700-1550 cm^{-1} , $\nu(C=S)$ in the range of 1100-950 cm^{-1} , $\nu(CSS)$ in the range of 1000-935 cm^{-1} , $\nu(N-H)$ in the range of 1700-1550 cm^{-1} as well as $\nu(N-N)$ in the range of 1350-1300 cm^{-1} . The 1H NMR spectroscopy of the ligands and Schiff base derivatives showed characteristic resonance signals of S-CH₂ as singlets, -CH₃ (singlets) and aromatic protons exhibited multiplets signals. Meanwhile the ^{13}C NMR of the ligand and its derivatives also

exhibited expected signals of $-NH-C(=S)S$, $C=N$, methyl carbon (CH_3), $S-CH_2$ signal, aromatic carbon signals of the benzene ring, and carbon signals of the pyridine ring. The ligand and its derivatives were inactive against all bacteria tested. The cytotoxic test also showed no activity against the MCF-7 cancer cell line. **Contribution:** *S*-benzylthiocarbamate is a useful precursor to synthesize more versatile ligands. In this study, *S*-benzylthiocarbamate were reacted with various carbonyl compounds to form various derivatives. Despite being inactive, these Schiff base derivatives have the potential to be further complexed with various metal ion to form more stable ligands. Complexation has been reported to greatly enhanced biological activity of dithiocarbamate ligands. Hence, it is proposed to complex this ligand and its Schiff base derivatives with metal ion and further study their biological activity.

Keywords: *S*-benzylthiocarbamate, Schiff base

Abstract ID: AIMC-2017-LS-1427

INSECTS ATTENDANCE IN ORCHIDACEAE AT THE MENOREH MOUNTAINS, KULONPROGO, D. I YOGYAKARTA, INDONESIA

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Abstract

Introduction: *Menoreh mountains have a wide landscape covering the area of Kulonprogo district (D. I. Yogyakarta), Purworejo district (Central Java), and Magelang district (Central Java). Menoreh Mountains are still covered with a green expanse that holds a lot of biodiversity potential especially familia Orchidaceae, 33 species have been found in the region. Orchidaceae have a unique morphology. Different species has a different morphology and a different morphology has a different insect visitors. However, research on the insects of Orchidaceae visitors from the Menoreh Mountains area has not been done so that this study aims to record the species of Orchidaceae and its insect visitors. Methodology:* The research method is done by observation method. The study was conducted by the method of cruising for one week, namely at 6:00 am to 10:00 am and at 15:00 pm until 17:00 pm because the insects visitors are recorded is a diurnal insect. Each orchid encountered recorded the name of the species and its visitor insects. **Findings:** There were five species of orchid flowers, *Spathoglottis plicata*, *Acriopsis liliifolia*, *Eria retusa*, *Polystachya sp.*, And *Harbenaria ploerlingii*. Of the five species are found different insects because the differences in flower morphology. However, the five species have a visitor equation, namely familia Formicidae, *Camponotus sp.* **Contribution:** This research is original because there is no researcher who have a data collection about insect visitors in Orchidaceae at Menoreh Mountains. Hope this research can be preliminary research to other researchers. This research is still continued because the data still in the West of Kulonprogo, it can be done if the whole of Kulonprogo can be observe.

Keywords: Insect visitor, Menoreh Mountains, Orchidaceae

Abstract ID: AIMC-2017-LS-1443

APPLICATION OF THE ANALYTICAL HIERARCHY PROCESS (AHP) FOR PACKAGING SELECTION OF THE BALINESE FOOD “LEDOK”

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Abstract

Introduction: One of the local food that is currently consumed and developed in Bali is Ledok. Ledok is a non rice food with main ingredients of corn, cassava, red beans and peanuts are boiled and added green vegetables, and spices. Today Ledok has been developed into Ledok instant. This product is popular because it meets local tastes, practical, and has a long shelf life of six months. Instant ledok needs to be commercialized into a typical Bali local food product that is able to compete with other non-rice products already available in the market. In this study the selection of the bucket packaging was chosen to increase the added value and commercialization of the product. **Methodology:** The method used to determine the packaging priority used for Ledok instant is Analytical Hierarchy Process. Criteria used in the selection of packaging types are raw materials, price, strength, flexibility, appearance, environmentally friendly. Alternatives of this type of packaging are the types of packaging commonly used for food products such as paper, plastic, aluminum foil, paper and plastic combination, aluminum foil and plastic, cans, Styrofoam and glass. **Findings:** The global priority for this type of packaging is a plastic-paper combination with a value of 1,360. The agreed criteria for packaging form are

practicality, strength, price, and appearance. The alternatives chosen for the packaging form are pouch, bag, round, box, bottle, and bowl. The global priority for packaging is the pouch, with a score of 1,671. **Contribution:** The appropriate type and form of packaging for Ledok Instant as a local Balinese food has never been studied before. So the findings of this research can increase the added value of developed Ledok instant

Keywords: Balinese food, Instant Ledok, AHP, type and form of packaging

Abstract ID: AIMC-2017-LS-1445

THE DEVELOPMENT OF RESISTANCE OF MUSCA DOMESTICA (LINNAEUS) (DIPTERA : MUSCIDAE) STRAIN FROM 6 CITIES IN INDONESIA AND DPIL SELECTED WITH IMIDACLOPRID AND PERMETHRIN FOR TEN GENERATION

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Abstract

Introduction: The housefly *Musca domestica* is a cosmopolitan insect which has caused disruption to human life. Houseflies can cause various diseases such as dysentery, typhoid and cholera. Control of houseflies by using insecticides is a more effective and efficient method. Insecticide with permethrin and imidacloprid as active ingredients has been used in controlling the population of houseflies both in settlements and in livestock sector, so it causes resistance problem. **Methodology:** This research was conducted by WHO standard test method which aimed to know the development speed of resistance level in houseflies strain: Serang (SRG), Jakarta (JKT), Bandung (BDG), Semarang (SMG), Jogjakarta (JOG), and Surabaya (SBY) and DPIL selected with permethrin and imidacloprid for 10 generations. **Findings:** The results of this study indicated that all tested field strains have been resistant to permethrin with low to very high resistance (RR50 values ranging between 520 and 2880). The SRG strain showed the highest RR50 (2880) and the lowest in the JKT strain (520). The resistance level of selected-permethrin strains for 10 generations increased in resistance levels of 2,7 - 32,73 times higher in F10 than that of the parental. However, The resistance of strain tested against imidacloprid is still vulnerable and low resistance (RR50 values ranging between 2,0 and 15,5). The SRG strain showed the highest RR50 (15,5) and the lowest resistance was showed by SBY strain (2,0). The resistance level of all strains selected for 10 generations with imidacloprid increased from 3,25 to 17,41 times higher in F10 than that of the parental. **Contribution:** Knowledge of resistance speed is needed to design better integrated pest management strategy.

Keywords: *Musca domestica*, imidacloprid, permethrin, resistance, selection pressure

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STRUCTURAL DYNAMICS OF ENDOGENOUS PEPTIDE ATPEP1

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Abstract

Introduction: *AtPep1*, an endogenous peptide, composed of 23-amino acid was first identified in *Arabidopsis* as a damage-associated molecular pattern (DAMP). *AtPep1* binds with the receptor *PEPR1* and *PEPR2* with a shared receptor *BAK1* and activate the defense mechanism of plant. Crystal structure of *AtPep1* has recently been solved in complex with the leucine-rich repeat domain of *PEPR1*. With an aim of understanding the dynamic nature of the crystal *AtPep1*, molecular dynamics (MD) simulation was carried out for 500 ns. **Methodology:** The crystal structure was obtained from protein data bank (PDB ID: 5gr8). The peptide *AtPep1* was then separated from the crystal complex and was subjected to MD simulation. The Gromacs96 54a7 united force field was used to run the simulation. Before running the simulation, the system was solvated, neutralized, energy minimized and equilibrated. In case of solvation, the *AtPep1* was taken into a cubic box with a minimum distance of 1Å between the protein surfaces and edges. Then the box with the peptide inside was solvated with simple point charge (SPC) water model. To remove bad van der Waals contacts and generate a good starting structure for MD simulation, energy minimization was done. Then the system was equilibrated for 2 ns NPT ensemble followed by 1 ns NVT ensemble maintaining a constant 1 atm. pressure and 300 K temperature, respectively. Finally, A 500 ns MD simulation was carried out maintaining a constant 1 atm. pressure and 300 K temperature. To monitor the dynamic nature of *AtPep1*, root mean square deviation (RMSD), root mean square fluctuation (RMSF), radius of gyration (Rg), solvent accessible surface area (SASA), total energy and secondary

structure was calculated using GROMACS tools. **Findings:** After reaching to a stable value of around 1.2 nm, the RMSD value again increased to 1.3 nm after 200 ns. While there was a slight decrease in around 370 ns, the RMSD again showed equilibrium nature which indicates that the peptide became stable again until 500 ns. For RMSF analysis of α -atoms, the N-terminal atoms showed the maximum fluctuation. This fluctuation in N-terminal may be significant for AtPep1 because in a previous study it was proved that for the deletion in N-terminal region results AtPep1 act like wild type peptide of pattern-triggered immunity (PTI) system. The Radius of gyration (R_g) shows almost stable behavior around 0.8 nm with a slight decrease which proves that the protein became more compact at the end of the simulation. SASA and total energy of the peptide again support the result of R_g with stable nature behavior of the peptide. The secondary structure of the peptide shows the dominance of coil, bend and turn with mild presence of beta-sheet and beta-bridge throughout the 500 ns simulation period of time. **Contribution:** Proper structural study of AtPep1 is essential due to its essential role in defense mechanism of plant. The molecular dynamics simulation study of the protein shows stable behavior of the AtPep1 except for the N-terminal region while previous study showed that due to the deletion of this N-terminal AtPep1 acts like wild peptide of pattern-triggered immunity system. Finally, this overall stable nature of the peptide AtPep1 may be important towards activating the defense mechanism in Arabidopsis.

Keywords: AtPep1, PEPR1, MD simulation, Defense

Abstract ID: AIMC-2017-LS-1451

PHYLOGENETIC RELATIONSHIP AND TAXONOMIC STATUS OF MACACA FASCICULARIS LAETTI (ELLIOT 1909) IN PULAU TIOMAN

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Abstract

Introduction: *Macaca fascicularis* have been at the centre of human wildlife conflict in Malaysia. Various conflict mitigation strategy have been taken to resolve these issues in Malaysia especially by using population translocation approaches. While these solutions favour the well-being of humans, it will have a negative impact on the genetic diversity of the populations. A distinct taxonomic status was proposed for *M. fascicularis* in Tioman Island as *M. f. laetti*. Thus the objective of this study is to resolve the taxonomic status of the population in Tioman Island. **Methodology:** Genetic samples were collected from Tioman island, and DNA were extracted and amplified by targeting control region of mitochondrial DNA yielding 965 base pair of mtDNA. Phylogenetic analysis such as Neighbor-Joining and Maximum Parsimony were conducted to resolve the phylogenetic relationship of the population in Tioman Island as compared to population in mainland. Furthermore, additional analysis such as genetic distance, haplotype analysis, minimum-spanning network and population genetic analysis were also conducted. **Findings:** Analyses of Neighbor-Joining and Maximum Parsimony phylogenetic tree revealed weakly supported monophyletic clade of the population in Tioman Island. Four haplotype unique to the population in Johor, along with surprisingly high gene flow between the populations on the island with mainland further complicate the taxonomic status of the population. **Contribution:** In conclusion, the mtDNA might not be able to reveal the taxonomic status of the population, if the population from the island are being translocated to mainland thus homogenizing the unique lineages of the species. The outcome of this study can help the authorities, especially Department of Wildlife and National Park Malaysia in pest control management and strategy development.

Keywords: *Macaca fascicularis*, phylogenetic, population genetic, pest control, translocation, genetic diversity

Abstract ID: AIMC-2017-LS-1473

QUANTIFICATION OF URBAN LITTER GENERATION AND COMPOSITION TRAPPED AT LOG BOOM SUNGAI BATU AND LOG BOOM DIVERSION OF SUNGAI GOMBAK IN KUALA LUMPUR

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Abstract

Introduction: The issue of urban litter were mainly influenced by the anthropogenic activities which become devastating toward the environmental sustainability in Malaysia. The limited of historical data on urban litter composition in the river influenced the decision making process by relevant agencies. The lack of historical data on riverine litter generation and composition can affect the efficiency of policy makers in making any decision

on riverine litter management plan. The purpose of this study is to assess the quantification of types and abundance of riverine litter at log boom Sungai Batu and log boom Diversion of Sungai Gombak in Kuala Lumpur. **Methodology:** 14 days of sampling for urban litter collection was conducted during the operation day within the period from March to the end of April 2016 at Log boom Sungai Batu and log boom Diversion of Sungai Gombak. The frequency of bucket conveyer to elevate and transport the urban litter to facility was normally fluctuated during operation day due to technical problem including the machine breakdown, time management and consumption of man power to move the urban litter manually. This study was based on the time interval approaches for every nth hour by using the standard formula to calculate the amount of urban litter in bucket conveyer. The amount of urban litter has been transported to facility, weighed and recorded. For urban litter composition study, the American Society for Testing and Materials Standard test method, ASTM D5231 has been applied in order to determine the composition of unprocessed municipal solid waste. The samples of urban litter has been manually collected randomly with the optimum sample size; 200lb-300lb (91 – 136 kg). The urban litter composition has been classified into 11 different types of waste (plastics; organic; metal; cardboard/paper/tetrapak (CPT); glass; garden waste; bulky waste; napkins; rubber; textiles; and others), weighed and recorded. **Findings:** In this study, the high abundance of waste trapped at the log boom Sungai Batu was 29161.70 kg (Mean±SD = 2082.98±1015.75 kg/operation day) and log boom Diversion of Sungai Gombak was 34534.1 kg (Mean±SD = 2466.7 ± 1609.2 kg) for 14 days of riverine litter collection during operation day within the period from March to end of April 2016. The urban litter issue was not only derived from the seasonal factors and land-based sources only, it might probably derived from various aspects such as inefficient of solid waste management and low level of knowledge, attitude and practices (KAP) among the residents and public. In terms of the proportion of urban litter composition in this study, the plastic represent the highest proportion of urban litter at log boom Sungai Batu with 39% (Mean±SD; 62.96±15.38 kg/operation day). Meanwhile, the plastic also represent the largest portion of waste at log boom Diversion of Sungai Gombak with 52% (85.1 ± 14.8 kg/operation day). Most of the plastics waste found in the forms of plastic bags, drinking water bottles, styrofoam, food packaging and others which probably derives from illegal dumping and littering activities and subsequently transported into the river and water bodies through surface runoff. **Contribution:** The high abundance of urban litter trapped at the log boom was most probably derived from the anthropogenic human activities through improper solid waste management and disposal and littering which subsequently washed into the river and water bodies through surface runoff and wind. In such situation, the quantification of urban litter generation and composition information was very crucial to the relevant agencies in policies in decision making process to improve and enhance the sustainable solid waste management and river management strategies for a better future. The adequate information can help in developing better implementation of waste management and river management.

Keywords: log boom; quantification; river management; solid waste management; urban litter

Abstract ID: AIMC-2017-OTH-20

ISOMORPHISM AND EFFECTIVENESS OF PUBLIC SECTOR PERFORMANCE AUDITING ISSUES FOLLOW-UP

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Abstract

Introduction: Follow-up on performance auditing issues appear to be important to recheck on the responsiveness towards audit recommendation on various issues raised pertaining to improper use of public fund. In particular, the focus of this paper on follow-up brings about different type of institutional pressure which have not been well explored. Since, audit recommendation not fully implemented repetitive issues are disclosed to the public which at the end create public service performance dissatisfaction. This paper highlights different types of pressure which can be explained by three forces of isomorphic namely coercive, mimetic and normative as a theoretical lens for follow-up effectiveness. **Methodology:** A preliminary interview covering both practical and methodological issues are undertaken for two weeks during the month of October 2016. The main objective of preliminary interview is to obtain a broader insight into current practice of performance auditing follow-up within public sector performance audit. Given the present study is exploratory in nature, a qualitative research approach has been adopted. Qualitative approach helps researcher understand the nature, context, and process of performance auditing issues follow-up from the point of view of the actors involved. Altogether five (5) informants were selected using purposive sampling (Creswell, 2013) and been interviewed. Interview duration and recording mostly lasted between 45 and 90 minutes and were undertaken at the informant's

workplace. These informants comprises of auditors only. The reason for undertaking preliminary interviews is to test and enhance the interview guide for the actual data collection stage. The researcher used the following methods to enhance the validity of the interview data. All fully transcribe interviews were sent back to those informant concern through email. The purpose of this step is to give sufficient time for the informant to go through the interview transcribed and seeking their agreement on opinion conveyed by them during interview.

Findings: Isomorphic pressure to some extent contributes towards the effectiveness of performance auditing issues follow-up. Impact of coercive isomorphic started from the launching of Government Transformation Programme (GTP). Though the ultimate responsibilities to follow-up on issues raised in AG's report are under the audited organization responsibilities, National Audit Department of Malaysia (MNAD) came with few initiative. The "AG's Online Dashboard" been developed in line with four initiative under GTP to promote transparency and rectify the shortcomings identified in tackling the audit issues. These changes depict that coercive pressure through government regulation and movement has consequently augment the performance auditing issues follow-up action. Mimetic isomorphic will take place when organizations perceive that the follow-up audit with regard to performance audit will contribute to an improvement in embracing the real value and impact of performance auditing activities and which in turn, later leading to it being adopted. Normative forces much more likely to be influenced by this international auditing bodies. Auditors need to perform follow-up as their working norms. The new standard and guide then create a pressure for the Supreme Audit Institution (SAI) to follow the norm practice by every SAI in the field accordingly to INTOSAI principles. **Contribution:** In this study, the author have briefly explored the contribution of institutional isomorphic to the field of public sector performance auditing and in particular the follow-up context. On such continuum, the study addressed three isomorphic pressure that have an impact in achieving the follow up effectiveness within the public sector performance auditing. This is original research work currently being progressively perform by the author. The preliminary findings from interview analysis provides early insight on the effect of isomorphic pressure towards the effectiveness of performance auditing issues follow-up so as to ensure all issues raised treated seriously with corrective as well as preventive action.

Keywords: Performance Auditing, Follow-up, Isomorphism

Abstract ID: AIMC-2017-OTH-34

AN EXPLANATORY STUDY OF USER ENGAGEMENT WITH SOCIAL MEDIA: IMPLICATION ON THE LIBRARY USAGE

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Abstract

Introduction: Proliferation of social media use has been renowned worldwide in library and information institutions as efficient avenue for library to engage with library community. The unique criteria of 'high tech' and 'human touch' blend with the quality contents and interactive interaction through this medium serve as valuable tool for library to provide information resources behind its physical wall. However, despite the prevalent use of social media across the libraries, the impact of its application still scarce in the literature particularly in the library context. In relation to this, as the impact is a nebulous term, then the surrogate indicator is needed. Hence, this study aims to investigate to what extent the presence of social media tools in library has contributed to the user engagement with that channels and subsequently predict their actual use of the library, its resources and services. Present study firstly attempts to highlight the factors motivating user engagement with social media, and further investigate on how the user engagement attributes with social media would give an impact on the library actual use in selected Malaysian libraries. **Methodology:** An explanatory mixed methods were employed to obtain statistical and quantitative results complement with the interview approach to obtain the data in more depth. Through the integration of multidisciplinary theories and models from Information Systems Success Model (ISSM) on Information Quality, Perceived Interactivity and Social Media Engagement Model will direct the research. The (3) three determinants (individual traits, dimension of information quality, and perceived interactivity) that are relatively predict the user engagement with social media in the library context were empirically investigated. Further, the user engagement model was operationalized to assess the actual behavioural outcome on the library usage. **Findings:** The pilot study was conducted in the Library of International Islamic University Malaysia (IIUM). A total of 27 respondents were participated in this study. The Cronbach's Alpha of 0.949 indicated the high reliability of the instrument. The pilot study's finding showed that information quality attributes (accuracy, timeliness, relevance, trustworthy, accessibility and authoritative) has significant relationship on user engagement with social media.

