Detailed Information:

Title	Peptides Mimicking Promiscuous Aldo-Keto-Reductase
	Enzyme As Asymmetric Organocatalyst In Aldol Reaction
Product /	-
Technology Name:	
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Applied Science and Engineering
Leader Title:	Prof. Dr.
Leader Name:	Prof. Dr. Mohd Basyaruddin Abdul Rahman
Researchers Name:	Saadi Bayat, Emilia Abdulmalek, Normi Mohd Yahaya and Abu Bakar Salleh
Faculty / Institute /	Faculty of Science
School / Academy:	
Department /	Department of Chemistry
Laboratory:	
Expertise:	Chemical Biology
Email:	basya@upm.edu.my
Telephone (Office):	03-89466798
Fax:	03-89435380
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:Catal Lett (2014) 144:222-228
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	In the field of asymmetric organocatalysis, short peptides and peptide mimic
	based biocatalysts have emerged as promising asymmetry catalyst for a growing
	body of C-C bond-forming reactions. Promiscuous aldo-ketoreductase (AKRs)
	enzyme has fascinated us to design and synthesis several mimetic peptides as
	asymmetric catalysts in the Michael and Aldol reaction. Octapeptide with
	subsequent sequences which comprises PELFVKLH-NH2 derived from AKRs active
	site was found to be an efficient multifunctional asymmetric catalyst to enhance
	diastereo- and enantioselectivity. In addition, due to existence of multifunctional
	groups such as: carboxylic, imidazole, amine and NH groups in the side chain and
	backbone of the peptide, hydrogen bonding as additional force over the
	enamine entermediate, are caused to fabricate higher yield, particularly,
	diastereo- and enantioselectivity. Using low loading of catalyst and aqueous
	media as ecofriendly solvent are strength point of abovementioned catalyst.

	Moreover, reusability of catalyst over the five times without an obvious loss of
	diastereoselectivity and activity was evaluated.
Short Description:	
Keyword:	asymmetric, organocatalyst, peptides, aldo-ketoreductase, enzyme mimics, aldol
	reaction.
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	Download Here

Title	Parity reversion in real interest rate in the Asian countries: Further evidence based on local-persistent model
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Business, Economics and Governance
Leader Title:	Prof. Dr.
Leader Name:	Prof. Dato' Dr. Ahmad Zubaidi Baharumshah
Researchers Name:	Ahmad Zubaidi Baharumshah, Siew-Voon Soon, Nor Aishah Hamzah
Faculty / Institute /	Faculty of Economics and Management
School / Academy:	
Department /	Department of Economics
Laboratory:	
Expertise:	International Finance, Macroeoconomics
Email:	zubaidi@upm.edu.my
Telephone (Office):	03-89467247
Fax:	03-89486188
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:10.1016/j.econmod.2013.08.024
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	Inis paper examines the validity of real interest parity (RP) for 10 Asian economies over the period 1977-2012 (quarterly frequency). The evidence based on two-break unit root tests proposed by Narayan and Popp (2010) reveals that majority of the real interest rate differentials (RIDs) with respect to Germany and the US are stationary, but this appears not to be the case for the Japan-based RIDs. Contrary to these results, the point estimates and the confidence intervals (CIs) of half-lives based on the Phillips et al.'s (2001) local-persistent model provides a clear-cut conclusion on RIP: Most of the RIDs take less than a year to adjust back to their respective equilibrium values, with notably tighter CIs than what has been suggested by earlier literature. Our findings have important implications on the progress of the Asian financial liberalization. The evidence reveals a high degree of market integration in all the Asian countries, including China and India. This study confirms the impact of stabilization policies in the Asian countries has been limited since the choices and the effectiveness of fiscal
	and monetary policies in the region will be highly influenced by external factors

	originating from abroad, including the euro shocks.
Short Description:	
Keyword:	Real Interest Rate Parity, Structural Breaks, Half-lives, Local-Persistent Model
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	Download Here

Title	Methodology of Refinement in UML-B
Product / Technology Name:	-
Exhibition:	Pameran Reka Cinta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Mathematical Sciences and ICT
Leader Title:	Dr.
Leader Name:	Mar Yah Said
Researchers Name:	Mar Yah Said, Michael Butler, Colin Snook
Faculty / Institute /	Faculty of Computer Science and Information Technology
School / Academy:	
Department /	Department of Information System
Laboratory:	
Expertise:	Formal specification, Software Engineering
Email:	maryah@upm.edu.my
Telephone (Office):	03-89471772
Fax:	03-89471795
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:SOSYM-13-00001486
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	UML-B is a 'UML-like' graphical front end for Event-B that provides support for
	object-oriented modelling concepts. In particular, UML-B supports class
	diagrams and state machines, concepts that are not explicitly supported in plain
	Event-B. In Event-B, refinement is used to relate system models at different
	abstraction levels. The same abstraction-refinement concepts can also be
	refined state machines to enable refinement of classes and state machines in
	IIMI-B. Together with these notions, a technique for moving an event between
	classes to facilitate abstraction is also introduced. Our work makes explicit the
	structures of class and state machine refinement in UML-B. The UML-B drawing
	tool and Event-B translator are extended to support the new refinement
	concepts. A case study of an auto teller machine (ATM) is presented to
	demonstrate application and effectiveness of refined classes and refined state
	machines. One of the advantages of this work is that by providing a method of
	refinement in UML-B allows modellers to model systems in Event-B using UML-

	like class and state machine diagram. Another advantage is that UML-B diagrams
	are automatically translated into Event-B, thus, they can be verified by the Rodin
	tool provers to check for correctness of the model. Potential users of the tool
	are system/software developer who concerns about developing a system which
	correctness are check while modelling. This work extends the language and tool
	which is open source. Thus, users can use it for free.
Short Description:	
Keyword:	Visual modelling languages, Formal specification, UML-B, Event-B, Class Diagram,
	State Machine
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	Download Here

Title	Amelioration of Paracetamol-Induced Hepatotoxicity in Rat by the Administration of Methanol Extract of Muntingia calabura L. Leaves
Product /	-
Fxhibition	Pameran Reka Cinta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Health and Well Being
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Assoc Prof Dr Zainul Amiruddin Zakaria
Researchers Name:	Nur Diyana Mahmood, Siti Syariah Mamat, Farah Hidayah Kamisan, Farhana Yahya, Mohd Fauzi Fahmi Kamarolzaman, Nur Liana Md Nasir, Siti Farah Md
	Tohid, Mohd Nasir Mohd Desa
Faculty / Institute /	Faculty of Medicine and Health Sciences
School / Academy:	
Department /	Department of Biomedical Science
Laboratory:	
Expertise:	Natural Product, Pharmacology and Toxicology
Email:	zaz@medic.upm.edu.my
Telephone (Office):	03-89472654
Fax:	03-89436178
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:1
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Irademark No.:
Abstract:	Muntingia calabura is known as 'Kerukup Siam' among the Malays in Malaysia
	and Jamaican cherry throughout the world. It is the sole species in the genus
	Muntingia that belongs to the Elaeocarpaceae family. Various parts of this tree
	have several documented medicinal uses in both Southeast Asia and tropical
	America. Currently the extract of M. calabura had been tested for its
	Sprague Dawley (SD) rats. Methodology: The animals were given (orally) 10%
	DMSO solution as negative control methanol leaf extracts of M calabura
	(MEMC) (50, 250 and 500 mg/kg) N-acetylcysteine (NAC) as positive controls for
	seven consecutive days. On the seventh day, three hours after the last
	treatment, liver damage was induced using PCM (100mg/kg). The blood and liver
	tissues were collected and subjected to biochemical and microscopical analysis.
	Results: Based on the dose administrated, pre-treatment with NAC or MEMC

	exerted significant decreased (p< 0.05) in ALT and AST enzymes level. Noticeable
	histological changes, lymphocyte infiltration and marked necrosis were observed
	in PCM- induced groups (negative control), whereas maintenance of hepatic
	structure was observed in group pretreated with NAC and MEMC. Conclusion:
	MEMC exhibits good hepatoprotective activity which might has the potential to
	be developed into liver protective supplement. Currently, further extensive
	evaluations are being carried out which include the mechanistic study and also
	toxicological evaluations.
Short Description:	
Keyword:	Muntingia calabura, hepatoprotective, methanol, paracetamol
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	High Throughput Synthetic Biology by Multiple Overlap Extension PCR (MOE-PCR)
Product / Technology Name:	-
Exhibition:	Pameran Reka Cinta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Agriculture and Food
Leader Title:	Prof. Dr.
Leader Name:	Arbakariya Bin Ariff
Researchers Name:	Saeid Kadkhodaei, Raha Abd Rahim, Ling Tau Chuan, Hamid Rajabi Memari,
	Sahar Abbasi, Morvarid Akhavan Rezaei, Tan Jooshun, Ramanan Ramakrishnan
Faculty / Institute / School / Academy:	Faculty of Biotechnology and Biomolecular Sciences
Department /	Department of Bioprocess Technology
Laboratory:	
Expertise:	Bioprocess Engineering
Email:	arbarif@upm.edu.my
Telephone (Office):	03-89458487
Fax:	03-89458514
Patent Status:	Yes, Patent No.: Accepted (Pending patent no.)
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	Recombination in synthetic biotechnology widely relies on assembling of
	different and numerous DNA fragments having specific structural and functional
	properties. Therefore, development of an efficient and user-friendly technique is
	highly required. We describe a method for single in vitro reaction assembling of
	multiple DNA fragments. Our method is based on overlap extension PCR so
	called multiple overlap extension PCR (MOE-PCR), eliminates the sequence and
	ligation limitations of traditional methods as well as the need for complex
	enzymatic approaches. In this technique, overlapped DNA fragments can be
	easily assembled in either linear or circular form through a single polymerase
	fragments to be assembled. In our experience, 50bp homology was enough in
	successful assembling of up to 8 fragments. As a comparison to other tochniques
	successful assembling of up to o fragments. As a comparison to other techniques
	ligation independent cloning), this method demonstrated less sensitivity to

	repeated and/or GC/AT rich sequences and higher efficiency in recombination of
	more DNA fragments in terms of easy manipulation and both time and cost
	effectiveness. MOE-PCR as the simplest approach in assembling or cloning of
	both single and multiple fragments particularly for construction of chimeric
	recombinant sequences is efficiently applicable in synthetic biology for
	genomics, transcriptomics and proteomics studies. Here in an eight-way
	assembly, we described the simplest and most time and cost-effective approach
	for multiple DNA fragment assembly of eight BioBricks with various sizes in a
	predesigned order and orientation in a single in vitro reaction. The customers for
	the method are all molecular biology labs throughout the world dealing with
	cloning and/or synthetic biology.
Short Description:	
Keyword:	Expression vector, Synthetic biology, Multiple DNA fragment assembly,
	Microalgae, Multiple overlap extension PCR
Advantages:	
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	Download Here

Title	Solvothermal Technology for Biodiesel Production
Product /	-
Technology Name:	
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Applied Science and Engineering
Leader Title:	Dr.
Leader Name:	Umer Rashid
Researchers Name:	Ibrahim M. Lokman, Yun Hin Taufiq-Yap, Robiah Yunus
Faculty / Institute /	Institute of Advanced Technology
School / Academy:	
Department /	Laboratory of Alternative Renewable Energy
Laboratory:	
Expertise:	Biodiesel Production, Catalyst Development
Email:	umer.rashid@upm.edu.my
Telephone (Office):	03-89467393
Fax:	03-89467006
Patent Status:	No
Copyright /	Yes, Copyright / Publication No. / SD No.:ESS-14-068R1
Publication / SD:	
Industrial Design	No
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	The consumption of edible oils for biodiesel production has led to food versus
	fuel dilemma. As the demand for vegetable oils for food and oleo-chemicals has
	increased in the recent years, the contribution of low cost feedstocks and
	biodiesel production techniques will have to play a crucial role for alternative
	fuel production. Currently, most of the biodiesel is made from soybean,
	rapeseed and palm oil through base catalyzed transesterification reaction.
	However in this study, palm fatty acid distillate (PFAD) a lower-value by-product
	of palm oil industry was explored for biodiesel production. The objective of the
	present project was to assess the feasibility of biodiesel synthesis using low cost
	waste material i.e. PFAD using sulfated sugar as a green catalyst using
	solvothermal technology for biodiesel production. In this work an alternative
	energy stimulant "microwave irradiation" solvothermal technique was
	developed. The tabricated microwave-pulse width modulation (microwave-
	Privicial with controlled temperature was designed to be capable to increase the
	is cheap, easy-to-prepare, environment friendly and readily available. Also, being

	acidic in nature, it is good for reducing the high amount of free fatty acids from
	PFAD. As a result of optimization study, by using microwave-PWM, the mixture
	of methanol-to-PFAD molar ratio of 9:1, 1 wt.% of acid catalyst, at 55 °C reaction
	temperature within 15 min reaction time resulted 99.5% of FFA conversion.
	Furthermore, important fuel properties of biodiesel produced was evaluated and
	compared with American Society for Testing and Materials (ASTM) and European
	(EN) standards were found to satisfy nearly all prescribed methods. As
	conclusions, that microwave-PWM is easy to commercialize as compared to
	other technologies and reaction rate is very fast due to the synergistic effects of
	microwave and solvothermal conditions.
Keyword:	Microwave irradiation, Esterification, Palm fatty acid distillate, Acidic catalyst,
	Biodiesel
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	No
File:	
ResearchOutput:	Download Here

Title	Predicting model and optimization of extraction conditions for the flavonoid-rich extract with highest anticancer capacity in Curry leaf (Murraya koenigii L.) using response surface methodology
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Agriculture and Food
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Hawa Z.E. Jaafar
Researchers Name:	HAWA Z.E. JAAFAR and ALI GHASEMZADEH
Faculty / Institute /	Faculty of Agriculture
School / Academy:	
Department /	Department of Crop Science
Laboratory:	
Expertise:	PLANT SECONDARY METABOLITES AND PHYSIOLOGY
Email:	hawazej@upm.edu.my
Telephone (Office):	03-89471801
Fax:	03-89471801
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:Publication
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	Extraction prior to component analysis is the primary step in the recovery and isolation of bioactive phytochemicals from plant materials. A developed model is required for optimizing the independent variables in order to get superior extraction yields from herbs. Response surface methodology (RSM) is a collection of statistical and mathematical technique that used to optimize the range of variables in various experimental processes with reducing the number of experimental runs, cost and time compared to other methods. The present invention discloses an ultrasonic assisted extraction of Curry leaf flavonoids, which comprises the following steps: drying curry leaf with impurities removed from overground parts in the shade, crushing and screening with a 80-mesh screen, weighing coarse powder (1 g) and placing the coarse powder in a conical flask, adding methanol to defeat overnight and pouring out water extract, allowing the petroleum ether to volatilize in a fume cupboard, drying by airing, and storing at a dry place for backup; and using methanol water for ultrasound-assisted extraction.

	(40-80 °C) and methanol concentration (40-80 %). Flavonoid compounds were
	identified using Ultra-High performance liquid chromatography technique
	(UHPLC). Extraction yield of flavonoids from curry leaf was investigated by
	central composite experimental design. Accordingly, ultrasound-assisted
	extraction process was optimized by the response surface method, and the
	models for each flavonoid compounds was predicted and developed. The
	antioxidant and anticancer activity of the optimized and unoptimized extracts
	against Hela cancer cell were determined by the 1,1-diphenyl-2-picryl-hydrazyl
	(DPPH) assay and MTT assay respectively. It was found that ultrasonic power of
	145.49 W at 55.9 °C with 80% methanol was the most appropriate set of
	conditions for the extraction of catechin, myricetin and quercetin from curry leaf
	with consequently high antioxidant and anticancer activity.
Short Description:	
Keyword:	Response Surface Methodology, Ultra high performance liquid
	chromatography, Ultrasound-assisted, Curry leaf, HeLa cancer, Flavonoids
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Curry Puff Machine
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Agriculture and Food
Leader Title:	Assoc. Prof. Dr.
Leader Name:	ROSNAH SHAMSUDIN
Researchers Name:	LOW JUN YING, ASSOC. PROF. DR. ROSNAH HAJI SHAMSUDIN
Faculty / Institute /	Faculty of Engineering
School / Academy:	
Department /	Department of Process and Food Engineering
Laboratory:	
Expertise:	Food Machinery Design, Food Engineering Properties
Email:	rosnahs@upm.edu.my
Telephone (Office):	03-89466366
Fax:	03-89466366
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:
Publication / SD:	
Industrial Design	Yes, Registration No.: 14004450101
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	A puff machine, comprising in that a base, multiple puff shaping mold sets, multiple rotating mold base, a handle, casing, and main mechanism on both sides; mold sets with multiple puff forming molds in each set are placed horizontally on the base and rotating mold bases, the handle joins at both end of the first fold-clamp set, connecting rods join and relay to other fold-clamp sets, springs are attached along every fold-claim set, the mehanisms are then covered with casing, all machine parts are attached and assembled by mechanical means. The dimensions of the machine are 560mm (length) x 720mm (width) x 230mm (height).
Short Description:	
Keyword:	Curry Puff Machine
Advantages:	-
Market /	-
Commercialisation Potential:	

Abstract Additional	N/A
File:	
ResearchOutput:	Download Here

Title	Enhancing young graduates' intention towards entrepreneurship development in Malaysia
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Agriculture and Food
Leader Title:	Prof. Dr.
Leader Name:	Zainal Abidin Mohamed
Researchers Name:	Zainalabidin Mohamed, Golnaz Rezai, Mad Nasir Shamsudin, Muhammad Mu'az Mahmud
Faculty / Institute / School / Academy:	Faculty of Agriculture
Department /	Department of Agribusiness and Information System
Laboratory:	
Expertise:	Agri-entrepreneurship
Email:	zam@upm.edu.my
Telephone (Office):	03-89474899
Fax:	03-89408213
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:DOI 10.1108/00400911211265648
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	The purpose of this paper is to evaluate the effectiveness of the Basic Student
	Entrepreneurial Programme (BSEP) among local university graduates who have
	undergone the training programme in entrepreneurship development. In total,
	410 respondents who had participated in BSEP were interviewed with a
	structural questionnaire to gather information on their social attitude towards
	the effectiveness of BSEP on their intention to become an agri-entrepreneur.
	Chi-square analysis was used to determine the relationship between
	demographic variables towards motivating agri-entrepreneurship among the
	participants. The results show that the participants agreed upon the
	effectiveness of BSEP in developing graduates' intention towards becoming agri-
	entrepreneurs. The results also show that there is a significant relationship between three variables which motivate participants to become agri
	antropropours. Those were the origin of the participant, the processes of family
	members already involved in entrepreneurial activities and educational

	background. The paper is only concerned with students' perceptions towards
	the effectiveness of BSEP in encouraging them to become agri-entrepreneurs.
	The results from this paper are limited in terms of determining whether they
	really become an agri-entrepreneur or not because this research only focuses on
	intention. The paper provides an important exploratory analysis of the BSEP
	programme to enable further research to take place in the area of
	entrepreneurship education. The findings provide a valuable insight on effective
	teaching methodologies in the area of entrepreneurship education. The paper
	expands on Ajzen's framework to provide a basis to improve the effectiveness of
	entrepreneurship education in Malaysia.
Short Description:	
Keyword:	Malaysia, Higher education, Entrepreneurialism, Graduates, Basic Student
	Entrepreneurial Programme, Agri-entrepreneur, Intention, Effectiveness
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	New natural product compounds from Calophyllum hosei, Calophyllum benjaminum and Calophyllum venulosum
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Forestry and Biodiversity
Leader Title:	Prof. Dr.
Leader Name:	Prof.Dr. Gwendoline Ee Cheng Lian
Researchers Name:	Gwendoline Cheng Lian Ee, Shaari Daud, Ahmad Azri Fitri Ismail, Azeeza Gulam Muhaddeen, Emilia Abd Malek, Mohd Aspollah Sukari
Faculty / Institute / School / Academy:	Faculty of Science
Department /	Department of Chemistry
Laboratory:	
Expertise:	Natural Product Chemistry
Email:	gwen@upm.edu.my
Telephone (Office):	03-89466785
Fax:	03-89435380
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:Natural Product Research
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	Calophyllum which belongs to the Clusiaceae family is widely distributed in the
	tropical rain forests where the species are used in folk medicine. Previous
	studies have shown plants from this genus to have a wide range of medicinal
	properties such as anti-HIV, antifungal and antimicrobial properties. This genus is
	a rich source of secondary metabolites such as coumarins, xanthones and
	terpenoids. In our present work on the stem bark of Calophyllum hosei, we
	succeeded in the isolation of one new coumarin hoseimarin (1) together with
	tour other xanthones trapezitolizanthone (2), osajaxanthone (3), ? - mangostin
	(4) and caloxanthone A (5). The stem bark of Calophyllum benjaminum on the
	other nand, provided the new coumarin benjaminin (6) together with fusces and $C(7)$. The stem bark of Colonbullum venulosum gave the new course of Colonbu
	vanthone venuloyone (8). The structures of these compounds were actablished
	hy spectrosconic analysis which included 1H NMR 13C NMR COSY DEPT HMOC
	and HMBC experiments.

Short Description:	
Keyword:	Calophyllum hosei, Calophyllum benjaminum, Calophyllum venulosum,
	hoseimarin, benjaminin, venuloxone
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	Download Here

Title	Development of hepatoprotective agent from hydroethanolic fractions of Moringa oleifera, enhances antioxidant activities of injured liver
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Health and Well Being
Leader Title:	Assoc. Prof. Dr.
Leader Name:	SHARIDA FAKURAZI
Researchers Name:	KARTHIVASHAN GOVINDARAJAN, PALANISAMY ARULSELVAN, MAS JAFRI MASARUDDIN, FARIDAH ABAS, SHARIDA FAKURAZI
Faculty / Institute / School / Academy:	Institute of Bioscience
Department /	Laboratory of Industrial Biotechnology
Laboratory:	
Expertise:	BIOCHEMICAL AND MOLECULAR TOXICOLOGY
Email:	sharida.fakurazi@gmail.com
Telephone (Office):	03-89472117
Fax:	03-89472118
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:publication
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	Liver disease is a major public health problem and has become global concern
	due to its poor prognosis and high mortality. The search for effective liver
	protective agent is of importance, as hepatic cells are exposed to major
	metabolic event which increase its chances to hepatic injury and toxicity.
	Moringa oleifera is the most widely distributed species in Asian countries
	reported with outstanding medicinal and value. Almost all part of the plant can
	be eaten and bear medicinal applicability. Our study concentrates of the leaves
	of this plant which have been shown to have a good prophylactic
	nepatoprotective activity, when the leaves are shown to have high level of
	antioxidant activities. The bloactive fraction has also snown some therapeutic
	hinder the succession of henatotoxicity. The particular fraction is found to have
	anti-inflammatory activity and prevent further liver deterioration when high
	dose of hepatotoxin is being applied. Treatment of the leaves extract has been

	found to protect the liver by enhancing the enzymatic and non-enzymatic
	antioxidant defense system in the liver. These observations are precisely being
	witness by histopathological analysis. Liver section obtained of animals treated
	with hepatotoxin together with bioactive fraction, displayed similar morphology
	to that from the control group. Identification of compounds accessible in the
	bioactive fractions has been conducted using HPLC-DAD-ESI-MS and further
	development has been carried out on this fractions to further developed into
	potential hepatoprotective agent
Short Description:	
Keyword:	moringa oleifera, hepatoprotective
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	N/A

New Approach Chemical Synthesis: Citrate-Nitrate Combustion of Monoclinic Nanopowders
-
Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Fundamental (A)
Materials Science and Technology
Dr.
Raba'ah Syahidah Azis
Diane Holland, Mansor Hashim, Azmi Zakaria, A.P.Howes, Mohd Khairul Ikhwan Zawawi
Faculty of Science
Department of Physics
Materials Physics, Material Sciences and Magnetic Materials
rabaah@upm.edu.my
03-89466666
03-89454454
Yes, Patent No.:
Yes, Copyright / Publication No. / SD No.:ISSN 0004-881X
Yes, Registration No.:
Yes, Trademark No.:
This paper reports a novel chemical process for the preparation of high purity yttrium aluminium monoclinic (Y4Al2O9, YAM). YAM has been synthesized by using a sol-gel citrate-nitrate combustion technique (SGCNCT). Yttrium (III) nitrate, aluminium (III) nitrate and citric acid hydrate, C6H8O7.H2O were stirred together to yield a dry but sticky white mass. This gel was then combusted at 250 oC for several hours. The in?uence of the synthesis conditions on the combustion process, phase composition, and the structural properties is studied in detail by X-ray diffraction, FTIR and 27Al magic angle spinning nuclear magnetic resonance (MAS NMR). Results show that the combustion intensity increases with increase in the citric acid/nitrate ratio C/N. Low C/N ratios can

	nm.
Short Description:	
Keyword:	YAM (Y4Al2O9), sol-gel, DTA/TG, XRD, FT-IR, 27Al MAS NMR
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	The Impact of Brain Drain on Human Capital
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Business, Economics and Governance
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Normaz Wana Ismail
Researchers Name:	Abubakar Lawan Ngoma
Names Printed on	Normaz Wana Ismail, Abubakar Lawan Ngoma
Cert.:	
Faculty / Institute /	Faculty of Economics and Management
School / Academy:	
Department /	Department of Economics
Laboratory:	
Expertise:	Trade and Development Economics
Email:	nwi@upm.edu.my
Telephone (Office):	03-89467711
Fax:	03-89486188
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:2
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	The debate over the effect of human capital flight on educational attainment in
	immigrants' source countries has received huge theoretical propositions but a
	tew analytical approaches. This research identify two important issue in brain
	drain and numan capital formation. First, we investigate some factors that
	Second we examines the short-run and long-run impact of skilled migration
	rates (brain drain) on human canital formation in migrants' source countries
	Our econometric model identified an inverted U-shaped relationship between
	skilled migration rates, wage differentials and income convergence with
	destination countries. Other factors found to be significantly related to brain
	drain are: population size, domestic political instability and distance to
	destination countries. Our findings revealed that using school enrollments does
	not only disagree with theirs but also presents an insight on how human capital

	leakages that occur through brain drain can be counterbalance through
	remittances received in the immigrants' source countries.
Short Description:	
Keyword:	Brain drain; Human Capital; Skilled workers, Remittance
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	A simple technique to produce high quality with good optical and thermal properties of virgin coconut oil
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Agriculture and Food
Leader Title:	Prof. Dr.
Leader Name:	Prof. Dr. W. Mahmood Mat Yunus
Researchers Name:	Prof. Dr. W.Mahmood Mat Yunus, Prof. Dr. Zainal Abidin Talib, Dr. Yap Wing Fen
Faculty / Institute /	Faculty of Science
School / Academy:	
Department /	Department of Physics
Laboratory:	
Expertise:	Photoacoustic, Z-Scan, Surface Plasmon Resonance, and Photoflash Techniques
Email:	mahmood@upm.edu.my
Telephone (Office):	03-89466684
Fax:	03-89454454
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:6 (2): 328-331, 2009
Publication / SD:	
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	Coconut oil offers a variety of health benefits and can be used for cooking as well as skin and hair care. Virgin coconut oil is believed to be of the highest quality, made naturally and free of harsh chemicals. Virgin coconut oil can be prepared using the wet mill method, the cold process method, and the boiling method. However, virgin coconut oil prepared under control environment has a potential to be used as index matching fluids in optical device industry such as optical fiber and optical sensor. In heat transfer technology, virgin coconut oil has been proved as a good candidate for base fluid of metals and metal oxide nanofluids in heat transfer system. This project presents a simple technique to produce virgin coconut oil for good quality index matching and nanofluids media.
Short Description:	
Keyword:	Virgin coconut oil, index matching fluid, nanofluid, optical device.
Advantages:	-
Market /	-
Commercialisation	

Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	Download Here

Title	Wavelet analysis methods for solving initial and boundary value problems
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Mathematical Sciences and ICT
Leader Title:	Prof. Dr.
Leader Name:	Prof. Dr. Adem Kilicman
Researchers Name:	Aliasghar Kazemi Nasab, Zohreh Pashazadeh Atabakan, Adem Kilicman
Faculty / Institute /	Institute of Mathematical Research
School / Academy:	
Department /	Laboratory of Theoretical Studies
Laboratory:	
Expertise:	Functional Analysis and Topology
Email:	akilic@upm.edu.my
Telephone (Office):	03-89466813
Fax:	03-89437958
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:S0307904X12007184
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	Wavelet analysis method is an almost new mathematical tool for solving
	different types of problems arising in mathematics, physics, and engineering,
	with applications as varied as image processing, signal processing, data
	compression, pattern recognition, computer graphics, aircraft and submarines
	detection and medical image processing. Wavelet theory is indeed the improved
	version of Fourier analysis. Due to the multi-resolution analysis aspect of
	different positions and scales to detect it's important information such as poaks
	or singularities. This work is aimed to introduce wavelet analysis method as a
	nowerful mathematical algorithm for solving different kinds of equations Δ
	comparison between the results obtained by the current methods with those
	ones reported in the literature by using other well-known methods confirms the
	accuracy and the efficiency of the proposed method.
Short Description:	
Keyword:	wavelet analysis method, mathematical algorithm, different kinds of equations.

Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	New Xanthones and benzophenone from Garcinia mangostana
Product / Technology Name:	-
Fxhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Forestry and Biodiversity
Leader Title:	Prof. Dr.
Leader Name:	Gwendoline Cheng Lian Fe
Researchers Name:	Gwendoline Cheng Lian Ee, Irene See, Roghayeh Abedi Karjiban , Arifah Abdul Kadir & Mohd Aspollah Sukari
Faculty / Institute / School / Academy:	Faculty of Science
Department /	Department of Chemistry
Laboratory:	
Expertise:	Natural Product Chemistry
Email:	gwen@upm.edu.my
Telephone (Office):	03-89466785
Fax:	03-89435380
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.: Molecules
Abstract:	The Clusiaceae family consists of approximately 40 genera including Garcinia, Mesua and Cratoxylum. Garcinia plants are currently being more avidly studied
	due to their abilities to treat dysentery, pain, tapeworm infestations and many
	well known to be a rich source of xanthones and benzophenones, especially
	polyprenylated xanthones and oxygenated xanthones. These secondary metabolites have been reported to possess biological properties against fungus.
	bacteria and also cancer. The discoveries of these beneficial secondary
	metabolites have initiated our interest to investigate more extensively on the stem bark of Garcinia mangostana. Our detailed chemical study on the extracts of the stem bark of Garcinia mangostana resulted in the isolation of one new prenvlated xanthone, mangaxanthone B (1), one new benzophenone.
	mangaphenone (2), a new furanoxanthone, mangoxanthone (3), together with five known analogues. The five known analogues that were isolated are ?-

	mangostin (4), ?-mangostin (5), cowagarcinone B (6) and dulcisxanthone F (7). mangostanin (8) and mangostenol (9). The structures of these compounds were elucidated through analysis of their spectroscopic data obtained from 1D and 2D NMR and MS techniques.
Short Description:	
Keyword:	Xanthones, benzophenone, mangaxanthone A, mangaxanthone B,
	mangaphenone Garcinia mangostana
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	Download Here

Title	Exotic Structures of ZnO synthesized under various thermodynamic conditions
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Materials Science and Technology
Leader Title:	Prof. Dr.
Leader Name:	Prof Dr Abdul Halim Shaari
Researchers Name:	Abdul Halim Shaari, A. Kamalianfar, S.K.Chen, K.P.Lim, E.B.Saion, M.Navasery, M.G.Naseri, Mustafa A. Kechik, Fasih Ud Din, P.K.Yap and Z.A.Talib
Faculty / Institute / School / Academy:	Faculty of Science
Department / Laboratory:	Department of Physics
Expertise:	Superconductivity, Condensed Matter, Magnetism
Email:	ahalim@upm.edu.my
Telephone (Office):	03-89466648
Fax:	03-89454454
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:Publication
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	ZnO micro and nanostructures were grown on MgO (001), Si(111) and Corning glass substrates with different buffer layers via vapor phase transport (VPT) methods. An opened system (both end opened tube) and a closed system (one closed end tube) were adopted (Fig.1). The thermodynamic conditions of the systems made a significant difference in the boundary layers (Fig.2) and super-saturation between the systems. The results indicate that diffusion of the gaseous species through the boundary layers at low and high pressures controls
	the final formation of the morphologies of ZnO. ZnO flower-like multisheets were observed on the Si (111) and Corning glass substrates- the flowers have several parallel petal-like nanosheets that are perpendicular to the main axis; peach-like ZnO microstructures of average diameter of 3?m with a wurtzite structure were observed on MgO (001) substrate. The structure of the products was analyzed by X-ray diffractometer (XRD) and it was found that the good crystalline quality of the samples was obtained in a closed system. The optical

	properties were studied using photoluminescence (PL) and Raman spectroscopy. In addition the growth mechanism was investigated based on FESEM images for different growth times (Fig.3). A decrease in the growth temperature of the
	opened system caused a broad and dominant visible emission covering the blue and green emission in the PL spectra. Fig. 4 shows various ZnO morphologies
Short Description:	
Keyword:	ZnO, Nanostructures, Vapour Phase Transport, Growth Mechanism, UV-spectra
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	N/A

Title	Rapid adsorption of Heavy Metals by Fe3O4/Talc Nanocompositeand Optimization Study Using Response Surface Methodology
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penvelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Applied Science and Engineering
Leader Title:	Dr.
Leader Name:	Kamvar Shameli
Researchers Name:	Katayoon Kalantari
Faculty / Institute /	Faculty of Science
School / Academy:	,
Department /	Department of Chemistry
Laboratory:	
Expertise:	Polymer and Nanomaterials
Email:	kamyar@upm.edu.my
Telephone (Office):	03-89466784
Fax:	03-89466043
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:84 Publiction
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	Fe3O4/ talc nanocomposite was used, for removal of Cu (II), Ni (II), and Pb (II)
	ions from aqueous solutions. The experiments were designed by response
	surface methodology and, quadratic model was used to predict the variables.
	The adsorption parameters such as adsorbent dosage, removal time, and initial
	ion concentration were used as the independent variables and their effects were
	Investigated on the neavy metal ions removal. Analysis of variance was
	incorporated to judge the adequacy of the models. Optimal conditions with initial beauty motal ion concentration of 100, 02 and 270 mg/L, 120 c of removal
	time and 0.12 g of adcorbent amount were given 72.15% 50.22% and 91.25%
	removal efficiency for Cu (II) Ni (II) and Ph (II) respectively. Prediction of
	models was in good agreement with experimental results and Fe3O4/ talc
	nanocomposite was found successful in removing heavy metals from their
	aqueous solutions.
Short Description:	
Keyword:	Heavy metals, Fe3O4/talc nanocomposites, adsorption, response surface

	methodology (RSM), adsorption kinetics.
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	N/A
Title	Learner Corpus of Engineering Abstracts (LCEA)
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Product /	-
Exhibition:	Pamaran Paka Cinta, Danvalidikan dan Ingyasi (DPDI) 2014
	Applied Research (B)
Cluster	Humanities and Nation Building
Leader Title	Dr
Leader Name	Dr Helen Tan
Researchers Name	Chan Swee Heng, Ain Nadzimah Abdullah, Syamsiah Mashohor
Faculty / Institute /	Faculty of Modern Languages and Communication
School / Academy:	
Department /	Department of English Language
Laboratory:	
Expertise:	Writing, Corpus Linguistics and Applied Linguistics
Email:	helen@upm.edu.my
Telephone (Office):	03-89468711
Fax:	03-89468778
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:07-03-2014
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	Learner Corpus of Engineering Abstracts (LCEA) is a corpus containing abstracts
	Written by final year students in the computer and communication Systems
	Engineering programme. It has 998 abstracts with a corpus size of 542,313
	projects $(1999 - 2012)$. As a learner corpus, the language ability of the writers
	would be varied Building a corpus brings about several distinctive benefits. The
	corpus will add to the existing international pool of learner corpora related to
	the English language. It is easily accessible online as a useful database for
	researchers and postgraduate students who intend to investigate L2 writing, in
	particular the writing of academic abstracts. The corpus can also be a source of
	authentic teaching materials for a programme in academic writing. The copy
	righted corpus gives institutional recognition of ownership of a particular type of
	learner corpus which is an outcome of a university funded research project. In
	relation to the corpus, a number of research papers have contributed to greater
	insights into the aspect of abstract writing which is an important genre for

	academic success. Among the issues that are investigated are the rhetorical
	moves, the empirical probability of move combinations, linguistic realizations of
	relevant metadiscoursal features and the development of an abstract checker.
	The abstract checker won the innovation award at the 2014 Final Year Project
	Exhibition organized by the Faculty of Engineering. This award is a verification of
	the viability of the corpus to help undergraduate writers enhance their abstract
	writing skills.
Short Description:	
Keyword:	Learner Corpus, abstracts, Computer and Communication Systems Engineering,
	Final Year Projects, L2 learners, database
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	Download Here

Title	Computerized Vocabulary Game
Product /	-
Exhibition:	Pamaran Paka Cinta, Danvalidikan dan Ingyasi (PPPI) 2014
	Applied Research (P)
Category:	Applieu Research (B)
Cluster:	Rumanities and Nation Building
Leader Title:	Prof. Dr.
Leader Name:	Prof. Dr. Jayakaran Mukundan
Researchers Name:	Jayakaran Mukundan, Hong Siaw Swin, Hong Siaw Theng, Seyed Ali Rezvani Kalajahi
Faculty / Institute /	Faculty of Educational Studies
School / Academy:	
Department /	Department of Language and Humanities Education
Laboratory:	
Expertise:	Teaching of English as Second Language
Email:	jaya@upm.edu.my
Telephone (Office):	03-89468172
Fax:	03-89468222
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:Journal
Industrial Design	Yes, Registration No :
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	This computerized vocabulary game has the potential of teaching vocabulary
	while still retaining entertainment value. Aspects such as subconscious learning
	and intuition are given emphasis. Monitoring of the performance of the learner
	can be carried out as well.
Short Description:	
Keyword:	computerized vocabulary game, intuition, subconscious, monitoring of learning
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	L-Band ALOS PALSAR for biomass estimation of Matang Mangroves, Malaysia
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Forestry and Biodiversity
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Mohd Hasmadi bin Ismail
Researchers Name:	Hamdan Omar, Khali Aziz hamzah
Faculty / Institute /	Faculty of Forestry
School / Academy:	
Department /	Department of Forest Production
Laboratory:	
Expertise:	Forestry, Remote Sensing-GIS
Email:	mhasmadi@upm.edu.my
Telephone (Office):	03-89467220
Fax:	03-89432514
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:RSE-09039; No of Pages 10
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	This study has been carried out to evaluate the relationship between Advanced
	Land Observing Satellite (ALOS) Phased Array L-band SAR (PALSAR)
	backscattering coefficients and the aboveground biomass (AGB) of a managed
	mangrove forest in Malaysia. Matang Mangrove Forest Reserve known
	asMatang Mangroves was selected as the study area. It covers about 41,000 ha
	of mangrove forest and is the largest single mangrove ecosystem in Peninsular
	Malaysia. A mosaic of L-band PALSAR fine beam dual (FBD) with 25m pixel
	spacing data for the year 2010was provided by the Japan Aerospace Exploration
	Initiative A total of 320 sampling plots that were collected in 2010 and 2011 were
	used in the study. The calculated nlot-based AGR were correlated to the
	nixels/backscatter of PAI SAR data. The best correlation function (i.e. from HV
	backscatter) was used to estimate and determine the aboveground biomass of
	the Matang Mangroves. The study found that the estimated AGB in Matang
	Mangroves ranged between 2.98 and 378.32 ± 33.90 Mg ha?1 with an average of

	99.40 ± 33.90 Mg ha?1 and a total AGB of about 4.25 million Mg. The HV
	backscatter started to saturate at an AGB of 100 Mg ha?1 and the errors
	associated with the estimation occurred largely when the AGB exceeded 150 Mg
	ha?1. The study also found that the manipulation of polarisation was useful in
	discriminating succession levels of mangroves
Short Description:	
Keyword:	L-band,mangroves,above ground biomass,Malaysia
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Protocatechuic acid-magnesium/aluminum-layered double hydroxide nanocomposite as anticancer delivery agent
Product / Technology Name:	Sunscreen active agent
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Materials Science and Technology
Leader Title:	Prof. Dr.
Leader Name:	MOHD ZOBIR HUSSEIN
Researchers Name:	Mohd Zobir Hussein, Farahnaz Barahuie, Samer Hasan Hussein-Al-Ali, Palanisamy Arulselvan, Sharida Fakurazi, Zulkarnain Zainal
Faculty / Institute / School / Academy:	Institute of Advanced Technology
Department / Laboratory:	Laboratory of Advanced Materials and Nanotechnology
Expertise:	NANOMATERIALS AND NANOMEDICINE
Email:	mzobir@upm.edu.my
Telephone (Office):	03-89468092
Fax:	03-89467006
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:IJN 2013:8 1975-1987
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	In the study reported here, magnesium/aluminum (Mg/AI)-layered double hydroxide (LDH) was intercalated with an anticancer drug, protocatechuic acid, using ion-exchange and direct coprecipitation methods, with the resultant products labeled according to the method used to produce them: "PANE" (ie, protocatechuic acid-Mg/AI nanocomposite synthesized using the ion-exchange method) and "PAND" (ie, protocatechuic acid-Mg/AI nanocomposite synthesized using the direct method), respectively. Powder X-ray diffraction and Fourier transform infrared spectrospecty confirmed the intervalation of protocatechuic
	acid into the inter-galleries of Mg/Al-LDH. The protocatechuic acid between the interlayers of PANE and PAND was found to be a monolayer, with an angle from the z-axis of 8° for PANE and 15° for PAND. Thermogravimetric and differential thermogravimetric analysis results revealed that the thermal stability of protocatechuic acid was markedly enhanced upon intercalation. The loading of protocatechuic acid in PANE and PAND was estimated to be about 24.5% and

	27.5% (w/w), respectively. The in vitro release study of protocatechuic acid from
	PANE and PAND in phosphate-buffered saline at pH 7.4, 5.3, and 4.8 revealed
	that the nanocomposites had a sustained release property. After 72 hours
	incubation of PANE and PAND with MCE-7 human breast cancer and HeLa
	human cervical cancer cell lines, it was found that the nanocomposites had
	suppressed the growth of these cancer cells with a half maximal inhibitory
	concentration of 25.6.2 a/mL for DANE and 36.0.2 a/mL for DAND for MCE-7 colls
	and 10.8 2g/mL for DANE and 20.2 2g/mL for DAND for Holp colls. No half
	maximal inhibitory concentration for either paperomeesite was found for 2T2
Short Description:	Multiple intercalation of organic LIV absorbers provide broad spectrum
Short Description.	notaction in both UV/P and UV/A range inorganic best restraint
	protection in both OVB and OVA range morganic host restraint
	photocarcinogenic activity of UV absorbers Long lasting UV protection and long
	shelf life of product due stabilization of photodegradable UV absorber
	stabilization in inorganic host Light skin feeling, non-greasy finish
Keyword:	Mg/Al-LDH, nanocomposite, anti-cancer delivery agent, MCF-7, HeLa, 3T3 cells.
Advantages:	EUS gives a non-oily finish. Due to Malaysia's hot and humid climate, oil-free
	cosmetics are in good demand. B4 are efficient in protecting degradation of
	other organic UV absorbers. If released B4 can further protect EUS from
	degradation Layered double hydroxide (LDH) host prevent UV absorbers from
	leaching out, degrading, losing its UV shielding ability and producing toxic
	byproducts. Limit close contact between toxic UV absorbers. Non oily, broad UV
	protection and long lasting sunscreen formulation
Market /	Potential in health care and cosmetics industry. In 2007, Malaysians spend an
Commercialisation	estimated \$550 million on cosmetics. Demand for sun protection is expected to
Potential:	increase as consumers are becoming more aware of the harmful damage of UV
	rays to the skin. Sun protection products are expected to grow further as most
	Malaysians prefer their complexion be as fair as possible in keeping with fashion
	trends throughout Asia. The global sun-care products market grew in retail value
	from \$4.5 hillion (?3.4 hillion) in 2003 to \$7.8 hillion in 2008, an increase of
	72.6% - or 11.5% a year. The biggest growth has been among higher sun
	72.0% of 11.5% d year. The biggest growth has been alloing higher sum protection factor (SPE) products - the market share of SPE 40 and 50+ products
	swelled in Europe from 15% in 2004 to 20% in 2008 Europenitor forecasts
	market growth in these regions of 2 2% /war over the coming years and growth
	in Acia and South Amorica will maintain momentum
Abstract Additional	
File.	
ResearchOutput:	N/A

Title	A TOPOLOGICAL APPROACH FOR GROUP DECISION MAKING PROBLEMS BASED ON FUZZY SOFT SET
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Mathematical Sciences and ICT
Leader Title:	Prof. Dr.
Leader Name:	ADEM KILICMAN
Researchers Name:	Azadeh Zahedi Khameneh
Faculty / Institute / School / Academy:	Institute of Mathematical Research
Department /	Laboratory of Theoretical Studies
Laboratory:	
Expertise:	Functional Analysis and Topology
Email:	akilic@upm.edu.my
Telephone (Office):	03-89466813
Fax:	03-89437958
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:AFMI-7-6(7-xx)-H-130610R1
Publication / SD:	
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	A fuzzy soft set is in fact the map ??:?????? which gives a fuzzy description of the set ?? based on the parameter set ??. The background philosophy of fuzzy soft set is based on this fact that every object in the universe of discourse is described by some parameters. From this point of view, a fuzzy soft set can be seen as a fuzzy relationship between the set of parameters and the set of objects. On the other hand, ordering and classification problem is one of the most interesting and practicable topics in theory of fuzzy soft set. It can be employed in decision making problems to rank objects and select the best alternative when the criteria to choose the optimal object is given based on the degree of relationship between objects and decision parameter.
Short Description:	
Keyword:	fuzzy soft sets, soft topology, decision parameter
Advantages:	-
Market /	-
Commercialisation	

Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	
nue	Г-ѕреак імагаў
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Humanities and Nation Building
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Assoc. Prof. Dr. Vijayaletchumy Subramaniam
Researchers Name:	Assoc. Prof. Dr. Vijayaletchumy Subramaniam, Dr. Wan Muna Ruzanna Wan
	Mohammad, Dr. Yong Chyn Chye, Assoc. Prof. Dr. Che Ibrahim bin Salleh
Faculty / Institute / School / Academy:	Faculty of Modern Languages and Communication
Department /	Department of Malay Language
Laboratory:	
Expertise:	Applied Linguistics, Psychology, Language Acquisition, Translation, Terminology
Email:	letchumy1617@gmail.com
Telephone (Office):	03-89468680
Fax:	03-89439951
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:18 Jun 2014
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	Menurut laporan dari Kementerian Pengajian Tinggi Malaysia pada tahun 2010,
	jumlah bilangan pelajar luar negara yang menuntut di Malaysia mencecah
	80,000 orang. Penambahan bilangan pelajar akibat daripada pendidikan di
	Malaysia telah berubah dan mempunyai tujuan menjadi Center of Education
	Excellence untuk wilayah Asia-Pasifik. Justeru, perisian ini dihasilkan khas untuk
	mempermudah penguasaan bahasa Melayu (BM) sebagai bahasa asing dalam
	kalangan penutur asing yang menuntut di Malaysia. Perisian ini cipta bagi
	nemenum kenenuak para perajar terutamanya selepas keperkesanan strategi nombolajaran PM dan babagian kesilanan telah dikenal nasti. Derisian ini lehih
	perinderajaran divi uan danagian kesilapan telah ulkenai pasti. Perisian III ledin berfokus kenada nenguasaan sebutan asas, babasa komunikasi asas dalam
	nerhualan harian. Isi kandungan nerisian ini merangkumi hahagian sebutan asas
	perbendaharaan baru, praktis komunikasi, bentuk latih tuhi sebagai
	pengukuhan, dan pendedahan keunikan budaya masyarakat tempatan. Pada
	dasarnya, 16 Bab dalam perisian ini dinyatakan hasil pembelajaran yang boleh

	diperoleh oleh setiap pelajar. Pendedahan yang dilakukan melalui contoh dan
	latihan yang diberikan diharap dapat membantu pelajar luar negara mempelajari
	bahasa komunikasi asas dan menghayati amalan sosial budaya tempatan. Di
	samping itu, terdapat juga maklumat tambahan dalam setiap bab yang
	menggambarkan keunikan masyarakat Malaysia yang berunsur multi-budaya. Ini
	juga membolehkan mahasiswa antarabangsa menjadi lebih proaktif dalam
	pembelajaran bahasa asing dan usaha ini telah memberi kesenangan kepada
	warga dewasa ini. Perisian ini berpotensi dijual kepada semua penuntut
	universiti yang mengambil Bahasa Melayu sebagai Bahasa Asing. Harga yang
	berpatutan (RM50.00), mesra pengguna, dan interaktif. Dengan ini, perisian
	yang sistematik dan relevan adalah sesuai guna pakai dalam setiap universiti.
Short Description:	
Keyword:	penguasaan sebutan asas Bahasa Melayu, bahasa komunikasi, strategi
	pengajaran dan pembelajaran bahasa Melayu, pelajar asing
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	Download Here

Title	Shape-effect as a Novel Green and Sustainable Food Packaging, Preservation and Water Treatment Technique.
	PROF. OR. RUSSLY ABOL. RAWAN
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Agriculture and Food
Leader Title:	Prof. Dr.
Leader Name:	Russly B Abdul Rahman
Researchers Name:	Maher Abdelaleem Abdelrazik Abdelsamie, Shuhaimi Mustafa, Dzulkifly Hashim
Faculty / Institute /	Institute of Products Halal Research
School / Academy:	
Department /	Laboratory of Product Innovation and Process
Laboratory:	
Expertise:	Food Engineering and Packaging
Email:	mabdelaleem2011@gmail.com
Telephone (Office):	03-89430405
Fax:	03-89439745
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:Publication (Research Article)
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
	packaging, in addition to the preservation methods such as drying, freezing, smoking and chemical preservatives provide great solutions to extend food shelf life. Nevertheless, they have disadvantages related to cost, undesired effects on food and short or long term negative effects on human health. The shape-effects technique combines preservation, packaging and water treatment in one process and is poised to be a safe, low cost, sustainable and innovative packaging solutions in the food industry. Shape effect is the enhanced energy fields generated inside some models of geometrical shapes, such as pyramid shape. This energy come from the interaction between packaging shape, the stored biological material and the surrounded electromagnetic radiation. There are many sources of electromagnetic radiation for example radio and television
	electromagnetic simulation techniques FDTD and FEM were used to explain this interaction. The peak level of electric and magnetic fields induced in water

	stored in pyramid-shaped container was higher than the peak level of the fields
	induced in water stored in the other containers. The effect of these energy fields
	on water quality was determined by using standard methods, variable pressure
	scanning electron microscopy VP-SEM and nuclear magnetic resonance
	spectroscopy O-17 NMR. The results showed improvement in the quality of
	water stored in pyramid shaped containers compared to the water stored in the
	other containers. Usefulness and Commercialization Potential: 1- There is no
	cost in the water-treatment and preservation process. 2- The process is a simple
	as designing the proper dimensions in the packaging materials. 3- It is multi-use
	and multipurpose packaging technique. 4- The power source is free and
	inexhaustible. 5- It does not combine any complex operations or extra
	equipment. 6- Environmental Friendliness
Short Description:	
Keyword:	SAR, EM Simulation, shaped effect, Food packaging, Water-treatment
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	Download Here

Title	Aproximate Solution of Fractional Order Singular Partial Differential Equations with Variable Coefficients
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Mathematical Sciences and ICT
Leader Title:	Prof. Dr.
Leader Name:	Adem Kilicman
Researchers Name:	Asma Elbeleze and Adem Kilicman
Faculty / Institute /	Faculty of Science
School / Academy:	
Department /	Department of Mathematics
Laboratory:	
Expertise:	Functional Analysis and Topology
Email:	akilic@upm.edu.my
Telephone (Office):	03-89466813
Fax:	03-89437958
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:803902
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	Singular partial differential equations of fractional order attracted many
	scientists and researchers due to the tremendous use in fluid mechanics,
	mathematical biology, physics, and electrochemistry. Consequently,
	considerable attention has been given to the solution of these equations. We
	implement relatively analytical methods, the homotopy perturbation method
	and the variational iteration method, for solving singular fractional partial
	differential equations of fractional order. Convergence of the methods is
	proved and the convergence analysis is reliable enough to estimate the
	derivatives are described in the Caputo sense Some examples are
	nresented to verify convergence hypothesis and simplicity of the method
Short Description:	presented to verify convergence hypothesis and simplicity of the method.
Keyword:	Homotopy perturbation method. Variational iteration method Fractional
	singular partial differential equations. Caputo fractional derivative.
Advantages:	-

Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Product / Technology Name:-Exhibition:Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014Category:Applied Research (B)Cluster:Humanities and Nation BuildingLeader Title:Dr.Leader Name:Mohd Nizam OsmanResearchers Name:Mohd Nizam Osman, Siti Zobidah Omar, Jusang Bolong, Jeffrey Lawrence D'Silva, Hayrol Azril Mohamed ShaffrilFaculty / Institute / School / Academy:Institute of Social Science StudiesDepartment / Laboratory of Rural Advancement and Agriculture ExtensionExpertise:ICT, Broadcasting and TelecommunicationEmail:majudesa.desa@gmail.comTelephone (Office):03-89468790Fax:03-89471856Patent Status:Yes, Patent No.:Copyright / Publication / SD:Yes, Registration No. / SD No.:Journal PublicationIndustrial Design Registration:Yes, Trademark No.:Abstract:Global Positioning System or GPS is an advanced tool that has been widely used	Title	Readiness of Young Malaysian Fishermen to Use Global Positioning System within the Fishing Operation
Exhibition:Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014Category:Applied Research (B)Cluster:Humanities and Nation BuildingLeader Title:Dr.Leader Name:Mohd Nizam OsmanResearchers Name:Mohd Nizam Osman, Siti Zobidah Omar, Jusang Bolong, Jeffrey Lawrence D'Silva, Hayrol Azril Mohamed ShaffrilFaculty / Institute / School / Academy:Institute of Social Science StudiesDepartment / Laboratory:Laboratory of Rural Advancement and Agriculture ExtensionExpertise:ICT, Broadcasting and TelecommunicationEmail:majudesa.desa@gmail.comTelephone (Office):03-89468790Fax:03-89471856Patent Status:Yes, Patent No.:Copyright / Publication / SD:Yes, Registration No.: / SD No.:Journal PublicationIndustrial Design Registration:Yes, Trademark No.:Abstract:Global Positioning System or GPS is an advanced tool that has been widely used	Product / Technology Name:	-
Category:Applied Research (B)Cluster:Humanities and Nation BuildingLeader Title:Dr.Leader Name:Mohd Nizam OsmanResearchers Name:Mohd Nizam Osman, Siti Zobidah Omar, Jusang Bolong, Jeffrey Lawrence D'Silva, Hayrol Azril Mohamed ShaffrilFaculty / Institute /Institute of Social Science StudiesSchool / Academy:Institute of Social Science StudiesDepartment /Laboratory of Rural Advancement and Agriculture ExtensionLaboratory:ICT, Broadcasting and TelecommunicationEmail:majudesa.desa@gmail.comTelephone (Office):03-89468790Fax:03-89471856Patent Status:Yes, Patent No.:Copyright /Yes, Registration No.: / SD No.:Journal PublicationPublication / SD:Yes, Registration No.:Industrial Design Registration:Yes, Trademark No.:Abstract:Global Positioning System or GPS is an advanced tool that has been widely used	Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Cluster:Humanities and Nation BuildingLeader Title:Dr.Leader Name:Mohd Nizam OsmanResearchers Name:Mohd Nizam Osman, Siti Zobidah Omar, Jusang Bolong, Jeffrey Lawrence D'Silva, Hayrol Azril Mohamed ShaffrilFaculty / Institute /Institute of Social Science StudiesSchool / Academy:Institute of Social Science StudiesDepartment /Laboratory of Rural Advancement and Agriculture ExtensionLaboratory:ICT, Broadcasting and TelecommunicationEmail:majudesa.desa@gmail.comTelephone (Office):03-89468790Fax:03-89471856Patent Status:Yes, Patent No.:Copyright /Yes, Copyright / Publication No. / SD No.:Journal PublicationPublication / SD:Yes, Registration No.:Industrial Design Registration:Yes, Trademark No.:Abstract:Global Positioning System or GPS is an advanced tool that has been widely used	Category:	Applied Research (B)
Leader Title:Dr.Leader Name:Mohd Nizam OsmanResearchers Name:Mohd Nizam Osman, Siti Zobidah Omar, Jusang Bolong, Jeffrey Lawrence D'Silva, Hayrol Azril Mohamed ShaffrilFaculty / Institute / School / Academy:Institute of Social Science StudiesDepartment / Laboratory:Laboratory of Rural Advancement and Agriculture ExtensionExpertise:ICT, Broadcasting and TelecommunicationEmail:majudesa.desa@gmail.comTelephone (Office):03-89468790Fax:03-89471856Patent Status:Yes, Patent No.:Copyright / Publication / SD:Yes, Registration No. / SD No.:Journal PublicationIndustrial Design Registration:Yes, Trademark No.:Trademark:Yes, Trademark No.:Abstract:Global Positioning System or GPS is an advanced tool that has been widely used	Cluster:	Humanities and Nation Building
Leader Name:Mohd Nizam OsmanResearchers Name:Mohd Nizam Osman, Siti Zobidah Omar, Jusang Bolong, Jeffrey Lawrence D'Silva, Hayrol Azril Mohamed ShaffrilFaculty / Institute / School / Academy:Institute of Social Science StudiesDepartment / Laboratory:Laboratory of Rural Advancement and Agriculture ExtensionExpertise:ICT, Broadcasting and TelecommunicationEmail:majudesa.desa@gmail.comTelephone (Office):03-89468790Fax:03-89471856Patent Status:Yes, Patent No.:Copyright / Publication / SD:Yes, Registration No. / SD No.:Journal PublicationIndustrial Design Registration:Yes, Trademark No.:Abstract:Global Positioning System or GPS is an advanced tool that has been widely used	Leader Title:	Dr.
Researchers Name:Mohd Nizam Osman, Siti Zobidah Omar, Jusang Bolong, Jeffrey Lawrence D'Silva, Hayrol Azril Mohamed ShaffrilFaculty / Institute / School / Academy:Institute of Social Science StudiesDepartment / Laboratory:Laboratory of Rural Advancement and Agriculture ExtensionExpertise:ICT, Broadcasting and TelecommunicationEmail:majudesa.desa@gmail.comTelephone (Office):03-89468790Fax:03-89471856Patent Status:Yes, Patent No.:Copyright / Publication / SD:Yes, Registration No. / SD No.:Journal PublicationIndustrial Design Registration:Yes, Trademark No.:Abstract:Global Positioning System or GPS is an advanced tool that has been widely used	Leader Name:	Mohd Nizam Osman
Faculty / Institute / School / Academy:Institute of Social Science StudiesDepartment / Laboratory:Laboratory of Rural Advancement and Agriculture ExtensionExpertise:ICT, Broadcasting and TelecommunicationEmail:majudesa.desa@gmail.comTelephone (Office):03-89468790Fax:03-89471856Patent Status:Yes, Patent No.:Copyright / Publication / SD:Yes, Copyright / Publication No. / SD No.:Journal PublicationIndustrial Design Registration:Yes, Registration No.:Trademark:Yes, Trademark No.:Abstract:Global Positioning System or GPS is an advanced tool that has been widely used	Researchers Name:	Mohd Nizam Osman, Siti Zobidah Omar, Jusang Bolong, Jeffrey Lawrence D'Silva, Hayrol Azril Mohamed Shaffril
Department / Laboratory:Laboratory of Rural Advancement and Agriculture ExtensionExpertise:ICT, Broadcasting and TelecommunicationEmail:majudesa.desa@gmail.comTelephone (Office):03-89468790Fax:03-89471856Patent Status:Yes, Patent No.:Copyright / Publication / SD:Yes, Copyright / Publication No. / SD No.:Journal PublicationIndustrial Design Registration:Yes, Registration No.:Trademark:Yes, Trademark No.:Abstract:Global Positioning System or GPS is an advanced tool that has been widely used	Faculty / Institute / School / Academy:	Institute of Social Science Studies
Laboratory:ICT, Broadcasting and TelecommunicationExpertise:ICT, Broadcasting and TelecommunicationEmail:majudesa.desa@gmail.comTelephone (Office):03-89468790Fax:03-89471856Patent Status:Yes, Patent No.:Copyright /Yes, Copyright / Publication No. / SD No.:Journal PublicationPublication / SD:Industrial Design Registration:Trademark:Yes, Trademark No.:Abstract:Global Positioning System or GPS is an advanced tool that has been widely used	Department /	Laboratory of Rural Advancement and Agriculture Extension
Expertise:ICT, Broadcasting and TelecommunicationEmail:majudesa.desa@gmail.comTelephone (Office):03-89468790Fax:03-89471856Patent Status:Yes, Patent No.:Copyright /Yes, Copyright / Publication No. / SD No.:Journal PublicationPublication / SD:Yes, Registration No.:Industrial Design Registration:Yes, Trademark No.:Trademark:Yes, Trademark No.:Global Positioning System or GPS is an advanced tool that has been widely used	Laboratory:	
Email:majudesa.desa@gmail.comTelephone (Office):03-89468790Fax:03-89471856Patent Status:Yes, Patent No.:Copyright /Yes, Copyright / Publication No. / SD No.:Journal PublicationPublication / SD:Industrial Design Registration:Trademark:Yes, Trademark No.:Abstract:Global Positioning System or GPS is an advanced tool that has been widely used	Expertise:	ICT, Broadcasting and Telecommunication
Telephone (Office):03-89468790Fax:03-89471856Patent Status:Yes, Patent No.:Copyright /Yes, Copyright / Publication No. / SD No.:Journal PublicationPublication / SD:Industrial Design Registration:Industrial Design Registration:Yes, Registration No.:Trademark:Yes, Trademark No.:Abstract:Global Positioning System or GPS is an advanced tool that has been widely used	Email:	majudesa.desa@gmail.com
Fax:03-89471856Patent Status:Yes, Patent No.:Copyright /Yes, Copyright / Publication No. / SD No.:Journal PublicationPublication / SD:Industrial Design Registration:Trademark:Yes, Trademark No.:Abstract:Global Positioning System or GPS is an advanced tool that has been widely used	Telephone (Office):	03-89468790
Patent Status:Yes, Patent No.:Copyright /Yes, Copyright / Publication No. / SD No.:Journal PublicationPublication / SD:Industrial DesignIndustrial Design Registration:Yes, Registration No.:Trademark:Yes, Trademark No.:Abstract:Global Positioning System or GPS is an advanced tool that has been widely used	Fax:	03-89471856
Copyright / Publication / SD:Yes, Copyright / Publication No. / SD No.:Journal PublicationPublication / SD:Industrial Design Registration:Industrial Design Registration:Yes, Registration No.:Trademark:Yes, Trademark No.:Abstract:Global Positioning System or GPS is an advanced tool that has been widely used	Patent Status:	Yes, Patent No.:
Industrial Design Registration:Yes, Registration No.:Trademark:Yes, Trademark No.:Abstract:Global Positioning System or GPS is an advanced tool that has been widely used	Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:Journal Publication
Registration:Trademark:Yes, Trademark No.:Abstract:Global Positioning System or GPS is an advanced tool that has been widely used	Industrial Design	Yes, Registration No.:
Trademark:Yes, Trademark No.:Abstract:Global Positioning System or GPS is an advanced tool that has been widely used	Registration:	
Abstract: Global Positioning System or GPS is an advanced tool that has been widely used	Trademark:	Yes, Trademark No.:
	Abstract:	Global Positioning System or GPS is an advanced tool that has been widely used
in a number of industries including fisheries industry. The main attempt of the		in a number of industries including fisheries industry. The main attempt of the
present study has much to do with GPS as it aims to identify young Malaysian		present study has much to do with GPS as it aims to identify young Malaysian
fishermen readiness to use GPS within their fishing operation. The study is		fishermen readiness to use GPS within their fishing operation. The study is
quantitative in nature where a developed questionnaire was used to collect the		quantitative in nature where a developed questionnaire was used to collect the
required data. A total of 240 young fishermen aged between 15 to 40 years old		required data. A total of 240 young fishermen aged between 15 to 40 years old
from four fishing areas in Malaysia were selected as the respondents. Overall, it		from four fishing areas in Malaysia were selected as the respondents. Overall, it
can be concluded that young Malaysian fishermen are ready to use GPS within their fiching operation. However, their readings can be further impressed if		can be concluded that young Malaysian fishermen are ready to use GPS within their fiching operation. However, their readings can be further improved if
aspects such as financial affordability, number of agoncies staff, availability of		aspects such as financial affordability, number of agoncies staff, availability of
aspects such as infancial anorgability, number of agencies stan, dvalidbility of workshop repairing dysfunction GPS and access to GPS are considered by the		aspects such as infancial anonability, number of agencies stan, availability of workshop repairing dysfunction GPS and access to GPS are considered by the
related agencies		related agencies
Short Description:	Short Description	
Keyword: young fishermen, readiness, GPS, fishermen development	Keyword:	young fishermen, readiness, GPS, fishermen development

Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	A Highly Biocompatible Anti-tuberculosis Nanodelivery Formulation Based on Para-Aminosalicylic Acid-Zinc Layered Hydroxide Nanocomposites
Product / Technology Name:	Sunscreen active agent
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Applied Science and Engineering
Leader Title:	Prof. Dr.
Leader Name:	MOHD ZOBIR HUSSEIN
Researchers Name:	Mohd Zobir Hussein, Bullo Saifullah, Palanisamy Arulselvan, Mohamed Ezzat El Zowalaty, Sharida Fakurazi, Thomas J. Webster and Benjamin Geilich
Faculty / Institute / School / Academy:	Institute of Advanced Technology
Department /	Laboratory of Advanced Materials and Nanotechnology
Laboratory:	
Expertise:	NANOMATERIALS AND NANOMEDICINE
Email:	mzobir@upm.edu.my
Telephone (Office):	03-89468092
Fax:	03-89467006
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.: Article ID 401460
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	Tuberculosis is a lethal epidemic, difficult to control disease, claiming thousands
	of lives every year. We have developed a nanodelivery formulation based on
	para-aminosalicylic acid (PAS) and zinc layered hydroxide using zinc nitrate salt
	as a precursor. The developed formulation has a fourfold higher efficacy of PAS
	against mycobacterium tuberculosis with a minimum inhibitory concentration
	(MIC) found to be at 1.40 ??g/mL compared to the free drug PAS with a MIC of
	5.0 ug/mL. The newly developed formulation was also found active against
	Gram-positive bacteria, Gram-negative bacteria, and Candida albicans. The
	Iormulation was also found to be biocompatible with human normal lung cells,
	formulation was found to be sustained in a human body simulated phosphate
	huffer saline (PBS) solution at nH values of 7.4 and 4.8. Most importantly the
	nanocomposite prepared using zinc nitrate salt was advantageous in terms of
	yield and free from zinc oxide contamination and had higher biocompatibility

	compared to one prepared using a zinc oxide precursor. These promising in vitro
	results are very encouraging for the continued investigation of para-
	aminosalicylic acid and zinc layered hydroxide nanocomposites in vivo and
	eventual preclinical studies.
Short Description:	Multiple intercalation of organic UV absorbers provide broad spectrum
	protection in both UVB and UVA range Inorganic host restraint
	photocarcinogenic activity of UV absorbers Long lasting UV protection and long
	shelf life of product due stabilization of photodegradable UV absorber
	stabilization in inorganic host Light skin feeling, non-greasy finish
Keyword:	Highly Biocompatible, Anti-tuberculosis Nanodelivery Formulation, Para-
	Aminosalicylic Acid-Zinc Layered Hydroxide Nanocomposites.
Advantages:	EUS gives a non-oily finish. Due to Malaysia's hot and humid climate, oil-free
	cosmetics are in good demand. B4 are efficient in protecting degradation of
	other organic UV absorbers. If released B4 can further protect EUS from
	degradation Layered double hydroxide (LDH) host prevent UV absorbers from
	leaching out, degrading, losing its UV shielding ability and producing toxic
	byproducts. Limit close contact between toxic UV absorbers. Non oily, broad UV
	protection and long lasting sunscreen formulation
Market /	Potential in health care and cosmetics industry. In 2007, Malaysians spend an
Commercialisation	estimated \$550 million on cosmetics. Demand for sun protection is expected to
Potential:	increase as consumers are becoming more aware of the harmful damage of UV
	rays to the skin. Sun protection products are expected to grow further as most
	Malaysians prefer their complexion be as fair as possible in keeping with fashion
	trends throughout Asia. The global sun-care products market grew in retail value
	from \$4.5 billion (?3.4 billion) in 2003 to \$7.8 billion in 2008, an increase of
	72.6% - or 11.5% a year. The biggest growth has been among higher sun
	protection factor (SPF) products - the market share of SPF 40 and 50+ products
	swelled in Europe from 15% in 2004 to 20% in 2008. Euromonitor forecasts
	market growth in these regions of 2-3%/year over the coming years, and growth
	in Asia and South America will maintain momentum.
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	A Higher Sensitivity and Efficiency of Common Primer Multiplex PCR Assay in Identification of Meat Origin Using NADH Dehydrogenase Subunit 4 Gene
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Halal Sciences and Management
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Mohd Nasir Mohd Desa
Researchers Name:	Mohd Nasir Mohd Desa
Faculty / Institute /	Institute of Products Halal Research
School / Academy:	
Department /	Laboratory of Analyses and Autentication
Laboratory:	
Expertise:	Molecular biology
Email:	mnasir@upm.edu.my
Telephone (Office):	03-89472344
Fax:	03-89436178
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:JFST-D-14-00635R1
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	A Common Primer Multiplex PCR (CP-M-PCR) was developed to detect meat
	origin of four groups of animal (pig, ruminant, avian and rabbit). This method
	demonstrated a higher sensitivity and efficiency than the conventional multiplex
	PCR. In this approach, a common forward primer was designed in the 5' end of a
	homologous region of mitochondrial NADH dehyrogenase subunit 4 (Nad 4) gene
	sequences of all the animal groups. Specific adapter reverse primers were
	designed by adding an adapter sequence at the 5' end. The same adapter
	sequence was used as the common adapter reverse primer. The primers
	generated specific fragments of 267, 370, 504, and 548 bp lengths for pig,
	the 5' and of the common adapter reverse primers increased the efficiency of
	the amplification and the application of a common forward primer solved the
	complexity in multiplex PCR system Bands of specific amplification can be
	detected in the PCR assays containing as low as 10-6 µM of adapter reverse
	primer. This result indicated that the sensitivity was tremendously increased as

	compared to the conventional multiplex PCR (10-3 μ M). CP-M-PCR detection
	limit of the DNA samples was 0.1 ng for the four groups of meats. Results from
	this study will provide scientific solutions to the variation of amplification
	efficiency in which the common primer will enhance the specificity of species
	specific primers and demonstrate a detection limit of better than that of the
	conventional multiplex. The procedures described here may be employed in
	industrial meat-based products for rapid and sensitive identification of meat
	species. This approach also seems to be promising in different fields such as bio-
	security, disease prevention and forensic analysis.
Short Description:	
Keyword:	Multiplex; Nad 4 ; Meat; Common primer
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	Download Here

Title	Can seagrass grow in freshwater and hypersaline water?
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inoyasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Agriculture and Food
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Muta Harah Binti Zakaria @ Ya
Researchers Name:	Japar Sidik Bujang, Mohd Fakhruldin Ismail, Wan Hazma Wan Nawi and Nordiah Bidin
Faculty / Institute / School / Academy:	Faculty of Agriculture
Department /	Department of Aquaculture
Laboratory.	Aquatia Dialogy
Expertise:	Aqualic Biology
Ellidii.	
	03-89474890
FdX:	Voc. Datant No.:
Convright /	Yes, Convergent / Dublication No. / SD No.: 1810.4027
Publication / SD:	res, copyright / Publication No. / SD No1819-4927
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	Halophila beccarii Aschers., seagrass with rosette leafy shoot and Halophila ovalis (R.Br.) f Hook with paired leaf shoot have developed rhizomes that act as anchor in environment with salinity fluctuations e.g., brackish coastal water, lagoon and marine coastal areas. Shoots represent the above-ground
	component of plant species and in direct contact to the ever changing salinity but it not known how they respond to such fluctuations. Therefore, this study examined the effects of variation on above-ground response variables; leaf length, leaf width and petiole length of both seagrass species and, number of leaves per shoot (H. beccarii) and number of leaf cross-veins (H. ovalis). Survival and above-ground response variables to saline and freshwater were characterized in culture-experiments where plants were exposed to decreased (from 25 to 0 psu or freshwater, decrease at interval of 5 psu) and increased (25 to 80 psu, increase at interval of 5 psu). For H. beccarii, no plants mortality (except at 80 psu) occurred and significant changes in number of leaves per

	shoot were observed with increased or decreased salinity treatments. Plants
	continued to survive even in hypotonic environment to 0 psu or freshwater. For
	H. ovalis, plant mortality was observed when exposed to salinities of 5 psu and
	55 psu. Both seagrass species were significantly affected by increased or
	decreased salinity altering the dimensions of leaves. Leaf length and leaf width
	became shorter and narrower at lower (5-0 psu, 5-10 psu) and higher (65-80 psu,
	40-50 psu) salinity for H. beccarii and H. ovalis respectively. These results suggest
	that the seagrass H. beccarii adapted, tolerated and survived in freshwater for
	long period of more than one year or hypersaline water, while H. ovalis less
	adapted, tolerated and survived in hypotonic water and tolerated and survived
	in hypersaline water.
Short Description:	
Keyword:	seagrass, Halophila beccarii, Halophila ovalis, culture, salinity, freshwater
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	N/A

Title	relationship between size, distance flown and vegetation cover with ebn swiftlet's foraging ground in Kuala Langat District
Product /	-
Technology Name:	
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Agriculture and Food
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Hafidzi Mohd Noor
Researchers Name:	Maisarah binti Burhanuddin, Asrulsani bin Jambari, Siti Khadijah binti Md Salleh
Faculty / Institute /	Faculty of Agriculture
School / Academy:	
Department /	Department of Plant Protection
Laboratory:	
Expertise:	vertebrate pest
Email:	maisarah.mb@gmail.com
Telephone (Office):	03-89474912
Fax:	03-89381014
Patent Status:	No
Copyright /	Yes, Copyright / Publication No. / SD No.:000 (Download Here)
Publication / SD:	
Industrial Design	No
Registration:	
Trademark:	No
Abstract:	The study was carried out to analyze the movement pattern of EBN (edible bird nest) swiftlet Aerodramus fuciphagus in Kuala Langat District, Selangor. Using radio telemetry, the bird was tracked using a four-wheel vehicle within a 10km radius from the point of release. Instead of triangulation which is suitable for perching birds, we used the pin-pointed point as our fix location with the assumption the bird is within 100m radius from the tracking vehicle. This distance has been chosen based on the furthest point where a signal is discernible. The transmitter was the smallest in todays market(0.3g), have short battery life(max 10 days) and attached onto the bird using glue-on method.The bird was tracked from march to July 2013. Using 95% kernel contour analysis with the aid of BIOTAS and RANGE8, a home range analysis software, the birds was found to roam an area ranged from 43km ² up to 1038km ² . We also analysed how their weight, speed, weather and vegetation covers influence their flying pattern.
Keyword:	radio telemetry, ranging behavior, aerodramus fuciphagus
Advantages:	-
Market /	-
Commercialisation	

Potential:	
Abstract Additional	No
File:	
ResearchOutput:	No

Title	Normalization method for Multi-agent System based Recommender System
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Mathematical Sciences and ICT
Leader Title:	Dr.
Leader Name:	NURFADHLINA MOHD SHAREF
Researchers Name:	NURFADHLINA MOHD SHAREF, MASRAH AZRIFAH AZMI MURAD, MOHAMMAD YASER SHAFAZAND
Faculty / Institute / School / Academy:	Faculty of Computer Science and Information Technology
Department /	Department of Computer Science
Laboratory:	
Expertise:	RECOMMENDATION AND PERSONALIZATION, INTELLIGENT SYSTEMS
Email:	nurfadhlina@upm.edu.my
Telephone (Office):	03-89471776
Fax:	03-89466550
Patent Status:	Yes, Patent No.:
Patent File:	N/A
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:Normalization and Matrix Factorization
Industrial Design	Yes, Registration No.:
Registration:	, ,
Trademark:	Yes, Trademark No.:
Abstract:	A recommender engine typically offers personalization and adaptive solution to
	the users. The most commonly used is the collaborative filtering method where
	the recommendation depends on items preferred by other similar users but has
	limitation when the user is new to the system hence no past record is available.
	Besides, not all users have the same taste over time which creates 'grey sheep'
	clusters. Apart from this, the user moods keep changing which influence their
	preference and feedback on the recommended items. We present a new
	method called NormRecommender based on normalization technique which
	uses the distance between user average ratings and the global average ratings,
	combining with neighborhood model's cluster's average ratings and difference
	between global average ratings are also considered. From the results of the
	collaborative Filtering (neighborhood models and matrix factorization) we get a prediction component which actually is used as the indicator not as final

	prediction. This prediction component is further used in recommendation
	process to predict the rating for user. The result shows that this combination can
	increase the accuracy. The NormRecommender method is applied in an agent-
	based recommender system which features several components namely
	recommender and updater engine, profiler agent and natural language based
	requirement extractor.
Short Description:	
Keyword:	recommendation and personalization, multi-agent system
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	Download Here

Title	An integrated bioreactor-expanded bed adsorption system for the removal of acetate to enhance the production of alpha-interferon-2b by Escherichia coli
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Biosystems and Biotechnology
Leader Title:	Prof. Dr.
Leader Name:	Arbakariya Bin Ariff
Researchers Name:	Joo Shun Tan, Tau Chuan Ling, Shuhaimi Mustafa, Yew Joon Tam, Ramakrishnan Nagasundara Ramanan, Arbakariya B. Ariff
Faculty / Institute / School / Academy:	Faculty of Biotechnology and Biomolecular Sciences
Department /	Department of Bioprocess Technology
Laboratory:	
Expertise:	Bioprocess Engineering
Email:	jooshun@gmail.com
Telephone (Office):	03-89467591
Fax:	03-89458514
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:DOI: 10.1016/j.procbio.2013.02.024
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	A stirred tank bioreactor (STB) integrated with an expanded bed adsorption
	(EBA) system containing anion-exchange resin (Diaion WA30) was developed for
	in situ removal of acetate to increase the production of alpha-interferon-2b
	(alpha-PrIFN-2b) by Escherichia coli (E. coli). Although the total acetate (9.79
	g/L) secreted by E. coli in the integrated STB/EBA system was higher than that in
	a bioreactor with dispersed resin or a conventional batch bioreactor, cell growth
	(14.97 g/L) and alpha-PrIFN-2b production (867.4 g/L) were significantly
	Improved owing to the high efficiency of acetate removal from the culture. The
	2 fold and 1.4 fold over that obtained in a conventional batch hieraacter and a
	bioreactor containing dispersed resins, respectively.
Short Description:	
Keyword:	Bioreactors; Expanded bed adsorption; Fermentation; Acetic acid; alpha- Interferon-2b;

Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	The pasison fruit (Passiflora sp.) plants and their many uses
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inoyasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Agriculture and Food
Leader Title:	Prof. Dr.
Leader Name:	Japar Sidik bujang
Researchers Name:	Assoc. Prof. Muta Harah Binti Zakaria, Dr. Wong Sing King, Shiamala Devi
	Ramaiya
Faculty / Institute / School / Academy:	Faculty of Agriculture and Food Sciences
Department /	Department of Animal Science and Fishery
Laboratory:	
Expertise:	Biology/ Aquatic Biology
Email:	japar@upm.edu.my
Telephone (Office):	03-89474890
Fax:	03-89408311
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:jsfa.5876, 598313, 167309
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	The passion fruit is an exotic fruit that is popular for the startling beauty of its
	flower and fruity aroma. It is an agronomically important crop and used
	commercially in the fruit industry. This research focused on investigation of the
	morphology and molecular phylogeny of Passiflora species using ITS region. In
	addition, the physiochemical properties have been determined for the edible
	parts especially their juices and the non-edible parts of the plant were assessed
	for their antioxidant and antibacterial properties. For the phylogenetic study, the
	diversity in Passiflora at the species level and the Maximum parsimony (MD) tree
	showed the relationships within this subgenus Passiflora support the
	classification at the series level. The phylogenetic relationships were also
	consistent with results of morphological assessments. There were variations in
	the physiochemical properties of Passiflora juices with respect to cultivars and
	fruit ripeness. Glucose and fructose content were higher in juice from vine-

	ripened fruits of Purple, Frederick and Yellow P. edulis, P. quadrangularis and P.
	maliformis. Sucrose content was significantly higher in juice of non-vine-ripened
	fruits of P. edulis (Pink) and P. edulis f. flavicarpa. Ascorbic acid, total phenolic
	content (TPC) and total antioxidant activity (TAA) were significantly higher in
	vine-ripened Purple and Yellow P. edulis. For the antioxidant and antibacterial
	assays, the methanol extract of the all Passiflora species studied possessed good
	antioxidant activities and contain constituents with significant phenolic and
	antibacterial properties for pharmaceutical and nutraceutical uses. Generally,
	leaves extracts showed distinct inhibition against Gram-positive and not Gram-
	negative bacteria. This research provides an overview of cultivars of genetically
	different individuals that could be commercialized in Malaysia. The whole
	passion fruit plant parts are potentially valuable for their uses, giving the plants
	value beyond that of their fruits.
Short Description:	
Keyword:	antioxidant activities, antibacterial properties, ITS region, Passiflora, passion fruit
	cultivars, physicochemical properties
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Mapping the patterns and problems in using rural library services among rural youth in Malaysia
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Humanities and Nation Building
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Prof. Madya Dr. Siti Zobidah Omar
Researchers Name:	Siti Zobidah Omar, Jusang Bolong, Jeffrey Lawrence D'Silva, Hayrol Azril Mohamed Shaffril
Faculty / Institute / School / Academy:	Institute of Social Science Studies
Department / Laboratory:	Laboratory of Rural Advancement and Agriculture Extension
Expertise:	Communication Technology and Culture
Email:	majudesa.desa@gmail.com
Telephone (Office):	03-89471858
Fax:	03-89471856
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:Journal Publication
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	This study attempts to discover the pattern of rural library usage among rural youth in Malaysia and to determine the problems that are associated with such usage. The findings of this study provide an insight into youth usage of rural library services. The most obvious pattern that resulted from the findings is the connection between library usage and the availability of reading materials. Although all of the problems recorded a low mean score, a small percentage of the respondents claimed that rural libraries are congested with children, which was the main problem faced by the rural library users. A number of
	recommendations have been highlighted and it is expected that these can be used by concerned parties to further improve and develop rural library services.
Short Description:	,
Keyword:	Rural library, youth, community development, rural development, information development.
Advantages:	-

Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	INVESTIGATING THE INFLUENCE OF EXTERNAL VARIABLES AND MEDIATORS ON LEARNING MANAGEMENT SYSTEM UTILIZATION AMONG EDUCATION STUDENTS OF THREE MALAYSIAN RESEARCH UNIVERSITES
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Humanities and Nation Building
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Ahmad Fauzi bin Mohd Ayub
Researchers Name:	Sousan Baleghi-Zadeh, Rosnaini Mahmud, Shaffe Mohd Daud
Faculty / Institute /	Faculty of Educational Studies
School / Academy:	
Department /	Department of Foundations of Education
Laboratory:	
Expertise:	Mathematics Education, Computer Education, Integrating Technology in
	Teaching and learning
Email:	afmy@upm.edu.my
Telephone (Office):	03-89467913
Fax:	603-89468246
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:Journal of Education & Human
Publication / SD:	Development
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	This prototype is used to investigate the influence of external factors and
	mediators on Learning Management Systems utilization among full-time
	undergraduate students of faculties of education at Universiti Putra Malaysia
	(UPM), Universiti Kebangsaan Malaysia (UKM) and Universiti Malaya (UM) based
	on Technology Acceptance Model, Theory of Reasoned Action, and Fit Model. To
	this end, the influence of six external variables belonging to four categories and
	three mediators on LIVIS utilization were examined. The six external variables
	characteristics) technical support (Eacilitating conditions), subjective norm
	(social effects) and individual characteristics (Internet experience). The
	mediators were perceived usefulness perceived ease of use and behavior
	intention to use. This study was entirely quantitative with a descriptive design
	and a sample size 400. The main instrument used was a questionnaire including
	two parts. The first part collected demographic information and the second part

	measured the constructs of the study. The Structural Equation Modelling (SEM)
	technique was used for data analysis. After testing the measurement model, the
	construct of Internet experience was removed, and as a result, nine predictors of
	LMS use remained. The outcome of testing the structural model revealed that
	among the 16 paths of the structural model, 12 paths were significant and four
	were not. The results of mediation tests indicated that behavior intention to use
	indirectly mediated the influence of perceived ease of use on LMS use and fully
	mediated the influence of perceived usefulness on LMS use
Short Description:	
Keyword:	Learning Management System, system characteristics, social norms, mediators,
	Technology Acceptance Model, Fit Model
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A
Title	Fish Intestinal Bacteria: The Reliable and Inexpensive Water Pollution Indicators
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Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Environment and Energy
Leader Title:	Dr.
Leader Name:	Ali Karami Varnamkhasti
Researchers Name:	Ali Karami Varnamkhasti, Intan Syafirah Abdul Malek, Nurul Azurin Binti Badruzaman
Faculty / Institute / School / Academy:	Faculty of Medicine and Health Sciences
Department /	Department of Medicine
Laboratory:	
Expertise:	Water Pollution, Ecotoxicology
Email:	alikarami@upm.edu.my
Telephone (Office):	03-89472531
Fax:	03-89472395
Patent Status:	Yes, Patent No.: PI2011005383
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	Proper biomonitoring of water pollutants demands employing accurate, fast and
	cheap bioindicators. This invention explains how the abundance of
	Pseudomonas aeruginosa (a bacterial species) colonies in fish intestine can
	replace other costly and labour-intensive environmental pollution indicators
	such as enzymes and metabolites. The cost for analysing this bioindicator is 100
	MYR per 100 samples compared to the range of 600-10,000 MYR for the other
	biomarkers. Furthermore, this novel bioindicator can be employed by the
	aboratories that are equipped with routine facilities. Potential consumers for
	insproduct are ministry of environment, Petroleum companies, and Research
Short Description:	
Kowword:	Rigindicator Water Pollution Racteria Fich intercting
Advantages:	טווועוכמנטר, יעמנפר רטווענוטרו, סמכנפרומ, רוצור ווונפרוצנווופ
Market /	⁻
market /	

Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	Download Here

Title	A Review on the Dynamics of Knowledge on Sustainable Soil Management
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Humanities and Nation Building
Leader Title:	Dr.
Leader Name:	JEFFREY LAWRENCE D'SILVA
Researchers Name:	BAHAMAN ABU SAMAH, HAYROL AZRIL MOHAMED SHAFFRIL, MOHD ARMI ABU SAMAH, MOHD HAFISZUDDIN ARIFFIN
Faculty / Institute / School / Academy:	Institute of Social Science Studies
Department / Laboratory:	Laboratory of Rural Advancement and Agriculture Extension
Expertise:	SUSTAINABLE DEVELOPMENT
Email:	ild@upm.edu.mv
Telephone (Office):	03-89471862
Fax:	03-89471856
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:11(2):1133-1135
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	Soil management is an important element towards ensuring sustainability of the agriculture sector and the role of a number of dimensions are pertinent to ensure farmers gain adequate knowledge on sustainable soil management. The purpose of this paper is to review on the various factors that contribute towards the knowledge on sustainable soil management. Data were obtained from previous studies and it revealed that four dimension that influence knowledge on sustainable soil management are environment, economic, institution and personal. The findings of this review will provide the directions for future researchers that seek to investigate on the dynamics of knowledge on
	sustainable soil management.
Short Description:	
Keyword:	Agriculture, sustainable agriculture, soil management, extension agents, farmers.
Advantages:	-

Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Incident Investigator
Product /	-
Technology Name:	
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Applied Science and Engineering
Leader Title:	Prof. Dr.
Leader Name:	Ramlan Mahmod
Researchers Name:	Maryam Shahpasand, Ali Dehghantanha, Nur Izura Udzir
Faculty / Institute / School / Academy:	Faculty of Computer Science and Information Technology
Department /	Department of Computer Science
Laboratory:	
Expertise:	Information Security, Digital Forensic, Cryptography
Email:	ramlan@upm.edu.my
Telephone (Office):	03-89471721
Fax:	03-89466576
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:UPM/100-45/2 (C) - 18 December 2013
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	Natural disaster recovery, management and relied have been in practice since
	centuries. One of the particular recovery steps is tracing injured in disaster area.
	Our proposed application identifies the source and the location of photos that
	taking by Incident Response team, Recovery team or relief team. The tool helps
	them to find out the exact injured location in disaster area and preventing any
	conflict in relief and recovery processes. Moreover, identifying of the mobile
	phone brand, model and operating system can be one of the method to
	authenticate the team members. Natural disaster is a web-based application for
	identifying the source and the location of photos which taken through phone
	cameras by Incident Response team, Recovery team or relief team. The tool is
	based on "IMG-SID" tool which copyrighted by UPM (2013). "IMG-SID" is a
	platform-independent tool which runs on all operating system and focus on
	image source and location identification. The experimental results show the
	flexibility of the tool and it can be extendable for future enhancements. This
	software has many advantages such as reasonable price without installing any

	expensive hardware or software. Furthermore, it does not need to download or
	install any other programs or plugins. Also, portability and reusability are
	important features of developed tool. Other advantages consist of working at
	anywhere, User-friendly interface, adaptive toolbox design. These features
	provide high market potential in Disaster Relief, Incident Response and Recovery
	management teams. Potential price would be 14.99\$ per license and Selling
	forecast of the first year is 250,000\$ licenses. There is strong possibility for the
	product to penetrate the market.
Short Description:	
Keyword:	Natural Disaster, Relief, Incident Response, Recovery Managment
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	Download Here