Contribution: *First comprehensive study on the impact of user engagement with social media in the context of library setting. The study is significant to propose a framework for evaluating social media impact in library context and provide greater understanding on factors that contributing user to engage with the library's social media which may help the library to enhance its use and leverage the channels accordingly for greater engagement from library user. From a theoretical standpoint the results of this study contribute to understanding of the value user engagement with social media and demonstrate how the user's cognitive, affective and behavioral engagement in social media has positive influence on the library actual use.*

Keywords: Social Media Engagement, Information Systems Success Model, Perceived Interactivity, User Engagement, Library Usage

Abstract ID: AIMC-2017-OTH-101

INCORPORATING RESEARCH IN CHEMISTRY COURSES: RESEARCH DATA-BASED LEARNING

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Abstract

Introduction: *Globalization encourages universities to be able to develop students' skills in order to face the challenges of the times ahead. In chemistry major, graduates are expected to compete in the world of research in chemistry are applicable in various sectors. On the other hand constructivism learning method is one method that is considered effective through the active involvement of both learners and teachers as facilitators. In this project, the use of Problem-Based Learning in a class action has been carried out through the use of research data or called as Research Data-Based Learning for two courses: chemical kinetics and catalyst chemistry.*

Methodology: *The research was applied for two classes. Each class pass the learning activity with and without the proposed method. The method consists of three parts. In the first part student get material from lecturer conventionally, and in the second part students are divided into some groups for exploring data and discussion activities. Students studied the topics with the expected learning outcomes through discussing, exploring and evaluate some research data from literatures or scientific journals. In the last part, the group discussions and paper presentations were evaluated and confirmed by lecturer from expert. Evaluation was made based on the student's perception before and after class and also evaluation on the difficulties for the specific topics.*

Findings: *Qualitatively students responded positively to the learning method. Most student give positive response to the group's task and lecturer from expert. It is generally caused by the curiosity of learners large and motivation of lecturers. **Contribution:** Design of teaching-learning activity as well as the methodology to explore the scientific and psychological approach of the program are the novelty of this work.*

Keywords: Research data, Problem-Based Learning; Constructivism; Chemistry

Abstract ID: AIMC-2017-OTH-123

STUDY OF EXPRESSION AND FUSION PATTERN OF ARCHITECTURAL STYLES AT KERATON YOGYAKARTA

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Abstract

Introduction: *Keraton Yogyakarta as a summit of Javanese cultural is a heritage until now. As object of study, Keraton Yogyakarta is a collection of architectural artifacts, where the traditional Javanese style meets the Dutch Colonial style. The acculturation and merging of these two different styles creates a unique appearance within the palace complex. This study aims to identify the pattern of acculturation of these two styles and tries to interpret their meaning and expression.*

One of visually emerged is the fusion of Traditional Javanese style and Dutch Colonial style. According to Hadinoto, the Dutch Colonial Style was mentioned as Indische Empire Style. The architecture of Yogyakarta Palace certainly possesses its own aesthetic quality from the result of the fusion of some styles. The fusion of Traditional Javanese architectural style with Dutch Colonial architectural style will embody complex expressions. That expression complexity will convey the uniqueness of Keraton Yogyakarta architecture. To understand the complexity of expression in the architecture of the palace, it is necessary to carry out an in-depth

study. **Methodology:** This research utilizes qualitative descriptive method. This is in accordance with the purpose of descriptive research which is to make a systematic, factual, and accurate depiction about the facts of a particular population, in this case, a systematic and factual depiction about the architectural expression of the Keraton Yogyakarta. Meanwhile, according to Groat, qualitative method has an accuracy to interpret the meaning of artifacts.

The depiction of expression is performed through visual observation that will be described. The instrument utilized to assess is the architectural instrument], namely: proportion, rhythm in architecture, surface character, and colour in architecture.

Some limitations in the observation of the object are: observation is only performed visually, observation only focuses on object façade, observation is performed during the day, and the observer does not change the object settings.

Findings: As results of this study we would like to present that the proportion of *Tratag Pagelaran*, *Tratag Sitihinggil*, *Bangsas Ponconiti*, and *Gedong Jene* tend to widen. While *Gedong Purwaretna* tends to uprise. Every building has a point of interest and ornamentation which its place and content are different. The ornaments at *Tratag Pagelaran*, *Tratag Sitihinggil* and *Bangsas Ponconiti* tend to polychromatic, while those in *Gedong Purwaretna* and *Gedong Jene* tend to monochromatic.

Visually, acculturation of architecture in Keraton Yogyakarta are identified at the elements of fixed features and semi-fixed features. At visual observations, there are two categories of buildings in Keraton Yogyakarta, in which accommodates two styles, namely Javanese Traditional origin and Dutch Colonial style. Buildings of Javanese traditional origin, which have a special concept of shading, are built without buttresses, and contain a 'light' expression. While buildings of Dutch Colonial style, which have a concept of protection, are built with massive enclosure and produces a "heavy" expression.

Although visually split into two distinct styles with different appearance, the acculturation process in the Keraton of Yogyakarta produced a unity in its overall expression.

Contribution: There were some studied that related with the Palace and the traditional Javanese house. However, according the substantive aspect, the method and the object of study, not yet to be discovered research that examines visual expression and fusion pattern of architectural styles at Keraton Yogyakarta.

The research on expression and fusion pattern of architectural styles at Keraton Yogyakarta will have contribution to science, government, and society, as follows:

- To enrich the knowledge of interpretation and fusion pattern of architectural styles at Keraton Yogyakarta.
- As guidance to revitalizing the area around the Palace of Yogyakarta.

Keywords: expression, fusion pattern, architectural style, Keraton Yogyakarta.

Abstract ID: AIMC-2017-OTH-178

MOMENT OF THE DEPENDENT COLLECTIVE RISK MODEL

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Abstract

Introduction: In the collective risk model, we assumed that the value of claims between events is mutually independent. But there are possible cases that there is dependence between the value of the claims. This article discusses some of the properties of the first and second moment of collective risk model where the value of the claims between events has dependence. **Methodology:** In the case of collective risk models which the value of the claims between the incidence has dependence, and this dependence may affect the characteristics of the collective risk model. Furthermore, we show that how their dependence takes effect on the moment of aggregate claims. The dependence discussed in this article is assumed to be positive in the form of Pearson correlation. We design a model of dependences generally for $m=k$ by formula derivation. **Findings:** Results obtained that expectations are not influenced by the value of the correlation between the value of the claim, while the second moment and the variance is directly proportional to the correlation between the value of the claims. **Contribution:** Now, We change the distribution random variables: X_1, \dots, X_N (as the amount of the claim) has Binomial distribution, write $X_i \sim \text{Binomial}(m, \theta)$, $i = 1, 2, \dots, N$ and the number of the claims $N \sim \text{POI}(\lambda)$, which they have dependence. So we get the first and second moments generally for $m=k$. Then we can conclude the effects of the dependences to first and second moments.

Keywords: Collective Risk, Dependence, Poisson Binomial Distribution.

Abstract ID: AIMC-2017-OTH-183

EXPLORING MENTAL HEALTH LEVEL AMONG THE MALAYSIAN PRIMARY SCHOOLS' STUDENTS

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Abstract

Introduction: *Students need to have a good mental health to live up to their full potential. Mental health problem among primary school students' jeopardized the healthy development of the future generation. Therefore, the aim of this study was to examine the level of mental health among the Malaysian Primary students. Methodology:* *There were 798 primary schools' students comprising of 408 males and 390 female from three different types of primary schools, which were Malay Primary Schools, Chinese Primary Schools and Indian Primary Schools in Johor state, Malaysia. This study was employed a survey method. The instrument used in this study was Depression Anxiety Stress Scale 21 (DASS21). There are three dimensions mental health in the DASS, which are Depression, Anxiety and Stress. The gathered data was analyzed using frequencies and percentage. Findings:* *Research finding showed that majority of the Malay Primary students and Chinese Primary students were possess to have a normal level in mental health. However, the level of mental health among the Indian Primary Students was critical. Contribution:* *Hence, some suggestions attached especially to the principal, teacher, school counsellor and students to emphasize the issues in mental health in order to enhance students' mental health level.*

Keywords: Primary school, Mental Health, Depression, Anxiety, Stress, Races

Abstract ID: AIMC-2017-OTH-207

BRINGING ALATAS TO THE THEORY OF POST COLONIALISM IN THE MALAY WORLD

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Abstract

Introduction: *The theory of post colonialism is nothing new but not in the Malay world as most of the opinions given towards the east come from the west, and apart from that, the colonised people had limited voice to say about themselves. This paper examines the tangible term 'post-colonial' which was engaged in the power of colonialist discourse. It laments ideas of Syed Hussein Alatas which were rudimentary and essential for the history of the decolonization process in Asia. His work is an analysis of the modalities tangled the construction of stereotyping the 'native' and incapacitating and disempowering the colonised subject. Methodology:* *As for methodology, I propose that a more insightful and suave reading of Al attas' works that can only be attained by positioning them squarely within the knowledgeable field of the history of ideas, as well as in the common context of the colonial experience. The main purpose of my method is to reveal Al attas' governing concepts, inherent methodologies and implicit expectations while revealing the underlying logic arguments.*

The effect of describing the colonial experience of a great range of cultures by this term is argued, to elide the differences between them. However, there is no inherent or inevitable reason for this to occur. The materiality and locality of various kinds of post-colonial experience are precisely what provide the richest potential for post-colonial studies, and they enable the specific analysis of the various effects of colonial discourse.

The theoretical issues hidden in these two rudiments – materiality and location – lie at the basis of much of the argument over what the term references and what it should or should not contain. Yet, despite these differences and disputes, signs of a prolific and corresponding relationship between numerous post-colonial methods have appeared in current work in the field.

Findings: *Alatas magnum opus, 'The Myth of the Lazy Native' (1977) is an analysis of the modalities tangled the construction of stereotyping the 'native' as the 'Other' from the eye of the colonial metro pole, that was intended to epistemically arrest the constructed of these people while at the same time. incapacitating and disempowering the colonised subject . Alatas' work can be considered as a new paradigm as there were no Malaysian scholars before attempted to produce such work- that ranged analytical tools from sociology to history , or from a discourse analysis to a racial critic in a deconstructive effect. Alatas' work was not only truly ahead of his time but also singularly unique within Malaysian context. Alatas presses home several important points that should never be forgotten by any scholar working on political history: First, that identity politics and the construction of racial categories and racial stereotypes are never accidental but are processes fundamentally wedded to the working of (racialised) power. Second, that the colonial enterprise required a*

moral pretext that was granted by the construction of convenient 'instrumental fictions' (to borrow Edward Said's phrase) that helped to justify such an enterprise. Third, that the perpetuation and reproduction of such categories of identity and difference were running parallel to the workings of racialised colonial capitalism and that the two sustained each other, thereby helping to create the highly divisive and uneven 'plural economies' so common in many colonial settings. And fourth, that the legacy of colonial capitalism, having embedded itself in the racialised politics of difference and sectarianism in many colonies, would be hard to eradicate even after the departure of the colonial power for the local native elites themselves would have, by then, come to learn that the very same tools of divide-and-rule could be used by them to perpetuate such power differentials in the future.

Contribution: Drawing on the work of Karl Mannheim and the sociology of knowledge, Alatas analyses the origins and functions of such myths in the creation and reinforcement of colonial ideology and capitalism. Alatas' intellectual legacy has been crucial in questioning the status quo that has been reinforced by the political elites of our society that continues to be used as a tool of oppression inherited from the colonial masters of our past. Much significance and relevance still comes with this contention point. It remains as the heart of the nation's thriving intellectual culture which can bring revolutionary changes to the ways in which we wish to govern ourselves as free, independent people.

Keywords: Post Colonial, Malay, Discourse, Alatas, Other,

Abstract ID: AIMC-2017-OTH-214

IMPLEMENTATION OF ENTREPRENEUR CHARACTER EDUCATION IN ISLAMIC JUNIOR HIGH SCHOOL ALMUBTADI-IEN BANTUL, YOGYAKARTA

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Abstract

Introduction: This study aims to determine: 1) planning entrepreneur character education in Islamic Junior High School Al Muftadi-ien; 2) the implementation of entrepreneur character education in Islamic Junior High School Al Muftadi-ien; 3) evaluation of entrepreneur character education in Islamic Junior High School Al Muftadi-ien; 4) the values of the characters embedded in the entrepreneur character education in Islamic Junior High School Al Muftadi-ien; **Methodology:** This research method using qualitative descriptive research. Data collection techniques in this research are observation, interview and documentation. Data validity using a source triangulation method. Data analysis techniques in this study using an interactive analysis. **Findings:** The results showed that: 1) the learning plan of entrepreneur character education in Islamic Junior High School Al Muftadi-ien implemented by teachers plan materials, then offered to students and agreed on the material to be learned; 2) implementation of entrepreneur character education in Islamic Junior High School Al Muftadi-ien through a program implemented in an integrated achievements of young entrepreneurs between theory and practice by means of the formation of business groups; 3) evaluation of entrepreneur character education in Islamic Junior High School Al Muftadi-ien preceded by an assessment of processes and products, and enforceability of the program evaluated in the meeting of the school and the final results are reported to parents in the form of report cards; 4) the values of the characters embedded in the entrepreneur education in Islamic Junior High School Al Muftadi-ien include confidence or self-esteem, carefully, dare to try new things, responsible, creative, independent, disciplined, diligent / tenacious, thorough, cooperation, patience, curiosity, passion, enthusiasm, never give up, do not be afraid to fail, and dare to take risks; **Contribution:** The contribution of this research were give the alternative for shool how to: 1) implement the character education in school; 2) improve the students' character; 3) combine the entrepreneur character in lessons.

Keywords: entrepreneur, character, education

Abstract ID: AIMC-2017-OTH-265

IDENTIFICATION OF THE MATHEMATICAL CONNECTION ABILITY OF STUDENTS TO SOLVE PROBLEMS OF ECONOMIC

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UIN SUNAN GUNUNG DJATI BANDUNG

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Abstract

Introduction: Mathematical connection capability is very important a person can "doing math" well. Mathematical connection abilities will also determine how one can apply math skills into other discipline. The

*purpose of this study is to identify the mathematical connection ability of students to solve problems. **Methodology:** The method used is descriptive qualitative by identifying workmanship students to solve mathematical problems related to the economy, are analyzed based on mathematical connection indicator. **Findings:** The results of this study indicate that the connection abilities of students still need to be enhanced and improved on certain indicators. In mathematical connection indicators of students having trouble finding a relationship or understand two concepts related mathematics, student also difficulties applying mathematical concepts to solve problems in other disciplines. **Contribution:** The core topics focused on the ability of connecting between mathematical concepts, mathematical concepts with everyday life problems and mathematical concepts with other disciplines.*

Keywords: Mathematical Connection Ability, and Mathematical Economics

Abstract ID: AIMC-2017-OTH-397

RELATIONSHIP BETWEEN FORM 4 STUDENTS' PERCEPTIONS OF SCIENCE CLASSROOM ENVIRONMENT WITH ATTITUDES TOWARDS SCIENCE

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Abstract

Introduction: *Science educators have been interested in understanding students' achievement and have undergone decades of studies about it. It is essential to develop positive attitudes towards science as one of the legitimate goals of science education in Malaysia. Science classroom environment is the place where students interact with the teachers and their peers. This interaction will form students' perceptions of their science classroom environment, which can affect their attitudes toward science. The purpose of this study was to investigate the relationship between students' perceptions of science classroom environment and their attitudes toward science. **Methodology:** This study was based on a positivist research theory using non-experimental quantitative research to obtain information by employing a sample survey method to collect data. Samples were selected using the two-stage cluster random sampling. In this study, the Test of Science-Related Attitudes (TOSRA) which was developed by Fraser (1981) is used to measure students' attitudes towards science. Students' perception towards classroom environment was measured using a modified 'What Is Happening In This Class' (WIHIC) instrument which was originally developed by Fraser (1998). The seven subscales measured in TOSRA were Social Implications of Science, Normality of Scientists, Attitude to Scientific Inquiry, Adoption of Science Lessons, Leisure Interest in Science, and Career Interest in Science. The seven subscales measured in WIHIC were Student Cohesiveness, Teacher Support, Involvement, Investigation, Task Orientation, Cooperation, and Equity. Independent sample t-test, Pearson Product Moment Correlation and Multiple Regression Analysis were used to test the stated null hypotheses at a predetermined significance level, $\alpha = .05$. **Findings:** Data analysis showed that there is no significant difference in students' perceptions of science classroom environment according to gender and school locations. Apart from that, there is also no significant difference in students' attitudes toward science according to gender. However, there is a significant difference in students' attitudes toward science according to school locations in which urban schools' students are shown to display more positive attitudes toward science than their rural peers. Correlation analysis results showed that there was positive, low to moderate significant correlations between students' perceptions of science classroom environment and their attitudes toward science. Multiple regression analysis showed that students' perception of science classroom environment is a significant predictor of students' attitudes toward science. WIHIC's subscale of Task Orientation is the most significant predictor to students' attitudes towards science as it explained 27.9% of students' attitudes toward science. **Contribution:** This study suggests that students' in Tenom and Kota Kinabalu both had favorable perceptions of Science classroom environment. However, students in Kota Kinabalu (urban area) has better attitudes toward science than students in Tenom (rural area). It was found that task orientation influence students' attitudes toward science the most. Science teachers should improve their relationship with their students, and school administrators must place priorities on ensuring conducive science classroom environment both in physical structure and psychosocial structure. This will encourage favorable perceptions of Science classroom environment and enable students to have more opportunities for effective Science lessons and activities.*

Keywords: attitudes toward science, perceptions of science classroom environment, science classroom environment, test of science related attitudes, what is happening in this class, gender, school locations

Abstract ID: AIMC-2017-OTH-437

SHOULD CAN WE USE FENUGREEK SEEDS (FSA) AS A CONTRACEPTIVE PLANT-ORIGIN PRODUCT, RAT? ANIMAL MODEL

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Abstract

Introduction: For decades, calls for more acceptable family planning options have been hindered by the inadequate attention and resources afforded to the contraceptive research and development field. Using oral contraceptive pills has a lot of adverse effects such as venous thrombosis, Therefore; some women still rely on traditional herbs for family planning based on its common use for many years. These herbs are more affordable, easily available, and believed to cause fewer side effects. One of these herbs is *Trigonella foenumgraecum* (fenugreek) seeds Aqueous extract (FSA). The goal of this work is to find a plant-origin contraceptive products, rat animal model. **Methodology:** Study started in April 2012 and is still ongoing in Faculty of Medicine, IIUM, Malaysia. In 1st phase we studied the effects of 250, 500, 750, 1000 and 1500 mg/day/15days p.o. of FSA and the results vindicated its anti-fertility effect. In 2nd phase we compared FSA with that of standard oral contraceptive pills (OCP) and concluded that no significant differences existed between their effects. The acute in vivo toxicity of FSA was studied in 3rd phase where 3, 6 and 9 gm of FSA were given as a single oral dose; zero mortality was detected with no significant differences between studied groups. In 4th phase we studied the reversibility rate of the changes in reproductive organs and hormones after stopping FSA treatment and found that all parameters reverted back to normal range after 3 weeks of last dose. **Findings:** FSA has reversible anti-fertility effects that included decreased FSH, LH, estrogen and progesterone levels as well as increased prolactin level and increased number of atretic follicles. No significant differences were detectable between action of FSA and that of OCP. No acute toxicity effects and the reversibility rate was 100% after three weeks from the last dose of treatment. **Contribution:** This is original serial animal studies which documented the anti-fertility role of FSA in female rats which give opportunity to think about isolation of active ingredients as well as shift to start clinical trials of this product and contribute it as a plant-origin contraceptive agent.

Keywords: Anti-fertility effect of FSA, contraceptive agents, plant origin contraceptive products

Abstract ID: AIMC-2017-OTH-442

BEST PRACTICES OF PROMOTING TEACHER PROFESSIONAL DEVELOPMENT AMONG PRINCIPALS OF CLUSTER SECONDARY SCHOOLS TOWARDS REALIZATION OF EDUCATION BLUEPRINT 2013-2025 MALAYSIA

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Abstract

Introduction: The Ministry of Education Malaysia announced the implementation of cluster secondary schools aim to develop and produce excellent students in the curriculum and co-curriculum. The schools comprises of the excellent performance and the non-performance. In the cluster schools, the achievement of the students is in the full power and authority of the principal especially through the effective instructional leadership practices. This system managed to achieve the objectives in developing and producing excellent students who are internationally competence and accepted to pursue studies in the world prestigious universities. The study examines the best practices of promoting teacher professional development among principals of cluster secondary schools Malaysia. **Methodology:** The Principal Instructional Management Rating Scale (PIMRS) modified by Hallinger and Murphy (1985), Latip (2006), and, Hatta (2010) was used as the data collection instrument through survey questionnaire. Prior permission to conduct this study was obtained from the EPRD – Education, Planning, and, Research Division of the Ministry of Education Malaysia. The Cluster Secondary Schools involved in this study were National Secondary School (Sekolah Menengah Kebangsaan – SMK), National Religious Secondary School (Sekolah Menengah Kebangsaan Agama – SMKA), Integrated Boarding School (Sekolah Berasrama Penuh Integrasi – SBPI), and, Full Boarding School (Sekolah Menengah Berasrama Penuh). They were 871 respondents of different genders, ethnicity, and, position of responsibilities at schools were participated. The data was analyzed by using the Statistical Package for Social Sciences (SPSS) version 20 (Best & Kahn, 2003; Creswell, 2010). **Findings:** It is interesting to observe that all items for promoting teacher professional development among Principals of Cluster Secondary Schools Malaysia according to Principals and Teachers Perceptions were at 'High' level of implementation and only one item at 'Very High' level.

This was indicated on Table 2 that the highest score for promoting professional development among Principals of Cluster Secondary Schools Malaysia according to Principals and Teachers Perceptions was abstracted from statement 10 'Set aside time at faculty meetings for teachers to share ideas on instruction or information from in-service activities' at 'Very High' level of implementation which rank Number One with mean 4.02 and a standard deviation 0.892.

The second highest score was statement 2 'Select in-service activities that are consistent with the school's academic goals' mean 4.00 and standard deviation 0.898 at 'Very High' level of implementation. The third highest was statement 3 'Support teacher requests for in-service training that is directly related to the school's academic goals' mean 3.96 and Standard Deviation 0.934 at 'High' level of implementation.

Contribution: It is hoped that this study provides useful findings which will effectively assist the process of promoting a positive school learning climate among principals and teachers of secondary schools in Malaysia. Consequently, facilitate and improve students' academic performance in achieving the first class human capital compatibly excellent nationally and internationally as stipulated in National Philosophy of Education, Vision 2020 and aspiration of the Malaysia Education Development Plan 2013-2025.

Keywords: Principals developing teacher professionalism – Cluster Schools Malaysia

Abstract ID: AIMC-2017-OTH-443

EFFECTIVENESS OF ORGANIZATIONAL ABILITY AMONG PRINCIPALS OF EXCELLENT SECONDARY SCHOOLS TOWARDS REALIZATION OF EDUCATION BLUEPRINT 2013-2025 MALAYSIA

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Abstract

Introduction: The purpose of the study was to examine the effectiveness of organisational ability in strategic leadership among principals of Excellent Secondary Schools towards Realization of Education Blueprint 2013-2025 Malaysia. **Methodology:** In this study, questionnaires have been used as a research instrument for the purpose of data collection (Johnson & Christensen, 2012). The questionnaire items of organizational ability on strategic leadership were based on the model developed by Davies et al. (2010) and modified by Hairuddin & Muhammad Bustaman (2010). The respondents were 278 senior assistants from seventy Excellent Secondary Schools, particularly in the state of Selangor, Malaysia. This category of school consists of National Secondary Schools, National Religious Secondary Schools, Boarding Secondary Schools and Government-Aided Religious Secondary Schools. The schools selected in the study were excellent in the achievements of national examination of the Lower Secondary School Assessment (Ministry of Education Malaysia 2012).

Prior permission to conduct the study was acquired from the Director of Education, Planning and Research Division (EPRD 2011), Ministry of Education Malaysia, and, Director, State Department of Education, Selangor. The data collected from the survey were analysed using the most commonly used statistical software package in the social sciences which is the Statistical Package for Social Science (SPSS) version 20.0. The findings of the questionnaire employed descriptive statistics i.e. mean score, standard deviation and frequency to answer the research questions formulated in the study (Creswell, 2010). **Findings:** The most effective practice is represented by the component of ability to develop strategic competences with the highest mean score of 4.1655 and standard deviation of 0.58789. On the other hand, the component to align people and organisation is identified as the second most effective practice with mean score of 4.0432 and standard deviation of 0.62275. This is followed by the component of ability to translate strategy into action with mean score of 4.0378 and standard deviation of 0.56779. In the meantime, the component of strategic orientation contributes a mean score of 4.0198 with a standard deviation of 0.58442. The least effective practice is represented by the component to determine effective strategic interaction/intervention points with a mean score of 3.9640 and standard deviation of 0.59883. **Contribution:** This study provides useful findings which would effectively assist the innovation of educational strategic leadership quality in order to enhance students' academic performance and to produce first class human capital towards the realization of Vision 2020 and achievement of the Malaysia Education Blueprint 2013-2025.

Keywords: principals' effectiveness - organisational ability - excellent schools

Abstract ID: AIMC-2017-OTH-447

UNANI METHODS OF CURE IN THE INDIAN SUBCONTINENT: AN ANALYTICAL STUDY

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Abstract

Introduction: *The history of medicine is a complicated field, as medicine itself is difficult to define and to trace in the ancient world. It is clear that medicine has always been permeated with the worldview of its practitioners, thus its most ancient manifestations are bound up with supernatural concepts as well as more prosaic processes of trial and error with the use of incantations, herbs, compound preparations, ablutions, exercises and incense to treat maladies considered as much spiritual as biological. As long as there has been illness there has been medicine.* **Methodology:** *The present study does not seek to recount its historical development, but to highlight the aspects of Indian contributions to classical unani medicine that are subtle and perhaps more important to the development of the entire body of scientific knowledge. This paper emphasizes the unani system of cure in India as an alternative traditional medicine using Arabic, Sanskrit, Persian, Urdu and English sources.* **Findings:** *Through an analysis of socio-cultural and historical context, the paper concludes that the contribution of Muslim scientists lies in: (a) bringing to light the work of ancient Greek scholars in the field of medicine, and (b) bringing to the knowledge of Europe the works of Muslim physicians, especially in medicine. While this archetypal ancestor of modern medicine has been forgotten in the rest of the world, it remains a vibrant living tradition in South Asia.* **Contribution:** *The lingua franca of knowledge during this period was Arabic, which was an essential requirement for Persian, Indian, European and Chinese scholars seeking knowledge in medicine and other sciences understood as 'secular' in contemporaneous Christendom, but which were an integral part of Islamic knowledge in the Arab-Islamic world. Muslim scholars translated all available medical literature into Arabic, including volumes procured specially from the imperial libraries of Constantinople as well as ancient Sanskrit lore from India, with extensive revision and commentary based on deduction and experimentation. This synergy of world traditions was enabled by peaceful interaction with other civilizations, or by early Arab conquests, such as of Egypt and Persia, which united venerable centres of learning in Alexandria and Jundishapur (modern Shahabad, Iran), in a single state for the first time since Alexander the Great (d. 323 BCE).*

Keywords: Ayurvedic medicine, Egyptian medicine, Greek medicine, Persian medicine, Unani medicine

Abstract ID: AIMC-2017-OTH-457

ASSOCIATION OF SEDENTARY BEHAVIOUR AND MENTAL HEALTH AMONG YOUNG ADULTS: A CROSS-SECTIONAL STUDY

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Abstract

Introduction: *Sedentary behaviour contributes to adverse physical health outcomes in youth. Although evidence for the relationship between sedentary behaviour and mental health outcomes is emerging, little is known regarding risk of psychological distress and low self-esteem. The purpose of this study was to investigate the association of sedentary behaviour with psychological distress and self-esteem in a well-characterised young adult population after controlling for a wide range of potential confounders.* **Methodology:** *We adopted a cross-sectional study design. A sample of 352 participants, 208 (59.1%) females and 144 (40.9%) males responded to a survey. Participants were recruited from University Tunku Abdul Rahman, Malaysia. Sedentary behaviour of the participants was determined by Sedentary Behaviour Questionnaire. Kessler Psychological Distress Scale and Rosenberg Self-Esteem Scale were used to measure psychological distress and global self-esteem respectively.* **Findings:** *Analysis of sedentary behaviour demonstrated that participants have high sedentary times. The highest sedentary behaviour engaged by the participants was doing paperwork or computer work, followed by sitting, listening to music and sitting and talk on a phone. Participants spent least time playing musical instruments. Multi regression analysis was performed to determine the level of significance. Sedentary behaviour showed a statistically significant association with psychological distress and self-esteem.* **Contribution:** *Sedentary behaviour can lead to mental health problems in young adults. These findings have a number of important implications for policy and practice. They highlight the need to ensure that young people have appropriate and timely access to evidence based services and interventions across the continuum. Further*

high-quality longitudinal or interventional research is needed to confirm findings and determine the direction of these relationships.

Keywords: sedentary behaviour, psychological distress, self-esteem, youth

Abstract ID: AIMC-2017-OTH-459

LANDUSE PLANNING IN GEOPARK AREA IN INDONESIAN LEGAL PERSPECTIVE

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Abstract

Introduction: *Geopark, as a natural heritage, is an area filled with various geological elements. The importance of Geopark as a geo-heritage is getting more recognition from the citizens of the world, especially due to the possible exhaustion of this heritage if the world chooses exploitation as its only measure to achieve economical prosperity. Indonesia have around 40 geo-heritages spread in many of its provinces that are developed as national geopark areas and promoted as both a national and an international destination for tourism. Protection of these geo-heritages is a matter of importance and have been accommodated in the rules and legislation of Indonesia.* **Methodology:** *The method used in this research is a normative juridical includes research for inventory of positive law and the principles of law also legal research in concreto and comparative law.* **Findings:** *Geopark is a new tourism concept currently being developed by the Ministry of Tourism. The concept of Geopark refers to the development of areas that affects the conservation, education, and improvement of public welfare. In this context, further effort is required to increase the role of landuse planning in order to create a sustainable development. Landuse planning is understood as a pattern of landuse usage management which covers control, usage, and utilization of land in a consolidated form through an institutional regulation that is related to the utilization of land as a systematic unity towards the just and righteous interest of the society. The result, a landuse planning that is based on integrity, usefulness and effectiveness, suitability, consistency, balance, sustainability, openness, equality, justice and legal protection, that will guarantee a legal certainty in the development of national Geopark areas by the Government and by the people legally related with the land.* **Contribution:** *A sustainable implementation of the legal principles of landuse planning can actualize the development of national Geopark areas with an insight on conservation, education, and improvement of public welfare.*

Keywords: Landuse Planning, Geopark Area, Indonesia.

Abstract ID: AIMC-2017-OTH-474

POLICING THE INDONESIAN SEA BY MEANS OF EMPOWERMENT OF MARINE POLICE IN SHIPPING BUSINESS ACTIVITY (A COMPARATIVE WITH MALAYSIAN MARITIME LAW)

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Abstract

Introduction: *The oceans are critical to states' interest, being highways for commercial a share resource, and a vector for threats to society. Ninety percent of legal international trade moves by sea. The oceans are also illegally used by smugglers transporting prohibited substances or by irregular migrants. Ships In Indonesian Ocean are also vulnerable to violence, ships are hijacked. Such as happened at Malacca Straits. Some Human Trafficking were suspected of carrying by sea through ports in Indonesia. In the law of the sea must have harmonies of the regulations state competing interest in exploiting and regulating maritime activities.* **Methodology:** *This research will be implemented by using the analytical descriptive and the comparative law method, research will be done with descriptive method of analysis, because the research is conducted on the substance of the provisions in the form of secondary data. As Inter-diciplinary study this research will use the community based development to seek how the empowerment effectives to interdiction shipping.*

Descriptive method used in order to prove the existence of marine police in Indonesia and to show the regional regulation conducted so far by ASEAN countries and how English Legal System influences among the countries especially Indonesia, Malaysia and Singapore. While exploratory methods used to understand and look for marine police has been regulated by sea law that has been used in various regional treaties in other areas, national laws of ASEAN member countries that may be applied at the regional level in Southeast Asia especially in Malacca Straits which lies between Malaysia, Singapore, Indonesia.

To get information and data about the principles and strategies at the regional level settings, this research will study and learn the various regional treaties that have been established in other regions, especially the treaties, international convention relating to this problem settings.

Findings: The question of general international law, are how the police procedure and substantive criminal law aboard a shipping. Later on how to give the authority to every department. In the case of juridical facts: lack coordination and integration between law enforcement at sea, inspires an idea to submit the conduct of law enforcement at the Marine Police institution as a unity of command.

One command under Marine Police means not merely coordinated but there is one command and decision-makers that each law enforcement officers who have been exist. Law enforcement at sea has special characteristics and also special scope in accordance with the applicable legal regime in the sea area concerned. Therefore, it is necessary to have one institution specialized singular and integrative expected to have law enforcement powers and fully operational integrated in one unit. The existence did not remove the main functions performed by the other institutions, even

7

Marine Police given the authority under the legislation while the implementation of law enforcement in the marine law became more effective, synergistic. Hence, the other problem is the existence of marine Police is not well known by people and service provider and end user. The other problem until now Indonesia still have no regulation concerning one institution.

The Legal issues, are, the determination of boundaries of sovereignty, immigration procedures, smuggling goods, people, theft of natural resources to maintain the security of the vast sea. Completion of the problem will be difficult and not the maximum. This is possible because of the lack of synchronization and harmonization of national legislation. Supposed to law enforcement in the sea be integrated by various institutions and subject to its own laws. **Contribution:** This research will seek the existence of Marine Police as specialized agencies on the implementation of the rule of law, security and safety at sea. Law enforcement in the sea, including the air above it aims to maintain and protect the territorial integrity of the sea as well as national interests.

This research will also review the existence of marine police are expected to avoid law enforcement in the sea which is currently ineffective, causing competition between institutions of authority or interest, all of which are detrimental to the implementation of the rule of law itself.

Keywords: MARINE POLICE, SHIPPING INTERDICTION, LAW ENFORCEMENT

Abstract ID: AIMC-2017-OTH-511

TECHNICAL EFFICIENCY AND SOCIAL FACTORS AFFECTING OF CORN (ZEA MAYS) FARMING (CASE STUDY IN PATOKPICIS VILLAGE, MALANG REGENCY, EAST JAVA, INDONESIA)

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Abstract

Introduction: Decreasing of agriculture land area because of the changing of land function must be followed by farming system which more efficient. Corn commodity has utility that very strategic, not only for food security system but also that important role as driving force of national economy. The general problem that appear in this research is the productivity of corn farming in patokpicis village still low compared with other villages in the same district. The objectives are to know the level of technical efficiency that reached by corn farmers and also social factors which influence the technical efficiency of each farmer. **Methodology:** The data in this research are cost production of corn farming and social conditions such as age, experience, number of family members and variety of seed used by farmers. The data was taken from 24 farmers using hybrid seed and 24 farmers using local seed. The methods used are the Stochastic Frontier production function to know the level of technical efficiency and multiplier linear regression to know how social factors can influence the technical efficiency. **Findings:** The statistic results showed that the level of technical efficiency of farmer using local seed 22,92% classified low, 25 % classified medium and only 2,08% classified high whereas the level of technical efficiency of farmer using hybrid seed 4,17% classified low, 14,58 % classified medium and 31,25% classified high. Social factors such as age, experience, number of family members did not influence significantly whereas the factor that influenced significantly toward inefficiency of farmers was seed, farmers using hybrid seed had technical efficiency higher than farmers using local seed. **Contribution:** The research's benefits is to increase

profit of farmers with giving them suggestion to switch using corn hybrid seed which more efficient although the price of hybrid seed more expensive than corn local seed.

Keywords: Technical efficiency, Hybrid seed, Social Factors.

Abstract ID: AIMC-2017-OTH-518

ESTIMATION OF SUPPLY AND DEMAND OF PADDY SEED AT SINGOSARI, MALANG, EAST JAVA

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Abstract

Introduction: Food security is a challenge that must be faced by the Indonesian government, especially in the agricultural sector related to the food needs of their citizens. Rice commodity plays an important role as the basic needs of Indonesian people depend on this commodity. In rice cultivation, seed is one of the main supporters. The purposes of this study were to estimate the demand and supply of rice seeds as well as its right equilibrium that is related to six conditions (the number, variety, time, location, grade of seed and price) in Singosari Malang, East Java. **Methodology:** The analytical method used on the demand side of the seed at the district level is the estimation of the seed requirement that is calculated based on the acreage that refers to the land area multiplied by the irrigation system and the needs of each hectare based cropping systems. While the analytical method used on the supply side at the district level is the estimation of the seed supply that are calculated based on the sum of seeds from certified breeders and non-certified, subsidized seeds, agriculture store and KUD (Village Cooperation). **Findings:** The results showed that the dimensional quantity had deficit of 2625.25 kg/year. On the equilibrium of demand and supply, the dimensional quantity had deficit of 2625.25 kg/year. The distribution of varieties demand and supply, Ciharang varieties had deficit of 25320.31 kg/year, Cibogo varieties had surplus of 6587.28 kg/year, IR-64 Super varieties had surplus of 1424.37 kg/year, Situbagendit varieties had deficit of 2693.41 kg/year, Sembada varieties had deficit of 4353.46 kg/year, Inpari-10 varieties had deficit of 3.71 kg/year, Inpari-19 varieties had deficit of 3.71 kg/year, Inpari-1 varieties had deficit of 906.72 kg/year, Inpari-16 varieties had surplus of 1,200 kg/year, Way Apo Buru varieties had surplus of 9726.48 kg/year, Maykongga varieties had surplus of 7,200 kg/year, Logawa varieties had surplus of 7,200 kg/year, Pariwangi varieties had deficit of 2682.06 kg/year and Kunawi varieties had impartial quantity. On the equilibrium of dimensional location, in all villages have deficit except in the Pagentan and Baturetno village, which showed a surplus of 101,000 kg/year and 2,905 kg/year. On the dimensional quality, supply and demand for non-certified paddy seeds had equilibrium condition on 1,107 kg/year. While supply and demand for certified paddy seeds had a deficit of 2625.25 kg/year. As for the dimensions of price, the high price of paddy seed that is offered had no effect on demand, this is because farmers have to consider the results that can be obtained by the use of quality paddy seeds. **Contribution:** Estimated of demand and supply of paddy seeds can be used as a reference in the provision of paddy seeds based on right conditions (number, variety, time, location, grade seed and price) by the farmers, agriculture input seller, and government.

Keywords: Estimation, Demand and Supply, Equilibrium.

Abstract ID: AIMC-2017-OTH-575

THE RELATIONSHIP BETWEEN BODY MASS INDEX AND WAIST CIRCUMFERENCE WITH THE COMPUTED RADIOGRAPHY ABDOMEN IMAGE QUALITY.