Title	Formation and Physicochemical Characterization of Biocompatible Nanoemulsion-based Transdermal Delivery System Containing Fullerene for Cosmeceutical Application
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Applied Science and Engineering
Leader Title:	Prof. Dr.
Leader Name:	Mahiran Basri
Researchers Name:	Ngan Cheng Loong, Mahiran Basri, Roghayeh Abedi Karjiban, Emilia Abdul Malek, Minaketan Tripathy
Faculty / Institute / School / Academy:	Faculty of Science
Department /	Department of Chemistry
Laboratory:	
Expertise:	Biocatalysis, Oleochemistry
Effidii:	
	03-89407200
FdX.	Vac Datast No.
Paterit Status:	Yes, Palelii No.:
Publication / SD:	
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	Concealment of skin imperfections is no longer favourable in this modern society
	but the way forward is to beautify the skin from inside out. Invention of
	innovative emulsions emphasising on their functional aspects is the salient
	features in this research. A revolutionary treatment with fullerene as medicinal
	and therapeutic active to be delivered in colloidal system has been designed.
	Nanoemuision system of paim kernel oil esters (PKOEs)/Tween 80 and Span
	80/water containing fullerene was successfully formulated via high shear
	fullerene was further optimized by central composite and Poy Pehnken designs
	with the consideration of different independent variables. Ontimal formulations
	display enhanced physical stability with small dronlet size (150.4 nm) and high ?-
	potential (-54.1 mV) compared to the pre-formulation. Physicochemical
	characterisation of fullerene nanoemulsion was evaluated for its suitability in
	transdermal applications. The rheological characteristic of nanoemulsion

	demonstrated pseudoplastic behaviour which is well fitted into the power law
	model. Fullerene nanoemulsion exhibited considerable shelf life by remaining
	stable with no phase separation up to 90 days of storage under extreme
	environment conditions. The in vitro studies showed that fullerene
	nanoemulsions were non-toxic on fibroblast cells and did not induce any skin
	irritation. In accordance with the tenets of the Declaration of Helsinki, it revealed
	potential increase in collagen content in the skin of human subjects on
	completing 28 days of treatments.
Short Description:	
Keyword:	Nanoemulsion, fullerene, palm kernel oil esters, antioxidant, response surface
	methodology
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	An Approach on the Music Accompaniment for Sports routine
Product /	-
Fxhibition	Pameran Reka Cinta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Humanities and Nation Building
Leader Title:	Dr.
Leader Name:	Dr. Loo Fung Chiat
Researchers Name:	Loo Fung Chiat, Loo Fung Ying
Faculty / Institute /	Faculty of Human Ecology
School / Academy:	,
Department /	Department of Music
Laboratory:	
Expertise:	Music
Email:	fungchiat@hotmail.com
Telephone (Office):	03-89367126
Fax:	03-86561689
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:05052014
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	The composition came from a research to experiment with the approach of
	music accompaniment in sports routine. For many sports routines, it is
	customary that a routine was choreographed based on a selected music
	accompaniment. While many athletes are lacking in musical knowledge, there
	occur many problems particularly in music editing. Coaches and athlete also face
	where this interrupts the freedom in the chargegraphy. It is gathered that using
	the approach where music accompaniment is composed after the routine was
	choreograph provides much congruence between the music and movements
	from a visual perception amongst the audience. The experiment also showed
	that with this approach, the performance has a better quality from a visual
	perception. The potential consumers are athletes who involves in sports
	routine, including competition and any performance event.
Short Description:	
Keyword:	music, sports routine, congruence

Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Production of N-3 Enriched Goat Meat
Product /	-
Technology Name:	
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Agriculture and Food
Leader Litle:	Prof. Dr.
Leader Name:	Md Zuki bin Abu Bakar@Zakaria
Researchers Name:	Md Zuki bin Abu Bakar@Zakaria, Kamaleddin Abuelfatah, Goh Yong Meng, Awis Qurni Sazili
Faculty / Institute / School / Academy:	Faculty of Veterinary Medicine
Department /	Department of Veterinary Preclinical Sciences
Laboratory:	
Expertise:	Veterinary Anatomy
Email:	zuki@upm.edu.my
Telephone (Office):	03-89472102
Fax:	03-89472101
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.: ISSN1683-9919
Publication / SD:	DOI:10.3923/ajava.2013.775.785
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	The current study was conducted to increase n-3 PUFA fatty acids content in
	goat meat through feeding different levels of whole linseed as a source of n-3
	fatty acid, and investigate its effects on goat's growth performance, carcass
	characteristics, meat quality, and changes in rumen fermentation parameters
	and mucosa morphology. Twenty four, 5-months old crossbred Boer bucks were
	assigned equally (n=8) into three isocaloric and isonitrogenous treatment diets
	differed in the level of linseed. The diets L0, L10 or L20 contained 0%, 10% and
	20% (w/w) whole linseed, respectively. The animals were slaughtered after 110
	days of feeding period. The carcasses were dissected and samples from three
	muscles, longissimus dorsi (LD), supraspinatus (SS) and semitendinosus (ST), and
	from muscles were aged for 1 or 7 down of 1, 4 % hofers subjecting to the most
	auality and linid ovidation analyses. It is concluded that the both inclusion levels
	(10% and 20%) of linseed in goats' diets resulted in producing meat enriched

	with n-3 fatty acids with desirable n-6:n-3 ratio without any adverse effect on
	the growth performance, carcass characteristics and meat quality. Inclusion of
	linseed at 10% (w/w) resulted in improving goat carcass characteristics, while
	20% (w/w) resulted in improving gain:feed ratio and eating quality of goat meat.
	Goat meat has a potential to play important role in consumer health.
Short Description:	
Keyword:	Goat, linseed, fatty acids, meat quality, growth performance, tropical
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Effects of Heat treatment on Antioxidant Activity of Pleuroteus Sajor-caju Extract
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Agriculture and Food
Leader Title:	Dr.
Leader Name:	Wan Zuhainis Saad
Researchers Name:	Syahida Ahmad, Norhani Abdullah, Mahfuzatunajlaa Hashim
Faculty / Institute /	Faculty of Biotechnology and Biomolecular Sciences
School / Academy:	
Department /	Department of Microbiology
Laboratory:	
Expertise:	APPLIED MICROBIOLOGY, MYCOLOGY
Email:	zuhainis@upm.edu.my
Telephone (Office):	03-89466611
Fax:	03-89430913
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:International Journal of Food Properties
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	Mushrooms have been widely used since ancient times as a functional food as
	well as for therapeutic values. Many types of mushrooms have been studied and
	some of the examples of therapeutic properties include anticarcinogenic, anti-
	inflammatory and antimicrobial activities. Pleurotus sajor-caju, an edible
	mushroom also known as oyster mushroom with good flavour and taste. The
	aqueous extract of Pieurolus sajor-caju has been found to contain various
	polyphenolic compounds with excellent antioxidant activity due to their ability to
	is freeze dried and processed into powder form. The powder form of ovster
	mushroom then packed into bottles, packets and capsule forms. Consumer can
	directly consume the powder form to be added in their dishes or ingest the
	capsule daily. This product as antioxidant supplement, may be used to help the
	human body reduce oxidative damage.
Short Description:	-
Keyword:	Oyster mushroom, antioxidant, heat treatment

Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	Download Here

Title	Biobased oil nanoemulsion of azadirachtin for leaf sucking insect control
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Agriculture and Food
Leader Title:	Prof. Dr.
Leader Name:	Prof Dr Dzolkhifli Omar
Researchers Name:	Norhazwani, Rita Muhamad, Mahiran Basri
Faculty / Institute /	Faculty of Agriculture
School / Academy:	
Department /	Department of Plant Protection
Laboratory:	
Expertise:	Entomology
Email:	zolkifli@upm.edu.my
Telephone (Office):	03-89474842
Fax:	03-89381014
Patent Status:	Yes, Patent No.: PI2013701332
Copyright /	Yes, Copyright / Publication No. / SD No.:
Publication / SD:	
Industrial Design	Yes, Registration No.:
Trademark:	Ves Trademark No :
Abstract	The existing emulsifiable concentrate formulation of contact insecticide for
	insect control utilizes the petroleum based surfactant and carrier as the inert
	ingredients. The compounds are generally not safe and environmental friendly.
	Furthermore, the effectiveness against the sessile insect is generally poor due to
	the active ingredient (a.i.) not reaching the target. The solution is to prepare the
	oil emulsion using the biobased surfactant and carrier coupled with the plant
	based active ingredient. The oil nanoemulsion formulations of azadirachtin were
	prepared using plant based surfactant and carrier to provide safer and
	environment friendly alternative of conventional emulsion of synthetic
	insecticides. The formulations give surface tension value lower than 30 mN/m,
	range mean particle size of 158 -430 nm and zeta potential of 31 - 39 mV. The
	oil nanoemulsion formulations increased the effectiveness of azadiracthin by
	Increasing the spread factor of spray droplets that enable the a.i. to reach the
	Bemisia tabaci with the LC50 value of 3.7 ug/mL while other prepared

	formulations gave the value ranging from 6 - 14 ug/mL. The LC50 values are comparable with some of conventional organic based insecticides. The formulated products could be classified as class IV for their safety.
Short Description:	
Keyword:	Oil nanoemulsion, azadirachtin, Bemisia tabaci
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Carica papaya extracts that inhibit hypoxia-inducible factor activity
Product / Technology Name:	-
Fxhibition	Pameran Reka Cinta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Health and Well Being
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Norazizah Shafee
Researchers Name:	Norazizah Shafee, Eric J Stanbridge, Khatijah Yusoff, Sien-Yei Liew
Faculty / Institute /	Faculty of Biotechnology and Biomolecular Sciences
School / Academy:	, , , , , , , , , , , , , , , , , , , ,
Department /	Department of Microbiology
Laboratory:	
Expertise:	Molecular Biology
Email:	nshafee@upm.edu.my
Telephone (Office):	03-89466719
Fax:	03-89430913
Patent Status:	Yes, Patent No.: PI2013701142
Copyright /	Yes, Copyright / Publication No. / SD No.:
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	The present invention relates to the compounds and compositions that
	effectively block hypoxia-inducible factor (HIF) function and methods of use
	thereof. More specifically it relates to the use of Carica papaya plant extract to
	eliminate unwanted cells by inhibiting HIF. The compounds and compositions of
	the present invention are useful in the prevention and treatment of hypoxia-
	diseases, cancer and infectious diseases. As a result of extensive research for
	HIE-inhibitory drugs many reports of promising candidate were obtained from
	natural product-based resources including plants, marine sources and
	microorganisms (Zhang et al., 2006: Jianming et al., 2009: Dale et al., 2009). Our
	prior art search thus far failed to identify any information on the HIF inhibitory
	properties of C. papaya. We have discovered that methanolic extracts of C.
	papaya leaves had a potent inhibitory effect on HIF. This discovery is important
	in addressing the issues of the limited number of drug candidates for specific HIF
	inhibition. Cytotoxicity analyses showed that the C. papaya extracts caused high

	toxicity towards hypoxic cells but not normoxic cells. This specificity is crucial
	when one targets to eliminate only the hypoxic cells. Based on this specificity,
	adverse side effects of the extracts and their general toxicity on non-target cells
	will potentially be eliminated. Therefore, in this invention application, we are
	claiming the use of the C. papaya extracts as an inhibitor of HIF. Demand for HIF
	inhibitory drugs is tremendous. Elara Pharmaceuticals has estimated that the
	market for better-tolerated cancer treatments was valued at about USD 50
	billion in 2007 and is expected to grow to USD 65 billion by 2011. Out of this
	demand, Astella Pharma Inc. has estimated that the market size for HIF
	inhibitors is around USD 3-3.5 billion.
Short Description:	
Keyword:	Carica papaya, Hypoxia, Hypoxia-inducible factor, Cancer
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	N/A

Title	Nutramee- A lipophilic antioxidant noodle
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Agriculture and Food
Leader Title:	Prof. Dr.
Leader Name:	Prof. Dr. Lai Oi Ming
Researchers Name:	Lai Oi Ming, Tan Chin Ping, Lai Wee Ting, Voon Phooi Tee, MIskandar Mat Sahri, Nicholas Khong Mun Hoe
Faculty / Institute / School / Academy:	Institute of Bioscience
Department /	Laboratory of Molecular Biomedicine
Laboratory:	
Expertise:	Food biotechnology,Enzyme technology, Lipid technology
Email:	omlai@biotech.upm.edu.my
Telephone (Office):	03-89467520
Fax:	03-89467510
Patent Status:	Yes, Patent No.: PI 2013003615
Copyright /	Yes, Copyright / Publication No. / SD No.:
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	The red palm olein noodle produced has comparable flavor and texture to the dried Asian noodles. With the well-designed red palm olein delivery system, the phytonutrients are able to retain well through noodle processing and cooking process. Red palm olein is packaged in the microcapsules in the glassy state. With the use of this patented technology, the oxidative stability of the product was improved and the leaking of oil during cooking process can be solved.
Short Description:	
Keyword:	Noodle, red palm olein, tocols, carotenoids
Advantages:	-
Market /	-
Commercialisation Potential:	
Abstract Additional File:	N/A

ResearchOutput:	Download Here

Title	Induced Breeding Technique and Embryonic Development of Endangered Golden Carp Temoleh, Probarbus jullieni
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Agriculture and Food
Leader Title:	Dr.
Leader Name:	Dr. S. M. Nurul Amin
Researchers Name:	S. M. Nurul Amin, Mohd Hazmadi Bin Zakaria, Aziz Arshad, Annie Christiana, Mohammad Aminur Rahman
Faculty / Institute / School / Academy:	Faculty of Agriculture
Department /	Department of Aquaculture
Laboratory:	
Expertise:	Fisheries Biology
Email:	smnabd@gmail.com
Telephone (Office):	03-89474891
Fax:	03-89408311
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:Publication
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	Embryonic and larval developments of endangered golden carp Temoleh, Probarbus jullieni were investigated in lab-rearing condition. The matured egg and sperm were collected by stripping the brood stocks after injecting with ovaprim hormone extract. The samples of embryonic stages were collected from hatching tank at every 10 min interval for the first hour, 20 min for the second hour, 30 min for the third hour and then hourly interval up to hatching. The fertilized eggs were spherical, demersal, adhesive and brownish-yellow in colour with a mean diameter of 2316 μ m. Stages of the embryonic development observed expand from cleavage, followed by blastula, morula, early gastrula, middle gastrula, late gastrula, organogenesis and hatching. Hatching was started 22 h post-fertilization and completed within 25 h at temperature ranged from
	26.0 to 28.0 °C. After hatching, larvae were observed daily until the complete disappearance of the yolk sacs. The yolk sac was completely absorbed after 61 h of hatching. At the same time, the larvae started to swim actively and feed

	exogenously. This is the first description on the early development stages of P.
	jullieni. The present study provide some valuable information on the ontogeny,
	breeding biology and early larval rearing protocol of P. jullieni which will
	ultimately be helpful towards the establishment of large scale seed production
	technique for conservation of endangered P. jullieni and aquaculture Production
Short Description:	
Keyword:	Endangered Temoleh, Induced breeding, Embryonic development
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	An Anomaly-Based IDS Inspired by Human Body Defense System
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Mathematical Sciences and ICT
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Assoc. Prof. Dr. Nur Izura Udzir
Researchers Name:	Nur Izura Udzir, Mohammad Mahboubian, Nor Asila Wati Abdul Hamid, Shamala Subramaniam
Faculty / Institute / School / Academy:	Faculty of Computer Science and Information Technology
Department /	Department of Computer Science
Laboratory:	
Expertise:	Information Security
Email:	izura@upm.edu.my
Telephone (Office):	03-89471747
Fax:	03-89466577
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:IJCTE, Vol.5(3): 578-581. ISSN: 1793-
Publication / SD:	8201
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	We developed an IDS called Danger Theory Negative Selection Based IDS (DNSIDS) which is capable of detecting new computer attacks without any prior knowledge about them. This IDS which is designed based on principles of human body defense systems, is able to operate in highly dynamic environments where maintaining a normal behavior of the environment is very difficult or impossible due to frequent changes in the environment. Furthermore, provided that the IDS is able to keep the false alarm and false negative rates low and acceptable.
Short Description:	
Keyword:	IDS, Anomaly Detection, artificial immune system, Negative Selection, Clonal Selection, Danger Signal
Advantages:	-
Market /	-
Commercialisation	
Potential:	

Abstract Additional	Download Here
File:	
ResearchOutput:	N/A

Title	Development of Rural Herbal Entrepreneurship in Malaysia
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Humanities and Nation Building
Leader Title:	Prof. Dr.
Leader Name:	AZIMI HAMZAH
Researchers Name:	Kamal Chandra Paul, Azimi Hamzah, Bahaman Abu Samah, Ismi Arif Ismail & Jeffrey Lawrence DSilva
Faculty / Institute / School / Academy:	Institute of Social Science Studies
Department / Laboratory:	Laboratory of Rural Advancement and Agriculture Extension
Expertise:	Rural Advancement
Email:	pharmacistpaul@gmail.com
Telephone (Office):	03-89471874
Fax:	03-89471856
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:8(18):95-100
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
	among rural Malay herbal entrepreneurs in Malaysia. As this was an exploratory research, a case study method was used as it gave an in-depth explanation on the issues regarding rural herbal entrepreneurship. This study was conducted in MAHA (Malaysia Agriculture, Horticulture & Agritourism), Serdang, Selangor with ten herbal entrepreneurs - five successful entrepreneurs and five unsuccessful entrepreneurs. The result suggested that customer service know-how of the business and the past experience of the entrepreneur are the major key factors of success. On the other hand, failure factors are explored and the most crucial ones are the lack of access to financial support from appropriate government organization, poor infrastructure as well as corruption. This paper has vast implications for the rural herbal entrepreneurs as it gives insight into the reasons
Short Description:	and factors that brought about failures and successes.

Keyword:	entrepreneurship, herbal, success factors, technology implementation
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Approach FERNITA
-
Pameran Reka Cinta, Penyelidikan dan Inovasi (PRPI) 2014
Applied Research (B)
Materials Science and Technology
Assoc Prof Dr
Edi Subaimi Bakar
Edi Suhaimi Bakar, Zaidon Ashaari, Adrian Choo Cheng Yong, Al-Hasan Yakubu Abare
Faculty of Forestry
Department of Forest Production
Wood Science and Technology, Wood Machining
edisuhaimi@upm.edu.my
03-89467165
03-89432514
Yes, Patent No.: PI2014700947
Yes, Copyright / Publication No. / SD No.:
Yes, Registration No.:
Yes, Trademark No.:
The invention is a new practical and efficient processing method for producing resin impregnated and compressed oil palm wood ('compreg' OPW) from underutilized oil palm trunks. The method consists of a 6-step process
pressing) characterized with an integrated objective approach. The trunk is first debarked with a peeler and sawed with a modified sawing method (reverse cant
sawing) not for producing square timbers, but waney timbers that can be processed into 'compreg' OPWs. OPW is not dried in the usual manner, but is first compressed to a certain extent so that the initial moisture content is forcibly reduced which creates micro-cracks. This reduced moisture content and micro- cracks quicken the drying by a factor of 10 (from 30-35 days to only 3 days) without concern on excessive drying defects. The formation of micro-cracks also facilitates resin introduction that can be carried out by just a simple soaking

	factor of 3 (from 5-8 hours to 24-30 hours). It is proven that the method is
	capable to produce 'compreg' OPW with properties comparable to those
	produced by the existing 5-step method. The use of this method to produce
	'compreg' OPW should be much cheaper and more economically viable to the
	wood industry. With such characteristics, this patented method has a big
	market/commercialization potential, both locally and globally.
Short Description:	
Keyword:	'compreg' oil palm wood, integrated objective approach, reverse cant sawing,
	compression, micro-cracks.
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	Download Here

Title	Biopesticide of selected medicinal plant Extracts against root rot of Fungal Diseases
Product / Technology Name:	-
Exhibition:	Pameran Reka Cinta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Agriculture and Food
Leader Title:	Dr.
Leader Name:	Dr. Normala Bt Halimoon
Researchers Name:	Rozihawati Zahari, Normala Halimoon, Ahmad Said Saiap, Mohd Farid Ahmad
	and Mohamad Roslan Mohamed
Faculty / Institute / School / Academy:	Faculty of Environmental Studies
Department /	Department of Environmental Sciences
Laboratory:	
Expertise:	Environmental Biotechnology
Email:	normalahalimoon@gmail.com
Telephone (Office):	03-89466743
Fax:	03-89467463
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:10.11648/j.jps.20140201.16
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	Abstract: Root rot disease of fungal such as Ganoderma philippii, Phellinus noxius and Rigidoporus microporus are well known destructive fungus to plant root. The in vitro antifungal screening of selected medicinal plants was studied against the disease. The twelve of Malaysian medicinal plants including the leaves of Aglaia argentea, A. leucophylla, A. grandis, A. odorata, A. odoratissima, A. varrisquama, Alium sativum (bulbs) and Cassia alata, Catharanthus roseus stems and leaves, Derris elliptica leaves and Tinospora baenzigeri stems were extracted using different types of solvents extraction i.e, dichloromethane (DCM), acetone and methanol at the concentration of 20 mg/mL. The extracts were studied for antifungal activities against three species of fungal disease including G. Philippii, P. noxius and R. microporus. The antifungal activities of the extracts were determined by the presence or absence of fungal inhibition zone growth on Potato dextrose agar (PDA). The extracts shows a significant results

	acetone extracts of C. roseus stems had the highest antifungal activities against
	R. microporus fungus compared to methanolic extract. On the other hand,
	acetone extracts of A. argentea leaves also gave the highest antifungal activities
	against G. philippii compared to other extracts. However, all of the extracts
	didn't show any inhibition zone on P. noxius culture. In general, the DCM
	extracts of C. roseus stems contain the most of bio-antifungal of active
	compounds against R. microporus of fungal disease. This bio-product are
	potential inhabit the growth of plant fungal and safe apply to the environment.
Short Description:	
Keyword:	Bio-antifungal activity, medicinal plants, root rot, fungal disease.
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Mapping of Novel Genes (QTLs) for Field Resistance to the Malaysian Rice Blast Pathogen
Product /	-
Exhibition	Pameran Reka Cinta, Penyelidikan dan Inovasi (PRPI) 2014
	Fundamental (A)
Cluster:	Agriculture and Food
Leader Title:	Prof. Dr.
Leader Name:	Prof. Dr. Mohd Rafii Yusop
Researchers Name:	Sadegh Ashkani, Mohd Rafii Yusop, Abdul Rahim Harun
Faculty / Institute /	Faculty of Agriculture
School / Academy:	
Department /	Department of Crop Science
Laboratory:	
Expertise:	Plant Breeding and Genetics
Email:	mrafii@upm.edu.my
Telephone (Office):	03-89471149
Fax:	03-89381612
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.: 1560-8530
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	Rice (Oryza sativa) as main food source is one of the most commonly cultivated crops in the world. Blast, disease caused by Magnaporthe oryzae (formerly
	known as Magnaporthe grisea is one of the major fungal diseases infected rice
	production worldwide. Chromosomal locations of genes conferring quantitative
	SSRs markers' linkage manning and quantitative trait locus (OTL) analysis. Rice 52
	families derived from the cross between a suscentible rice cultivar. Mabsuri and
	a local resistant rice variety. Pongsu Seribu 2 were used and their partial
	resistance to leaf blast was assessed in blast nurseries. A linkage map covering
	ten chromosomes and consisting of 63 SSR markers was constructed. A total of
	28 QTLs including 9 putative QTLs with Logarithmic of Odds (LOD) > 3.0 or
	LRS >15) and 19 suggestive QTLs, LOD < 3.0 or LRS <15) was detected on
	chromosomes 1, 2, 3, 5, 6, 10, 11 and 12 in the map. Three traits were studied
	for their QTLs, variation for the trait caused by a specific region and gene action
	associated with the QTL (additive and dominant effect) were also found. The

	largest-effect QTL in this study was found on chromosome 6 for qRBr-6.1 locus at
	Rivi8225 and explained 16 %, of the total phenotypic variance. It was found that
	partial resistance to blast in F3 population studied is due to the combined effects
	of multiple loci with major and minor effects or different QTLs.
Short Description:	
Keyword:	Rice blast disease, SSR markers, Linkage map, QTL mapping
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Motorcycle Seat With Built- In Lumbar Support
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Applied Science and Engineering
Leader Title:	Prof. Dr.
Leader Name:	Karmegam Karuppiah
Researchers Name:	Karmegam Karuppiah, Mohd Sapuan B. Salit, Shamsul Bahri Mohd Tamrin, Kulanthayan K.C. Mani, Mohd Yusof Ismail, Napsiah Bt. Ismail, Mohd Nazrol Bin Md. Ali, Sivasankar Sambasivam
Faculty / Institute /	Faculty of Medicine and Health Sciences
School / Academy:	
Department /	Department of Community Health
Laboratory:	
Expertise:	Ergonomic, Human Factor Engineering
Email:	megam@upm.edu.my
Telephone (Office):	03-89472513
Fax:	03-89472395
Patent Status:	Yes, Patent No.: PI 2013701235
Copyright /	Yes, Copyright / Publication No. / SD No.:
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	This invention (designing and developing a prototype of built-in lumbar support
	in motorcycle seat for the riders and co-riders usage with corresponding to their
	anthropometric dimensions) will provide comfort to the motorcyclists during the
	riding process. It will consist of two basic parts. The first part is the base frame of
	lumbar support which is fixed to the seat frame. The second parts are the lumbar
	support itself, which are slot into the base frame from the top of the closed seat.
	Inis lumbar support will provide support to the rider and co-rider individually.
	Furthermore, this prototype also can be adjustable in x-axis, y-axis direction and
	angles. Additionally, it also can be easily removed (either one or both lumbar support) if preferred by the riders or so riders
Short Description:	support in preferred by the fluers of co-fluers.
Short Description:	
	IVIOTORCTCLE, IVIOTORCTCLE SEAT, LUIVIBAR SUPPORT, COMIFORT
Auvantages:	-

Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	Download Here

Title	CPU AVAILABILITY PREDICTOR AND MACHINE RECOMMENDER FOR A DESKTOP GRID
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Mathematical Sciences and ICT
Leader Title:	Dr.
Leader Name:	Rohaya Latip
Researchers Name:	Mohammad Yaser Shafazand, Sazlinah Hasan
Faculty / Institute / School / Academy:	Faculty of Computer Science and Information Technology
Department / Laboratory:	Department of Communication Technology and Network
Expertise:	Distributed database, Network Management, Grid and Cloud Computing
Email:	rohayalt@upm.edu.my
Telephone (Office):	03-89471729
Fax:	03-89466577
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:12 August 2014
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	Desktop grid computing has emerged from the concept of providing relatively large amounts of computing power for little cost using typical desktop machines. Efficiently using resources has complications due to their volatile state. The scheduler, being responsible for appropriate job dissemination, needs accurate job runtime estimations for an efficient resource management. Distance, high diversity, distributed resource ownership and intermittent availability of resources make it more complicated for predictions. Though there has been many successful work on resource state predictions, but the overhead of these systems has been less considered in designing the architecture. Another issue for the desktop grid scheduler is to appropriately match a suitable desktop machine (resource provider) to a job. Machines that have enough available resources to satisfy the job requirements and which are predicted to finish the job as soon as possible, must be selected. As a solution to these problems we introduce Desktop Grid CPU Availability Predictor and Machine Recommender (DGAPMR)

	to use recommender systems for desktop grids for more efficient scheduling. It uses a distributed predicting mechanism with low overhead. The recommender assists the scheduler without interfering with its current tasks or replacing its processes.	
Short Description:		
Keyword:	Desktop Grid, Prediction, Availability, Scheduling	
Advantages:	-	
Market /	-	
Commercialisation		
Potential:		
Abstract Additional	Download Here	
File:		
ResearchOutput:	Download Here	
Product / - Technology Name: - Exhibition: Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014 Category: Fundamental (A) Cluster: Agriculture and Food	Title	Microencapsulation of Purified Amylase Enzyme from Pitaya (Hylocereus polyrhizus) Peel in Arabic Gum-Chitosan using Freeze Drying
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Exhibition:Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014Category:Fundamental (A)Cluster:Agriculture and Food	Product / Technology Name:	-
Category:Fundamental (A)Cluster:Agriculture and Food	Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Cluster: Agriculture and Food	Category:	Fundamental (A)
	Cluster:	Agriculture and Food
Leader Title: Dr.	Leader Title:	Dr.
Leader Name: Mehrnoush Amid	Leader Name:	Mehrnoush Amid
Researchers Name: Mehrnoush Amid, Mohd Yazid ABD Manap	Researchers Name:	Mehrnoush Amid, Mohd Yazid ABD Manap
Faculty / Institute / Faculty of Food Science and Technology	Faculty / Institute /	Faculty of Food Science and Technology
School / Academy:	School / Academy:	
Department / Department of Food Technology	Department /	Department of Food Technology
Laboratory:	Laboratory:	
Expertise: Food Enzyme Biotechnology	Expertise:	Food Enzyme Biotechnology
Email: mehrnoush@upm.edu.my	Email:	mehrnoush@upm.edu.my
Telephone (Office): 03-89468413	Telephone (Office):	03-89468413
Fax: 03-89423552	Fax:	03-89423552
Patent Status: Yes, Patent No.:	Patent Status:	Yes, Patent No.:
Copyright / Yes, Copyright / Publication No. / SD No.:vbkjnpo	Copyright /	Yes, Copyright / Publication No. / SD No.:vbkjnpo
Publication / SD:	Publication / SD:	
Industrial Design Yes, Registration No.:	Industrial Design	Yes, Registration No.:
Registration:	Registration:	
Trademark: Yes, Trademark No.:	Trademark:	Yes, Trademark No.:
application in various industries and biotechnological processes. In this study, amylase enzymefrom Hylocereus polyrhizus was encapsulated for the first time in an Arabic gum-chitosan matrix using freeze drying. The encapsulated amylase retained complete biocatalytic activity and exhibited a shift in the optimum temperature and considerable increase in the pH and temperature stabilities compared to the free enzyme. Encapsulation of the enzyme protected the activity in the presence of ionic and non-ionic surfactants and oxidizing agents (H2O2) and enhanced the shelf life. The storage stability of amylase is found to markedly increase after immobilization and the freeze dried amylase exhibited maximum encapsulation efficiency value (96.2%) after the encapsulation process. Therefore, the present study demonstrated that the encapsulation of the enzyme in a coating agent using freeze drying is an efficient method to keep		application in various industries and biotechnological processes. In this study, amylase enzymefrom Hylocereus polyrhizus was encapsulated for the first time in an Arabic gum-chitosan matrix using freeze drying. The encapsulated amylase retained complete biocatalytic activity and exhibited a shift in the optimum temperature and considerable increase in the pH and temperature stabilities compared to the free enzyme. Encapsulation of the enzyme protected the activity in the presence of ionic and non-ionic surfactants and oxidizing agents (H2O2) and enhanced the shelf life. The storage stability of amylase is found to markedly increase after immobilization and the freeze dried amylase exhibited maximum encapsulation efficiency value (96.2%) after the encapsulation process. Therefore, the present study demonstrated that the encapsulation of the enzyme in a coating agent using freeze drying is an efficient method to keep
the enzyme active and stable until required in industry.	Short Description:	the enzyme active and stable until required in industry.