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Abstract

Introduction: Obesity is a current serious health problem and indirectly affects the image quality and the radiation dose received by the patient. The range of patients' body mass index (BMI) in x-ray examination is in accordance with the increase in obesity. The aims of this study were to determine the effect of BMI and waist circumference (WC) on the computed radiography (CR) abdomen image quality of anteroposterior (AP) supine projection. **Methodology:** This study was conducted on 69 patients from Hospital Raja Perempuan Bainun, Ipoh whom were undergoing AP supine CR abdominal examination after the approval from the Malaysian Ministry of Health. Samples were categorized into normal BMI 22 kg/m² and lower, (n = 23), overweight 22-30 kg/m², (n = 23), and obese 30 kg/m² and above, (n = 23). The x-ray equipment used was a general x-ray Siemens

Multitop (80 kW) generator 3-phase high frequency Polydoros with aluminum filtration of 2.5 mm. CR equipment used was a Carestream Max Direct view CR system with Carestream CR cassette plates of size 35 x 43cm having a spatial resolution of 10 pixels/mm. Image quality was measured physically in signal to noise ratio (SNR) and subjectively, visual grading analysis (VGA) evaluated by senior radiographers experienced 20 years and above and based on the image of the European Commission (CEC). Data were analyzed by using analysis of variance (ANOVA) single measures for comparison between BMI categories and the image quality while Pearson's correlation for the relationship between BMI, WC and the image quality. **Findings:** The result showed there were a significant difference ($p < 0.001$) in the image quality of VGA mean (normal 4.40 ± 0.15 , overweight 4.35 ± 0.13 , obese 4.03 ± 0.34) and SNR mean (normal 59.76 ± 1.34 , overweight 59.32 ± 1.37 , obese 59.03 ± 1.30) between the BMI categories. A moderate negative correlation exists between SNR ($r = -0.73$), VGA ($r = -0.7$) with BMI, and SNR ($r = -0.83$), VGA ($r = -0.79$) with WC for AP supine projection ($p < 0.001$). In conclusion WC has a correlation coefficient r value greater than BMI for the image quality measured. A part from BMI this study suggests that WC could also be used as a better predictor of image quality in CR abdomen. **Contribution:** The relationship between BMI, WC and image quality could be used in the clinical setting as the basic guide for minimizing the exposure factors for the CR abdominal examination. The findings would also be beneficial for technologists performing radiographic examination on the different categories of BMI and WC patient and relate it to the image quality hence the number of repeat examination can be reduced. Awareness of deterioration of the image quality in obese patients, and needs to address it or by changing to other imaging modality.

Keywords: Digital radiography; computed radiography; obesity; image quality; BMI

Abstract ID: AIMC-2017-OTH-612

AN APPLICATION OF PRINCIPLE COMPONENT ANALYSIS ON HIGH-DIMENSIONAL DATA

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Abstract

Introduction: A portable electronic nose (e-nose) device namely Intelligent Sniffer (Ins sniff) has been developed as the sensing instrument to facilitate nondestructive testing of classifying odour samples. Sample data of 16 different types of rice has been collected in a performed experiment that used Ins sniff with 10 holes. The n -observations \times 10 metal oxide sensors (MOS) gives 4,768 high-dimension set of data in total.

The objectives of (1) to determine the component that best represent the all 10 MOS in order to eliminate the interdependency problem and (2) to identify which variable is considered as important and influential to the newly-formed principle component (PC). **Methodology:** Data is analysed by using Principle Component Analysis **Findings:** Based on the Kaiser's criterion ($\lambda > 1$), cumulative proportion of variance and scree plot, two principle components which are PC 1 and PC 2 are the best to represent the 10 MOS. These two PC explained 89% of total variance. The two importance variables that highly contribute to PC 1 are sensor 1 (0.931) and sensor 2 (0.966). Sensor 8 recorded the highest contribution (0.828) making it as the most important variable to PC 2. **Contribution:** This paper provides an application of Principle Component Analysis (PCA) as a method for reducing the dimension of the variables onto a samples of rice.

Keywords: Principle Component Analysis; Variable Reduction

Abstract ID: AIMC-2017-OTH-621

STUDY ANALYSIS OF KNOWLEDGE MOTHER AND ENVIRONMENTAL CONDITIONS OF OCCURRENCE OF ACUTE RESPIRATORY INFECTIONS IN CHILDREN

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Abstract

Introduction: Acute Respiratory Infections still menjadi major health problem in the world. According to the World Health Organization estimates that the incidence of acute respiratory infection in developing countries with under-five mortality above 40 per 1,000 live births is 15% - 20% per year in the toddler age group.

Methodology: This study is a descriptive analytic with cross sectional approach **Findings:** The survey results revealed that mother's knowledge and environmental conditions affect the incidence of in Toddlers ($P < 0.05$).

Contribution: *mother's knowledge and environmental conditions affect the incidence of Acute Respiratory Infections in Toddlers*

Keywords: Knowledge, Mother, Environment and Toddlers

Abstract ID: AIMC-2017-OTH-624

THE SOCIAL AND CULTURAL CAPITAL EXPLORATION KEEPING PERSONAL HYGIENE IN CHILDREN

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Abstract

Introduction: *Knowledge of parents is very important in the formation of the underlying behaviors that support or do not support the child's oral hygiene. The number of children aged 9 to 12 years with impaired oral around Puskesmas SUAK Ribee are as many as 230 people in 2014 and 183 in 2015 from January to September 18, 2015. Methodology:* *This research is an analytic with cross-sectional design Findings:* *The results showed that the mother's knowledge and attitudes significantly affect children's personal hygiene (P.Value <0.05).*

Contribution: *The mother's knowledge and attitudes significantly affect children's personal hygiene*

Keywords: Knowledge , Attitude, Dental Hygiene and Oral

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LEGAL EDUCATION IN MALAYSIA IN THE CONTEXT OF LEGAL PRACTICE : A WAY FORWARD

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Abstract

Introduction: *Legal education has a long history in Malaysia. In 1957, most judges and lawyers in Malaysia received legal education and training mostly in Britain. University of Malaya was the only premier law school in Malaysia during that time. Gradually, the number of law schools in Malaysia increased and now legal education is available in a number of both private and public universities in Malaysia. Nevertheless, there have been complaints indicating that universities have failed to produce practice-ready students. This research is to look into such an allegation, and if so, to suggest methods to correct the situation. Methodology:* *In order to get full recognition from the Legal Profession Qualifying Board (LPQB), law faculties in Malaysia, particularly the new ones have to undergo a review conducted by the LPQB – failure to obtain recognition will result in students from the universities concerned having to sit for a more rigid Certificate in Legal Practice (CLP) course. This article discusses how far CLP is different to law courses taught at universities and whether or not it could actually produce practice ready students. This article also ventures into the effectiveness of ‘pupillage’ or ‘pupil-in-chambers’, a 9-month training law graduates have to undertake at law firms before being finally called to the Malaysian BAR. At the moment, the Legal Profession Act 1976 does not lay down a ‘standard training course outline’ for pupillage, resulting in pupils getting different kinds of training in different firms. Although it might be true that universities have failed to produce practice-ready students, this contention is not entirely accurate as universities do not only produce future lawyers, but also future legal consultants, future legal academics and future legal administrators. Findings:* *This article concludes that legal practitioners must also be heavily involved in training future lawyers and should stop putting the blame on universities only. The 9-months pupillage should be re-organised and scrutinised by the BAR Council or at least by the LPQB in order for students to get the training they need prior to entering the world of legal practice. Contribution:* *This article involves current issues pertaining to legal education in Malaysia. Recently in March 2017 (as reported in Berita Harian two days ago <http://www.bharian.com.my/node/265047>), the Faculty of Syariah and Law was visited by the LPQB in order to obtain full recognition of the law degree from this faculty. Based on our experience during such a visit, we would like to share with the public the strength and weaknesses of legal education in Malaysia. This research could contribute in scrutinising and improving the current evaluation system that the LPQB is adhering to.*

Keywords: Legal Practice, Legal Education, BAR Council Malaysia, Pupillage

Abstract ID: AIMC-2017-OTH-650

AN ONLINE SURVEY RESEARCH REGARDING AWARENESS OF DYSCALCULIA AMONG EDUCATORS IN SANDAKAN DISTRICT, SABAH

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Abstract

Introduction: *In Sabah, it was reported that the prevalence rate 5.5% of the primary school students in Sabah suffered from Dyscalculia. A computer-based Dyscalculia screener was used to assess pupils' responses and to measure the pupils' response time to the test items (wong et.al, 2014). This research investigates the awareness of Dyscalculia among educators in Sandakan district, Sabah. Methodology: An online Dyscalculia questionnaire is used as a means of data collection. Findings: The purpose of this paper is to report the results of awareness for Dyscalculia which involved 80 educators from different primary schools in Sandakan, Sabah. The results reveal that 57.5% of the respondents in Sandakan did not know what is Dyscalculia. Contribution: To inform the relevant stakeholders regarding the level of awareness of educators about Dyscalculia.*

Keywords: Dyscalculia, awareness

Abstract ID: AIMC-2017-OTH-667

LEGAL PROTECTION FOR PARTIES IN NON-COMMERCIAL TECHNOLOGY TRANSFER AGREEMENTS

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Abstract

Introduction: *As a developing country, Indonesia realized that Science and Technology have an important role in accelerating its national economic development. In carrying out this matter, the handover of technology is started with a contract between the owner and receiver of technology. The contract could possibly be either in commercial or non commercial. The non-commercial contract is usually targeted to public interest and people in general and not for commercial one. For this non-commercial contract, it is necessary to apply law protection and its practice is also supervised- in order- some certain parties could not misuse it for their interest which is finally losing others parties, people in general and even nation or country. Regarding with the problems appearing due to this technological handover process especially for the law protection to the interested parties (non-commercial contract), a research is conducted to see How is the non-commercial contract is practiced and how is the law protection applied for the involved parties. Methodology: The research specification is analytical descriptive with normative juridic approach. Data analytical and conclusion of the research use qualitative method and will be presented in analytical descriptive form. Findings: There are some barriers faced in conducting this non-commercial handover. The barriers could come up not only from the owners but also from the receivers. The different motivations have profit orientation of business marketing strategy for the owners, meanwhile the receivers have technological mastery orientations to make them free of the dependency of outsiders. Besides its technological handover need high cost and a strong research and development. Practically, this non-commercially handover process is going smoothness as it is expected. The law protection effort for non commercial parties has pushed the country to make a regulation which limits and avoids the process. It is also needed for TRIPs Article 8.1 policy that gives opportunities for the member countries to adjust their legislation to develop their public interest especially for urgent sectors for their social economy and technology development. It is also necessary to supervise and implement a law enforcement to avoid mistakes carried out by irresponsible people. Contribution: Knowing how legal protection terhadap non-commercial technology transfer agreements and what efforts can the government to improve the utilization of non-commercial technology transfer agreement to improve the welfare of the community.*

Keywords: Non-commercial technological contracts, Law protection of the parties.

Abstract ID: AIMC-2017-OTH-672

MODEL CONTRACT FARMING IN THE FRAMEWORK OF THE DEVELOPMENT OF AGRIBUSINESS SYSTEM AS A DRIVING FORCE OF PEOPLE'S ECONOMY IN INDONESIA

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Abstract

Introduction: *Agribusiness is a system activity that starts from the procurement and distribution of the means of production to the marketing of products produced by the farmer and agro industries interrelated with each other. Agribusiness system involves the role of the Government, the Businessmen and the Community farmers, hence the involvement of the third role must be terkordinasi both horizontally as well as vertically.*

Methodology: *The research method utilizes normative juridical approach to assess and examine the legal and economic aspects in the national economy, in particular, the implication of the implementation of caveat venditor principle. For that purpose, the specification of the research is descriptive-analytical. The data obtained from study of literature is utilized as secondary data. Interviews were conducted to obtain primary data. The data were analyzed by juridical qualitative method. Findings: Contract farming is an agreement on Agriculture made by the Government, the businessmen and the community of farmers. In the practice of farmers and businessmen make a simple contract and made seasonally by relying on proximity between farmers with buyers, thus leading to good tort committed by farmers and businessmen. Therefore required an ongoing contract that binds the various parties from upstream to downstream. This research uses the juridical normative methods with the support of the empirical data obtained from secondary data. then in the analysis and produce a model contract that is balanced, equitable and sustainable. Contribution: The contribution for this paper are for course material and for reference book*

Keywords: contract farming, agriculture, contract law

Abstract ID: AIMC-2017-OTH-683

THE ANALYSIS OF SOCIAL AND CULTURAL CAPITAL EXPLORATION KEEPING PERSONAL HYGIENE IN CHILDREN

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Abstract

Introduction: *Knowledge of parents is very important in the formation of the underlying behaviors that support or do not support the child's oral hygiene. The number of children aged 9 to 12 years with impaired oral around Puskesmas SUAK Ribee are as many as 230 people in 2014 and 183 in 2015 from January to September 18, 2015. Methodology: This research is an analytic with cross-sectional design Findings: The results showed that the mother's knowledge and attitudes significantly affect children's personal hygiene (P.Value <0.05).*

Contribution: *The mother's knowledge and attitudes significantly affect children's personal hygiene*

Keywords: The Mother Knowledge, Attitude, Dental Hygiene and Oral

Abstract ID: AIMC-2017-OTH-694

CHARACTERISATION OF MARINE CLAY USING FINES DEMOLISHED CONCRETE MATERIAL WITH MICROSTRUCTURAL VERIFICATION

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Abstract

Introduction: *Tonnes of construction and demolition waste are produced years by years. This includes crushed concrete which recently available in excessive quantities as resulting from demolition of any structures. Therefore, this study is to determine the possible utilization of fines obtained from Demolished Concrete Material (DCM) as stabilizing agent of marine clay as subgrade layer with micro-structural verification. DCM tile is used to stabilize dredge marine clay obtained from Iskandar Malaysia Region, Johor Bharu with an increment of 5% up to 15%. A series of laboratory testing will be conducted to determine the potential of demolished concrete material (DCM) as a stabilizer agent for marine clays to form the basis of a strong and reliable land for construction. The tests are followed by laboratory tests to determine the basic, chemical and*

engineering properties with and without the addition of DCM such as Unconfined Compression Strength (UCS) and Unconsolidated Undrained (UU) test . Details microstructure study will be done by Energy Dispersive X-ray analysis (EDAX), Scanning Electron Microscopre (SEM), X-Ray Fluorescene (XRF) and X-Ray Diffraction (XRD). Finally, the effectiveness of demolished concrete material-marine clay will be determined and optimum proportion is suggested for the need of waste utilisation in the soil stabilisation. **Methodology:** Tonnes of construction and demolition waste are produced years by years. This includes crushed concrete which recently available in excessive quantities as resulting from demolition of any structures. Therefore, this study is to determine the possible utilization of fines obtained from Demolished Concrete Material (DCM) as stabilizing agent of marine clay as subgrade layer with micro-structural verification. DCM tile is used to stabilize dredge marine clay obtained from Iskandar Malaysia Region, Johor Bharu with an increment of 5% up to 15%. A series of laboratory testing will be conducted to determine the potential of demolished concrete material (DCM) as a stabilizer agent for marine clays to form the basis of a strong and reliable land for construction. The tests are followed by laboratory tests to determine the basic, chemical and engineering properties with and without the addition of DCM such as Unconfined Compression Strength (UCS) and Unconsolidated Undrained (UU) test . Details microstructure study will be done by Energy Dispersive X-ray analysis (EDAX), Scanning Electron Microscopre (SEM), X-Ray Fluorescene (XRF) and X-Ray Diffraction (XRD). Finally, the effectiveness of demolished concrete material-marine clay will be determined and optimum proportion is suggested for the need of waste utilisation in the soil stabilisation. **Findings:** Tonnes of construction and demolition waste are produced years by years. This includes crushed concrete which recently available in excessive quantities as resulting from demolition of any structures. Therefore, this study is to determine the possible utilization of fines obtained from Demolished Concrete Material (DCM) as stabilizing agent of marine clay as subgrade layer with micro-structural verification. DCM tile is used to stabilize dredge marine clay obtained from Iskandar Malaysia Region, Johor Bharu with an increment of 5% up to 15%. A series of laboratory testing will be conducted to determine the potential of demolished concrete material (DCM) as a stabilizer agent for marine clays to form the basis of a strong and reliable land for construction. The tests are followed by laboratory tests to determine the basic, chemical and engineering properties with and without the addition of DCM such as Unconfined Compression Strength (UCS) and Unconsolidated Undrained (UU) test . Details microstructure study will be done by Energy Dispersive X-ray analysis (EDAX), Scanning Electron Microscopre (SEM), X-Ray Fluorescene (XRF) and X-Ray Diffraction (XRD). Finally, the effectiveness of demolished concrete material-marine clay will be determined and optimum proportion is suggested for the need of waste utilisation in the soil stabilisation. **Contribution:** Tonnes of construction and demolition waste are produced years by years. This includes crushed concrete which recently available in excessive quantities as resulting from demolition of any structures. Therefore, this study is to determine the possible utilization of fines obtained from Demolished Concrete Material (DCM) as stabilizing agent of marine clay as subgrade layer with micro-structural verification. DCM tile is used to stabilize dredge marine clay obtained from Iskandar Malaysia Region, Johor Bharu with an increment of 5% up to 15%. A series of laboratory testing will be conducted to determine the potential of demolished concrete material (DCM) as a stabilizer agent for marine clays to form the basis of a strong and reliable land for construction. The tests are followed by laboratory tests to determine the basic, chemical and engineering properties with and without the addition of DCM such as Unconfined Compression Strength (UCS) and Unconsolidated Undrained (UU) test . Details microstructure study will be done by Energy Dispersive X-ray analysis (EDAX), Scanning Electron Microscopre (SEM), X-Ray Fluorescene (XRF) and X-Ray Diffraction (XRD). Finally, the effectiveness of demolished concrete material-marine clay will be determined and optimum proportion is suggested for the need of waste utilisation in the soil stabilisation.

Keywords: marine clay, demolished concrete material, strength, microstructural verification

Abstract ID: AIMC-2017-OTH-760

THE ANALYSIS OF SOCIAL AND CULTURAL CAPITAL EXPLORATION KEEPING PERSONAL HYGIENE IN CHILDREN

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Abstract

Introduction: Knowledge of parents is very important in the formation of the underlying behaviors that support or do not support the child's oral hygiene. The number of children aged 9 to 12 years with impaired oral around public health center SUAK Ribee are as many as 230 people in 2014 and 183 in 2015 from January to September 18, 2015 **Methodology:** This research is an analytic with cross-sectional design. **Findings:** The

results showed that the mother's knowledge and attitudes significantly affect children's personal hygiene (P -Value <0.05) **Contribution:** the mother's knowledge and attitudes give to significantly affect children's personal hygiene

Keywords: Knowledge, Attitude, Dental Hygiene and Oral

Abstract ID: AIMC-2017-OTH-771

THE POLICY OF AUTONOMOUS ADMINISTRATIVE DIVISION IN NUNUKAN REGENCY OF NORTH KALIMANTAN PROVINCE - INDONESIA

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Abstract

Introduction: Nunukan Regency of North Kalimantan Province as a new province continues to promote development in various sectors for the welfare of society. Nunukan Regency is a strategic area in terms of geostrategic aspect, which is immediately adjacent to Malaysian Federation of Sabah and has similarities in the social-culture, geography, and topographic territory aspects. The phenomenon that occurs in Nunukan area is like the persistence of inequality of development and public welfare services. It has impact on public discontent in the border areas, particularly in Krayan, Lumbis Ogong, Seipangaris and Sebatik Island. It gives rise to the need for the establishment of new autonomous regions. The purpose of this study was to analyze and recommend whether the new autonomous regions are the right solution for improving the welfare of the society in the border areas **Methodology:** This study used a qualitative descriptive approach by collecting data from various sources of key informants, i.e., the customary leaders, local political leaders, sub-district heads, village heads and relevant stakeholders, as well as support sources in the form of relevant literatures and references. Information and data sources that were obtained were analyzed empirically, normatively, and conceptually, and were further interpreted to obtain appropriate recommendations in the policy development of the border regions **Findings:** There are three proposed candidates for the new autonomous regions proposed by the Nunukan government, namely; Krayan, Kabudaya, and Sebatik areas. Those all three proposed autonomous administrative division are taking the issue of increasing prosperity, improving government services, and safeguarding the sovereignty of the republic of Indonesia. There are some similarities and differences in the characteristics of the three candidates for the autonomous administrative divisions, such as social, culture, regional potential, geographic, and economic aspects. Krayan is, geographically, a very isolated area. Despite having abundant natural potential but it has not been managed on a competitive basis; the regional economy is still dominated by traders from Sabah - Malaysia. The role of kinship and chairman of the Dayak in Krayan is still very influential. Kabudaya area, geographically, is relatively easy to reach by land and river. It has promising palm plantation, timber plantation, and gold mining potentials. In Kabudaya area, the diversity of migrants and native tribes (Dayak) is quite conducive. This area is one of the lines of illegal transboundary potentially lead to mismanagement of the natural environment and the demands for national disintegration. Sebatik Island is an island that is part of both countries Indonesia and Malaysia. This area is strategic in the economic, cross boundaries between nations, the potential for oil palm plantations, and marine potentials aspects, but it is still weak in terms of management and competitiveness. These potentials become serious consideration for the government to determine the appropriate and successful policy formulation to be implemented. The government as public servants needs to be careful in making policy by taking into account the potential of the border area in order to facilitate the process of implementation by the implementers **Contribution:** The proposal of the establishment of autonomous administrative division is not something that violates the policy or the concept of regional development, but it must consider the precision in policy making for the border area; consider the proposal or aspiration carefully, rationally and proportionately on the basis of their potentials to avoid local and national political euphoria; as if the establishment of the new region is a perfect solution to improve the welfare of border region society

Keywords: policy, autonomous administrative division, regional potential, disparities in development

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ANALYSIS OF WATER QUALITY STATUS OF RIVER ESTUARY TONDANO, MANADO CITY, INDONESIA

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Abstract

Introduction: Tondano river estuary waters is one of the six river that empties into the Bay of Manado, North Sulawesi, receiving input from settlement activities rural, urban, hydroelectric power plant (HEPP), agriculture, farming, industry, as well as activity in the waters around the mouth of the river is high enough, thus causing a decrease in water quality of the river mouth Tondano. This study aimed to analyze the water quality status Tondano river estuary **Methodology:** Research was conducted in December 2016 - January 2017 in Tondano river estuary waters. The research method refers to comparison between measurements of parameters of water quality at the site of the study with the quality standard of the waters that have been established by the Decree of the Minister of Environment No. 51 of 2004 on "Determination of Water Quality Standard Marine to Marine Life", the results of the comparison were then analyzed using the guidance determination status of water quality using STORET method set out in the Environment Decree No. 115 of 2003 on Guidelines for Determination of water quality Status ". **Findings:** The results of measurements of water quality parameters (temperature, turbidity, pH, DO, BOD5, nitrate, phosphate, and Lead) indicates that status Tondano river estuary waters classified as polluted water quality status of moderate to heavily polluted. Water pollution control Tondano river mouths need to be more stringent so that the potential of coastal and marine resources remain sustainable. **Contribution:** Provide information about the status of the river estuary waters Tondano

Keywords: Keywords: Quality Status, Tondano River Estuary.

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CLUSTER AND CONSUMER PREFERENCES OF MANGO GEDONG GINCU FROM CENTRAL PRODUCTION WEST JAVA

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Abstract

Introduction: The central production of mango Gedong gincu in West Java are Cirebon, Majalengka, Indramayu and Kuningan. Mango wholesalers in the distribution of mango to consumers do not consider the market segmentation, that often occur mango unsold, foul and ultimately disposed of. Mango Gedong gincu from each central production was unique, it is has different color, flavor, aroma, size, texture and degree of ripeness. According to Shendge (2012) preference is a choice between alternatives and the possibility of rank ordering of these alternatives, based on happiness, satisfaction, gratification, enjoyment, utility they provide. Consumer preferences are defined as the subjective (individual) tastes, as measured by utility, of various bundles of goods **Methodology:** The study used a survey method, and data were collected through observation, questionnaires based on the preceding literature review. Primary data were obtained from the field data in cross section, while secondary data were obtained from the Central Bureau of Statistics, Ministry of Agriculture and related agencies. The study was conducted from October – Desember 2015 in Bandung - West Java Province- Indonesia. Bandung was selected because a previous study found that Gedong Gincu mangoes were marketed from Cirebon to Bandung (42 percent). Customers data were taken by using a systematic random sampling. A sample of 210 people was taken from 2 million people living in Bandung or 0.01 percent of its population, and of that sample only 135 met the data requirements for analysis (Deliana, et al, 2016)

Conjoint analysis is included in the dependent multivariate methods. The conjoint analysis model is as follows:

$$Y1 = X1 + X2 + \dots + Xn$$

The independent variables (X1 and so on) is the form factor of the non-metric (example: the taste, colour of gedong gincu mango and so on). The dependent variable (Y1) are the opinions of the whole (overall preference) of the respondents against a number of factors and the level of a product.

Findings: More than half of consumers choose yellow gedong gincu mango (56,30%), with the sweet flavor (90,37%), scented fragrance (85,19%), the size is not too large or moderate (65,93%), and ripe (73.33%). Based on calculations by the conjoint analysis, the highest level of importance of the attribute that to the attention of consumers significantly is in the taste of (22.88%) subsequently texture (20.02%), color (18.85%), ripeness (17.58%), aroma (14.53%) and the lowest is the size (6.14%). Consumers cluster divides four cluster.

Factors that differentiate consumers choose mango Gedong gincu from, Majalengka, Indramayu, dan kuningan are age, salary, education and amount of family. Every cluster of consumers has different preference original mango gedong gincu. For example Cluster 1 is composed of 34 consumers by age 30- < 40 years, salary 3 – 5 million rupiahs, diplomas, the amount of family members 2 people. They like mango Gedong gincu from Cirebon because of green yellow color, sweet taste, fragrant aroma, size between 4 – 5 piece per kilogram, medium texture, and ripe. Cluster 2 is composed of 60 consumers by age 40- 50 years, salary 5 – 10 million rupiahs, undergraduate education, the amount of family members 3 people. like mango Gedong gincu from Majalengka because of yellow color, sweet taste, fragrant aroma, size between 4 – 5 piece per kilogram, medium texture, and ripe, etc for cluster 3 and 4.

Contribution: Cluster and consumer preferences of Gedong Gincu manggo have never been done by other researchers. In this study, the aroma is not important factor for consumer to choose Gedong Gincu manggo, it is understandable that consumers are already familiar with the distinctive aroma of Gedong Gincu mango. Therefore, farmers should pay attention for post harvest related the color, taste, size, texture and degree of maturity.

Keywords: Preference, manggo, systematic random sampling, cluster and conjoint analysis

Abstract ID: AIMC-2017-OTH-816

THE ART OF TEACHING SCIENCE IN SECONDARY SCHOOLS: A META ANALYSIS

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Abstract

Introduction: This study attempts to identify research trends of science teaching in secondary schools. Through critical reviews of content analysis, a quantifying conclusion is drawn. The systematic reviews of secondary science teaching and learning through content analysis begin with the research questions posed namely i. What is the trend of STEM research?. ii. What is the common methodologies adopted in STEM research iii. What are the data analysis procedure employed in STEM research? **Methodology:** The focus of this study leads to critical reviews of content analysis from open source online publications between 2010 and 2016 available from Google scholar. This study has examined 20 articles published in different online Scholarly open source journals by narrowing down to Malaysian context. The articles were selected based on the key word search focusing on the research questions. Research papers and journals were properly selected to ensure they are peer reviewed and not listed in predatory as listed in Beall (2017). **Findings:** The themes were divided into STEM as the key research, research methodologies employed, technique of data analysis and major findings of the articles. The data reveal that science has the highest focus on STEM research area for the past six years as compared to Engineering and mathematics. It is revealed that the most employed research method is quantitative, followed by mixed method research while Qualitative research method has the least. Descriptive, ANOVA and independent t test have used extensively. There are instructional techniques which are very helpful for teaching sciences in secondary schools which are outdoor learning and instructional congruence. In mathematics, problem based and cooperative are the most prevalent for effective learning. Further findings include students' lost of interests in learning science especially in Physics. Issues and challenges include wide subject area in teaching chemistry, ICT is not well utilised, and lack of time to prepare teaching and learning. **Contribution:** The analysis is based on meta-analysis which provides a an original framework for future research to explore on the literature. Further, this research has proposed a proper meta-analysis research structure which is different than other pure content analysis. The findings have been summarized in tables and figures for future researchers to easily refer to.

Keywords: STEM, mathematics and science teaching and learning, meta-analysis, content analysis.

Abstract ID: AIMC-2017-OTH-828

MAJOR DEPRESSIVE DISORDER AND THE CHANGES IN FUNCTIONAL AND PHYSICAL PERFORMANCE OF PATIENTS OVER TIME (PRE-SURGERY, 3 AND 6 MONTHS POST-SURGERY) AMONG MALAYSIAN NEUROLOGICAL BRAIN DISORDER PATIENTS

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Abstract

Introduction: *Introduction: The brain and other nervous system cancer incidence was 3.3 per 100,000 population. The male account for 3.6 and female 3.1 per 100,000 population in peninsular Malaysia. For affected patients, the burden of having brain disorder is compounded by the fact that these patients tend to develop psychiatric disorders.*

Objectives: The study aimed to determine the frequency of major depressive disorder (MDD), among Malaysian brain disorder patients and to measure the severity of MDD (mild, moderate, severe). The study also investigated on changes in functional and physical performance of patients over time during pre-surgery, 3 and 6 months of post surgery and its relationship with macrophages inflammatory cells in astrocytic glioma patients.

Methodology: *Methodology: This study was conducted at Hospital Kuala Lumpur (n=110) and Hospital Universiti Sains Malaysia (n=22). International Neuropsychiatric Interview MINI questionnaire, Patient Health Questionnaire, PHQ-9 questionnaire, Karnofsky performance scale (KPS) and Barthel Index (BI) questionnaire were used in the study. Blood specimens were collected from a total of 22 astrocytic glioma patients admitted to Hospital Universiti Sains Malaysia. The plasma CD68 macrophages was measured by using commercialized Elisa kit (Cusabio Biotech Co.,Ltd). Spearman rho correlation was used to examine the relationship among the study variables. **Findings:** *Results: The prevalence of MDD in the neurological brain disorder patients was 28.2%. From the 110 respondents, 28.2% (n=31) were diagnosed with MDD. Of 31 respondents, 48.4% (n=15) were diagnosed with a current, past and recurrent episode of MDD and 32.3% each were determined to have a current and a past episode (n=10) and past episode, 9.7% (n=3), current episode 6.5 % (n=2) and past and recurrent 3.2% (n=1). The severity of MDD with minimal severity was 6.5%, mild (25.8%), moderate (38.7%) and moderately severe (22.6%). The mean KPS score of the astrocytic glioma patients before the surgery was 50(9.76); at the third month of post surgery [36.82(30.14)] and at 6th month of follow-up [40.91(33.51)]. The mean BI score was 37.5(29.14), n=22 before the surgery, at the third month of post surgery was 45.36(29.58), n=14 and at 6th month of follow-up was 55.71(31.37), n=14. The KPS score correlated with BI score before the surgery (Spearman's rho, $r = 0.605$, $p = 0.003$), 3rd month of post-surgery (Pearson correlation test, $r = 0.74$, $p = 0.002$) and 6th month of post- surgery (Pearson correlation test, $r = 0.878$; $p < 0.001$). However no significant correlation was found between CD68 macrophage level with KPS and BI score ($r=0.41$, $p=0.061$), $C.I (-0.051, 0.689)$. **Contribution:** *Conclusion: The depression among the brain disorder patients was high. BI score showed improvement during the 3rd and 6th month follow-up and the BI score was significantly increased with KPS score. Thus targeting these parameters might play an important role in the effective treatment of neurological brain disorder patients.***

Keywords: Keyword: Major depressive disorder; brain disorder; astrocytic glioma; CD68 macrophage; tumour; Barthel Index, Karnofsky Performance Scale

Abstract ID: AIMC-2017-OTH-855

LANGUAGE ACQUISITION OF A SECOND LANGUAGE: FOCUS ON YOUNG LEARNER

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Co-Authors: -

Abstract

Introduction: *Learning English which is not the main medium of instruction and in an environment where it is not widely spoken and used is not easy (Chang, 2003). Besides, the non-English speakers who do not understand English will not have the confidence to speak and read in English successfully. According to Foust (2003), no one actually teaches a child to talk. However, the interaction of the parents and others enable a child to learn by speaking the language (Foust, 2003). **Methodology:** *Research Design**

This research involves a qualitative research method to answer the research questions related to a second language acquisition of young learners. The interactions of the subjects with their mother were recorded and then, transcribed before the data were analyzed.

Subjects

The two subjects are living in Seri Iskandar area. They are the second and third children of a family of four. Girl 2, the second child is 4 years old. The parents are sending her to one of the kindergartens in the area to help her to assimilate with people to reduce her shyness. Meanwhile, Girl 1 is 6 years old. She is now in standard one and is now studying in one of the religious schools in the area. These two subjects are extremely shy with strangers and therefore, the videotaping had to be done by one of the family members since they would refuse to talk if there are people whom they do not know present. Their mother tongue of these two children is Bahasa Malaysia (Malay Language) and currently, the parents are teaching them to interact in English.

Findings: After analyzing the transcribed interaction between the mother and the two subjects, below are the findings of the study.

The Techniques That Parents Use

In analyzing the data the researcher found that there are several techniques used by the parent to assist the acquisition of the second language by her children.

Questioning Techniques

Through the observation it can be seen that the mother used questioning techniques quite extensively. If we look into the classroom interaction, the most common pattern of interaction is that known as IRF, Initiation-Response-Feedback, where teachers will initiate an exchange, usually in a form of a question, a student answers and the teacher gives feedback in a form of corrections, comments or so on and then the teacher initiates the next question (Sinclair and Coulthard, 1975). The same pattern of interaction can also be seen displayed by the mother in interacting with the two subjects. This is maybe due to the reason that the mother is an English lecturer, teaching the Teaching of English as a Second Language (TESL) courses. **Contribution:** As parents, if we want our children to acquire a second language, we should also take charge of educating our children and assisting them in acquiring the second language. By knowing the techniques used by parents in interacting with their children, this could help to assist other parents in helping their children to better acquire a second language at home. The acquisition of a second language should not only happen in the classrooms.

Keywords: second language acquisition, young learners, bilingualism

Abstract ID: AIMC-2017-OTH-861

STUDY ANALYSIS OF KNOWLEDGE MOTHER AND ENVIRONMENTAL CONDITIONS OF OCCURRENCE OF ACUTE RESPIRATORY INFECTIONS IN TODDLERS

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Co-Authors: Marniati

Abstract

Introduction: Acute Respiratory Infections still a health problem in the world. According to the World Health Organization estimates that the incidence of acute respiratory infection in developing countries with under-five mortality above 40 per 1,000 live births is 15% - 20% per year in the toddler age group. **Methodology:** This study is a descriptive analytic with cross sectional approach. The sampling technique using random sampling techniques, selected at random from each member of the population, an analysis of the data in this study using univariate and bivariate. **Findings:** The survey results revealed that mother's knowledge and environmental conditions affect the incidence occurrence of acute respiratory infections in toddlers ($P < 0.05$). **Contribution:** The mother's knowledge and environmental conditions affect the incidence occurrence of acute respiratory infections in toddlers

Keywords: Knowledge, Mother, Environment and Toddlers

Abstract ID: AIMC-2017-OTH-868

RESPONSIBILITY OF PERSONAL GUARANTEE HOLDER'S HEIR OF THE BANKRUPT COMPANY

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Co-Authors: Eman Suparman, Sonny Dewi Judiasih, Isis Ikhwanasyah

Abstract

Introduction: This article concerns the legal consequences that owned by the heirs of the Personal Guarantee holders. It is debt payment as a result of Personal Guarantee their parent made.

The issue is how to identify the responsibility of the holder of a personal guarantee that the bankrupt company in Indonesia. In addition, this article discusses the legal protection of the heir of the personal guarantee holder on

the bankrupt company. **Methodology:** Normative or doctrinal approach applied by primary law, secondary, tertiary legal materials to strengthen discussion. **Findings:** It found that there is a lack of legal protection conditions in Indonesia for heirs regulated in the Civil Code or *Burgerlijk Wetboek voor Indonesie (BW)* as well as in the Bankruptcy Act. On the other hand the aspect of justice received by the heirs at the time of settlement of bankrupt estate conducted by curator which will apparent when the curator also execute the personal property bankrupt heir and not be separated from the heir legacy, because the burden of responsibility as the executor of insolvency where the heirs become bankrupt debtor, replace personal guarantee holder.

In pursuant to Article 1826 of the Civil Code, it requires a general confiscation of all assets of the heirs. Furthermore, if it turns out inheritance heir to the personal guarantee holders is not satisfy all creditor receivable accounts, which resulted in personal property heirs also be bankrupt estate.

In Singapore, the heirs are obliged to pay the debt as worth of inherited treasures only. If the inherited property is insufficient to pay debt, the heirs are not obliged to pay off the remaining debt as far as the heirs did not know the loan agreement. But if the heirs do know the loan agreement, the heir is obliged to pay off debts left by the testator. **Contribution:** This Studies in the framework of writing this dissertation contributes to the reconstruction of rule and legislation on bankruptcy in Indonesia, especially those relating to heirs and personal guarantees as well as reference material to the bankruptcy case involving a personal guarantee and heir. Until now there have been no similar studies that examine the responsibilities of heirs personal guarantee holders on a bankrupt company in Indonesia.

Keywords: Inheritance law, Heirs, Personal Guarantee, Civil Code Act

Abstract ID: AIMC-2017-OTH-871

CHINA HARD POWER IN CYBERSPACE OVERVIEW

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Co-Authors: -

Abstract

Introduction: Background of this research are the increasing of internet users, mobile Internet users, ".cn" domains, and ".cn" sites of China in 2015 to 2016. **Methodology:** This research use literature approach to books with theme of China and cyberspace. **Findings:** Based on cyberpower framework by Joseph S. Nye, this research found that the development of China in cyberspace have done all the aspects of cyberpower in terms of hard power. Such as cyberattacks committed by the China, build cyber defense system through "The Great Firewall of China", and develop cyber security law. **Contribution:** This research provide overview of the hard power of cyberpower in practice.