Keyword:	microencapsulation; freeze-drying; scanning electron microscope; amylase;
	chitosan; Arabic gum; stability; efficiency
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Dragon Fruit Foliage as potential low cost bioadsorbent for colour removal
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Applied Science and Engineering
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Zurina Zainal Abidin
Researchers Name:	Zahra Haddadian, Mohd Halim Shah Ismail, Fakhru'l-Razi Ahmadun
Faculty / Institute /	Faculty of Engineering
School / Academy:	
Department /	Department of Chemical and Environmental Engineering
Laboratory:	
Expertise:	Biochemical Engineering, Microfluidics, Sensor, Separation
Email:	zurina@upm.edu.my
Telephone (Office):	03-89464371
Fax:	03-86567120
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:Chem Sci Trans., 2013, 2(3), 900-910
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	In this work the use of agricultural waste, dragon fruit foliage, has been explored
	as potential low cost biosorbent. Agricultural wastes are known to be an
	excellent source of lignin and cellulose; both structures consist of polar
	functional groups such as alcohols, aldehydes, ketones and phenolic hydroxides
	which are responsible for chemical adsorption. In recent years, low-cost
	agricultural wastes has provide an alternative to waste to wealth issues. Dragon
	Truit tonage (DFF) is another agricultural by-product obtained by pruning dragon
	truit trees and is mostly treated as waste. In the present work, we investigated
	material for the removal of colour from acucous solutions. The biosorbent is
	naterial for the removal of colour from aqueous solutions. The biosof bell is
	also provide an alternative solution to environmental problem and convert
	waste to wealth.
Short Description:	
Keyword:	Adsorption, low cost, agricultural waste. color removal. waste-to-wealth
- /	

Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Omega-3 enriched chevon from goats fed oil palm (Elais guineensis Jacq.) fronds lowers plasma cholesterol levels in rats
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Agriculture and Food
Leader Title:	Prof. Dr.
Leader Name:	Mohamed Ali rajion
Researchers Name:	MOHAMED ALI RAJION, GOH YONG MENG, AWIS QURNI SAZALI, MAHDI EBRAHIMI
Faculty / Institute / School / Academy:	Faculty of Veterinary Medicine
Department /	Department of Veterinary Preclinical Sciences
Laboratory:	
Expertise:	Nutritional Physiology
Email:	mohdali@upm.edu.my
Telephone (Office):	03-86093411
Fax:	03-89471971
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:Publication
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	According to the lipid hypothesis, abnormal cholesterol levels (hypercholesterolemia) is strongly associated with cardiovascular diseases because they promote atheroma development in arteries (atherosclerosis). This disease process leads to myocardial infarction (heart attack), stroke, and peripheral vascular disease. In this study, control chevon (goat meat) and omega-3 fatty acid enriched chevon were obtained from goats fed a commercial goat concentrate and a 50% oil palm frond diet, respectively for 100 days, respectively. Goats fed the 50% oil palm frond diet contained high amounts of - linolenic acid (ALA) in their meat compared to the goats fed the control diet. Their chevon was then used to prepare two types of feed pellets (control or enriched chevon) that were then fed to twenty four-month-old male Sprague- Dawley rats (10 in each group) for 12 weeks to evaluate their effects on plasma
	cholesterol levels, tissue fatty acids, and gene expression. There was a significant increase in ALA and docosahexaenoic acid (DHA) in the muscle tissues and liver

	of the rats fed the omega-3 fatty acid enriched chevon compared with the
	control group. Plasma cholesterol also decreased in rats fed the omega-3 fatty
	acid enriched chevon compared to the control group. The rat pellets containing
	omega-3 fatty acid enriched chevon significantly upregulated the key
	transcription factor PPAR-? and downregulated SREBP-1c expression relative to
	the control group. The results showed that the omega-3 fatty acid enriched
	chevon increased the omega-3 fatty acids in the rat tissues and altered the
	PPAR-? and SREBP-1c gene expression.
Short Description:	
Keyword:	Fatty Acids, Omega-3, Cholesterol, Rat, Gene Expression
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Molecular Insight into Structure and Stability of DNA in Ionic Liquids
Product /	-
Exhibition:	Pameran Reka Cinta, Penyelidikan dan Inovasi (PRPI) 2014
	Fundamental (A)
Cluster:	Riosystems and Riotechnology
Leader Title	Prof Dr
Leader Name	Mohd Basvaruddin Abdul Bahman
Researchers Name	Khairulazhar lumbri, Haslina Ahmad, Emilia Abdulmalek and Nuno Miguel
Researchers Nume.	Micaelo
Faculty / Institute / School / Academy:	Faculty of Science
Department /	Department of Chemistry
Laboratory:	
Expertise:	Chemical Biology
Email:	basya@upm.edu.my
Telephone (Office):	03-89466798
Fax:	03-89435380
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:PCCP, 2014, 16, 1403646
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	Molecular dynamics (MD) and experimental spectroscopic analysis were employed to reveal the characteristics and influence of ionic liquids (ILs) on the structural properties of double stranded DNA. Both computational and experimental results indicate that DNA retains its native B-conformation in ILs
	Alkyl chain lengths of ILs' cations contribute in a small way to DNA stability. Strong electrostatic attraction between ILs' cations and the DNA phosphate
	simulations also reveal the contribution of hydrogen bonds between the imidazole ring cation and DNA major and minor grooves. The results also indicated that DNA maintain its duplex conformation when solvated by ILs at
	suggests that the thermal stability of DNA at high temperatures is related to the solvent thermodynamics, especially entropy and enthalpy of water. The hydration shells around the DNA phosphate group were the main criterion for

	stabilization of DNA in hydrated ILs. Stronger hydration shells prevent or reduce
	the binding ability of IL cations to the DNA phosphate group, thus destabilizing
	the DNA. Fluorescent dye displacement proved that a strong interaction exists
	between ILs and DNA, while CD spectra confirms the existence of double-
	stranded DNA even at high concentration of ILs. UV-Vis spectra indicates that the
	denaturation/melting temperature of DNA increases with increasing
	concentrations of ILs.
Short Description:	
Keyword:	Molecular dynamics, DNA, ionic liquids, hydration shells, solvation
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	N/A

Title	Elite Chili Pepper Genotypes with high capsaicin and antioxidant properties for the pharmaceutical industries.
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Agriculture and Food
Leader Title:	Prof. Dr.
Leader Name:	MOHD RAFII YUSOP
Researchers Name:	MOHD RAFII YUSOP, USMAN MAGAJI, MOHD RAZI ISMAIL, MD ABDUL LATIF, MD ABDUL MALEK
Faculty / Institute / School / Academy:	Institute of Tropical Agriculture
Department / Laboratory:	Laboratory of Food Crops and Floriculture
Expertise:	PLANT BREEDING AND GENETICS
Email:	mrafii@upm.edu.my
Telephone (Office):	03-89471149
Fax:	03-89381612
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:MOLECULES
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	Chili pepper, which belongs to the genus Capsicum contains capsaicinoids, alkaloid compounds that produce the pungency associated with eating chilies. The two major capsaicinoids are capsaicin (N-[(4-hydroxy-3-methoxypheny) methyl]-8-methyl-E-6-nonenamide) and dihydrocapsaicin (N-[(4-hydroxy-3- methoxyphenyl)methyl]-8-methyl-6-nonanamide) which comprise over 90% of the total present in the fruit . Capsaicin is a flavourless, odourless and colourless compound found in varying amounts in peppers. Capsaicin is the active element in pepper, which accounts for its prominent pharmaceutical and antioxidant properties. Research has shown that the more the capsaicin, the hotter the pepper, and the higher the antioxidant level. Research was carried out to estimate the levels of capsaicin and dihydrocapsaicin that may be found in some heat tolerant chili pepper genotypes and to determine the degree of pungency as well as percentage capsaicin content of each of the analyzed peppers. The Using Ultra-East Liquid Chromatography (UELC) method was applied to

	determine the content of capsaicin and dihydrocapsaicin contents of twenty-one
	pepper genotypes and their corresponding pungency levels. Genotypes
	AVPP0705, AVPP0506, AVPP0104, AVPP0002, C05573 and AVPP0805 showed
	the highest concentration of capsaicin (12,776, 5,828, 4,393, 4,760, 3,764 and
	4,120 μ g/kg) and the highest pungency level, whereas AVPP9703, AVPP0512,
	AVPP0307, AVPP0803 and AVPP0102 recorded no detection of capsaicin and
	hence were non-pungent. All chili peppers studied except AVPP9703, AVPP0512,
	AVPP0307, AVPP0803 and AVPP0102 could serve as potential sources of
	capsaicin. On the other hand, only genotypes AVPP0506, AVPP0104, AVPP0002,
	C05573 and AVPP0805 gave a % capsaicin content that falls within the pungency
	limit that could make them recommendable as potential sources of capsaicin for
	the pharmaceutical industry.
Short Description:	
Keyword:	capsaicin; dihydrocapsaicin; ultra-fast liquid chromatography; chili pepper;
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

- Pameran Reka Cinta, Penyelidikan dan Inovasi (PRPI) 2014
Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Fundamental (A)
Humanities and Nation Building
Assoc. Prof. Dr.
JAMILAH OTHMAN
CHAN LING MENG, JAMILAH OTHMAN, JEFFREY LAWRENCE D'SILVA, ZAHARAH OMAR
Institute of Social Science Studies
Laboratory of Social Change, Economy and Peace Studies
PEACE STUDIES
clingmeng@gmail.com
03-89471862
03-89471856
Yes, Patent No.:
Yes, Copyright / Publication No. / SD No.:7(6):66-73
Yes, Registration No.:
Yes, Trademark No.:
Previous literature had proposed that individuals tend to use neutralization to motivate their decisions to engage in deviant behaviours. This indicated that even though students have strong motivations not to cheat may do so anyway after employing neutralizing strategies. Hence, this study attempted to examine the role of neutralization in influencing students' attitude towards academic dishonesty. Students tend to use neutralization technique in order to free themselves from feeling guilty in engaging academic dishonesty. Besides that, it also attempted to study the reasons behind college student academic cheating behaviours. This study employed 620 randomly selected students from six different academic institutions. Results supported that students who engaged in academic dishonesty differ significantly from those who did not engage in this deviant behaviour with respect to their tendency to neutralize cheating. Results showed that cheating and neutralization were positively correlated among

	techniques explained why students acknowledged that cheating is wrong but still
	chose to do it anyway.
Short Description:	
Keyword:	neutralization attitude, academic dishonesty, students
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Institutional quality thresholds and the finance - Growth nexus
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Business, Economics and Governance
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Law Siong Hook
Researchers Name:	Wan Azman Saini Wan Ngah, Mansor H Ibrahim
Faculty / Institute / School / Academy:	Faculty of Economics and Management
Department /	Department of Economics
Laboratory:	
Expertise:	Financial Economics
Email:	lawsh@upm.edu.my
Telephone (Office):	03-89467768
Fax:	03-89486188
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:Journal of Banking and Finance, 12,
Publication / SD:	5373-5381
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	Using an innovative threshold estimation technique, this study examines whether the growth effect of financial development in countries with distinct levels of institutional development differs. The results demonstrate that there is a threshold effect in the finance-growth relationship. Specifically, we found that the impact of finance on growth is positive and significant only after a certain threshold level of institutional development has been attained. Until then, the effect of finance on growth is non existent. This finding suggests that the financial development-growth nexus is contingent on the level of institutional quality, thus supporting the idea that better finance (i.e., financial markets embedded within a sound institutional framework) is potent in delivering long- run economic development.
Short Description:	
Keyword:	Finance, Economic growth, Institutions, Threshold effects
Advantages:	-
Market /	-

Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Use of Multiple-Field, High Resolution, 27Al Solid-state MAS NMR Spectroscopy to Follow Phase Optimisation of YAG Nanopowders
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Materials Science and Technology
Leader Title:	Dr.
Leader Name:	Raba'ah Svahidah Azis
Researchers Name:	Diane Holland, M.E.Smith, A.P.Howes, Mansor Hashim and Jumiah Hassan
Faculty / Institute /	Faculty of Science
School / Academy:	,
Department /	Department of Physics
Laboratory:	
Expertise:	Materials Physics, Material Science and Magnetic Materials
Email:	rabaah@upm.edu.my
Telephone (Office):	03-89466666
Fax:	03-89454454
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:ISSN 0004-881X
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	This paper will report the use of 27AI magic angle spinning nuclear magnetic resonance (MAS NMR) at three different fields (8.45 T, 11.5 T, 14.1 T) to follow the optimisation of a sol-gel process to produce yttrium aluminium garnet, Y3AI5O12 (YAG), at moderate temperatures. 27AI nuclei is a quadrupolar nucleus with spin I = 5/2 and the nuclear quadrupole moment arising from the non- spherical distribution of nuclear electrical charge interacts with electric field gradients at the nucleus. This electric quadrupole interaction strongly broadens and distorts the NMR signal in the solid-state spectra from powders. These perturbing effects can be reduced by using higher magnetic fields. 27AI MAS NMR is shown to be a highly sensitive tool to determine the presence of the impurity phase, yttrium aluminium perovskite, YAIO3 in the sol-gel synthesis of YAG, allowing optimisation of the process to be investigated. Single phase, polycrystalline YAG has now been successfully synthesized, using this optimised sol-gel process, at temperatures as low as 800 oC. Simulation of spectra obtained

	shifts, quadrupolar coupling constants and asymmetry parameters for the
	tetrahedral and octahedral aluminium sites of YAG at different stages of
	synthesis, giving insights into the phase development.
Short Description:	
Keyword:	Y3AI5O12 (YAG), YAIO3 (YAP), sol-gel, 27AI MAS NMR
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Approximating the singular integrals of Cauchy type with weight function on the interval
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Agriculture and Food
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Zainidin Eshkuvatov
Researchers Name:	Zainidin Eshkuvatov, Nik Mohd Asri Nik Long
Faculty / Institute /	Institute of Mathematical Research
School / Academy:	
Department /	Laboratory of Computational Sciences and Informatics
Laboratory:	
Expertise:	Computational Mathematics
Email:	zainidin@upm.edu.my
Telephone (Office):	03-89466855
Fax:	03-89466855
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:NRIC: 490314-05-5093
Publication / SD:	
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	It is known that the solutions of characteristic singular integral equations (SIEs)
	are expressed in terms of singular integrals of Cauchy type with weight functions of 4 forms. New quadrature formulas (QFs) are presented to approximate the singular integrals (SIs) of Cauchy type for all solutions of characteristic SIE on the interval [?1, 1]. Linear spline interpolation, modified discrete vortex method and product quadrature rule are utilized to construct the QFs. Estimation of errors are obtained in the classes of functions H(?)([?1, 1], A) and C^1([?1, 1]). It is found that the numerical results are very stable even for the cases of semibounded and unbounded solutions of singular integral equation of the first kind.
Short Description:	
Keyword:	Singular integral, Singular integral equations Quadrature formula, Discrete vortex method, Approximation, Spline
Advantages:	-
Market /	-
Commercialisation	

Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	N/A

Title	A copper-chaperone among "orphan" proteins of Bacillus lehensis G1: Its 3D macromolecular structure and association with Cytochrome C Oxidase
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Biosystems and Biotechnology
Leader Title:	Dr.
Leader Name:	Normi Mohd Yahaya
Researchers Name:	Tan Soo Huei, Yahaya M. Normi, Adam Thean Chor Leow, Abu Bakar Salleh, Roghayeh Abedi Karjiban, Abdul Munir Abdul Murad, Nor Muhammad Mahadi, Mebd Basyaruddin Abdul Babman
Eaculty / Instituto /	Faculty of Piotochaology and Piomologylar Sciences
School / Academy:	Faculty of Biotechnology and Biomolecular Sciences
Department /	Department of Cell and Molecular Biology
Laboratory:	
Expertise:	Molecular and Structural Biology
Email:	normimy@gmail.com
Telephone (Office):	03-89471941
Fax:	03-89467510
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:Publication
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	At least a quarter of any complete genome encodes for hypothetical proteins
	(HPs) which are largely non-similar to other known, well-characterized proteins.
	Predicting and solving their structures and functions is imperative to aid
	understanding of a complete biological system. The present study highlights the
	primary effort to classify and cluster 1202 HPs of Bacillus lehensis G1 pathogen
	and alkaliphile to serve as a platform to mine and select specific HP(s) to be
	to functional domains in their sequences. From the metal hinding group of the
	cluster an HP termed Bleg1, 2507 was discovered to contain a thioredoyin (Try)
	domain and highly-conserved metal-binding ligands represented by Cvs69 Cvs73
	and His159, similar to all prokaryotic and eukaryotic copper-trafficking Sco
	proteins. The built 3D structure of Bleg1 2507 showed that it shared the ??????
	core structure as well as three flanking ?-sheets, a 310-helix at the N-terminus

	and a hairpin structure unique to Sco proteins. As Sco proteins are copper-
	chaperone proteins, they are especially important in delivering copper to the
	center of cytochrome c oxidase (COX) for proper assembly and function of the
	protein in the electron transport chain. Docking simulations provided an
	interesting view of Bleg1_2507 in association with its putative COX redox partner
	(Bleg1_2337) where the latter can be seen to hold its partner in an embrace,
	facilitated by hydrophobic and ionic interactions between the proteins. We
	propose that HP Bleg1_2507 is a Sco protein which is able to interact with COX,
	its redox partner and therefore, may possess metallochaperone and redox
	functions. The findings of this study are important to use the protein as a
	possible drug target and to spur the search for other physiologically relevant
	proteins among the so-called "orphan" proteins of any given organism.
Short Description:	
Keyword:	Hypothetical proteins, Bleg1_2507, Sco, Thioredoxin, Copper binding, Redox
	reaction, cytochrome c oxidase
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	Download Here

Title	NUTRIENT-GENE INTERACTIONS TO PRODUCE LEANER MEAT USING CONJUGATED LINOLEIC ACID IN POULTRY
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Agriculture and Food
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Goh Yong Meng
Researchers Name:	GOH YONG MENG, SURIYA KUMARI RAMIAH, MAHDI EBRAHIMI
Faculty / Institute / School / Academy:	Faculty of Veterinary Medicine
Department / Laboratory:	Department of Veterinary Preclinical Sciences
Expertise:	Physiology
Email:	ymgoh@upm.edu.my
Telephone (Office):	03-86093401
Fax:	03-89471971
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:PUBLICATION
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	Over the past 50 years the worldwide growing demand of poultry meat has resulted in pressure on breeders, nutritionists and growers increase the growth rate of birds, feed efficiency, size of breast muscle and reduction in abdominal fatness. This presentation will highlight the effect of conjugated linoleic acid (CLA) on the fat deposition of broiler chickens to improve the lean tissue deposition in broiler for maximum economic benefits with least efforts.Conjugated linoleic acids (CLA) act as an important ligand for nuclear receptors that are crucial in adipogenesis and fat deposition in mammals and avian species. Most documented effects which include changes in cellular adiposity and lipid metabolism are well reported in the mammalian (rodent) models, or cell lines of mammalian origin. Little is known about the regulatory mechanisms of dietary CLA on poultry adipose tissue lipid metabolism, and of the effect of dietary CLA levels on gene expression relating to lipid metabolism. CLAs are activators of PPAR (proliferator-activated receptor) and also induce

	decrease body fat by down regulation of the peroxisome proliferator-activated
	receptor gamma (PPAR-?) and adipocyte protein 2 (aP2) responsive genes in the
	adipose tissue. It's high time that we should give a serious thought on converting
	the extra fat into metabolic energy to convert or deposit into lean tissues despite
	of throwing it as a greater economical waste. Such thoughts can improve our
	broiler economics to a greater extend.
Short Description:	
Keyword:	conjugated linoleic acid, gene expression, Poultry, Fatty Acid
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Gene expression of the oil palm transcription factor EgAP2-1 during fruit ripening and n response to erhylene and ABA treatments
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Agriculture and Food
Leader Title:	Prof. Dr.
Leader Name:	Siti Nor Akmar Abdullah
Researchers Name:	Siti Nor Akmar Abdullah, Vahid Omidvar, Ho Chai Ling and Maziah Mahmood
Faculty / Institute /	Institute of Tropical Agriculture
School / Academy:	
Department /	Laboratory of Plantation Crop
Laboratory:	
Expertise:	Plant Molecular Biology
Email:	snaa@upm.edu.my
Telephone (Office):	03-89471099
Fax:	03-89381612
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:DOI: 10.1007/s10535-013-0355-8
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	A cDNA encoding an ERE-binding protein (EgAP2-1) was isolated from the oil palm fruit mesocarp treated with ethylene using yeast one-hybrid assay. EgAP2- 1 belongs to the AP2 subfamily of the APETALA2/ethylene-responsive factor (AP2/ERF) proteins and contains two highly conserved AP2/EREBP DNA-binding domains (DNA-BD). Sequence comparison of EgAP2-1 with other AP2 proteins revealed high conservation of the two AP2/EREBP domains and linker region among these proteins. Its protein was localized to the nucleus of onion epidermis cells and showed ERE-specific binding, transcriptional activation, and transactivation properties in yeast and in vitro. Its mRNA was highly expressed in oil palm mesocarp with elevated levels in ripening fruits but not in leaves and roots. EgAP2-1 was induced in mesocarp in response to ethylene and abscisic acid but not other hormonal stimuli, including methyl jasmonate and salicylic acid, and abiotic stresses including drought, cold, and high-salinity. Our results demonstrate a link between the regulation of EgAP2-1 expression and ethylene- and/or ABA-coordinated control of the fruit ripening and suggest a regulatory.

	role for EgAP2-1 during fruit ripening and development in oil palm.
Short Description:	
Keyword:	Key words: abiotic stress, AP2/ERF, ethylene-responsive element, gene
	expression, yeast one-hybrid assay.
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Gratification towards weather information via television: an analysis of coastal community in Malaysia
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Humanities and Nation Building
Leader Title:	Mrs.
Leader Name:	Nurani Kamaruddin
Researchers Name:	Zaim Fahmi Mohamed Yusof, Siti Zobidah Omar, Jusang Bolong, Jeffrey Lawrence D'Silva, Hayrol Azril Mohamed Shaffril
Faculty / Institute / School / Academy:	Institute of Social Science Studies
Department /	Laboratory of Rural Advancement and Agriculture Extension
Laboratory:	
Expertise:	Communication
Email:	majudesa.desa@gmail.com
Telephone (Office):	03-89471868
Fax:	03-89471856
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:Journal Publication
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	The main purpose of this paper is to determine Malaysian coastal communities'
	gratification towards weather information via television. The study was a
	quantitative study where a developed instrument was used as the main data
	collection tool. Through multi-stage simple random sampling, a total of 210
	coastal villagers from three coastal areas in Malaysia were selected as the
	respondents. The findings demonstrate that there was a gap between the
	weather information received and the weather information needed by the
	respondents, as well as a gap between the weather information received and the
	weather information believed. A number of discussions are highlighted in this
	paper in the hope that they can assist the appropriate parties in generating the
	best strategy for information sharing and dissemination processes among the
Chart Description	coastal communities.
Short Description:	
Keyword:	Coastal communities, weather information, gratification, information

	development.
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	The Effects of ASEAN Free Trade Agreement (AFTA) on ASEAN Trade: 1986-2010
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Business, Economics and Governance
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Normaz Wana Ismail
Researchers Name:	Collin Wong Koh King
Faculty / Institute /	Faculty of Economics and Management
School / Academy:	
Department /	Department of Economics
Laboratory:	
Expertise:	Trade and Development Economics
Email:	nwi@upm.edu.my
Telephone (Office):	03-89467711
Fax:	03-89486188
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:1
Publication / SD:	
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	The ASEAN Free Trade Agreement (AFTA) was set up in 1993 and has already shown significant effects by 2010. This study empirically investigates the effect of trade creation on intra-ASEAN trade for the period of 1986 to 2010. Using the gravity model, we find that major determinants of bilateral trade in ASEAN are GDP, population, relative endowment, distance and common border. A dummy variable is introduced to measure the intra-ASEAN trade and trade creation among five ASEAN member countries. Our finding suggests that trade between the selected member countries remains strong even during the 1997 Asian Financial Crisis and the 2008 Global Financial Crisis.
Short Description:	
Keyword:	AFTA, ASEAN, Intra-ASEAN Trade, Gravity Model, AEC
Advantages:	-
Market /	-
Commercialisation Potential:	

Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Antimicrobial and antioxidant activities of marine algae from the coastal waters of Bintulu, Sarawak, Malaysia
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Agriculture and Food
Leader Title:	Dr.
Leader Name:	Dr. Mohd Hanafi Idris
Researchers Name:	Mohd Hanafi Idris, Mohd Hafizbillah, Wong Sing King, Abu Hena Mustafa Kamal
Faculty / Institute /	Faculty of Agriculture and Food Sciences
School / Academy:	
Department /	Department of Animal Science and Fishery
Laboratory:	
Expertise:	Aquatic Biology
Email:	mhanafi@btu.upm.edu.my
Telephone (Office):	08-6855209
Fax:	08-6855255
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:DOI: 10.3923/pjbs.2014.1007.1014
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	Marine algae are considered as source of natural bioactive compounds and able to produce a great variety of secondary metabolites for biological activities. A total of 20 species of marine algae (11 Rhodophyta, 5 Phaeophyta and 4 Chlorophyta) were collected from Bintulu coastal waters. These macroalgae were subjected to solvent extraction using chloroform, acetone, methanol and ethanol. Different fractions of the crude extracts were evaluated for their antimicrobial activities and methanol crude extracts for antioxidant properties. Antimicrobial activity was examined against 14 strains of human pathogenic microorganisms by using disc diffusion method. Effective results were recorded from extract of Chaetomorpha sp. and Chaetomorpha antennina. Antioxidant properties were evaluated according to Folin-Ciocalteau method and free radical scavenging activity determined by standard 2, 2-Diphenyl-1-picrylhydrazyl (DPPH). High level of antioxidant properties recorded from Lobophora variegata, Padina boryana and Acanthophora spicifera. Study recorded high correlation

	radical scavenging activity. Besides, present study recorded no correlation
	between antimicrobial and antioxidant activities since different species of
	seaweeds recorded different level of antimicrobial and antioxidant properties.
	The screening of potential antimicrobial and antioxidant activities from marine
	algae indicated the presence of active compound which could have potentiality
	for pharmaceutical and other related industries.
Short Description:	
Keyword:	antimicrobial, antioxidant, marine algae, bioactive compound, Sarawak.
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Isolation of Pediococcus acidilactici Kp10 with ability to secrete bacteriocin-like inhibitory substance from milk products for applications in food industry
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Agriculture and Food
Leader Title:	Prof. Dr.
Leader Name:	Arbakariya Bin Ariff
Researchers Name:	Sahar Abbasiliasi, Joo Shun Tan, Tengku Azmi Tengku Ibrahim, Ramakrishnan Nagasundara Ramanan, Faezeh Vakhshiteh, Shuhaimi Mustafa, Tau Chuan Ling, Raha Abdul Rahim and Arbakariya B Ariff
Faculty / Institute / School / Academy:	Faculty of Biotechnology and Biomolecular Sciences
Department / Laboratory:	Department of Bioprocess Technology
Expertise:	Industrial Biotechnology
Email:	upmsahar@yahoo.com
Telephone (Office):	03-89467591
Fax:	03-89458514
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:10.1186/1471-2180-12-260
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	Background Lactic acid bacteria (LAB) can be isolated from traditional milk products. LAB that secrete substances that inhibit pathogenic bacteria and are resistant to acid, bile, and pepsin but not vancomycin may have potential in food applications. Results LAB isolated from a range of traditional fermented products were screened for the production of bacteriocin-like inhibitory substances. A total of 222 LAB strains were isolated from fermented milk
	products in the form of fresh curds, dried curds, and ghara (a traditional flavor enhancer prepared from whey), and fermented cocoa bean. Eleven LAB isolates that produced antimicrobial substances were identified as Lactococcus lactis, Lactobacillus plantarum, and Pediococcus acidilactici strains by biochemical methods and 16S rDNA gene sequencing. Of these, the cell-free supernatant of Kp10 (P. acidilactici) most strongly inhibited Listeria monocytogenes. Further analysis identified the antimicrobial substance produced by Kp10 as

	proteinaceous in nature and active over a wide pH range. Kp10 (P. acidilactici)
	was found to be catalase-negative, able to produce ?-galactosidase, resistant to
	bile salts (0.3%) and acidic conditions (pH 3), and susceptible to most antibiotics.
	Conclusion Traditionally prepared fermented milk products are good sources of
	LAB with characteristics suitable for industrial applications. The isolate Kp10 (P.
	acidilactici) shows potential for the production of probiotic and functional foods.
Short Description:	
Keyword:	Lactic acid bacteria; Pediococcus acidilactici; Bacteriocin-like inhibitory
	substance; Listeria monocytogenes; Fermentation; Identification
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Numerical Solution of Second-Order Fuzzy Differential Equation Using Improved Runge-Kutta Nystrom Method
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Mathematical Sciences and ICT
Leader Title:	Dr.
Leader Name:	Faranak Rabiei
Researchers Name:	Faranak Rabiei, Fudziah Ismail, Ali Ahmadian, Soheil Salahshour
Faculty / Institute /	Institute of Mathematical Research
School / Academy:	
Department /	Laboratory of Computational Sciences and Informatics
Laboratory:	
Expertise:	Numerical Analysis
Email:	faranak.rabiei@gmail.com
Telephone (Office):	03-89466924
Fax:	03-89466924
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.: Publication
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	We develop the Fuzzy Improved Runge-Kutta Nystrom (FIRKN) method for solving second-order Fuzzy Differential Equations (FDEs) based on the generalized concept of higher-order fuzzy differentiability. The scheme is two- step in nature and requires less number of stages which leads to less number of function evaluations in comparison with the existing Fuzzy Runge-Kutta Nystrom method.Therefore, the new method has a lower computational cost which effects the time consumption.
Short Description:	
Keyword:	Fuzzy differential equation, Improved Runge-Kutta Nystrom Mathod, Second order ODEs
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A