Keywords: China, Cyberspace, Cyberpower, Hard Power

Abstract ID: AIMC-2017-OTH-875

SOCIAL NETWORK ON PARTNERSHIP OF PROVIDING AND DISTRIBUTION OF PADDY SEED IN UD VIVA TANI MANDIRI SEJAHTERA

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Co-Authors: Rini Dwiastuti

Abstract

Introduction: Increased productivity of paddy as one of the strategies to create food security can be achieved through the use of high yielding varieties of paddy seed. The existing problems at farm level are the unavailability of paddy seed varieties when needed also difficulty in getting at affordable prices, and inconsistent availability reference of farmers. Meanwhile, the transition use of paddy seed level for cultivation by farmers bring new problems for paddy seed producers, because scarce and expensive breeder seed at producer level. UD Viva Tani Mandiri Sejahtera is one of the paddy seed producers in Malang which to support their efforts, they make partnership with cultivators and agricultural kiosks in various regions in Malang, East Java to several areas in other provinces. The involvement of stakeholders from different business units that create a relationship in the form of interaction and communication between actors to form a social network becomes interesting point to study. The purpose of this study was to analyze the partnership of providing and distribution of paddy seeds based on communications networks, social networks, and business continuity among members. **Methodology:** This study was conducted in Malang, Indonesia by using UD Viva Tani Mandiri Sejahtera as analysis unit of paddy seed producer. The population in this study consisted of UD Viva Tani

*Mandiri Sejahtera as a company partner that determined specifically by number of paddy seed that can be produce in Malang, 6 kiosks partner that determined specifically considering number of paddy seed distribution in Malang, and 7 cultivators that determined by using census method. Primary data in this study were obtained by interview and documentation. Data analysis methods were used to analyze the three objectives of this research is descriptive analysis method. Analysis of the data communication network described based on interpretation of the results of sociometry matrix and sosiogram scheme. Meanwhile, social network analysis and business continuity described based on interpretation by category which has been determined by a Likert scale. **Findings:** Based on the role and structure of the communications network analysis. 27 actors are identified on communication network. These actors are then identified into sub-groups or clicks that are formed in the communication network. Click A include actors who are involved in the activities of paddy seed distribution partnerships, and click B include actors who are involved in the providing of paddy seed partnership. Through sociogram scheme we know position and role of each actor in the communication network. From five roles that are identified, only three roles can be found in the communication network. The characteristics of social networks analysis shows there are morphology and high interactional characteristic. Morphology characteristic indicates the behavior of individuals in the form of mutual cooperation, tolerance, openness, responsibility, and passion as the orientation of partner in running partnership. In terms of interactional characteristics, there are the interests of partners such as access to information related to partnerships, seed sources, seed quality, pricing sell at cultivators and produser level. Meanwhile, based on results of business continuity analysis that include capital continuity, the continuity of human resources, sustainable production and marketing viability showed that in general the business continuity for cultivators as partner can be achieved. **Contribution:** For companies, as result of this studies, companies especially in paddy seed production can use this study to maintain the integrity and continuity of social relationships and fulfillment of rights and obligations that have been well appreciated. Furthermore to the company, in order to open wider access to human resources, for example with good coaching skills of farming and business skills for farmers who need a partner breeder.*

Keywords: Social network, partnership, paddy seed provision

Abstract ID: AIMC-2017-OTH-884

THE IMPROVEMENT OF MATHEMATICAL LATERAL THINKING ABILITY OF STUDENT THROUGH CHALLENGE-BASED LEARNING WITH COGNITIVE CONFLICT STRATEGY

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Abstract

Introduction: Challenge based learning with cognitive conflict strategy geometrical concepts need to provide adequate opportunities for students to make observations, exploration, investigation, and experiment to see and suspect the existence of a truth and then test it before completing a geometry problem. the study is intended to investigate: the improvement of mathematical lateral thinking ability between students who are exposed to challenge based learning with cognitive conflict strategy and those taught by expository. the interaction between learning types and categories of mathematical entry knowledge on the improvement of lateral thinking ability, the difficulties encountered by students in completing lateral thinking questions. **Methodology:** This research used a mixed-method experimental pre and post test control group design, that involves 73 student teachers at State Islamic university in Bandung Indonesia, as samples. They were categorized into two groups; 35 students of class B as control group who received individual expository (conventional) and 38 students of class C as experiment group who were exposed to challenge based learning with cognitive conflict strategy cooperatively in group. As for the instrument, an initial test was administered to identify students' Math Entry Knowledge followed by a pretest and post-test on mathematical lateral thinking ability. the instrument content are validate, revised and tested, while the test results are analyzed in terms of validity, reliability, distinguishing features and level of difficulty. To measure the validity of the content, based on considerations about the suitability criteria such as prior knowledge of mathematics, teaching materials, level difficulties, and indicators of lateral thinking capabilities. Data analysis was done through significance test of t-test for normally distributed data (Gaussian), and the Mann-Whitney U for test if the data was not Gaussian. Meanwhile, to see the interaction between dependent variables, F test was employed if normality was met; if not, then adjusted rank transform was used. **Findings:** The findings show that: the overall average value $\langle g \rangle$ of experiment group which belongs to high category, higher than of control group which belongs to average category. Based on mathematical entry knowledge, it is identified that the experiment group has the following $\langle g \rangle$ categories

respectively (0.75, 0.70, and 0.60). Based on this, high and average mathematical entry knowledge levels belong to high where as low mathematical entry knowledge is included in medium, which is higher than the averages <g> of control group (0.63, 0.59, 0.56) which belong to average category. This difference of improvement indicates that the use of challenge-based learning with cognitive conflict strategy gives a better contribution to the improvement of students' mathematical lateral thinking ability than the expository learning. Conclusions: the improvement of mathematical lateral thinking ability students who are exposed to challenge based learning with cognitive conflict strategy has higher improvement level than students who are exposed to expiatory based on overall and entry knowledge mathematics of students. there is an interaction between learning types and mathematical entry knowledge of students, students difficulties in completing the lateral thinking questions can be minimized. **Contribution:** Unlike previous studies which claim that cognitive conflict occurs during cooperative collaboration, this study argues that such conflict happens at cooperative exploration stage. In the context of challenge-based learning with the strategy of cognitive conflict, the ability to think laterally tend to be received by individual through challenging tasks or conflict. This study develops knowledge through the task, even nowadays, preparing prospective teachers of mathematics professionals in the future not only relying on the knowledge acquired itself, the involvement of teachers and other as well as completing the task is needed to meet the challenges of the problems.

Keywords: lateral thinking, challenge-based learning, cognitive conflict strategy

Abstract ID: AIMC-2017-OTH-888

ECONOMIC VENTURES OF FEMALE COMPANIONS (SAHAABIAT) IN THE DAYS OF THE HOLY PROPHET(PBUH)

Corresponding Author: Dr. Abzahir Khan

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Co-Authors: Nosheen Bibi(PhD Research Scholar), Abdul Naseer(M.Phil Research Scholar)

Abstract

Introduction: Islam has assigned equal responsibilities of home and outside to both men and women according to their respective biological make up. Women have been entrusted the duty of producing and raring children and fulfill domestic obligations at home while men have been deputed over their security and financial as well as social needs. Allah SWT has created this universe an all the humans herein with a purpose and the purpose of creating the men and women can only be fulfilled when both men and women play the defined role assigned to them, which is submission to the will of the Creator and carry out His orders in lines with the injunctions prescribed in the Holy Quran as per the laid down principles of Sunnah. In order to make the injunctions more practicable, Allah SWT it was essential to make man 'qawwam' i.e. head of the family.

Methodology: No **Findings:** No **Contribution:** No

Keywords: Islam, women , economic,

Abstract ID: AIMC-2017-OTH-890

DATA ENCRYPTION AND FILE HIDING IN CLOUD VIA ANDROID APPLICATION

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Abstract

Introduction: Android operating system getting wilder now days, many applications that can get from google play or from outside sources. Application from the google required many permission before the smartphone user can get install the application. This makes user data, such image and document files is unsecure. The installed application also can use the data and information anytime without user knowledge and consent caused by the archive the permission to do so when the user wants to install the application. Permission to access the phone gallery can be misuse by the application. Many image locker and image-hidden application is been created to prevent the application that had permission to read the gallery but it cannot detect the private images. The application only encrypt the image file and save it in external and internal memory. The same situation goes also

to the document file in file manager. Apps has permission to use and copy it without user consent. Professional hackers to find and decrypt the file to get the confidential images can easily manipulate this situation. **Methodology:** This application can encrypt and decrypt sensitive images and securely save it in cloud storage, and at the same time, it can overcome the problem in retrieving the encrypted images back to the original file format. This system can give user almost 100% permission on managing the encrypted image file in their smartphone.

Once installed, user open the android application then choose to encrypt or decrypt. During encryption process, the system will access the user gallery to choose image. The image format then will be changed .jpeg to .apk. The encrypted file will be save in cloud storage. During decryption process, the system will directly access the cloud storage (such as drop box) and download the saved encrypted file. The file shall be decrypted and the format file will be revert to .jpeg before it is save and stored in the gallery.

Findings: This application were tested by using three types of testing which is Functional Testing, Security Testing, and User Acceptance Testing (UAT). From the functional testing, this application are proven to be fully function in both android version (Lollipop (5.0) as and Marshmallow (6.0)). The file type (.jpeg, .jpg, .png, .docx, .pdf) for the system encrypt and decrypt is fully function and successfully protected. Results from security testing shows that this application is working properly and the encrypted file is secure and cannot easily decrypted by other decrypter tools that used the same AES algorithm. UAT also proved that this application is beneficial to be used in user daily life to protect their confidential and personal data. **Contribution:** There were already available image hidden in google play. However, the user usually only used standard DES encryption or change file format to hide the image in internal memory or an external memory card. This application (Data Encryption and File Hiding in Cloud via Android Application (I-Encrypter)) will be the first image and document hide using both technique system that will change file extension and encrypt it, which can give more secure to the smartphone users. This application gives a way to retrieve the image and document by saving the encrypted file on cloud storage.

Keywords: image hidden, data encryption, cloud storage

Abstract ID: AIMC-2017-OTH-953

A CONCEPTUAL FRAMEWORK FOR A CONTEMPORARY ART SPACE FOR 21ST CENTURY ART IN MALAYSIA

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Abstract

Introduction: 21st Century Art demands for a new mode of display that go beyond the “white-box” exhibition model due to various levels of engagement with its visitors and space. Globally, new art museums and galleries are being built specifically for contemporary art because they require exhibition spaces that are drastically different from what it is currently available. They offered flexible exhibition spaces to create an informal art experience that blurs the boundaries between high art and low art. As with most countries in the region, Malaysia’s bureaucracy and government’s social-political agenda that is the basis of all of its cultural institutions like national art museums and galleries, make it difficult to adapt to these new radical changes in audience engagement for 21st century art. Further, this lack exhibition platform has sparked initiatives amongst local artist to establish their own independent art spaces. **Methodology:** Within this issue, an exploration study has conducting to empirically examine the prospective of independent art spaces in Malaysia as a model for 21st century art’s mode of exhibition. Furthermore, it attempts to understand the changing needs of artwork engagement from the perspectives of artists, curators and independent art space organizers. **Findings:** Despite the success of these independent art spaces in terms of attracting new art-going audience and creating new exhibition models apt for contemporary art, it has difficulty being in operation beyond 3-5 years. **Contribution:** The findings, will proposing a conceptual framework for a contemporary art space for 21st century art based on independent art spaces in Malaysia.

Keywords: Contemporary art space; 21st century art; independent art spaces; exhibition model; display; audience engagement;

Abstract ID: AIMC-2017-OTH-968

THE EFFECT OF ENVIRONMENTAL LEADERSHIP AND HEAD OF VILLAGES' KNOWLEDGE ABOUT CONSERVATION ON THEIR ABILITY IN MANAGING ENVIRONMENT: AN EX POST FACTO STUDY IN NUSA TENGGARA TIMUR PROVINCE (2016)

Corresponding Author: SIPRIANUS RADHO TOLY

University of Nusa Cendana Kupang

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Abstract

Introduction: *The research is aimed at finding out information about the effect of environmental leadership and the heads of villages' knowledge about conservation on their ability in a managing environment.* **Methodology:** *An ex post facto method was applied by involving n = 250 heads of villages in Nusa Tenggara Timur Province. The research design was 2 x 2 factorial. Data were analyzed by applying two-way ANOVA.* **Findings:** *The research results revealed that there was environmental management ability difference between the heads of village with transformational leadership style and transactional leadership style. There was high ability in the managing environment in the group of heads of villages who had high knowledge about conservation and transformational leadership style rather than transactional leadership style. There was low ability in the managing environment in the group of heads of villages who had low knowledge about conservation and transactional leadership style rather than transformational leadership style. A significant interaction effect was found between environmental leadership and the heads of villages' knowledge about conservation on their ability in a managing environment. It could be concluded that if ability in a managing environment could be improved, environmental leadership could be enhanced by considering knowledge about conservation. This, however, does not guarantee that the transformational leadership style would be able to improve the heads of villages' ability in a managing environment; as it also depends on their knowledge about conservation.* **Contribution:** *I express in fact, that this research result is entirely really is result of my masterpiece. As for parts of selected in this writing is I borrow ideas from result of others masterpiece and I have written down the source of him or her clearly as according to norm, method, and erudite writing ethics.*

Keywords: Environmental leadership, conservation knowledge, environment management ability

Abstract ID: AIMC-2017-OTH-976

THE EFFECT OF ENVIRONMENTAL LEADERSHIP AND HEAD OF VILLAGES' KNOWLEDGE ABOUT CONSERVATION ON THEIR ABILITY IN MANAGING ENVIRONMENT: AN EX POST FACTO STUDY IN NUSA TENGGARA TIMUR PROVINCE (2016)

Corresponding Author: SIPRIANUS RADHO TOLY

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and knowledge of environmental issue and conservation in order to improve heads of villages' knowledge about conservation on their ability in a managing environment.

Keywords: Environmental leadership, conservation knowledge, environment management ability

Abstract ID: AIMC-2017-OTH-996

TEACHERS' ATTITUDES TOWARDS THE IMPLEMENTATION OF THE FROG VLE

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Abstract

Introduction: Frog Virtual Learning Environment (VLE Frog) is an interactive virtual learning environment. It was adapted from an e-learning on the Frog VLE as an intranet, classrooms through online and social space for the school, all under one roof. Frog VLE is a web-based system that simulates the real world of education by integrating conventional education in a virtual environment. Teachers can give assignments, tests, and marks virtually, while students can send their homework and check marks obtained through the Frog VLE. Parents can also communicate with teachers, and school administrators can organize the school calendar by posting a notice on the Internet. Frog VLE is not only accessible by using a computer, but can also be accessed using any electronic device that has Internet network such as mobile phones and tablets. The Ministry of Education has introduced the Frog VLE since 2012, but the implementation of the Frog VLE among teachers is still not comprehensive. Therefore, this paper discusses a study on teachers' attitudes towards the implementation of the Frog VLE in primary schools Kajang Zone. **Methodology:** Descriptive survey method was used and questionnaire respondents are physically distributed. Data were analyzed using the Statistical Package for Social Sciences (SPSS). **Findings:** The variables tested and found to teacher attitudes teachers have a positive attitude towards the implementation of the virtual learning environment VLE Frog. **Contribution:** The authorities can make improvements to the Frog VLE can be used optimally and can bring benefits to all parties.

Keywords: Virtual Learning, Frog VLE, Teachers' Attitudes

Abstract ID: AIMC-2017-OTH-1003

AN ANALYSIS OF AMBIGUITY DETECTION TECHNIQUES FOR SOFTWARE REQUIREMENTS SPECIFICATION (SRS)

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Abstract

Introduction: Ambiguity is the major problems in Software Requirements Specification (SRS) documents because most of SRS documents are used in natural language and natural language is basically ambiguous. There are many types of techniques have been used to detect ambiguity in SRS documents. All of these techniques can be categorized into three approaches: manual approach, semi-automatic using natural language processing approach and semi-automatic using machine learning approach. Among them, Naïve Bayes (NB) text classification technique obtained high accuracy and performed well in detecting ambiguity in SRS. Moreover, NB is also one of the techniques of the semi-automatic using machine learning approach.

Methodology: Secondary sources (analysis of ambiguity detecting techniques in SRS)

Ambiguity in requirements are major problems because it will lead to the poor quality of SRS documents [6]. Additionally, the software errors increase during requirements phase because of requirements specification are ambiguous and errors in requirements are widespread, harmful, costly and it also lead to lower quality of SRS documents [7]. Several techniques have been used to detect ambiguity in SRS. According to several recent studies Kamsties [7], Popescu[8] and Singh [9] suggested that they used human expertise in detecting ambiguity, Havasi[10], Hill[11], Korner[12], Misra[13], Wang[14], Wijewickrema and Gamage [15] and Wijewickrema [16] used semi-automatic using natural language processing techniques in detecting ambiguity and Wang[14], Allahyari-Abhari[17], Liu[18], Polpinij[19], Polpinij and Ghose[20] and Sharma[21] used semi-automatic using machine learning techniques in detecting ambiguity. Semi-automatic means both human expertise and automatic techniques (natural language processing and machine learning) are used in detecting ambiguity [22]. Based on the above, we can conclude that ambiguity detection approaches can be categorized into three groups and they are manual, semi-automatic using natural language processing techniques and semi-automatic using machine learning techniques. The details explanation will be in Related Works. **Findings:** The

three approaches to detect ambiguity in Software Requirements Specification (SRS) are manual techniques, semi-automatic using natural language processing techniques and semi-automatic using machine learning techniques. The strength and the weaknesses of these three approaches are in below.

The advantage of the manual approach in detecting ambiguity is that if the inspection and reviewing techniques of checklists (detecting ambiguity for single requirements) and scenario-based reading (detecting ambiguity for passage level requirements) are combined, which will provide instruction and will guide what is being inspected for inspectors and reviewers. In general, the manual approach is better for those who has less familiar with the software domain [17].

The disadvantage of manual approach is that some of the inspectors consider that they can detect ambiguity by looking with no instruction is needed on how to detect ambiguity. Furthermore, one of the checklist item ask "is the requirements ambiguous" that question just ask requirements are ambiguous or not that is not supporting and also leading to the main problems due to readers are not aware of the ambiguity [9]. Additionally, reviewers naturally disambiguate the ambiguous documents and they are not being aware of other possible interpretations, but they will just interpret the document, which first come to their mind known as intended interpretation [23].

The interest of using semi-automatic using natural language processing techniques in detecting ambiguity for SRS are that they can make the document understandable by providing the conceivable subjects or documents and also with the input category of the incorporated descriptions even though the input document is ambiguous suggested by the ontology classifier, but still need to increase the accuracy in detecting ambiguity [16]. The pattern matching process is the other type of the natural language processing technique for detecting ambiguity in SRS, which can be able to look for ambiguity using natural language patterns. However, it still need to rewrite the requirements after patterns matching process [26].

The most favor of using semi-automatic using machine learning techniques to detect ambiguity in SRS are that the decision-trees technique is used to detect ambiguity and also performed well in a lot of relative studies [38], the Support Vector Machine (SVM) can be able to apply many natural language processing jobs in order to detect errors effectively [29], the Naïve Bayes (NB) classifier performed well in detecting ambiguity [21] and also achieved high accuracy in detecting ambiguity [19]–[21], [31] and the n-gram model able to help in detecting ambiguity by creating language model and extracting features from a text corpus that can be counted the frequency from the appearance of n-gram to a text or word sequence [36].

However, NB classifier is more consistency in detecting ambiguity as compared to decision-tree technique [17]. NB classifier performed better than Logistic Regression followed by SVM in classification between informational and ambiguous queries based on use entropy that is known as maximum entropy model to classify some text of the natural language processing [37]. Although n-gram model able to detect ambiguity based on assumption, which is also called probability generalized model, nonetheless the output of the n-gram model produced misleading result [36].

Hence, we can conclude that Naïve Bayes (NB) classifier is the only one, which achieved high accuracy and performed well in detecting ambiguity as compared to other machine learning techniques, natural language processing techniques as well as manual techniques.

Contribution: Naïve Bayes (NB) classifier is the only one, which achieved high accuracy and performed well in detecting ambiguity as compared to other machine learning techniques, natural language processing techniques as well as manual techniques.

Keywords: Ambiguity, Software Requirements specification (SRS), Naive Bayes text classification

Abstract ID: AIMC-2017-OTH-1054

THE IMPACT OF COLLABORATION OF USERS AND BUSINESS INTELLIGENCE DEVELOPERS ON BUILDING SUCCESSFUL DATA MARTS

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Abstract

Introduction: Data mart is a component of data warehouse architecture, which contain data-shadow for specific domain. Thus, it can be view as another table facilitating reports and analysis. Data mart gives desirable attributes from data warehouse at one place instead of being duplicated at different places in the data warehouse. Data warehouses comes in to being as a result of the needs for maintaining large volumes of data coming from various sources, which is considered as a core component of business intelligence **Methodology:**

Critical reviews were undertaken on research studies for creating a data mart. Although most of the architectural framework aims to map out unique attributes required for effective and efficient desirable reporting, yet many of the major weaknesses observed in building data marts lies within the communication gap among users and business intelligence officer. As a result, this paper conceptualized some measures required to provide efficient data marts. The evaluation of the previous research studies performed, were used to understand how the nature of most current state-of-the-art data mart designed architectures. Based on these, a proposed concept was formulated. Qualitative research method through Interviews were carried out. Data are analysed and results were obtained. **Findings:** The concept formulated shows that successful data marts architectural design could yield a successful business intelligence output. An important theme was extracted, crucial to this is concerning the phases of implementation of Data mart, "Aggregation" is one of the key constructs to which respondents believe its dynamic because the nature of data sources derived from multiple heterogeneous sources is also dynamic. This has been the major platform where different states of a system caused by various business events or activities are assembled to obtain their entries. A better decision-making, at both the operational and strategic level is required in "aggregation" of data from sources. **Contribution:** This research has uncovered the importance of the treatment of various Sources of data for data warehouse coming from various enterprises which are capable of adapting to the new data environment. The proper consolidation of various heterogeneous data sources, support enterprise wide decision-making, reporting, and analysis. The importance of collaboration among users and business intelligence developers in building a data mart cannot be over-emphasized. This is necessary, because a good successful business intelligence output requires a successful data mart. This means that the value users and business intelligence developers, has to make data mart clear in order to have an understanding of the data, transactions and operations required for the development of the data mart.

Keywords: Data Mart, Business Intelligence, Data Sources, Heterogeneity

Abstract ID: AIMC-2017-OTH-1146

ONLY TO CHECK

Corresponding Author: only to check
only to check

Co-Authors: only to check

Abstract

Introduction: only to check **Methodology:** only to check **Findings:** only to check **Contribution:** only to check

Keywords: only to check

Abstract ID: AIMC-2017-OTH-1160

AL-QUR'AN MAKKĪ DAN MADANĪ: SATU PERBINCANGAN

Corresponding Author: ZUHARYATI BINTI YUSOF

POLITEKNIK MUADZAM SHAH

Co-Authors: MOHD ROSDI BIN RIPIN

Abstract

Introduction: *c*Ulūm al-Qur'an merupakan salah satu cabang ilmu yang ada hubung kait dengan al-Qur'an. Bagi merealisasikan pengajian ilmu ini, tumpuan yang khusus dan perbincangan yang mendalam amat diperlukan. Ini bagi memastikan setiap ilmu-ilmu yang terkandung dalamnya, dikaji dan dihalusi dengan sebaik-baiknya. Salah satu aspek yang berkaitan dengan ilmu ini dan menjadi fokus penulis ialah kajian terhadap ilmu Makkī dan Madanī (Muhammad cAbd al-cAzīm al-Zarqānī, 1988).

Ilmu Makkī dan Madanī merupakan salah satu daripada ilmu yang sangat penting untuk dikaji dan diteliti segala riwayat dan nas mengenainya kerana ia merangkumi perbincangan keseluruhan ayat dan surah di dalam al-Qur'an. Ini jauh perbezaannya dengan ilmu asbāb al-nuzūl yang hanya melibatkan aspek-aspek tertentu, bermula dari peristiwa penurunan ayat dan tidak membicarakan secara terperinci terhadap ayat-ayat lain yang tidak mempunyai sebab penurunan (Subhī al-Sālih, 2000).

Oleh itu, didapati sejak al-Qur'an diturunkan hinggalah ke hari ini, ramai para pengkaji Islam mahupun Barat menghabiskan sebahagian besar hidup mereka untuk mengkaji tentang ilmu Makkī dan Madanī (Subhī al-Sālih, 2000). Meskipun ilmu tersebut, telah digali dengan segala kemampuan oleh para ilmuan, namun khazanah ilmu ini tetap memerlukan penerokaan baru oleh para sarjana Islam kini agar segala penemuan baru dapat dihasilkan serta menjawab segala keraguan yang ditimbulkan oleh orientalis.

Justeru itu, dalam kajian ini penulis akan membincangkan tentang Makkī dan Madanī. Antara persoalan kajian tentang al-Quran Makkī dan Madanī ialah:

- a. Apakah yang dimaksudkan dengan *al-Quran Makkī dan Madanī* ?
- b. Apakah perbezaan pendapat mengenai *al-Quran Makkī dan Madanī* dari aspek masa, tempat dan sasaran ayat?
- c. Bagaimanakah kaedah untuk mengenali *al-Quran Makkī dan Madanī*?

Methodology: 2.1 Metode Pengumpulan Data

Metode Pengumpulan Data digunakan untuk memperolehi data-data yang diperlukan bagi penulisan artikel ini. Untuk mendapatkan data-data yang relevan dengan tajuk kajian, penulis telah menggunakan kajian perpustakaan sebagai sumber utama pengumpulan data bagi memperolehi pelbagai bahan bacaan daripada beberapa buah perpustakaan. Antaranya ialah Perpustakaan Utama (UM) Kuala Lumpur, Perpustakaan Akedemi Pengajian Islam (UM), Perpustakaan al-Malik al-Faisal (UM-Nilam Puri), Perpustakaan Tun Seri Lanang (UKM), Perpustakaan Islam Dar Nur al-Zahra' (Kelantan), Perpustakaan Awam Kelantan dan Perpustakaan Awam Islam (Jabatan Kemajuan Islam Malaysia, Pusat Islam).

Walau bagaimanapun, selain itu terdapat juga bahan-bahan bacaan yang dimiliki oleh penulis sendiri di samping bahan-bahan yang dipinjam oleh penulis daripada individu-individu tertentu. Secara umumnya, data-data ini diperolehi melalui dua metode iaitu metode dokumentasi dan metode historis. Penulis menggunakan metode ini secara langsung dengan mengkaji dan menganalisa dokumen-dokumen yang ada hubungannya dengan masalah yang dikaji dan data-data yang mempunyai nilai sejarah. Dokumen tersebut termasuklah buku-buku, kertas-kertas kerja, jurnal-jurnal, latihan ilmiah, tesis, kitab *al-Qur'an* dan kitab-kitab hadis.

2.2 Metode Penganalisaan Data

Data-data yang terkumpul dianalisa secara teliti. Daripada peringkat ini, penulis akan melihat beberapa perkara yang berhubung antara data dan fakta yang berlaku. Seterusnya, penulis membuat beberapa kesimpulan terhadap data-data tersebut. Melalui metode induktif, penulis menganalisa segala data melalui pola berfikir untuk mencari kesimpulan daripada perkara-perkara yang bersifat khusus untuk dibuat kesimpulan secara umum. Manakala melalui metode deduktif, penulis menganalisa segala data melalui pola berfikir untuk mencari pembuktian daripada perkara-perkara yang bersifat umum untuk dibuat kesimpulan secara khusus. Metode komparatif turut juga digunakan oleh penulis untuk membuat penelitian dan perbandingan daripada data-data yang diperolehi dan seterusnya membuat kesimpulan secara menyeluruh.

Findings: 3.1 Pengertian Makkī Dan Madanī

Dari segi bahasa *Makkī* ialah perkataan yang dinisbahkan kepada Mekah (Syihab al-Dīn Abū cAbd Allah, t.t). Manakala dari sudut istilah terdapat pelbagai pengertian yang diberikan oleh para ulama Islam. Antara definisi yang diberikan oleh mereka ialah:

- i. *Makkī* adalah *al-Qur'an* yang diturunkan sebelum hijrah Nabi SAW ke Madinah.
- ii. *Makkī* ialah *al-Qur'an* yang diturunkan di Mekah.
- iii. *Makkī* merupakan *al-Qur'an* yang ditujukan kepada penduduk Mekah.

Manakala *Madanī* dari sudut bahasa ialah yang dinisbahkan kepada Madinah (Abd al-Fatah Abu Sinnah, 1995). Dari sudut istilah pula ialah:

- i. *Madanī* ialah *al-Qur'an* yang diturunkan selepas hijrah Nabi SAW ke Madinah.
- ii. *Madanī* adalah *al-Qur'an* yang diturunkan di Madinah.
- iii. *Madanī* merupakan *al-Qur'an* yang ditujukan kepada penduduk Madinah.

3.2 Perbezaan Pendapat Mengenai Al-Qur'an Makkī Dan Madanī

Terdapat perbezaan pendapat di kalangan para ulama Islam mengenai *al-Qur'an Makkī dan Madanī*. Namun begitu, perselisihan mengenai *al-Qur'an Makkī* lebih ketara kerana kebanyakan peristiwa yang berlaku di Mekah tidak begitu jelas sebagaimana penurunan ayat-ayat dan surah-surah di Madinah (Muhammad cAlī al-Hasan, 1983).

Ini dapat dilihat kepada pengertian *Makkī dan Madanī* dari sudut istilah sebagaimana yang dijelaskan sebelum ini. Perbezaan pendapat tersebut disebabkan masing-masing melihat dari aspek penurunan yang berbeza iaitu aspek masa, tempat dan sasaran ayat. Walaupun terdapat banyak pendapat yang diberikan tentang *al-Qur'an Makkī dan Madanī*, namun tidak kesemua pendapat tersebut bertepatan dengan *al-Qur'an* diturunkan. Kesemua perbezaan pendapat tersebut adalah seperti berikut:

- a. Pendapat yang melihat dari aspek Masa

Berasaskan kepada pendapat ini maka:

Makkī ialah *al-Qur'an* yang diturunkan oleh Allah SWT sebelum hijrah Nabi SAW ke Madinah. Manakala *Madanī* pula ialah *al-Qur'an* yang diturunkan selepas hijrah Nabi SAW ke Madinah (Badr al-Dīn Muhammad ibn cAbd Allah al-Zarkasyī, 2001, cAbd al-Rahmān ibn Abū Bakr al-Suyūṭī, 1997).

Ulasan:

Pendapat di atas adalah pendapat yang diberikan oleh ulama yang melihat dari aspek masa sesuatu ayat al-Qur'an diturunkan. Kunci utama dalam pendapat ini ialah masa sesuatu ayat itu diturunkan sama ada sebelum hijrah atau selepas hijrah Nabi SAW ke Madinah. Ini bermakna sekiranya ia diturunkan sebelum hijrah Nabi SAW ke Madinah dinamakan al-Qur'an Makkī dan sekiranya ia diturunkan selepas hijrah Nabi SAW ke Madinah dinamakan al-Qur'an Madanī. Pendapat ini adalah yang paling tepat dan masyhur di kalangan ulama Islam (Hasan al-Sayyid al-Sayyid cĀsyūr, 1996). Ini kerana, pendapat yang diberikan lengkap dan merangkumi setiap ayat al-Qur'an sama ada ianya diturunkan di Mekah, Madinah, pada tahun pembukaan Kota Mekah, pada tahun Haji Perpisahan dan dalam mana-mana pengembaraan baginda SAW ke Madinah atau sebelum sampai ke Madinah (Al-Suyūṭī, 2000).

Oleh itu, para ulama yang berpegang dengan pendapat ini, menyatakan bahawa surah al-Nisā' adalah Madanī, meskipun di dalamnya terdapat satu ayat yang diturunkan di Kota Mekah, ketika baginda SAW berada di sisi Ka'abah pada tahun pembukaan Kota Mekah (Abū al-Hasan cAlī bin Ahmad, 2000). Sebagaimana firman Allah SWT:

(58) بَصِيرًا سَمِيعًا كَانَ اللَّهُ إِنَّ بِهِ يَعِظُكُمْ نِعْمًا اللَّهُ إِنَّ بِالْعِزْلِ تَحْكُمُوا أَنْ النَّاسَ بَيْنَ حَكْمَتُمْ وَإِذَا أَهْلَهَا إِلَى الْأَمَانَاتِ تُؤَدُّوْنَ أَنْ يَأْمُرَكُمْ اللَّهُ إِنَّ

Surah al-Nisā' (4): 58.

Maksudnya:

"Sesungguhnya Allah SWT menyuruh kamu supaya menyerahkan segala jenis amanah kepada ahlinya (yang berhak menerimanya), dan apabila kamu menjalankan hukum di antara manusia, (Allah SWT menyuruh) kamu menghukum dengan adil. Sesungguhnya Allah SWT dengan (suruhan-Nya) itu memberi pengajaran yang sebaik-baiknya kepada kamu. Sesungguhnya Allah SWT sentiasa Mendengar, lagi sentiasa Melihat"

Begitu juga dengan firman Allah SWT di dalam surah al-Mā'idah:

(3) دِينَا الْإِسْلَامَ لَكُمْ وَرَضِيْتُ نِعْمَتِي عَلَيْكُمْ وَأَتَمَمْتُ دِينَكُمْ لَكُمْ أَكْمَلْتُ الْيَوْمَ

Surah al-Mā'idah (5): 3.

Maksudnya:

"... Pada hari ini, Aku telah sempurnakan bagi kamu agama kamu, dan Aku telah cukupkan nikmat-Ku kepada kamu, dan Aku telah redakan Islam itu menjadi agama untuk kamu ..."

Berdasarkan ayat di atas, jika dilihat dari sudut tempat turun ayat ini dikategorikan sebagai ayat Makkī. Walau bagaimanapun, para ulama bersepakat mengatakan ia adalah ayat Madanī kerana diturunkan pada hari Jumaat selepas waktu Asar di padang Arafah ketika Nabi SAW mengerjakan Haji Perpisahan (Hasan Ayyūb, 2002). Dengan kata lain, ia berlaku selepas peristiwa hijrah Nabi SAW ke Madinah.

b. Pendapat yang melihat dari aspek Tempat

Terdapat tiga pengertian yang telah diberikan oleh para ulama tentang al-Qur'an Makkī dan Madanī dari aspek tempat penurunan.

i) Makkī ialah al-Qur'an yang diturunkan di Mekah sekalipun selepas hijrah Nabi SAW. Manakala Madanī pula ialah al-Qur'an yang diturunkan di Madinah (Ahmad Hasan al-Bāqūrī, t.t.).

ii) Makkī ialah al-Qur'an yang diturunkan kepada Rasulullah SAW sepanjang tempoh baginda SAW berada di Mekah. Manakala Madanī pula ialah al-Qur'an yang diturunkan kepada Rasulullah SAW sepanjang tempoh baginda SAW berada di Madinah (Zulkifli Yusoff, 1995).

iii) Makkī ini dibahagikan kepada dua bahagian. Makkī pertama ialah al-Qur'an yang diturunkan di Mekah sebelum hijrah baginda SAW. Makkī kedua ialah al-Qur'an yang diturunkan di Mekah selepas tahun pembukaan Kota Mekah. Manakala Madanī pula ialah al-Qur'an yang diturunkan di Madinah (Mannāc al-Qattān, 1995).

Ulasan:

Pengertian pertama, kedua dan ketiga di atas melihat dari sudut tempat sesuatu ayat al-Qur'an diturunkan. Batas perbezaan antara Makkī dan Madanī pada pengertian tersebut ialah tempat penurunannya meskipun ia diturunkan sebelum atau selepas hijrah Nabi SAW atau selepas pembukaan kota Mekah. Berdasarkan kepada ketiga-tiga pengertian tersebut dapat disimpulkan bahawa kesemua surah dan ayat yang diturunkan di Mekah dikenali sebagai al-Qur'an Makkī. Manakala kesemua surah dan ayat yang diturunkan di Madinah dinamakan al-Qur'an Madanī.

Walaupun bagaimanapun, ketiga-tiga pengertian yang diberikan ini kurang tepat kerana ianya tidak merangkumi keseluruhan ayat dan surah al-Qur'an yang diturunkan, bahkan terdapat ayat-ayat al-Qur'an dan surah-surahnya bukan sahaja diturunkan di Mekah dan di Madinah, tetapi ada yang diturunkan di luar kota Mekah seperti di Mina, Arafah dan Hudaibiyah. Manakala terdapat juga ayat yang diturunkan di luar kota Madinah seperti di Badar dan Uhud. Malah terdapat ayat-ayat yang diturunkan di Mekah, tetapi dikategorikan sebagai ayat Madanī dan begitu pula sebaliknya.

Antara contoh-contoh yang menunjukkan ayat yang diturunkan di luar kota Mekah dan Madinah ialah firman Allah SWT:

(85) مُبِينٌ ضَلَالٍ فِي هُوَ وَمَنْ بِالْهُدَى جَاءَ مَنْ أَعْلَمَ رَبِّي فَلَنْ مَعَادٍ إِلَيَّ لِرَأْدِكَ الْقُرْآنَ عَلَيْكَ فَرَضَ الَّذِي إِنَّ

Surah al-Qasās (28): 85.

Maksudnya:

“Sesungguhnya Allah SWT yang mewajibkan kepadamu (beramal dan menyampaikan) al-Qur’an (wahai Muhammad) sudah tentu akan menyampaikan engkau lagi kepada apa yang engkau ingini dan cintai. Katakanlah (kepada kaum yang menentangmu): "Tuhanku amat mengetahui akan sesiapa yang membawa hidayah petunjuk dan sesiapa pula yang berada dalam kesesatan yang nyata".

Menurut al-Suyūṭī, ayat ini diturunkan ketika Nabi SAW berada di Juhfah dan ketika itu baginda SAW sangat rindu untuk kembali semula ke kota Mekah.

Firman Allah SWT dalam surah al-Zukhruf:

(45) يُعْبُدُونَ إِلَهَةَ الرَّحْمَنِ لَمَنْ مِنْ أَجْعَلْنَا رَسُولًا مِنْ قَبْلِكَ مِنْ أَرْسَلْنَا مَنْ وَأَسْأَلُ

Surah al-Zukhruf (43): 45.

Maksudnya:

“Dan bertanyalah kepada umat mana-mana Rasul yang Kami telah utuskan sebelummu; pernahkah Kami memberi hukum menetapkan sebarang Tuhan untuk disembah, selain dari Allah SWT Yang Maha Pemurah”

Ayat di atas diturunkan kepada Nabi SAW di malam Israk ketika baginda SAW berada di Baitul Maqdis.

Firman Allah SWT:

(281) يُظْلَمُونَ لَا وَهُمْ كَسَبَتْ مَا نَفْسُ كُلُّ نُوْقَى ثُمَّ إِلَهٍ إِلَيْهِ فَيُجْعَلُونَ يَوْمًا وَأَتَقُوا

Surah al-Baqarah (2): 281.

Maksudnya:

“Dan peliharalah diri kamu dari huru-hara hari (kiamat) yang padanya kamu akan dikembalikan kepada Allah SWT. Kemudian akan disempurnakan balasan tiap-tiap seorang menurut apa yang telah diusahakannya, sedang mereka tidak dikurangkan balasannya sedikitpun”

Ayat ini telah diturunkan di Mina pada musim Haji Perpisahan. Jika dilihat kepada definisi yang diberikan, ayat ini akan disebut sebagai ayat Makkī kerana Mina itu terletak di kawasan Mekah. Tetapi realitinya ia dikategorikan sebagai ayat Madanī.

c. Pendapat yang melihat dari aspek Sasaran Ayat

Berdasarkan kepada pendapat ini maka:

Makkī ialah al-Qur’an yang disasarkan kepada penduduk Mekah. Manakala Madanī pula ialah al-Qur’an yang disasarkan kepada penduduk Madinah (Muhammad Sayyid Tantāwī, 1998).

Ulasan:

Berasaskan kepada pendapat di atas, ianya tertumpu kepada sasaran ayat sama ada disasarkan kepada penduduk Mekah atau Madinah. Jika disasarkan kepada penduduk Mekah, maka ia dikategorikan al-Qur’an Makkī dan sekiranya disasarkan kepada penduduk Madinah, ia dikategorikan al-Qur’an Madanī.

Dengan ini dapat disimpulkan bahawa pengertian yang semata-mata mengambil kira tempat dan sasaran ayat adalah kurang tepat kerana tidak mencakupi setiap ayat dan surah diturunkan. Bahkan penurunan ayat-ayat al-Qur’an ini berlaku di pelbagai tempat seperti Hudaibiyyah, Badar, Uhud, Tabuk dan sebagainya. Oleh itu, penulis amat bersetuju dengan pendapat yang diberikan oleh jumhur ulama yang mengatakan bahawa al-Qur’an Makkī ialah al-Qur’an yang diturunkan sebelum hijrah Nabi SAW ke Madinah, manakala al-Qur’an Madanī pula ialah al-Qur’an yang diturunkan selepas hijrah Nabi SAW ke Madinah. Pendapat ini telah digunapakai dalam meletakkan pengertian Makkī dan Madanī secara tepat.

3. 3 Kaedah Mengenali Al-Qur’an Makkī Dan Madanī

Dalam menentukan sesuatu ayat atau surah itu sama ada Makkī atau Madanī, pada asasnya ia tidak dapat diketahui melainkan melalui riwayat yang disampaikan oleh para sahabat Nabi SAW dan para tabi’in yang mendengar dan mendapat maklumat daripada para sahabat. Pengetahuan yang mereka perolehi bolehlah dikatakan melalui daya usaha mereka sendiri.

Ini kerana menurut al-Zarqānī tidak terdapat sebarang nas pun yang datang dari baginda SAW yang menyuruh mereka berbuat demikian. Malah, Nabi SAW sendiri pun tidak menerangkan kepada mereka yang manakah al-Qur’an Makkī dan manakah al-Qur’an Madanī. Lagipun, masyarakat Islam pada ketika itu tidak memerlukan kerana mereka sendiri menyaksikan proses penurunan wahyu dan mengetahui masa, tempat serta sebab-sebab penurunannya.

Hal ini ditegaskan oleh al-Qādī Abū Bakr dalam kitabnya al-Intisār yang mengatakan bahawa baginda SAW tidak diperintahkan supaya berbuat demikian dan Allah SWT tidak mewajibkan perkara itu diketahui oleh setiap umat Islam. Ini diakui sendiri oleh cAbd Allah Ibn Mascūd (m.32) di dalam satu athar yang diriwayatkan oleh Imam al-Bukhārī katanya:

أَحَدًا أَنْ أَعْلَمَ وَلَوْ نَزَلَتْ؟ فِيمَ أَعْلَمَ وَأَنَا إِلَّا اللَّهُ كِتَابٍ مِنْ آيَةٍ نَزَلَتْ وَلَا نَزَلَتْ؟ أَيْنَ أَعْلَمَ وَأَنَا إِلَّا اللَّهُ كِتَابٍ مِنْ سُورَةٍ نَزَلَتْ مَا غَيْرُهُ، إِلَهَ لَا الَّذِي وَاللَّهِ إِلَيْهِ لَرَكِبْتُ الْإِبِلَ تُبَلِّغُهُ اللَّهُ بِكِتَابٍ مَبِيِّ أَعْلَمَ

Maksudnya:

“Demi Allah SWT tiada Tuhan selain-Nya, tidak diturunkan suatu surah dari kitab Allah SWT melainkan aku tahu di mana ia diturunkan dan kepada siapakah ia diturunkan. Demi sesungguhnya kalaulah aku tahu ada orang lain yang lebih tahu dariku tentang kitab Allah SWT dan perjalanan kepadanya boleh sampai dengan menggunakan unta nescaya aku akan mendatangnya”.

Athar ini menunjukkan bahawa pengetahuan tentang nuzul al-Qur'an tidak banyak diketahui kecuali daripada para sahabat Nabi SAW. Bukan itu sahaja, bahkan Sayyidina Ali r.a juga telah menegaskan demikian sepertimana yang dilakukan oleh Ibn Mascūd. Ini menunjukkan pengetahuan mereka yang begini luas tentang tempat dan masa wahyu diturunkan melambangkan minat mereka yang tinggi terhadap al-Qur'an (Abū Ishāq al-Syātibī, t.t.).

Justeru itu, untuk mengenali al-Qur'an Makkī dan Madanī terdapat dua kaedah yang telah digariskan oleh para ulama Islam. Menurut al-Jacbarī, kedua-dua kaedah ini dinamakan sebagai al-Samāci dan al-Qiyāsi. Al-Samāci bermaksud berita penurunan sesuatu ayat atau surah datangnya daripada Rasulullah SAW atau para sahabat yang mengambil berat mengenai penurunan itu. Manakala al-Qiyāsi pula bermaksud ketepatan sesuatu ayat atau surah itu dapat diketahui melalui penyelidikan. Kaedah ini juga dinamakan sebagai Tarīq al-Qiyās. Tarīq al-Qiyās adalah salah satu kaedah alternatif yang dilakukan oleh para ulama Islam untuk membantu umat Islam mengenali al-Qur'an Makkī dan Madanī. Ini memandangkan generasi selepas sahabat dan tabiin tidak memiliki pengetahuan yang mendalam tentang ilmu Makkī dan Madanī sebagaimana para sahabat yang menyaksikan sendiri penurunan wahyu, tempat, masa dan sebab al-Qur'an diturunkan (Khālid Ibrāhīm al-Fityānī, 1996).

Rentetan itu, melalui Tarīq al-Qiyās para ulama Islam telah merumuskan beberapa aspek berdasarkan fakta-fakta yang tepat tentang al-Qur'an untuk mengenalpasti al-Qur'an Makkī dan Madanī.

Contribution: Di antara kepentingan kajian bagi tajuk disertasi ini adalah seperti berikut:

- i. Melalui pengetahuan terhadap ilmu Makkī dan Madanī dapat membantu dan memudahkan para mufassir dalam mentafsirkan al-Qur'an. Begitu juga kepada ahli perundangan Islam dalam memutuskan hukum-hukum terhadap sesuatu masalah. Ia juga membantu para sejarawan mengetahui marhalah dakwah Rasulullah SAW sama ada di peringkat Mekah dan Madinah.
- ii. Pengkajian terhadap ilmu Makkī dan Madanī dapat meningkatkan keyakinan seseorang terhadap kesucian, keaslian dan keagungan al-Qur'an. Di samping itu, dapat memelihara kesucian al-Qur'an daripada sebarang penyelewengan oleh golongan orientalis.

Keywords: Makkī, Madanī, dakwah, Rasulullah SAW

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THE GREEN BUILDING CONCEPT- IS THAT A TREND

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Abstract

Introduction: The building industry is an important element contributes to the economy of the country. However, evidently revealed, building industry contributed to the environmental impact in so many ways. Due to that, nowadays most of the building projects adopting the concept of green building. Similarly to Malaysia, whereby the green building concept has seen been accepted in the building industry. It is proven by referring to the database of the Green Building Index (GBI Malaysia) that recorded an increasing numbers of buildings being certified day by day. Not only that, the green building concept indicated a positive escalation especially towards commercial and residential industry. In conjunction with the growing number of green building in Malaysia, several question has arisen which one of that is whether it just because of trend or because of the benefit received from that. Therefore, this study is conducted mainly to investigate the reason of the corporation involved in green building concept industry. **Methodology:** This study used a qualitative method whereby, structured interview been chosen as the best data collection method. With that, five participants from difference sector were selected to generalize the results. **Findings:** in progress **Contribution:** This a preliminary study in green building awareness for Malaysian citizen. This is to make sure the dream to become a country that successful in green technology not only just a mere coercion but it must be come from the inner side of each individual.

Keywords: Awareness, Benefit, Green Building, Trend,

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E-BEKAM: THE DEVELOPMENT OF HEALTH RECOMMENDER APPLICATION FOR TRADITIONAL AND COMPLEMENTARY MEDICINE

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Abstract

Introduction: *Today people are more health conscious and demand for alternative solutions on health treatment rises. The Bekam treatment has been one of the popular methods in treating health related matters in Malaysia. Bekam is a technique of extracting tainted blood out of the body. In the are of Information Technology, currently there is no application that has been developed to assist Bekam treatment.* **Methodology:** *A system development approach is adopted in developing the E-Bekam prototype has been. This is by adopting the health recommender system (HRS) model to assist practitioners in managing patient's health treatment provide recommendation based on appropriate Bekam points. To evaluate the suitability of application developed for Bekam treatment, a Technology Acceptance Model (TAM) approach is used. Respondents consist of Bekam practitioners and patients were selected in evaluating the application. Criteria and behavior based on the TAM model is applied to identify suitability of adopting the application. Questionnaire with TAM structures were prepared to identify possible enhancement to further improve the prototype.* **Findings:** *The results were gathered to identify the performance expectancy of the prototype for commercialization, the effort expectancy and hedonic motivation is evaluated to identify significant influence towards the adoption of E-Bekam.* **Contribution:** *For alternative medicine which was currently conducted without any technology to assist the treatment process. The main purpose is to prepare an automated application which may serve as a repository which allows the system perform auto recommendations of Bekam points as medium of treatment.*

Keywords: E-Bekam, recommendation, TAM

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ANALISIS UNSUR PERSONIFIKASI DALAM “ PERAVAIK KATHAIKAL ”

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Abstract

Introduction: *ANALISIS UNSUR PERSONIFIKASI DALAM “ PERAVAIK KATHAIKAL ” BAHASA TAMIL*

Methodology: *Kajian ini menyelidik unsur personifikasi dalam cerpen “Peravaik Kathaikal” Bahasa Tamil Universiti Malaya. Objektif asas kajian ini adalah untuk mengenalpasti unsur personifikasi yang wujud dalam Peravaik Kathaikal dari tahun 2010 hingga 2016 . Selain itu, penyelidik akan menyelidik makna yang tersirat dan pemahaman pelajar berkaitan dengan unsur personifikasi dalam cerpen “Peravaik Kathaikal” . Pendekatan penyelidikan yang digunakan ialah secara triangulasi . Metodologi ini dipilih kerana kajian ini menggunakan gabungan beberapa kaedah penyelidikan iaitu temubual, analisis dokumen dan analisis data.*

Findings: *Dari pembacaan menunjukkan bahawa personifikasi paling banyak terdapat dalam cerpen “Peravaik Kathaikal” dari tahun 2010 hingga 2016. Unsur personifikasi yang terdapat dalam cerpen bahasa Tamil yang dikaji menjana unsur alam sekitar , benda dan anggota badan. Selain daripada itu, penyelidik Joanna Lwi (2004) telah menulis kajiannya yang bertajuk “ Metafora personifikasi dalam bahan cetak elektrik dan elektronik ” mendapati unsur yang terdapat dalam kajiannya dengan unsur yang terdapat dalam cerpen “Peravaik Kathaikal”. Kajian beliau juga dijadikan sebagai panduan untuk menulis kajian ini.* **Contribution:** *Personifikasi dalam cerpen “Peravaik Kathaikal” Universiti Malaya selama 7 tahun akan dijadikan sebagai sumber sampel kajian dalam penyelidikan ini. Kerangka teori yang dicadangkan ialah “ Teori konseptual” Lakoff dan Johnson (1980) akan digunakan untuk penganalisan data.*

Keywords: Personifikasi dijadikan satu teknik dalam penulisan cerpen kerana cerpen merupakan satu genre yang ringkas yang menyampaikan makna dalam jumlah perkataan yang terhad.

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NON LITIGATION IN INDUSTRIAL RELATIONS DISPUTE SETTLEMENT IN INDONESIA

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Abstract

Introduction: Labor disputes were registered to Industrial Relation Court (IRC) has increased over time. Early 2017 directory in the Supreme Court show that the case in the Industrial Relations Court (PHI) is the most numerous among other types of civil cases. This is paradox with the purpose of the Act that wants a labor dispute can be resolved by consensus. The problem to be addressed was what the weakness of the content and structure of existing laws in the non litigation precessed (bipartite, mediasi, konsiliasi, and arbitration) until the conflict is actually flowing to labor court **Methodology:** This research is a doctrinal law, using literature study. The analysis was performed with the statute approach and conceptual approaches **Findings:** The results showed that fairness in the employment relationship can't be achieved if the strengthening non litigation mechanisms at workplace and strengthening of institutions bipartite, mediation, conciliation, and arbitration were not done through legislation **Contribution:** This research is useful to find the weakness of the settlement of labor disputes by prioritizing non-litigation efforts that could potentially reduce conflict.

Keywords: Arbitration, Bipartite; Conciliation, Mediation; Work relationship; Labor; Industrial disputes;

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METHODOLOGICAL CRITICISM OF THE RENEWAL OF MARRIAGE LAW IN THE INDONESIAN COMPILATION OF ISLAMIC LAW (KHI)

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Abstract

Introduction: The effort to reform the material of Islamic marriage law needs to be preceded by a systematic study of the theory and methodology of Islamic law, even the foundation of Islamic law philosophy, so that the reform of the marriage law is accountable and epistemologically has a strong foothold. Thus, departing from the search for Ushul Fikih which is the foundation of this marriage KHI, the reformation of Islamic marriage law can be formulated in a more systematic and contextual manner. **Methodology:** KHI Book of Marriage has carried out a reform in 13 issues, which is methodologically using the rules of language in 8 issues of reform, namely the restriction of polygamy, wife's approval for rujuk, a period of mourning husband, minimum age of marriage, parenting, marriage of pregnant women, divorce is decided by the courts and marital disputes must go through the courts; methods of al-qiyas in 3 issues of reform, which are on the consent of both bride, the right of divorce by his wife, and the rights to joint property (Gono gini); and a method based on masalah applies in 2 issues, which are related to the problem registration of marriage, divorce and reconciliation as well as problems understanding the legitimate child. However, the use of the methodological framework has not been done consistently to all the chapters. **Findings:** In interpreting a texts, KHI The Marriage field seeks to organize existing guidance and considerations (qari nah), whether in the form of other texts, ratios or al-'urf of Indonesian society, so as to produce a legal provision that is not only coherent with nas} s} But also corresponds to the community context. However, the methodology framework for KHI of Marriage Field above is not applied consistently. The KHI Renewal of the Marriage Field is carried out partially on only a few chapters, while some other articles that should be renewed are kept like the opinions of the classical school, so they are considered less applicable in the context of contemporary Indonesian society. **Contribution:** Provide alternative and thought contribution to the effort of renewal of Islamic marriage legal matter

Keywords: renewal, family law, marriage law, Islamic law, Ushul Fikih, KHI

Abstract ID: AIMC-2017-OTH-1353

LEGIBILITY IMPACT TOWARD WAYFINDING IN MALAYSIAN GARDEN CITY

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Abstract

Introduction: Legibility often leads to sense of orientation and sense of direction for a city to become more effectives on human experience. Understanding the concept of wayfinding within the context of garden city is essential to prove that image of the city is important for people to enjoy the place. From the historical perspective, the development of Kuala Kubu Bharu as the first Malaysian garden city is unique in the sense that

there is a strong connection with the natural dimension. This leads to the threats caused by tangible zoning system of the town as a whole. **Methodology:** Some of the threats came from the lack of space linkages which are less concern with the walkability importance of the community. From literature study the elements of garden city concept promote tangible zoning system in urban planning. Therefore, analysis data of relationship between significant attributes within the garden city revealed through mental-mapping process. This data identified the elements of paths, nodes, districts, edges and landmarks which are significant as wayfinding components that provide visual cues for user. It been tested in order to analyze linkages between three major areas of garden city of Kuala Kubu Bharu; town center, residence and green belt. **Findings:** Through layer technique, the identification of significant attributes shows that physical elements mostly unreliable to strengthen legibility of Kuala Kubu Bharu. Lack of dominance and visual scope effectiveness only implicated minor contribution to city image. Besides that, low scale development and homogeneity of built form character decreasing the sense of orientation. However, it was found that non physical aspects of the city plays major role in enhancing these physical elements. Activity support such as market place and recreation highlighting legibility of Kuala Kubu Bharu based on time series. In addition, most of memorable urban open spaces in this city are ones that being dominated by informal activities. Therefore, these significant intangible aspect need to be considered as part of urban fabric conservation.

Contribution: Throughout the years, there are research gap upon the study of legibility effectiveness of Malaysian garden city. This study has identified the significant attributes based on the physical aspect as well as the non physical ones which are essential for the legibility of garden city. It is part of the strategy to improve the wayfinding in today's development context apart from highlighting liveable environment toward the quality of urban society.

Keywords: Garden City Concept, sense of orientation, mental-mapping, visual linkage, conservation of urban fabric.

Abstract ID: AIMC-2017-OTH-1367

SOCIAL INEQUITY IN TRANSPORTATION SYSTEM: AN AGENT-BASED MODEL

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Abstract

Introduction: Common mode-choice models developed under the assumption that one will behave rationally to maximize her utility. We argued that this model failed to address two key factors: additional income and local interaction. It is evident that most public transportation aims to reduce transport cost, which in result generates additional income, and obviously, people interacts with their peers. Therefore, the possible existence of a phase in which people purchase automobile because of the additional income and peer pressure is an attractive proposition. **Methodology:** We developed an agent-based model in which each agent interacts with their neighbors and update their state, either automobile or public transportation, according to a probability function. The higher the ratio of agent's wealth to her neighbors', the higher the probability of the agent to purchase automobile. We simulate the model by varying the parameter. Each parameter simulated for 100 runs and each runs iterated for 300 time steps. **Findings:** Our model suggests that transportation system is an ever-moving system of three states: transit-oriented, automobile-oriented, and equilibrium. Moreover, the model also shows inverse relation between the state of the system and its social implications. Transit-oriented system is widely known to favor the poor over the rich. On the contrary, our model shows that transit-oriented system also offer appealing issues: limited access to public transportation for the rich that leads to the emergence of a stigma that public transportation belongs to the poor.

Additionally, the model could also be viewed as a generalized form of the conventional model. The model shows that rational behavior and utility maximization only occurs when purchasing automobiles is considered costly, thus, functionality and degree of necessity becomes critical. **Contribution:** This research aims to prove that dynamic local interaction plays key role in understanding transport mode-choice decision making. We argued that people choose their modes of transportation not only for the functionality and degree of necessity but also its profile beneficiaries. Therefore, rational behavior assumption is incomplete and only true under a certain condition. This research successfully relaxes the limitation and produce a more generalized behavior. Moreover, this research also attempts to explain the public transportation system paradox: a public transportation system that become the source of automobile-oriented system, if poorly planned, and thus, increase traffic congestion.

Keywords: public transportation, automobile, social inequity, local interaction, agent-based model

Abstract ID: AIMC-2017-OTH-1431

COMPUTER OPERATION SKILLS PERCEIVED AS NEEDED BY VOCATIONAL AND TECHNICAL TEACHERS IN MALAYSIA

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Co-Authors: Muhammad Sukri Saud, Yusri Kamin, Azlan Abd Latib, Nor Fadila Amin

Abstract

Introduction: *The purpose of the study was to explore and describe the perceived competencies, importance, and educational needs in computer operation skills among vocational and technical teachers in Malaysia.*

Methodology: *A survey was conducted. The population studied involved Malaysian full-time vocational and technical high school teachers (N=284) employed by the Ministry of Education, Malaysia. Two hundred and eighty-four teachers from nine vocational and technical schools were selected to participate in this study. Data were gathered via a mailed questionnaire and the questionnaire consisted two parts that measured the teachers' perceived importance and competence, and demographic information on the sample.*

Findings: *The study shown that teachers reported low perceived educational needs for almost all of the skills in this section. Malaysian vocational and technical teachers perceived that the five most important skills to learn were: (1) use printing options, (2) start an application and create a document, (3) save a document using both the save and save as commands, (4) insert and eject floppy disk and CD-ROM, and (5) initialize, name/rename floppy disks. Malaysian vocational and technical teachers perceived the five items where they had the most competence were: (1) start up and shut down the computer according to computer type, (2) insert and eject floppy disk and CD-ROM, (3) save a document using both the save and save as commands, (4) use printing options, and (5) name a document.*

Contribution: *This study provides information about vocational and technical teacher educational needs, competencies and important computer operation skills that can be used for in-services teacher training.*

Keywords: educational needs, computer operation skills, competencies

FUTURE CONFERENCES

3rd ASIA International Conference 2017 (AIC-2017)

Venue: Universiti Teknologi Malaysia, Kuala Lumpur, Malaysia

Date: 16-17 December 2017

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International Conference on Management, Accounting, Business and Entrepreneurship (ICMABE 2017)

Venue: Jakarta, Indonesia

Date: 15-18 October 2017

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FUTURE WORKSHOPS

Certification on Statistics and Data Analysis (Weekly Programme)

Date: 23 June 2017 (8weeks)

Venue: Innovation and Commercialisation Centre, Industry Centre, Technovation Park, Universiti Teknologi Malaysia, 81300 Johor Bahru, Johor, Malaysia.

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Workshop on Systematic Literature Review and Meta-Analysis

Date: 20 May 2017

Venue: Innovation and Commercialisation Centre, Industry Centre, Technovation Park, Universiti Teknologi Malaysia, 81300 Johor Bahru, Johor, Malaysia.

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Workshop on Structural Equation Modeling (SEM) Using AMOS

Date: 18-19 June 2017

Venue: UTM, Kuala Lumpur, Malaysia

Workshop on Structural Equation Modeling (SEM) Using AMOS

Date: 24 July 2017

Venue: Innovation and Commercialisation Centre, Industry Centre, Technovation Park, Universiti Teknologi Malaysia, 81300 Johor Bahru, Johor, Malaysia.

Workshop on Structural Equation Modeling (SEM) Using Smart PLS

Date: 25 August 2017

Venue: Innovation and Commercialisation Centre, Industry Centre, Technovation Park, Universiti Teknologi Malaysia, 81300 Johor Bahru, Johor, Malaysia.

Workshop on Qualitative Data Analysis using NVIVO

Date: 22 September 2017

Venue: Innovation and Commercialisation Centre, Industry Centre, Technovation Park, Universiti Teknologi Malaysia, 81300 Johor Bahru, Johor, Malaysia.