File:	
ResearchOutput:	N/A

Title	Dairy Farm Feed Management Decision Support System
Product / Technology Name:	-
Exhibition:	Pameran Reka Cinta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Mathematical Sciences and ICT
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Assoc. Prof. Dr. Marzanah Binti A. Jabar
Researchers Name:	Marzanah A. Jabar, Fatimah Sidi, Rozi Nor Haizan Nor, Niloofar Yosoufei, Ramin Ahmadi, Mahda Noura
Faculty / Institute / School / Academy:	Faculty of Computer Science and Information Technology
Department / Laboratory:	Department of Information System
Expertise:	Management Information System, Knowledge Management and Software Engineering
Email:	marzanah@upm.edu.my
Telephone (Office):	03-89471733
Fax:	03-89471795
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:24Jun2014
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	A decision support system to manage dairy farm feeding plan. It is a system that will enhance the managing feed planning by providing Just-in-time feeding plan. It is an advanced web-based decision support system to address issues of feed management on the basis of stock inputs (required feed estimated based on stock numbers) and basic pasture (available feed for cattle). The system then provides a solution for 12 months feed planning which can be reviewed and improved if required. Effective feeding is one of the foundations of a dairy farming operations. Not only does it account for a large percentage of annual costs, the difference between getting it right and getting it wrong is considerable. My Dairy Farm has been designed to help ensure feed management is precise. With more than 800 dairy cattle farmers registered In 2007, self sufficiency rate for milk in Malaysia was a mere 5% (51.07 million

	countries such as Australia, New Zealand, Holland and etc. Still, the industry was worth RM 69.25 million locally. With complete production of the local demand, we could generate RM 1.477 billion revenue.
Short Description:	
Keyword:	dairy farm, feed management, decision support system
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A
Title	Magnetite nanoparticles coated with 6-mercaptopurine as an anticancer drug delivery system Image: Content of the system
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Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Applied Science and Engineering
Leader Title:	Prof. Dr.
Leader Name:	MOHD ZOBIR HUSSEIN
Researchers Name:	Mohd Zobir bin Hussein, Dena Dorniani, Aminu Umar Kura, Sharida Fakurazi, Abdul Halim Shaari, Zalinah Ahmad
Faculty / Institute / School / Academy:	Institute of Advanced Technology
Department / Laboratory:	Laboratory of Advanced Materials and Nanotechnology
Expertise:	Nanomaterials and nanomedicine
Email:	mzobir@upm.edu.my
Telephone (Office):	03-89468092
Fax:	03-89467006
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:DDDT2013:7 1015-1026
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	Iron oxide nanoparticles are interesting because of their use in magnetic recording tape, ferrofluid, magnetic resonance imaging, drug delivery, and treatment of cancer. The specific morphology of nanoparticles confers an ability to load, carry, and release different types of drugs. We synthesized superparamagnetic nanoparticles containing pure iron oxide with a cubic inverse spinal structure. Fourier transform infrared spectra confirmed that these Fe3O4 nanoparticles could be successfully coated with active drug, and thermogravimet¬ric and differential thermogravimetric analyses showed that the thermal stability of iron oxide nanoparticles coated with chitosan and 6- mercaptopurine (FCMP) was markedly enhanced. The synthesized Fe3O4 nanoparticles and the FCMP nanocomposite were generally spherical, with an average diameter of 9 nm and 19 nm, respectively. The release of 6- mercaptopurine from the FCMP nanocomposite was found to be sustained and

	release behavior, we prepared a novel nanocomposite (FCMP-D), i.e., Fe3O4
	nanoparticles containing the same amounts of chitosan and 6-mercaptopurine
	but using a different solvent for the drug. The results for FCMP-D did not
	demonstrate "burst release" and the maximum percentage release of 6-
	mercaptopurine from the FCMP-D nanocomposite reached about 97.7% and
	55.4% within approximately 2,500 and 6,300 minutes when exposed to pH 4.8
	and pH 7.4 solutions, respectively. By MTT assay, the FCMP nanocomposite was
	shown not to be toxic to a normal mouse fibroblast cell line. This shows that iron
	oxide coated with chitosan containing 6-mercaptopurine prepared using a
	coprecipitation method has the potential to be used as a controlled-release
	formulation. These nanoparticles may serve as an alternative drug delivery
	system for the treatment of cancer, with the added advantage of sparing healthy
	surrounding cells and tissue.
Short Description:	
Keyword:	Superparamagnetic nanoparticles, 6-mercaptopurine, controlled release,
	cytotoxic¬ity, drug delivery, anti-cancer.
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Efficiency of Rice Farms and Its Determinants : Application of Stochastic Frontier Analysis
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Agriculture and Food
Leader Title:	Prof. Dr.
Leader Name:	Prof.Datuk.Dr. Mad Nasir Shamsudin
Researchers Name:	Mad Nasir Shamsudin, Lira Mailena, Zainal Abidin Mohamed, Ismail Abdul Latif, Alias Radam
Faculty / Institute / School / Academy:	Faculty of Agriculture
Department / Laboratory:	Department of Agribusiness and Information System
Expertise:	Agriculture and Resource Economics
Email:	mns@upm.edu.my
Telephone (Office):	03-89474930
Fax:	03-89408213
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:ISSN 18193579
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	In the context to achieve the self sufficiency in rice production at 75 percent of local consumption, Malaysian authority consistently encourages the increase of rice production by the improvement of the yield through the utilization of the optimal input used, new technology and farm management. However, these efforts is hampered by the low productivity which is caused mainly by the inefficient used of input and subsequently affects the production inefficiency as well. Hence, in order to address those problems, this study aims to measure the production and substitution elasticity, the existing level of rice farm efficiency and determinants of the efficiency using the stochastic frontier analysis. Out of five inputs, land, seed and chemical significantly influence the rice farms in MADA, Malaysia. Further, since the rice farms operated at the increasing return to scale, there was a possibility to increase the production by improving the input use. On average, the sampled farms in this study had the technical

	about 14.6 percent at a given inputs. The farmer's access to credit and their education level were the important determinant upon the rice farms technical efficiency.
Short Description:	
Keyword:	technical efficiency, elasticity, inefficiency model, rice farms
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	N/A

Title	Detoxification of Toxic Phorbol Esters from Malaysian Jatropha curcas Linn. Kernel by Trichoderma spp. and Endophytic Fungi
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Agriculture and Food
Leader Title:	Prof. Dr.
Leader Name:	Prof. Dr. Norhani Abdullah
Researchers Name:	Norhani Abdullah, Azhar Najjar, Wan Zuhainis Saad, Syahida Ahmad, Ehsan Oskoueian, Faridah Abas, Youssuf Gherbawy
Faculty / Institute / School / Academy:	Institute of Tropical Agriculture
Department /	Laboratory of Animal Production
Laboratory:	
Expertise:	Nutritional biochemistry, Applied microbiology
Email:	norhani@upm.edu.my
Telephone (Office):	03-89471147
Fax:	03-89381612
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:Publication
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	The presence of phorbol esters (PEs) with toxic properties limits the use of Jatropha curcas kernel in the animal feed industry. Therefore, suitable methods to detoxify PEs have to be developed to render the material safe as a feed ingredient. In the present study, the biological treatment of the extracted PEs-
	rich fraction with non-pathogenic fungi (Trichoderma harzianum JQ350879.1, T. harzianum JQ517493.1, Paecilomyces sinensis JQ350881.1, Cladosporium
	cladosporioides JQ517491.1, Fusarium chlamydosporum JQ350882.1, F. chlamydosporum JQ517492.1 and F. chlamydosporum JQ350880.1) was
	conducted by fermentation in broth cultures. The PEs were detected by liquid
	chromatography-diode array detector-electrospray ionization mass spectrometry (LC-DAD-ESIMS) and quantitatively monitored by HPLC using phorbol-12-myristate 13-acetate as the standard. At day 30 of incubation, two T. harzianum spp., P. sinensis and C. cladosporioides significantly (p <0.05)

	strains showed percentage losses of 88.9-92.2%. All fungal strains could utilize
	the PEs-rich fraction for growth. In the cytotoxicity assay, cell viabilities of Chang
	liver and NIH 3T3 fibroblast cell lines were less than 1% with the untreated PEs-
	rich fraction, but 84.3-96.5% with the fungal treated PEs-rich fraction. There was
	no inhibition on cell viability for normal fungal growth supernatants. To
	conclude, Trichoderma spp., Paecilomyces sp. and Cladosporium sp. are
	potential microbes for the detoxification of PEs.
Short Description:	
Keyword:	phorbol esters detoxification, phorbol esters-rich fraction utilization, fungal
	treatment, mycelial dry weight, cytotoxicity, cell lines
Advantages:	
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Ranging behavior of edible bird nest swiftlet (aerodramus fuciphagus)
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Agriculture and Food
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Hafidzi Mohd Noor
Researchers Name:	Maisarah binti Burhanuddin, Asrulsani bin Jambari
Faculty / Institute /	Faculty of Agriculture
School / Academy:	
Department /	Department of Plant Protection
Laboratory:	
Expertise:	vertebrate pest
Email:	maisarah.mb@gmail.com
Telephone (Office):	03-89474912
Fax:	03-89381014
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:-
Publication / SD:	
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	enhancements method on tracking non-perched bird using radio telemetry.
Short Description:	The study was carried out to analyze the movement pattern of EBN (edible bird
	radio tolomotry, the bird was tracked using a four wheel vehicle within a 10km
	radius from the point of release. Instead of triangulation which is suitable for
	perching hirds, we used the nin-nointed point as our fix location with the
	assumption the hird is within 100m radius from the tracking vehicle. This
	distance has been chosen based on the furthest point where a signal is
	discernible. The transmitter was the smallest in todays market(0.3g), have short
	battery life(max 10 days) and attached onto the bird using glue-on method. The
	bird was tracked from march to July 2013. Using 95% kernel contour analysis
	with the aid of BIOTAS and RANGE8, a home range analysis software, the birds
	was found to roam an area ranged from 43km ² up to 1038km ² .
Keyword:	Aerodramus fuciphagus, ranging behavior. Radio telemetry,
Advantages:	To quantify and measure numerically the distance and home range of the EBN

	swiftlet. Knowing the space use of the bird, we can manage the development of the birdhouse across the nation, figure out their favourite feeding spot and vegetation exists in the area.
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Exploring the Effectiveness of Environmental Education Program in Influencing Secondary School Students' Human- Wildlife Relationship
-
Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Applied Research (B)
Forestry and Biodiversity
Assoc. Prof. Dr.
Manohar Mariapan
Azlizam Aziz, Mohamed Zakaria Husin, Evelyn Lim Ai Lin
Faculty of Forestry
Department of Forest Management
bepartment of rolest Management
Environmental interpretation, Ecotourism, Human Dimension in Recreation
Resources
mano@upm.edu.my
03-89467184
03-89432514
Yes, Patent No.:
Yes, Copyright / Publication No. / SD No.:1072954
Yes, Registration No.:
Yes, Trademark No.:
Many out-of-school environmental education programs for school students in Malaysia lacked the capacity to influence behavior. The present study compares the effectiveness of the non-interpretive and interpretive education programs in influencing rural secondary school students' intention to organize a Malayan Tapir education program in school. The study utilized focus group discussions to elicit secondary school students' attitudes and emotions toward the Malayan Tapir. Students' salient beliefs toward their involvement as an organizer of a Malayan Tapir education program in school were also elicited based on the Theory of Planned Behavior (TPB) framework. Findings from the discussion were used to develop a self-reported questionnaire and develop an interpretive education program based on the enjoy, relevant, organized and thematic (EROT) interpretive model. The pre-test post-test experiment design was utilized to

	was conducted after the intervention. A delayed post-test was conducted six
	months after the intervention. Data was statistically analyzed to compare the
	effectiveness of the interventions between groups and tests. The study has
	shown that interpretative program was more successful in influencing students'
	beliefs toward the Malayan Tapir and students' intention to be involved as an
	organizer of the Malayan Tapir education program in school as compared to the
	non-interpretive program. The interpretive program was also replicable to other
	locations and wildlife (i.e. Orang utan). The use of the EROT interpretive model
	in developing an education program adds value to the designing and teaching of
	environmental education at the natural sites and in the classroom. This have
	lead to the publication of 'Kaedah Interpretasi dalam Pengajaran Pendidikan
	Alam Sekitar' that provides a step-by-step guide to school teachers to design
	teaching plans based on the interpretive model.
Short Description:	
Keyword:	interpretation; environmental education; secondary school students;
	conservation behavior
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	Download Here

Title	Investigation of the Role of Reductant on the Size Control of Fe3O4 Nanoparticles on Rice Straw
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Materials Science and Technology
Leader Title:	Prof. Dr.
Leader Name:	PROF. DR. MANSOR BIN AHMAD
Researchers Name:	Roshanak Khandanlou, Mansor B. Ahmad, Kamyar Shameli, Katayoon Kalantari
Faculty / Institute /	Faculty of Science
School / Academy:	
Department /	Department of Chemistry
Laboratory:	
Expertise:	Polymer Chemistry
Email:	mansorahmad@upm.edu.my
Telephone (Office):	03-89466775
Fax:	03-89435380
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:Publication
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	The goal of this study was to prepare nanocomposites of rice straw coated with different percentages of Fe3O4 nanoparticles (Fe3O4-NPs) [1.0, 5.0, 10.0, and 20.0 wt. %]. In this process, the size of Fe3O4-NPs changed with varying volumes of NaOH (2M). The Fe3O4-NPs were precipitated with sodium hydroxide from a solution of Fe(II) and (III) chloride in water under ambient conditions and N2 gas by the quick precipitation method using urea as a stabilizer. The rice straw/Fe3O4 nanocomposites (NCs) prepared by this method had magnetic properties in percentages higher than ten (10 wt. %). When the volume of NaOH increased, Fe3O4-NPs with uniform size and better distribution could be prepared, which means that the size of the NPs decreased as the reducing agent was increased. Transmission electron microscopy (TEM) showed that Fe3O4-NPs in rice straw were spherical with diameters from 18.47 to 9.93 nm. The SEM results show that the structure of rice straw underwent no particular change. EDX indicated the presence of Fe3O4-NPs on the surface of rice straw. X-ray powder diffraction (PXRD) indicated that the magnetic Fe3O4-NPs were pure and

	that the particles were small. The FT-IR results showed that the Fe3O4-NPs were
	successfully coated on the surface of rice straw.
Short Description:	
Keyword:	Rice straw, Nanocomposites, Iron oxide, Nanoparticles, Transmission electron
	microscopy
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Antimicrobial property of Methyl Fatty Hydroxamic Acids and their Metal Complexes based on Jatropha Curcas seed oil
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Applied Science and Engineering
Leader Title:	Dr.
Leader Name:	Hossein Jahangirian
Researchers Name:	Roshanak Rafiee-Moghaddam
Faculty / Institute /	Faculty of Engineering
School / Academy:	
Department /	Department of Chemical and Environmental Engineering
Laboratory:	
Expertise:	Analytical Chemistry
Email:	kamran.jahangirian@gmail.com
Telephone (Office):	03-89466268
Fax:	03-86567120
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:Vol. 9, No. 1, 2014, p. 261 - 271
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	In this research, the methyl fatty hydroxamic acids (MFHAs) based on Jatrophacurcas seed oil and their metal complexes include the copper (II) methyl fatty hydroxamate (Cu-MFHs) and iron (III) methyl fatty hydroxamate (Fe-MFHs) were prepared and applied as antimicrobial agents against the Escherichia coli (E. coli), Proteus vulgaris (P. vulgaris) and Proteus mirabilis (P. mirabilis) as gram- negative bacteria; methicillin-resistant Staphylococcus aureus (MRSA) and Staphylococcus epidermidis (S. epidermidis) as gram-positive bacteria ; Candida parapsilosis (C. parapsilosis) and Candida Albicans(C. Albicans) as yeast family of fungi. Elemental analysis and FTIR spectroscopy showed that MFHAs, Fe(III)- MFHs and Cu(II)-MFHs based on Jatrophacurcas seed oil were successfully prepared. This investigation showed that the MFHAs, Fe(III)-MFHs and Cu(II)- MFHs are strong antimicrobial agents. The results showed that the antimicrobial activity of MFHAs, Cu-MFHs and Fe-MFHs against the E. coli, MRSA, S.epidermidis, P. vulgaris, P. mirabilis, C. parapsilosis and C. albicans increase while their amounts increase. Also metal complexation of MFHAs caused the

	antimicrobial activity arise and this activity is higher for complexation by Cu(II)
	compared to that of Fe(III). Comparing antimicrobial activity of MFHAs, Cu-MFHs
	and Fe-MFHs based on Jatropha curcas seed oil with several antibiotic drugs
	such as ampicillin, chloramphenicol, gentamicin streptomycin, tetracycline and
	nystatin against the mentioned microbial showed that the Cu-FHs and Fe-MFHs
	have very strong antimicrobial activity. The results showed that the antimicrobial
	activity of Cu(II)-MFHs is higher than all tested commercial antibiotic except
	gentamicin. Also the antimicrobial activities of Fe(III)-MFHs and MFHAs were
	higher than some of tested commercial antibiotics. Some important advantages
	such as simple preparation of substrates from Jatropha curcas seed oil which is
	cheap and easily available, moderate conditions of reaction with enzyme in the
	synthesis which is environmental friendly according to green chemistry
	principles are the highlighted gained aspects of this investigation.
Short Description:	
Keyword:	Antimicrobial agent, Methyl fatty hydroxamic acids, Copper methyl fatty
	hydroxamate, Iron (III) methyl fatty hydroxamate,Jatrophacurcas seed oil
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	STRATEGI DIPLOMATIK PADA ZAMAN KESULTANAN MELAYU DALAM MENJALINKAN HUBUNGAN DIPLOMATIK
Product /	-
Exhibition:	Pameran Reka Cinta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Humanities and Nation Building
Leader Title:	Dr.
Leader Name:	SALMAH JAN BT NOOR MUHAMMAD
Researchers Name:	DR ARBA'IE SUJUD. PROF EMERITUS DR HASHIM MUSA
Faculty / Institute /	Faculty of Modern Languages and Communication
School / Academy:	,
Department /	Department of Malay Language
Laboratory:	
Expertise:	KESUSASTERAAN MELAYU TRADISIONAL
Email:	salmahjan@upm.edu.my
Telephone (Office):	03-89468318
Fax:	03-89439951
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:ISSN 2289-1706
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	Strategi diplomatik Melayu merupakan intipati penting dalam membina
	hubungan diplomatik antara kerajaan Melayu. Berdasarkan manuskrip Melayu
	yang dihasilkan oleh pengarang terdahulu sebagai rujukan utama akan
	merungkaikan pelbagai strategi tersirat yang dapat melihat tahap
	keintelektualan raja dan pembesar Melayu dalam membentuk dan
	melaksanakan kaedah komprehensif agar sesebuah kerajaan Kesultanan Melayu
	seperu weiaka, Jonor dan Kiau-Lingga, Acen serta Kedan berjaya mencapai
	dolam nolaksanaan stratogi dinlomatik tersebut akan membantu kenada
	uaiani pelaksanaan sulategi ulpiomalik tersebut akan membangan pembangunan pegara atau karajaan khususnya dari asnak politik
	ekonomi dan sosial
Short Description:	
Keyword:	STRATEGI, DIPLOMATIK, KESULTANAN MELAYU, KERAJAAN
Advantages:	-
Market /	-

Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Concept-based Video Retrieval System
Product /	-
Technology Name:	
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Mathematical Sciences and ICT
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Assoc. Prof. Dr. Lilly Suriani Affendey
Researchers Name:	Norwati Mustapha, Shyamala Doraisamy, Fatimah Khalid, Fatimah Sidi, Ali
	Mamat, Hamidah Ibrahim, Iskandar Ishak, Nor Fazlida Mohd Sani
Faculty / Institute /	Faculty of Computer Science and Information Technology
School / Academy:	
Department /	Department of Computer Science
Laboratory:	
Expertise:	Database Systems, Multimedia Database, Video Retrieval
Email:	lilly@upm.edu.my
Telephone (Office):	03-89471709
Fax:	03-89466576
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:CBVRS 28Sep2011
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	The Concept-based Video Retrival System (CBVRS) is a system that supports
	concepts training enabling concept-based video retrieval. The indexing process
	used in the CBVRS is automatically done using concept detectors, thus
	automatically associating concepts to visual representative frames. Thus, given a
	query for a concept such as "doctor", the video documents associated to the
	concept will be retrieved. The fact that retrieval used by CBVRS is based on
	semantic concepts, including those not available in the annotation, makes the
	CBVRS unique. Broadcasting agencies normally follows a standard way of
	archiving video, which is done manually by annotating the video with meta data.
	The CBVRS is useful in the editing and archiving task for broadcasting agencies,
	where video clips can be automatically index, hence expediting the archiving
	process. The CBVRS can also be customized for facilitating film censnorship tasks where "unsuitable" scenes can be identified and detected
Short Description:	

Keyword:	video retrieval, concept-based retrieval, video annotation, concept detector
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	N/A

Title	Oil Palm Frond Juice: A Future Fermentation Substrate
Product / Technology Name:	-
Fxhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Biosystems and Biotechnology
Leader Title:	Dr.
Leader Name:	Hidavah Ariffin
Researchers Name:	Che Mohd Hakiman Che Maail, Hidayah Ariffin, Mohd Ali Hassan, Umi Kalsom Md Shah, Yoshihito Shirai
Faculty / Institute / School / Academy:	Faculty of Biotechnology and Biomolecular Sciences
Department / Laboratory:	Department of Bioprocess Technology
Expertise:	Bioprocess Engineering and Environmental Biotechnology
Email:	hidayah@upm.edu.my
Telephone (Office):	03-89467515
Fax:	03-89467510
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:Publication
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	Oil palm frond (OPF) is one of the major crop residues produced daily in Malaysia. On-going research found that juice from OPF petiole contains high free sugars such as glucose (73%), sucrose (16%) and fructose (11%) that can be used for fermentation of useful products such as bioethanol, bioplastics and bio-based chemicals. The advantage of using OPF juice is the simplicity in getting sugars, whereby it needs only a simple mechanical pressing, unlike other lignocelluloses which require chemical and enzymatic treatments. Some issues have been identified prior to the realization of OPF juice as fermentation substrate, i.e. i) sugar loss from OPF petiole prior to pressing, ii) OPF juice recovery yield by mechanical pressing and iii) storage stability of OPF juice. Therefore this study was done to maximize the recovery of OPF juice from OPF petiole. Effect of pressing machine types and OPF petiole storage period prior to pressing on the recovery of OPF juice was clarified. It was found that OPF petiole squeezed by

	accounted to recovery yield of 88%. Meanwhile, storage of OPF petiole up to 72
	hour prior to squeezing reduced the free sugars by nearly 50%. Storage stability
	of OPF juice was examined by manipulating the water activity (aw) in order to
	prevent microbial growth. It was found that aw of ?0.87 was
	sufficient
Short Description:	
Keyword:	Oil Palm Frond (OPF) petiole, OPF juice, fermentable sugars, Oil palm biomass,
	Renewable fermentation substrate.
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	Download Here

Title	CURRICULUM DESIGN INFORMATION SYSTEM FOR INSTITUTION OF HIGHER LEARNING IN MALAYSIA
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Mathematical Sciences and ICT
Leader Title:	Dr.
Leader Name:	DR. YUSMADI YAH BINTI JUSOH
Researchers Name:	YUSMADI YAH JUSOH, THONG CHEE LING, RUSLI ABDULLAH, NOR HAYATI ALWI
Faculty / Institute / School / Academy:	Faculty of Computer Science and Information Technology
Department / Laboratory:	Department of Information System
Expertise:	INFORMATION SYSTEMS
Email:	yusmadi@upm.edu.my
Telephone (Office):	03-89471760
Fax:	03-89466576
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:Curriculum Designer
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	Technological breakthrough have contributed to the continuing growth of Information System (IS) in Institution of Higher Learning (IHL) education industry. IS may serve to assist the accomplish important tasks of curriculum designers. However, the existing IS model are still lack of step-by-step guidance to curriculum designers throughout the design process. The literature study concludes that curriculum design is a tedious, time-consuming and error-prone work to curriculum designers in IHL. It is further confirmed through a preliminary study conducted among 17 IHL in Malaysia. The result shows that accomplishing the work of curriculum design without IS makes work tedious, time-consuming and error-prone. This project is proposing a model for IHL curriculum design which provide step-by-step guidance to improve their work efficiency. The model is constructed by determining the components based on review of relevant literature and an expert review. Then, Curriculun Design Information System for IHL was developed using user-centered prototyping approach. Then pro- and post tests are conducted among the same group of curriculum design are

	participated in the survey conducted for model validation. A technology
	acceptance test using Technology Acceptance Model (TAM) is conducted to
	explore the impact of curriculum designers' perceptions pertaining to usefulness,
	ease of use, attitude towards and intention to use the system. The findings
	indicate that the Curriculum Design Information System is an easy, effective and
	useful system to help curriculum designers in designing curriculum. The system
	can be used by the curriculum designers in justifying the work of curriculum
	design in a systematic manner. The step-by-step guide of the processes
	particularly in manage, monitor and redesigning curriculum at course level to
	increase work efficiency.
Short Description:	
Keyword:	curriculum designer, curriculum designer, institution of higher learning (IHL)
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	MODIFIED ATMOSPHERE STORAGE OF MINIMALLY PROCESSED CANTALOUPE (Cucumis Melo L. Var.Reticulatus CV.Glamour)
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Agriculture and Food
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Assoc. Prof.Dr Rosnah Bt Shamsudin
Researchers Name:	SYAHIDAH BT KAMARUDDIN, ROSNAH BT SHAMSUDIN, NORANIZAN MOHD ADZAHAN, ZAULIA BT OTHMAN, ANVARJON AHMEDOV
Faculty / Institute / School / Academy:	Faculty of Engineering
Department / Laboratory:	Department of Process and Food Engineering
Expertise:	Food Machinery Design, Food Engineering Properties, Postharvest Engineering
Email:	rosnahs@upm.edu.my
Telephone (Office):	03-89466366
Fax:	03-89466366
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:xxxx
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	Cantaloupe is described as netted melon because it has ribless rind, spherical
	shape, netted skin, and contains an orange color of flesh and known as
	Rockmelon in Malaysia. The fruits have been peeled, trimmed and cut into ready
	to eat forms which is called minimally processed products. This study was
	conducted to determine the effects of different sealed packaging materials on
	the changes in quality of fresh-cut Cantaloupe during storage at 2 °C and 87 %
	RH for 18 days. The selection of packaging materials is critical to the
	development of a modified environment inside the package. The fresh-Cut
	Cantaioupe rruits (Cucumis ivielo L. var. Giamour) were packaged in
	(IDPE) films and Polypropylene (PP) films. For the control complete
	Polypronylene (PP) container was closed using a lid cover (DD) without a sealing
	film. Sample 1 (S1) consisted of a Polypropylene (PP) container sealed only with
	a 40 μ m PP film and Sample 2 (S2) comprised of a Polypropylene (PP) container

	sealed with a 40 μ m LDPE film. The samples were analysed after storage at 2 $^{ m QC}$
	for 18 days. The Cantaloupe fruits were cut into small cubes of 2 cm x 2 cm x 2
	cm. Evaluation parameters included colour, firmness, respiration rate, Total Plate
	Count (TPC) and Yeast and Mould (YM). For all of the packages, the results
	indicated that the respiration rate, firmness, Total Plate Count (TPC) and Yeast
	and Mould (YM) decreased significantly (p<0.05), while colour (luminosity, hue
	angle and chromaticity) were not significantly (p>0.05) different. Samples from
	the packages sealed with LDPE (S2) indicated better appearance and quality, and
	thus LDPE is recommended to be used for packaging of fresh-cut Cantaloupe.
Short Description:	
Keyword:	Sealed packaging material, Low-density polyethylene (LDPE), Polypropylene (PP),
	quality, respiration rate
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	Download Here

Title	Methylhydroxylaminolysis of Jatropha curcas seed Oil by Enzymatic Reaction
Product /	-
Exhibition	Pameran Reka Cinta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Annlied Research (B)
Cluster:	Applied Science and Engineering
Leader Title:	Dr
Leader Name:	Hossein Jahangirian
Researchers Name:	Roshanak Rafiee-Moghaddam
Faculty / Institute /	Faculty of Engineering
School / Academy:	
Department /	Department of Chemical and Environmental Engineering
Laboratory:	
Expertise:	Analytical Chemistry
Email:	kamran.jahangirian@gmail.com
Telephone (Office):	03-89466268
Fax:	03-86567120
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:Vol. 8, No. 1, 2013, p. 415 - 422
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	The project describes the optimization of the methylhydroxylaminolysis based on Jatropha Curcas seed oil. The reaction was facilitated in biphasic media, by using lipase as acyltransferase. Synthesis of methyl fatty hydroxamic acids (MFHAs) was carried out using lipozyme RM IM based on Jatropha Curcas seed oil. Optimized conditions were obtained at a mole ratio of 6/1 of methyl hydroxylamine/oil, temperature at 41°C, enzyme 30 mg/mmol and 72 h of reaction time. At this optimal condition, the yield% of methyl fatty hydroxamic based on Jatropha Curcas seed oil was 93.92%. The product was characterized by Fourier transform infrared (FTIR), and proton and carbon nuclear magnetic resonance (¹ H-NMR and ¹³ C NMR) spectra. Large amounts of product can be achieved with a few tens of milligrams of enzyme. The reaction described in this project is an effective method for preparing methyl fatty hydroxamic acids from Jatropha seed oil and methyl hydroxylamine. Also it could be applicable for production on a large scale. One of the main advantage of this project is that the

	enzyme from products that cause to decreases expenses of reaction. Moreover,
	it allows being worked up under mild reaction conditions, which improves the
	yield and reduces unwanted compounds as other advantages. Also the products
	(MFHAs) have a lot of kind of application such as: Chelating agents for metal
	extraction, antifungal and antibacterial agents and bioreceptor for biosensor.
Short Description:	
Keyword:	Methyl Fatty hydroxamic acid, lipase, Jatropha Curcas seed oil, enzymatic
	reaction
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Anticoagulant Activity of Polyphenolic- Polysaccharides Isolated from Melastoma malabathricum L.
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Biosystems and Biotechnology
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Muhajir Hamid
Researchers Name:	Muhajir Hamid, Faridah Abas, Janna Ong Abdullah, Eusni Rahayu Mohd Tohit, Li Teng Khoo
Faculty / Institute / School / Academy:	Faculty of Biotechnology and Biomolecular Sciences
Department /	Department of Microbiology
Laboratory:	
Expertise:	Animal Cell Biotechnology
Email:	muhajir@upm.edu.my
Telephone (Office):	03-89471052
Fax:	03-8943913
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:No
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	Melastoma malabathricum Linn. is a perennial traditional medicine plants that
	grows abundantly throughout Asia countries. In this study, M. malabathricum
	Linn. leaf hot water crude extract with anticoagulant activity was purified
	through solid phase extraction cartridge and examine the bioactive chemical
	constituents on blood coagulation reaction. The SPE purified fractions were
	respectively designated as F1, F2, F3, and F4, and each was subjected to the
	activated partial thromboplastin time (APTT) anticoagulant assay. Active
	anticoagulant fractions (F1, F2 and F3) were subjected to chemical
	characterisation evaluation. Besides, neutral sugar for carbohydrate parts was
	also examined. F1, F2 and F3 were found to significantly prolong the
	anticoaguiant activities in the following order, F1 > F2 > F3, in a dose dependent manner. In addition, carbohydrate, heyuronic acid and polyphonolic moiety
	manner. In audition, carbonyurate, nexuronic acid and polyphenolic molety
	characterisation of chemical constituents revealed that all these three fractions

	contained acidic polysaccharides (rhamnogalacturonan, homogalacturonan and rhamnose hexose-pectic type polysaccharide) and polyphenolics. Hence, it was concluded that the presence of high hexuronic acid and polysaccharides, as well
	as polyphenolic in traditional medicinal plant-Melastoma malabathricum, played
	a role in prolonging blood clotting in the intrinsic pathway.
Short Description:	
Keyword:	Anticoagulation, Melastoma malabathricum, polyphenolic; polysaccharide.
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Use of Critiquing Systems in Software Engineering Context
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inoyasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Mathematical Sciences and ICT
Leader Title:	Dr.
Leader Name:	Norhayati Mohd Ali
Researchers Name:	Salmi Baharom
Faculty / Institute /	Faculty of Computer Science and Information Technology
School / Academy:	
Department /	Department of Information System
Laboratory:	
Expertise:	Software Critics, Software Modelling and Design, Software Engineering,
	Information Systems
Email:	hayati@upm.edu.my
Telephone (Office):	03-89471764
Fax:	03-89471795
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:DOI.10.1109/TSE.2013.32
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	Critiquing systems have emerged over the last several years as a supporting tool to facilitate users in computer-mediated tasks. In general, a computer-based critiquing system provides suggestions for improvement to designs, code and other digital artifacts. Critiquing systems have proven to be an effective mechanism for providing feedback to users. While critics have served in various domains, such as medical, design architecture, and information systems, critics in the software engineering context have also progressed as to assist software engineers in a wide range of activities. Thus, the aim of this project is to describe and demonstrate the use of critiquing systems in the software engineering domain.
Short Description:	
Keyword:	critics, critiquing systems, software engineering critics
Advantages:	-
Market /	-

Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Watermarking QR Code's Data Transmission
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Mathematical Sciences and ICT
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Assoc. Prof. Dr. Fatimah Sidi
Researchers Name:	Fatimah Sidi, Kartini Mohamed, Marzanah A.Jabar, Iskandar Ishak
Faculty / Institute /	Faculty of Computer Science and Information Technology
School / Academy:	
Department /	Department of Computer Science
Laboratory:	
Expertise:	Database
Email:	fatimah@upm.edu.my
Telephone (Office):	03-89471734
Fax:	03-89471795
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:04122013
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	The QR Code is a barcode image that can be scanned using any mobile device being installed with its scanning software. The scanned data from QR Code can
	be in the form of email addresses, website links (URL), telephone numbers,
	business cards, newspaper titles, etc. These data can be transferred from mobile
	devices to other digital devices using wireless transmission. However, wireless
	data transmission is vulnerable to security attacks such as spoofing, snooping,
	man-in-the-middle, etc. Therefore it is important to ensure this transmission is
	security measures already being introduced in the market such as the use of
	authentication encryption watermark etc. Talking about watermark there are
	many ways it can be used. The watermark is normally applied on images or text
	messages to confirm that the image or text is legitimate for use. Thus, a new
	technique of using watermark is introduced here where the software algorithm
	is developed to watermark the data before it is transmitted. The data scanned
	from QR Code are first encrypted using binary numbers and assigned as QR Code

	variables. At the same time, the user will be asked to provide a secret data for an
	authentication purpose. The system will then convert the authentication data
	into several variables which will be attached to the QR Code variables before
	their transmission. With this technique, a set of watermarked and encrypted
	data is established which ensures a good protection is given during the data
	transmission. Having this protection in data transmission, if the intruders steal
	the data, they will not be able to understand the data until they know not just
	the data decrypting keys but also the secret authentication number provided by
	the authorized users.
Short Description:	
Keyword:	QR Code, Data Transmission, Data Security, Data Management, Database
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	Download Here

Title	Development of biobased inducers for gaharu production in cultivated karas
Product /	-
Exhibition:	Pameran Reka Cinta, Penyelidikan dan Inovasi (PRPI) 2014
	Fundamental (A)
Cluster:	Forestry and Biodiversity
Leader Title	Assoc Prof Dr
Leader Name	Assoc Prof. Dr. Bozi Mohamed
Researchers Name:	Rozi Mohamed, long Phai Lee
Faculty / Institute /	Faculty of Forestry
School / Academy:	
Department /	Department of Forest Management
Laboratory:	
Expertise:	Forest Biotechnology and Plant Pathology
Email:	rozimohd@upm.edu.my
Telephone (Office):	03-89467183
Fax:	03-89432514
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:Publication
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	This research demonstrates the potential of some selected fungi as inducers of
	important gaharu compounds, which can be detected as early as six months
	atter inoculation in cultivated karas trees. Ganaru is an important new
	commodity in Malaysia. Efforts to plant karas (Aquilana), the ganaru tree, in
	7 000 ba of karas plantations have been established throughout Malaysia. The
	Malaysian Government has identified gabaru as one of the main commodity in
	the new Agriculture National Key Economic Areas (NKEAs). Outside Malaysia, in
	producing countries such as China. India. Indonesia. Laos. Thailand. and
	Myanmar, cultivation of Aquilaria species are conspicuous. China alone has an
	estimated of 20 million trees. Gaharu formation in karas is induced by external
	factors such as wounding and pathogen attack. Various companies and
	individuals have developed formulations, declared as having superior gaharu
	induction effect on karas. However, these claims often gave inconsistent results
	in gaharu yield and quality. Different inducers are available in the market; a

	majority of them are chemical based. Due to concerns on the possible side-effect
	of these chemicals to consumers, many businesses are considering biobased
	inducers such as fungi. Because fungi are self-propagating organisms, the cost to
	come up with a biobased formulation is relatively cheaper than chemical-based.
	In this study, we evaluated the effect of five different fungi on gaharu formation
	over time in A. malaccensis. We found that the tested fungi had the ability to
	induce gaharu in just 6 months after inoculation. Gas chromatography/mass
	spectrometry (GCMS) analysis of the 6-month old sample yielded some
	important gaharu compounds such as 2-(2-phenylethyl) chromone derivative,
	benzylacetone, guaiene, palustrol, and anisylacetone. These were also found
	from gaharu of high grades, but not in the healthy wood.
Short Description:	
Keyword:	Gaharu, Aquilaria, Artificial inoculation, Inoculum,
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	Download Here

Title	DEVELOPMENT OF JATROPHA FRUIT SHELLING MACHINE FOR KERNEL RECOVERY IN BIODIESEL INDUSTRY
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Agriculture and Food
Leader Title:	Assoc. Prof. Dr.
Leader Name:	ROSNAH SHAMSUDIN
Researchers Name:	LIM BO YUAN, ROSNAH SHAMSUDIN, ROBIAH YUNUS, B.T. HANG TUAH BIN BAHARUDDIN
Faculty / Institute / School / Academy:	Faculty of Engineering
Department /	Department of Process and Food Engineering
Laboratory:	
Expertise:	FOOD MACHINERY DESIGN, FOOD ENGINEERING PROPERTIES
Email:	rosnahs@upm.edu.my
Telephone (Office):	03-89466366
Fax:	03-89466366
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:Biosystems Engineering 121 (2014) 46-
Publication / SD:	55
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	Jatropha Curcas L. is recognized as one of the most promising feedstock in biodiesel production. A Jatropha whole fruit consists of outer shell, husk (seed's coating), and white kernel (seed's nucleus). Both of shell and husk need to be discharged mechanically to produce kernel. Achieving shell-free kernel recovery from Jatropha fruits is important to improve oil yield and oil quality during oil extraction in biodiesel production. The invention relates to a Jatropha fruit shelling process which consists of a multilevel cracking system and a multiple stage separation system. The cracking unit was required to produce a mixture of kernels, shells and husks with variable size, mass and shape so that the separation unit can be designed by using the differences in properties as the basis for the separation. The mixture is separated by integrated multiple stage blower separator with controller and vibratory sieve. The whole process does not require a device for sorting fruit sizes or manual sorting before shelling

	sensors, since high fixed capital and maintenance costs so that the invention will
	not put the economic viability of the production system at risk. The largest
	jatropha plantations were reported exist in China, Indonesia, India and Myanmar
	among the Asian countries while the jatropha commercial activities in Malaysia
	are still relatively weaker. However, The Ministry of Plantation of Industries and
	Commdities in Malaysia has granted funds in jatropha pilot research projects and
	the local project owners have planned to increase the scale of cultivation to
	57,601 ha by 2015. Marketing of this invention in neighboring countries of
	Malaysia such as Indonesia and Thailand is also feasible.
Short Description:	
Keyword:	JATROPHA FRUITS, SHELLING PROCESS, KERNEL RECOVERY
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	Download Here
Title	New Algorithm for Solving Boundary Value Problem with Dirichlet and Neumann Boundary Conditions.
--	--
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Mathematical Sciences and ICT
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Assoc Prof Dr. Zanariah Abdul Majid
Researchers Name:	Zanariah Abdul Majid, Phang Pei See, Fudziah Ismail, Mohamed Suleiman, Khairil Iskandar Othman
Faculty / Institute / School / Academy:	Faculty of Science
Department /	Department of Mathematics
Laboratory:	
Expertise:	Analisis Berangka
Email:	zanariah@science.upm.edu.my
Telephone (Office):	03-89466874
Fax:	03-89437958
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:10MAR2008
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	Two-point block method with variable step-size strategy is presented to obtain
	the solutions for boundary value problems directly.Dirichlet type and Neumann
	type of boundary conditions are studied in this research. Multiple shooting
	techniques adapted with the three-step iterative method are employed for generating the guessing value.
Short Description:	The results suggest a significant improvement in the efficiency of the proposed
	methods in terms of the number of steps, execution time, and accuracy.
Keyword:	boundary value problem, block method Dirichlet type, Neumann type,
Advantages:	Numerical solutions for boundary value problem have great importance in
	scientific computation, as they were widely used to model the real world
	problems. Some of them are in the field of engineering, technology and
	optimization theory. Since the boundary value problem has wide application in
	science research, therefore the proposed direct block method will obtain faster
Trademark: Abstract: Short Description: Keyword: Advantages:	Yes, Trademark No.: Two-point block method with variable step-size strategy is presented to obtain the solutions for boundary value problems directly.Dirichlet type and Neumann type of boundary conditions are studied in this research. Multiple shooting techniques adapted with the three-step iterative method are employed for generating the guessing value. The results suggest a significant improvement in the efficiency of the proposed methods in terms of the number of steps, execution time, and accuracy. boundary value problem,block method Dirichlet type, Neumann type, Numerical solutions for boundary value problem have great importance in scientific computation, as they were widely used to model the real world problems. Some of them are in the field of engineering, technology and optimization theory. Since the boundary value problem has wide application in science research, therefore the proposed direct block method will obtain faster and accurate numerical solution of boundary value problem.

Market /	The formulation and implementation of the direct multistep block method for
Commercialisation	solving boundary value problem is new and likewise the algorithm developed
Potential:	can help the researchers and scientists to improve the quality of their
	research.The source code developed would be useful to the scientist, engineers,
	applied mathematicians and educators to solve many mathematical models in
	the form of higher order linear and nonlinear boundary value problems
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Digital Speech Watermarking For Online Speaker Recognition Through G.722 VoIP Channel
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Applied Science and Engineering
Leader Title:	Assoc. Prof. Dr.
Leader Name:	S.A.R Al Haddad
Researchers Name:	Mohammad Ali Nematollahi, S.A.R Al Haddad
Faculty / Institute / School / Academy:	Faculty of Engineering
Department /	Department of Computer and Communication System Engineering
Laboratory:	
Expertise:	Speech Recognition, Animal Sound Recognition, Mobile Embedded Apps
Email:	sar@upm.my
Telephone (Office):	03-89466440
Fax:	03-86567127
Patent Status:	Yes, Patent No.: PI12013701280
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	There are various vulnerable slots in online speaker recognition. A lot of
	challenges and opportunities in robustness, security, accuracy and recognition
	speed are needed to be explored. This thesis attempts to use this opportunity to
	improve security, recognition rate, accuracy and robustness of online speaker
	recognition systems by applying digital speech watermarking characteristic such
	as proof of authentication and fingerprinting. For this reason, multi-factor
	authentication method is used which is combination of PIN and voice biometric
	through the watermark. For watermarking PIN in voice, a blind and robust digital
	speech watermarking is used by applying linear predictive analysis (LPA) and singular value decomposition (SVD). However, embedding robust watermark
	inside the speech signal can degrade the performance of the conventional calling
	sneaker recognition systems which are based on sneaker-specific feature
	Therefore a frame selection technique is applied to weight the amount of
	speaker-specific information available inside the speech frames. In the proposed
	frame selection technique, LPA was applied to separate the system features

	(formants) and source features (residual errors) of the speech frames. Then, a frequency weighted function was used to quantify formants, and high order correlation as well as high order statistics are used for weighting the residual errors. Therefore, lower frames' weight can be ignored for speaker recognition and applied for digital speech watermarking.
Short Description:	
Keyword:	digital speech watermarking, online speaker recognition
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	DETERMINANTS OF COMMUNITY PARTICIPATION IN COMMUNITY POLICING IN MALAYSIA
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Humanities and Nation Building
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Assoc. Prof. Datin Dr. Jamilah Othman
Researchers Name:	Bahaman Abu Samah, Hanina Halimatussaadiah Hamsan, Jeffery Lawrence D'Silva A/L Alby, Abdul Hadi Sulaiman
Faculty / Institute / School / Academy:	Institute of Social Science Studies
Department /	Laboratory of Social Change, Economy and Peace Studies
Laboratory:	
Expertise:	Program Development & Evaluation, Community Development
Email:	jld@upm.edu.my
Telephone (Office):	03-89471872
Fax:	03-89471856
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:Publication
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	Understanding the factors that influence community participation in neighbourhood is vital in developing a successful community policing program in Malaysia. Objective of the paper is to reviews literature related factors influence participation through Socio-Ecological Model. Four factors are described: individual factors, family and friends factors, community factors, organizational factors, and environmental factors. This study was conducted purposely to develop a conceptual model that could be a good resource for future research.
Short Description:	
Keyword:	Community Participation Model, Community Policing
Advantages:	-
Market / Commercialisation Potential:	-
Abstract Additional	N/A

File:	
ResearchOutput:	N/A

Title	RICEVILLE - GAMIFICATION OF PADDY PRODUCTION
	FORGOTTEN WORDS (MORIBUND)
Product /	-
Technology Name:	
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Humanities and Nation Building
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Normahdiah Sheik Said
Researchers Name:	Abdul Mua'ti @Zamri Ahmad, Zaitul Azma Zainon Hamzah, Arbaie Sujud, Wan
	Roselezam Wan Yahya, Nadiah Suboh, Mohd. Iswardi Mohd Yusoff, Normaizura
	Md Zain, Haliza
Faculty / Institute /	Faculty of Modern Languages and Communication
School / Academy:	
Department /	Department of Malay Language
Laboratory:	
Expertise:	Games & Gamification, Cognitive Ergonomics, Human Computer Interaction
Email:	user@prpi.mail.com
Telephone (Office):	03-89468719
Fax:	03-89439951
Patent Status:	No
Copyright /	Yes, Copyright / Publication No. / SD No.:Publised in Bali, GTAR 2014 (Download
Publication / SD:	Here)
Industrial Design	No
Registration:	
Trademark:	No
Abstract:	"RICEVILLE" A Grain of Rice, A Drop of Farmers Sweat is a game about the
	forgotten words of tools, methods and process of paddy production not only by
	the Gen Y, but also the Gen X and Baby Boomers of the Net-Gens of today. The
	game-like gamified form is a new approach to uplift research findings on
	preservation and appreciation of culture and heritage. This GAMIFICATION
	approach was adapted to find out how an academic language research, that in
	previous forms of deliverables are as presented papers on selected academic
	conferences and seminars; as online reference journals; or as printed documents
	in archives, resource centers and libraries could be transformed into a more
	appealing deliverables that can attract the Net-Gens of today.
	The 19 moribund words (almost extinct words) of tools, methods and processes
	on padi production are data collected from two fundamental research : Study 1-
	Fundamental Research Grant Scheme (FRGS) 2010/2012 (MOE); and Study 2 -
	Research Universiti Grant Scheme (RUGS) 2012/2014 (UPM). These words are
	classified as moribund words, in this context, is because of the " lack of use"
	rather than, as referred by linguistics, as dead words / language. Besides not
	knowing words, when local youths were interviewed about the display of them
	in 3 selected museums, most interviewee (about 200 of them) said that the
	presentations are dated and uninviting.

	This game montage has shown the possibility of transforming these words into an engaging cultural heritage game. "RICEVILLE" is another Proof of Concept (POC) of NEMD Model (NormaT Engagement Multimedia Design Model) that can take "History of Paddy Production" to the next level, that is, in virtual spaces. Further funding is needed for full development. The game can be commercialized to Ministry of Tourism and Ministry of Education.
Keyword:	gamification, game, moribund, culture, heritage, education, engage, cognitive, multimedia
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional File:	Download Here
ResearchOutput:	Download Here

Title	Effect of methanol extract of Dicranopteris linearis against carbon tetrachloride- induced acute liver injury in rats
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Health and Well Being
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Assoc Prof Dr Zainul Amiruddin Zakaria
Researchers Name:	Farah Hidayah Kamisan, Farhana Yahya, Siti Syariah Mamat, Mohamad Fauzi Fahmi Kamarolzaman, Norhafizah Mohtarrudin, Mohd Khairi Hussain, Mohd Nasir Mohd Desa
Faculty / Institute / School / Academy:	Faculty of Medicine and Health Sciences
Department /	Department of Biomedical Science
Laboratory:	
Expertise:	Pharmacology and Toxicology, Natural product
Email:	zaz@medic.upm.edu.my
Telephone (Office):	03-89472654
Fax:	03-89436178
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:1
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	Dicranopteris linearis (family Gleicheniaceae) is one of the neglected plants in
	Malaysia. It is locally known as "resam". This plant has been proven to have
	several pharmacological properties that maybe beneficial in modern medicine.
	D. linearis has been reported to possess anti-inflammatory and antioxidant
	activities but no attempt has been made to study its hepatoprotective potential.
	The aim of the present study was to determine the hepatoprotective effect of
	methanol extracts of D. linearis (MEDL) against carbon tetrachloride (CCI4)-
	induced acute liver injury in rats. The extract was subjected to antioxidant
	scavenging assays, oxygen radical absorbance canacity (OPAC) test and total
	nhenolic content (TPC) determination) inhytochemical screening and HPLC
	analysis. For hepatoprotective assay, 6 groups ($n = 6$) of rats received oral test
	solutions: 10% dimethyl sulfoxide (DMSO), 200 mg/kg silymarin, or MEDL (50,

	250, and 500 mg/kg), once daily for 7 consecutive days, followed by
	hepatotoxicity induction with CCl4. Blood and liver were collected for
	biochemical and microscopic analysis. Based on the result, pretreatment with
	MEDL and silymarin significantly (P < 0.05) reduced the serum levels of AST, ALT
	and ALP, which were increased significantly (P < 0.05) in DMSO-pretreated group
	following treatment with CCl4. Histological analysis of liver tissues in groups
	pretreated with MEDL and silymarin showed mild necrosis and inflammation of
	the hepatocytes compared to the DMSO-pretreated group (negative control
	group). The MEDL showed higher DPPH- and superoxide anion-radical
	scavenging activity as well as high TPC and ORAC values indicating high
	antioxidant activity as compared to control. As conclusion, MEDL exerts
	hepatoprotective activity that could be partly contributed by its antioxidant
	activity and high phenolic content, and hence demands further investigation.
Short Description:	
Keyword:	Dicranopteris linearis, Methanol extract, Carbon tetrachloride, Antioxidant,
	Hepatoprotective effect
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Re evaluation of the effects of rodenticides on conservation of barn owls Tyto alba
Product / Technology Name:	-
Fxhibition:	Pameran Reka Cinta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Agriculture and Food
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Hafidzi Mohd Noor
Researchers Name:	Hasber Salim, Noor Hisham Hamid, Dzolkhifli Omar, Azhar Kasim
Faculty / Institute /	Faculty of Agriculture
School / Academy:	
Department /	Department of Plant Protection
Laboratory:	
Expertise:	Biological Control of Rodents
Email:	hafidzi@upm.edu.my
Telephone (Office):	03-89474844
Fax:	03-89381014
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:ISSN 1511-2780
Publication / 3D.	Vac Pagistration No :
Registration:	
Trademark:	Yes Trademark No :
Abstract:	A total of 12 adult harn owls (6 pairs) were assigned to two rodenticide
	treatments and a control. The two treatments were rats fed with bromadiolone
	and chlorophacinone respectively. All rodenticide treated owls received four
	poisoned rats at day 1, 3, 5 and 7 and a non-poisoned rat on each intervening
	day for 30 days. Each barn owl of the control group received a non-poisoned rat
	throughout the study. The reliability of non-invasive technique such as
	estimation of anticoagulant rodenticides residue in regurgitated pellets and
	blood samples were also evaluated. Barn owls showed behavioural aberrations
	such as coarse breathing, frequent closing of the eyes and reduced flying activity
	as early as day 5 after consuming three poisoned-rats. The weight recorded at
	day 7 after treatment showed all treated owls registered a reduction in weight.
	On the contrary, the owls in the control group gained weight. Bromadiolone and
	chlorophacinone was found to have high degree of toxicity to captive barn owls.
	I ne signs of toxicity such as naemorrhages and haematoma were found after feeding poisoned-rat for as few as 4 rats in a week. This finding is very crucial

	since barn owls has been reported to consume up to 3 rats per night and this
	would certainly increased their potential exposure to lethal secondary
	poisoning. Detection of residue in pellets regurgitated by barn owls can be used
	to indicate exposure of the latter to both compounds. The amount of residue
	detected in the pellet samples for chlorophacinone was 69.9 to 81.6 μ g/day or
	equivalent to 17.2 to 27.4 % of the compound consumed and corresponding
	value for bromadiolone was 27.2 to 34.5% (72.24 - 85.77 μg/day). Both
	bromadiolone than chlorophacinone are equally harzardous in terms of
	secondary poisoning risk on barn owls.
Short Description:	
Keyword:	Tyto alba, Secondary poisoning, chlorophacinone, bromadiolone
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	Download Here

Title	Road Safety Education Intervention in Malaysia: Status, Issues and Wayforward
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Health and Well Being
Leader Title:	Dr.
Leader Name:	Kulanthayan KC Mani
Researchers Name:	Prasanthi Puvanachandra and Adnan A. Hyder
Faculty / Institute /	Faculty of Medicine and Health Sciences
School / Academy:	
Department /	Department of Community Health
Laboratory:	
Expertise:	Public Health, Child Injuries and Traffic Injuries
Email:	kulan@upm.edu.my
Telephone (Office):	03-89472398
Fax:	03-89450151
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:2012: 22:1476
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	Each year more than 1.2 million people are killed because of road traffic injuries
	(RTIs) and millions more are disabled. The impact of this burden
	disproportionately affects low- and middle-income countries (LMIC). Although
	RTIS claim victims of all ages, the burden fails disproportionately on children and
	young adults. RTIs are now being recognized as one of the leading causes of child
	implementing road safety education (PSE) programs in primary schools in stages
	involving numerous stakeholders. The specific objectives of this study were to (a)
	document the opinions of both local- and national-level stakeholders regarding
	child pedestrian safety in Malaysia; (b) understand the process by which the
	policy to implement a national RSE program in schools within Malaysia was
	defined, especially in terms of decision analysis and stakeholder engagement;
	and (c) identify perceived and actual barriers to the overall implementation of
	this program and define potential avenues to overcome such barriers. We
	interviewed 19 stakeholders. Thematic analysis led to the identification of four

	themes: road traffic injuries (RTIs) among children in Malaysia, the role of RSE,
	factors affecting successful implementation, and intersectoral involvement. The
	latter was identified as a significant strength of the overall approach to
	implementation, and is one of the first examples in Malaysia and in the region of
	such an approach. Lack of official documentation surrounding ownership,
	funding responsibilities, and roles among the various sectors led to resistance
	from some groups. Although we know from scientific studies what works in
	terms of reducing RTIs, the more important question is how such interventions
	can be successfully and sustainably implemented, particularly in low- and
	middle-income countries (LMIC). The results of this study permit stronger
	understanding of issues surrounding the implementation of RTI interventions in
	LMIC.
Short Description:	
Keyword:	Traffic crashes, Child injuries, Road safety education intervention, stakeholder
	analysis
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	Download Here

Title	First Success in Captive Breeding and Seed Production of the White Sea Urchin, Salmacis sphaeroides Image: Comparison of the Com
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Agriculture and Food
Leader Title:	Dr.
Leader Name:	Dr. Md. Aminur Rahman
Researchers Name:	Fatimah Md.Yusoff, A. Arshad, Mariana Nor Shamsudin and S.M. Nurul Amin
Faculty / Institute /	Institute of Bioscience
School / Academy:	
Department /	Laboratory of Marine Science and Aquaculture
Laboratory:	
Expertise:	Marine Biology, Fisheries and Aquaculture
Email:	aminur1963@gmail.com
Telephone (Office):	03-89472141
Fax:	03-89472101
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:Publication
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	Salmacis sphaeroides (Echinodermata: Echinoidea: Temnopleuridae) or white sea urchin, is one of the regular echinoids, occurs in the warm Indo-West Pacific, including Johor Straits, between Malaysia and Singapore. In order to investigate the developmental basis of morphological changes in embryos and larvae, we documented the ontogeny of S. sphaeroides in laboratory condition. Gametes were obtained from adult individuals by 0.5 M KCl injection into the coelomic cavity. Fertilization rate at limited sperm concentration (10-5 dilution) was estimated to be 96.6±1.4% and the resulting embryos were reared at 24-25oC. First cleavage (2-cell), 4-cell, 8-cell, 16-cell, 32-cell and multi-cell (Morulla) stages were achieved 01.12, 02.03, 02.28, 02.51, 03.12 and 03.32 h post-fertilization. Ciliated blastulae with a mean length of 174.72±4.43 hatched 08.45 h after sperm entry. The ciliated gastrulae formed 16.15 h post-fertilization and the archenteron elongated constantly while ectodermal red-pigmented cells migrated synchronously to the apical plate. Pluteus larva started to feed unicellular algae in 2 d. grow continuously, and finally attained metamorphic

	competence in 35 d after fertilization. Induction of metamorphosis took
	approximately 1 h 30 min from attachment to the complete resorption of larval
	tissues and the development of complete juvenile structure with adult spines,
	extended tubefeet and well-developed pedicellaria, the whole event of which
	usually took place within 1 d post-settlement. The newly formed juvenile then
	grew on coralline algae to 3-month old juvenile, which represents the "sea
	urchin seed" for stocking in grow-out culture. This study represents the first
	successful investigation on the complete embryonic, larval and post-
	metamorphic juvenile development of S. sphaeroides from Tanjung Kupang,
	Peninsular Malaysia. The findings from the present study would greatly be
	helpful towards the understanding of ontogeny and life-history strategies, which
	will eventually assist us to develop the breeding, seed production and culture
	techniques of sea urchins in captive rearing condition
Short Description:	
Keyword:	Sea urchin, Salmacis sphaeroides, Embryo, Larva, Juvenile, Development
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	N/A

Title	Mycorriza diversity in Sarawak forest
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Forestry and Biodiversity
Leader Title:	Dr.
Leader Name:	Ong Kian Huat
Researchers Name:	Ong Kian Huat
Faculty / Institute / School / Academy:	Faculty of Agriculture and Food Sciences
Department /	Department of Forestry Science
Laboratory:	
Expertise:	Forestry
Email:	okhuat@upm.edu.my
Telephone (Office):	08-6855466
Fax:	08-6855416
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:Turkish Journal of Agriculture and
Publication / SD:	Forestry
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	Logging activities create adverse conditions for regeneration of vegetation. Rehabilitation will rejuvenate forest areas by restoring vegetation cover and improve productive growth of trees. In tropical soils, arbuscular mycorrhiza fungi are predominant and vital for tree survival and growth, especially during the seedling stages. This work found that adding and mixing organic matter during site preparation improved mycorrhiza availability and distribution as well as promoting tree growth. Technique employ have potential to be used for restoring degraded forest lands with forest managers, plantation owners and forestry depertments among the potential consumers. The cost of this technique is reasonable.
Short Description:	
Keyword:	Arbuscular mycorrhiza, logged-over forest, rehabilitated forest, soil nutrient
Advantages:	-
Market /	-
Commercialisation	

Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	A Self-Configured Link Adaptation for Green LTE Downlink Transmission
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Applied Science and Engineering
Leader Title:	Prof. Dr.
Leader Name:	Prof. Dr. Nor Kamariah Noordin
Researchers Name:	Nor Kamariah Noordin, Mustafa Ismael Salman, Chee Kyun Ng, Borhanuddin Mohd Ali and Aduwati Sali
Faculty / Institute / School / Academy:	Faculty of Engineering
Department / Laboratory:	Department of Computer and Communication System Engineering
Expertise:	wireless communications especially physical and network layers
Email:	nknordin@upm.my
Telephone (Office):	03-89466021
Fax:	03-89431296
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:Publication
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	Green deployment for cellular eNodeBs has been proposed recently to save power and reduce the huge amount of carbon dioxide (CO2) emitted by traditional power-hungry base stations. Green eNodeBs should also be subjected to restrictions on high data rate and quality of service (QoS), which both entail a high level of power consumption. In this regard, this paper addresses the trade- off between energy ef?ciency (EE) and spectral ef?ciency (SE) in both traditional and green long-term evolution eNodeBs without sacri?cing the QoS. EE is proved to monotonically increase with SE in traditional macrocells and quasi-concave in green macrocells. Accordingly, a new mapping between channel quality indicator and modulation and coding scheme is proposed to address EE-SE trade-off with the use of a multi-criteria decision-making technique. Then, a self-con?gured link
	related to EE and SE are adapted according to network load with the use of real- time cross-layer optimization. Simulation results show that the proposed SCLA

	provides a signi?cant gain in EE and 52% reduction of CO2 while maintaining SE close to the optimal value. Current and next-generation cellular networks require such interactive techniques in order to be self-optimized without complex modi?cations.
Short Description:	
Keyword:	3GPP-LTE, green communications, energy efficiency, spectral efficiency, multi- criteria decision making.
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Does too Much Finance Harm Economic Growth?
Product /	-
Exhibition:	Pameran Reka Cinta, Penyelidikan dan Inovasi (PRPI) 2014
	Applied Research (B)
Cluster:	Applied Research (B) Business Economics and Governance
Leader Title:	Assoc Prof. Dr
Leader Name:	Assoc. Floi. Di.
Researchers Name:	Law Slolig Hook
Eaculty / Instituto /	Nilvikal Siligii
School / Acadomy	Faculty of Economics and Management
Department /	Department of Economics
Laboratory:	
Exportiso:	Einancial Economics
Expertise.	
Telephone (Office):	02.80/67768
Fax:	02-80486188
Patent Status:	Voc. Datent No.:
Convright /	Ves Convright / Publication No. / SD No.: Journal of Banking and Einance, 41, 26-
Publication / SD:	Λ
Industrial Design	Ves Registration No :
Registration:	
Trademark:	Yes, Trademark No :
Abstract:	This study provides new evidence on the relationship between finance and
	economic growth using an innovative dynamic panel threshold technique. The sample consists of 87 developed and developing countries. The empirical results indicate that there is a threshold effect in the finance-growth relationship. In particular, we find that the level of financial development is beneficial to growth only up to a certain threshold; beyond the threshold level further development of finance tends to adversely affect growth. These findings reveal that more finance is not necessarily good for economic growth and highlight that an "optimal" level of financial development is more crucial in facilitating growth.
Short Description:	
Keyword:	Finance, Economic growth, Threshold effects, Dynamic panel threshold
Advantages:	-
Market /	-
Commercialisation Potential:	

Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	EXTRACTION OF POMELO JUICE USING A POMELO JUICE EXTRACTOR
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inoyasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Agriculture and Food
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Assoc. Prof.Dr Rosnah Bt Shamsudin
Researchers Name:	NUR SALIHAH BUANG, ROSNAH SHAMSUDIN, NORASHIKIN ABDUL AZIZ
Faculty / Institute /	Faculty of Engineering
School / Academy:	
Department /	Department of Process and Food Engineering
Laboratory:	
Expertise:	Food Machinery Design, Food Engineering Properties, Postharvest Engineering
Email:	rosnahs@upm.edu.my
Telephone (Office):	03-89466366
Fax:	03-89466366
Patent Status:	Yes, Patent No.: XXXX
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	In the beverage industry, application of extraction method is to produce juice with high yield while preserving its nutritional values and appearance. Ideal extraction method must possess quantitative, non-destructive and time-saving criteria. On the other words, good extraction method must have high juice yield, able to preserve good quality of juice and shorten the extraction time. The present invention relates to a juice extractor for preparing juice from fruits and more particularly to pomelo fruit. Pomelo is a type of citrus fruit which comprises of the most outer layer namely flavedo, green rind with oil glands spotted all over the fruit peel, an albedo, white rind and spongy texture, a segment of fleshy fruit, commonly called fruit flesh, covered with tough skin called lamella, and a segment flesh compounded by numerous juice sacs. Achieving the high yield of pomelo juice is important since the juice sacs of pomelo fruit flesh is quite tough to crush because of its rubbery texture. The invention of pomelo juice extractor relates to a method and an apparatus to extract flesh juice sacs of pomelo fruits, and more particularly to improved the

	conventional juice extractor. A pomelo juice extractor comprising a crushing
	spinning chamber which centrifugally spin the strainer basket to separate the
	juice from the pulp to produce almost pulp-free juice. The performance of
	pomelo juice extractor has been determined by qualitative and quantitative
	extraction loss and physicochemical characteristics by standard formulae and methods.
Short Description:	
Keyword:	POMELO JUICE, POMELO JUICE EXTRACTOR, PERFORMANCE, JUICE YIELD,
	PHYSICO-CHEMICAL
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	N/A

Title	CO2/CH4 separation by novel Polysulfone/Titanium dioxide mixed matrix membrane
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Materials Science and Technology
Leader Title:	Dr.
Leader Name:	Dr. Nor Azowa Ibrahim
Researchers Name:	Nor Azowa Ibrahim, Pourya Moradihamedani, Nor Azah Yusof, Chieng Buong Woei
Faculty / Institute / School / Academy:	Faculty of Science
Department /	Department of Chemistry
Laboratory:	
Expertise:	polymer blend, polymer nanocomposites, nanomaterials, polymer membrane
Email:	norazowa@upm.edu.my
Telephone (Office):	03-89466802
Fax:	03-89432508
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:POLYMER ENGINEERING AND SCIENCE
Publication / SD:	2014
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	Polysulfone (PSf) based mixed matrix membranes (MMMs) with the
	incorporation of titanium dioxide (TiO2) nanoparticles were prepared.
	Distribution and agglomeration of TiO2 in polymer matrix and also surface of
	membranes were observed by scanning electron microscopy (SEM), transmission
	electron microscopy (TEM) and energy dispersive X-ray (EDX). Variation in
	surface roughness of MMMs with different TIO2 loadings was analyzed by
	atomic force microscopy (AFM). Physical properties of membranes before and
	after cross-linking were identified through thermal gravimetric analysis (IGA). At low TiO2 loadings $(2.2 \text{ wt } \%)$ both CO2 and CU4 normaphilities decreased
	100×102 loadings (5 wi. 70), but CO2 and consequently as selectivity improved and reached to 26 E at 2 has pressure
	Interestingly PSf/TiO2 3 wt % membrane did not allow to CH4 molecules to pass
	through the membrane and this sample just had CO2 normeability at 1 bar
	pressure. Gas permeability increased considerably at high filler contents (25
	wt.%) and CO2 permeance reached to 37.7 GPU for PSf/TiO2 7 wt.% at 7 bar

	pressure. It was detected that, critical nanoparticle aggregation has occurred at higher filler loadings (?5 wt.%) which contributed to formation of macrovoids and defects in MMMs. Accordingly, MMMs with higher gas permeance and lower gas selectivity were prepared in higher TiO2 contents (?5 wt.%).
Short Description:	
Keyword:	Mixed matrix membrane, Polysulfone, Titanium dioxide, Gas separation
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	Download Here

Title	RAMBUTANS : An Automatic Randomized Test Generation Tool for Aspect-oriented Software
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Mathematical Sciences and ICT
Leader Title:	Prof. Dr.
Leader Name:	Prof. Dr. Abdul Azim Abd Ghani
Researchers Name:	Reza Meimandi Parizi
Faculty / Institute /	Faculty of Computer Science and Information Technology
School / Academy:	
Department /	Department of Information System
Laboratory:	
Expertise:	Software Engineering
Email:	azim@upm.edu.my
Telephone (Office):	03-89471735
Fax:	03-89466577
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:1
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	Aspect-oriented programming (AOP) has been promoted as a means for handling
	the modularization of software systems by raising the abstraction level and
	reducing the scattering and tangling of crosscutting concerns. However, research
	shows that AOP is currently used in a cautious way due to its natural impact on
	testability and maintainability. To realize the benefits of AOP and to increase its
	adoption, aspects developed using AOP should be subjected to automated
	testing. Automated testing, as one of the most pressing needs of the software
	industry to reduce both effort and costs in assuring correctness, is a delicate
	issue in testing aspect-oriented programs that still requires advancement and
	has a way to go before maturity. Previous attempts and studies in automated
	test generation process for aspect-oriented programs have been very limited.
	Inis project proposes a rigorous automated test generation technique, called
	RAIVIBUTANS, with its tool support based on guided random testing for the
	Aspects programs. The results of a thorough empirical study by means of mutation analysis to compare RAMPLITANS and the four existing automated AOP

	testing approaches for testing aspects in terms of fault detection effectiveness and test effort efficiency show that the resulting randomized tests were reasonably good for AOP testing, thus the proposed technique could be worth using as an effective and efficient AOP-specific automated test generation technique.
Short Description:	
Keyword:	Software testing, Automated test generation, Testing tool
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	N/A

Title	Assessment of Rural Youth Sustainable Livelihood in Malaysia
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Applied Science and Engineering
Leader Title:	Prof. Dr.
Leader Name:	Prof. Emeritus Dato Dr. Sulaiman Md. Yassin
Researchers Name:	Sulaiman Md. Yassin, Azimi Hamzah, Bahaman Abu Samah, Asnarulkhadi Abu Samah, Hayrol Azril Mohamed Shaffril
Faculty / Institute / School / Academy:	Institute of Social Science Studies
Department / Laboratory:	Laboratory of Rural Advancement and Agriculture Extension
Expertise:	Extension Education and Communication, community development
Email:	majudesa.desa@gmail.com
Telephone (Office):	03-89471863
Fax:	03-89471856
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:Journal Publication
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	This study aims to asses the rural youth sustainable livelihood. The study is
	quantitative in nature where a developed questionnaire was used as the main
	instrument for data collection. A total of 240 rural youths from four rural areas in
	Peninsular Malaysia have been randomly selected as the respondents. Based on
	the analysis done, it can be seen that the respondents recorded a high level of
	Moreover, the respondents were recorded to score a moderate lovel of mean
	score on four livelihood dynamics namely physical capital natural capital
	financial capital and natural capital. A number of discussions have been
	highlighted and it is a hope that such discussion would assist to further
	strengthen the rural youth sustainable livelihood in Malavsia.
Short Description:	
Keyword:	Rural development, youth development, sustainable livelihood
Advantages:	-

Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Detection of two distinct phytoplasma species on Wodyetia bifurcata in Malaysia
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Agriculture and Food
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Ganesan Vadamalai
Researchers Name:	Neda Naderali, Ganesan Vadamalai, Naghmeh Nejat1, Kong Lih Ling, Jugar Kadir, Yee How Tan
Faculty / Institute / School / Academy:	Faculty of Agriculture
Department /	Department of Plant Protection
Laboratory:	
Expertise:	Plant Virology
Email:	ganesanv@upm.edu.my
Telephone (Office):	03-89474843
Fax:	03-89381014
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:Publication
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	Wodyetia bifurcate palm tree commonly known as the Foxtail palm and placed
	spectacular, adaptable and fast-growing landscape tree. The foxtail as a nonular
	ornamental nalm in the tronics and subtronics is most commonly used in
	landscaping in Malaysia. Phytoplasmas are prokaryotes within the class
	Mollicutes, which have diverged from low-GC gram-positive bacteria.
	Phytoplasmas have been associated with over 700 diseases in different plant
	species including agricultural crops and ornamentals universally. In Malaysia,
	phytoplasma caused yellowing symptoms similar to coconut yellow decline on
	ornamental palms. Symptoms consistent with CYD such as the crown
	inflorescence yellowing, severe chlorosis, stunting, general decline and ultimate
	death were observed in foxtail palms from the state of Selangor in Malaysia,
	indicating putative phytoplasma infection. Total genomic DNA was extracted
	using CTAB method and Phytoplasma infection was investigated initially by

	nested PCR assays using phytoplasma-universal primer pair P1/P7 followed by
	R16F2n/R16R2 and PCR products of the 1250bp size (16S rDNA) were amplified.
	Phytoplasma 16S rDNAs were cloned using a TOPO TA cloning kit and sequenced
	commercially. Phytoplasma 16S rDNA gene sequences from symptomatic foxtail
	palms showed highest 99% homology firstly with phytoplasma causing Bermuda
	grass white leaf (AF248961) and coconut yellow decline (EU636906), members of
	the 16SrXIV 'Candidatus Phytoplasma cynodontis' group, and secondly with
	Onion yellows phytoplasma OY-M strain (NR074811), from the 16SrI-B
	'Candidatus Phytoplasma asteris' group. The representative nucleotide
	sequences of the isolated phytoplasma were deposited in the GenBank
	database. The outcome of BLAST analysis was in accordance with phylogenetic
	tree and the sequences from current study were clustered in group 16SrI and
	16SrXIV. Based on our research, popular evergreen foxtail palms are highly
	susceptible and affected by phytoplasma.
Short Description:	
Keyword:	phytoplasma,16S rDNA,ornamental palm
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Paternal and Maternal Involvement in Malaysian Adolescents: Test of Factor Structure, Measurement Invariance and Latent Mean Differences
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Humanities and Nation Building
Leader Title:	Prof. Dr.
Leader Name:	Prof Dr. Rozumah Baharudin
Researchers Name:	Rozumah Baharudin, Yap Siew Ting, Siti Nor Yaacob, & Syuhaily Osman
Faculty / Institute /	Faculty of Human Ecology
School / Academy:	
Department /	Department of Human Development and Family Studies
Laboratory:	
Expertise:	Family Ecology and Parenting
Email:	rozumah@upm.edu.my
Telephone (Office):	03-89467082
Fax:	03-89467082
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD·	Yes, Copyright / Publication No. / SD No.:DOI 10.1007/s12187-013-9209-3
Industrial Design	Yes. Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	As fathering gains increasing attention in parenting studies. the same instrument
	is always used to measure fathering and mothering concurrently and
	comparisons are made without prior establishment of measurement invariance.
	It is common that parenting scales possess different factor structures across
	different cultural settings. This study aimed to examine the factor structure,
	measurement invariance and latent mean differences of the Father/Mother
	Involvement Scale across adolescents' perceived paternal and maternal
	involvement and by adolescent gender. A random sample of 720 Malaysian high
	school adolescents (Mage=16 years; SD=0.16) was used in the current study.
	Initial confirmatory factor analysis (CFA) indicated that the original factor
	structure had inadequate fit in the current sample. Subsequent exploratory
	ractor analysis (EFA) yielded a three-factor structure that demonstrated good fit
	In turtner CFAS. Multigroup CFA provided support for configural invariance,
	and maternal involvement and across adolescent gender. The latent factor mean

	comparisons showed that mothers were perceived to have higher expressive,
	instrumental and leisure/companionship involvement. Female adolescents
	perceived higher paternal expressive and instrumental involvement and
	maternal expressive, instrumental and leisure/companionship involvement than
	did male adolescents. These mean differences found at the latent level may
	reflect true differences. Taken together, the Father/Mother Involvement Scale is
	a sound measure of paternal and maternal involvement in Asian people, at least
	in Malaysian adolescents. The differences in factor structure may be attributable
	to sample variations in cultural background and/or family form.
Short Description:	
Keyword:	Father involvement, Mother involvement, Parenting, Factor structure,
	Measurement invariance,Latent mean differences
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	THE APPLICATION OF ISTIHALAH IN CERAMICS BASED PRODUCTS OF ANIMAL BONES
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Halal Sciences and Management
Leader Title:	Assoc. Prof. Dr.
Leader Name:	NURDENG DEURASEH
Researchers Name:	MOHD MAHYEDDIN MOHD SALLEH, MOHAMMAD AIZAT JAMALUDDIN, IRWAN MOHD SUBRI, SHUHAIMI MUSTAFA, SUHAIMI AB. RAHMAN
Faculty / Institute / School / Academy:	Institute of Products Halal Research
Department /	Laboratory of Policy and Management
Laboratory:	
Expertise:	HALAL STUDIES, ISLAMIC THOUGHT, ISLAMIC CIVILIZATION
Email:	nurdeng@upm.edu.my
Telephone (Office):	03-89471036
Fax:	03-89412624
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:ISSN: 19854668
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	This study focuses on the status of using ceramic products produced from animal
	bone such as bone China products as well as water filter cartridges according to
	Shariah perspective. The method used in this study is document analysis to
	examine the various opinions of classical and current Islamic jurists. The results
	showed that bone China product has undergone complete changes (istihalah
	kamilah), while in the water filter cartridge the changes happened is not
	completed (Istinaian gnayr kamilan). These changes include the physically and
	substancely of such products. This study contributes to the application of
	substances in the production of current bousehold products
Short Description:	
Keyword	animal hone ceramic hone China water filter cartridge halal istibalah
Advantages:	
Market /	-

Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A
Title	Palm kernel cake as a potential ingredient in Muscovy ducks diet
--	--
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Agriculture and Food
Leader Title:	Dr.
Leader Name:	Abdoreza Soleimani Farjam
Researchers Name:	Mustafa Fadil, Abd Razak Alimon, Goh Yong Meng, Mahdi Ebrahimi, Abdoreza Soleimani Farjam
Faculty / Institute / School / Academy:	Institute of Tropical Agriculture
Department / Laboratory:	Laboratory of Animal Production
Expertise:	Poultry Nutritional Physiology
Email:	abdoreza@upm.edu.my
Telephone (Office):	03-89471389
Fax:	03-89381612
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:1
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
	production of PKC amounted to about 8.2 million metric ton in 2012. Because of its consistent availability and competitive price, PKC is widely used as a moderate source of protein and energy in different livestock such as dairy cow, pig , rabbit, laying hen and broiler chickens. However, the usage of PKC as for duck feeding has never been investigated. In this study we have reported a novel application for PKC as in the duck diet. This is confirmed by the equal body weight, feed intake, feed/gain, digestibility of protein and energy, mineral utilisation; feed passage time and feaces characteristics of these birds compared to the control. The results of this study open and validate a novel application for locally available abundant agricultural by-products. This will enhance competiveness and profit margin of the poultry farmers in local and international markets
Short Description:	

Keyword:	Palm kernel cake, Duck, Digestibility
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Nanocrystal Delivery Vehicle
Product /	-
Technology Name:	
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Materials Science and Technology
Leader Title:	Prof. Dr.
Leader Name:	Md Zuki bin Abu Bakar@Zakaria
Researchers Name:	Md Zuki bin Abu Bakar@Zakaria, Abdullah Shafiu Kamba, Maznah Ismail, Tengku
	Azmi Tengku Ibrahim
Faculty / Institute /	Institute of Bioscience
School / Academy:	
Department /	Laboratory of Molecular Biomedicine
Laboratory:	
Expertise:	Veterinary Anatomy
Email:	zuki@upm.edu.my
Telephone (Office):	03-89472102
Fax:	03-89472101
Patent Status:	Yes, Patent No.: PI2014700370
Copyright /	Yes, Copyright / Publication No. / SD No.:
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	The present invention described a synthesis of calcium carbonate nanocrystal for
	drug delivery vehicle, the biobased aragonite form of calcium carbonate was
	synthesized from cockle shells with a selective rod shapes morphology and the
	average size of the crystals are in ranges from 35nm to 60nm. The method for
	preparing nanocrystal involve the dissolving dry cockle-shell powder in a
	formulated oil-in-water microemulsion forming a suspension; passing the
	suspension through High Pressure Homogenization (HPH) for premilling at an
	elevated pressure of first and second stage (300 and 500 bars respectively) and
	the last stage is by passing the suspension through HPH at (1500 bar for 25
	nomogenizing cycle) forming a nanocrystal suspension. The nanocrystal
	suspension was intered and uried. The method of preparation and drug
	chell derived calcium carbonate nanocrystals aragonite networph has all
	sensitive properties, the ability to encapsulate variety of drugs, genes and

	protein as delivery vehicles and other macromolecules, thereby protecting them
	from free mature degradation. The nanocrystal can be use to develop scaffolds
	for fracture void fillers to facilitate bone growth in order to shorten healing
	period. The current nanocrystals delivery vehicle can be used in medical and
	pharmaceutical allied companies due to the biocompatibility, degradability and
	unique properties of nanocrystal in drug delivery and used as antacid and other
	pharmaceutical additives. Potential consumers of nanocrystals delivery vehicle
	are largely in the synthetic bone, pharmaceutical additives and polymer
	composites industries.
Short Description:	
Keyword:	Nanocrystals, calcium carbonate, aragonite, cancer, drug delivery
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Measurement of metal nanoparticle concentration in aqueous solution Using Surface Plasmon Resonance
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Materials Science and Technology
Leader Title:	Dr.
Leader Name:	Ahmad Sukri Muhammad Noor
Researchers Name:	Amir Reza Sadrolhosseini, Mahnaz M. Abdi , Mohd. Adzir Mahdi, Yusser Al- Qazwini
Faculty / Institute / School / Academy:	Faculty of Engineering
Department /	Department of Computer and Communication System Engineering
Laboratory:	
Expertise:	Photonics
Email:	amir17984818@gmail.com
Telephone (Office):	03-89466283
Fax:	03-89466122
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:DOI: 10.1080/03602559.2013.845215
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	Surface plasmon resonance (SPR) is a powerful technique used to retrieve information on the optical properties of biomaterials and nanomaterials. The main potential of surface plasmon resonance is the characterization and a detection of impurity in probe medium. The sensitivity of modern SPR sensing systems, which is based on the Kretschmann configuration, is capable of detecting refractive indices as high as 5 × 10-7 refractive index units, corresponding to a 1 pg/mm2 surface coverage of material. Plasmonic nanoparticles are also the subject of intense research in optical sensing. Some researchers have used nanoparticles to detect binding events and the enhancement of local electromagnetic fields coupling between adjacent nanoparticles and molecules. Concentrations of metal nanoparticles were measured using atomic absorption spectroscopy (AAS) or inductively coupled plasma- mass spectroscopy (ICP- MS). These methods have disadvantages such

	curve. In this study, the Surface Plasmon Resonance (SPR) sensor based on
	conducting polymer sensing layer such as polypyrrole, polypyrrole-chitosan and
	polypyrrole chitosan Graphene Oxide were used to measure the concentration
	of metal nanoparticles. The silver, copper and gold nanoparticles were prepared
	in Monoolein, virgin coconut oil and pomegranate seed oil using laser ablation
	method. The concentration of nanoparticle were measured by using mentioned
	conducting polymer sensing layer and the sensitivity of sensors was obtained
	from comparison of results related to measure concentration of Ag-NPs in
	various medium.
Short Description:	
Keyword:	Ag- Nanoparticle, Surface plasmon Resonance, Polypyrole-chitosan
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	Download Here

Title	The Effect Of Differentiated Learning In Teaching Arabic Language On Students' Motivation And Achievement For Non-Native Speaker
Product /	-
Technology Name:	
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Humanities and Nation Building
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Samsilah Roslan
Researchers Name:	Najiba Meyad, Assoc.Prof Dr. Samsilah Roslan, Dr. Maria Chong Abdullah, Dr. Pabiyah Haji Maming
Faculty / Institute /	Faculty of Educational Studies
School / Academy:	
Department /	Department of Foundations of Education
Laboratory:	
Expertise:	Philosophy of Education
Email:	samsilah@gmail.com
Telephone (Office):	03-89471241
Fax:	03-89471635
Patent Status:	No
Copyright /	Yes, Copyright / Publication No. / SD No.:1214
Publication / SD:	
Industrial Design	No
Registration:	
Trademark:	No
Abstract:	The purpose of this study was to examine the effects of Differentiated Learning Method (DLM) on students' motivation and achievement towards studying Arabic Language (AL) as a foreign language for non-native speakers. The participants in this study were 100 (47 males and 53 females) form four Malaysian students in secondary school from Kolej Islam Sultan Alam Shah (KISAS). This study applied a quasi-experimental design involving two groups. The experimental group was taught using DLM while the control group was taught by using Teacher Centered Method (TCM). Findings show that DLM helped students perform and achieve significantly better than the control group in Arabic Language writing, reading, and grammar scores. The mean score in reading for experimental group (M=20.04, SD= 4.43) was significantly higher than the mean scores for control group (M=18.38, SD= 4.69); t (1.82); p<.05). The same result was observed for grammar, (experimental group - M=24.02, SD= 6.07, control group - M=19.28, SD= 7.66); t (3.42); p=.00), and writing (experimental group -M=10.14, SD= 2.79, control group - M=8.20, SD= 2.38); t

	(3.73); p=.00). In addition, the students using DLM were obviously more
	motivated towards learning Arabic Language (M=155.740, SD=12 .66) than the
	students using TCM (M=145.280, SD= 14.41); t (3.85); p<.05) in the aspects of
	attainment value, study habit, extrinsic value, intrinsic value, cost value,
	expectancy for success, and ability belief. In conclusion, this research provides
	empirical evidence that using DLM improved students' motivation and
	achievement towards studying AL as a foreign language.
Short Description:	
Keyword:	Differentiated learning method, differentiated instruction, and writing
	achievement in Arabic Language.
	Academic Discipline and Sub-Disciplines
	Education and Psychology; Teaching and learning
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Synthesis of antifungal agents by phenyl Hydroxylaminolysis of canola and palm oils.
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Applied Science and Engineering
Leader Title:	Dr.
Leader Name:	Hossein Jahangirian
Researchers Name:	Hossein Jahangirian
Faculty / Institute /	Faculty of Engineering
School / Academy:	
Department /	Department of Chemical and Environmental Engineering
Laboratory:	
Expertise:	Analytical Chemistry
Email:	kamran.jahangirian@gmail.com
Telephone (Office):	03-89466268
Fax:	03-86567120
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:Vol. 25, No. 8 (2013), 4183-4188
Industrial Design	Yes. Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	Phenyl Hydroxylaminolysis of canola or palm kernel oils were performed by enzymatic reaction using phenyl hydroxylamine in present immobilized lipase (Lipozyme TL IM). The products [phenyl fatty hydroxamic acids (PFHAs)] were separated and purified by filtration, solvent extraction followed by evaporation of the solvent. Copper complexes of phenyl fatty hydroxamic acids [copper phenyl fatty hydroxamate (Cu-PFHs)] acids were prepared in organic phase by stirring the phenyl fatty hydroxamic acids which were dissolved in hexane as organic media and copper(II) nitrate solution as aqueous phase. The antifungal properties of phenyl fatty hydroxamic acids and its copper(II) complex Cu-PFHs based on canola and palm kernel oils were separately investigated against Candida parapsilosis, Candida albicans and Aspergillus fumigatus by the disc diffusion method using Mueller-Hinton agar (MHA) and Potato dextrose agar (PDA). The results showed that antifungal activity of phenyl fatty hydroxamic acids and Cu-PFHs are significantly higher than Nystatin while use against the A. fumigatus. C. parapsilosis and C. albicans and also are significantly higher than

	ketoconazole while use against the A. fumigatus. The results Also showed that antifungal activity of Cu-PFHs is higher than phenyl fatty hydroxamic acids and also these activities of phenyl fatty hydroxamic acids and Cu-PFHs increase while their concentrations increase. Among the advantages of this synthesis is the use of easily available and low cost oil and solvents, mild temperature condition and enzymatic reaction for the purpose of good energy saving to achieve green
	chemistry.
Short Description:	
Keyword:	Antifungal activity, Phenyl fatty hydroxamic acids, Copper phenyl fatty
	hydroxamate, Canola oil, Palm kernel oil
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Youth-Adult Partnership: Exploring Contributions to Empowerment, Agency and Community Connections in Malaysian Youth ProgramsImage: Contribution of the second
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Humanities and Nation Building
Leader Title:	Dr.
Leader Name:	Steven Eric Krauss
Researchers Name:	Jessica Collura, Shepherd Zeldin, Adriana Ortega, Haslinda Abdullah, Abdul Hadi Sulaiman
Faculty / Institute / School / Academy:	Institute of Social Science Studies
Department / Laboratory:	Laboratory of Community Education and Youth Studies
Expertise:	Youth Development
Email:	lateef@upm.edu.my
Telephone (Office):	03-89471865
Fax:	03-89471856
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:DOI 10.1007/s10964-013-0027-1
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	features of effective developmental settings: supportive adult relationships and support for efficacy and mattering. Previous studies have shown that when youth, supported by adults, actively participate in organizational and community decisionmaking they are likely to show greater confidence and agency, empowerment and critical consciousness, and community connections. Most of the extant research on Y-AP is limited to qualitative studies and the identification of organizational best practices. Almost all research focuses on Western
	sociocultural settings. To address these gaps, 299 youth, age 15 to 24, were sampled from established afterschool and community programs in Malaysia to explore the contribution of Y-AP (operationalized as having two components: youth voice in decision-making and supportive adult relationships) to empowerment, agency and community connections. As hypothesized, hierarchical regressions indicated that program quality (Y-AP, safe environment

	and program engagement) contributed to agency, empowerment and
	community connections beyond the contribution of family, school and religion.
	Additionally, the Y-AP measures contributed substantially more variance than
	the other measures of program quality on each outcome. Interaction effects
	indicated differences by age for empowerment and agency but not for
	community connections. The primary findings in this inquiry replicate those
	found in previous interview and observational-oriented studies. The data
	suggests fertile ground for future research while demonstrating that Y-AP may
	be an effective practice for positive youth development outside of Western
	settings.
Short Description:	
Keyword:	Adolescents, Youth-adult partnership, Positive youth development, Community
	connections, Personal agency, Psychological empowerment
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	A Novel Aqueous Two Phase System Composed of a Thermo- Separating Polymer and an Organic Solvent for Purification of Thermo-Acidic Amylase Enzyme from Red Pitaya (Hylocereus polyrhizus) Peel
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Agriculture and Food
Leader Title:	Prof. Dr.
Leader Name:	Mehrnoush Amid
Researchers Name:	Mehrnoush Amid and Mohd Yazid ABD Manap
Faculty / Institute /	Faculty of Food Science and Technology
School / Academy:	
Department /	Department of Food Technology
Laboratory:	
Expertise:	Food Enzyme Biotechnology
Email:	mehrnoush@upm.edu.my
Telephone (Office):	03-89468413
Fax:	03-89423552
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:gjhkk
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	The purification of thermo-acidic amylase enzyme from red pitaya (Hylocereus polyrhizus) peel for the first time was investigated using a novel aqueous two-
	phase system (ATPS) consisting of a thermo-separating copolymer and an
	organic solvent. The effectiveness of different parameters such as molecular
	weight of the thermo-separating ethylene oxide-propylene oxide (EOPO)
	copolymer and type and concentration of organic solvent on the partitioning
	benavior of amylase was investigated. In addition, the effects of phase
	components, volume ratio (VR), pH and crude load of purification factor and
	the enzyme. In the nevel ATPS method, the enzyme was satisfactorily partitioned
	into the polymer-rich top phase in the system composed of 30% (w/w) EOPO
	2500 and 15% (w/w) 2-propanol, at a volume ratio of 1.94 and with a crude load
	scale of 25% (w/w) at pH 5.0. Recovery and recycling of components was also
	measured in each successive step of the ATPS process. The enzyme was
	successfully recovered by the method with a high purification factor of 14.3 and

	yield of 96.6% and copolymer was also recovered and recycled at a rate above 97%, making the method was more economical than the traditional ATPS method.
Short Description:	
Keyword:	novel aqueous two phase system; thermo-separating copolymer; organic solvent; thermo-acidic amylase; recycling of phase components; partition coefficient; purification fold; yield
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Structural Equation Modeling of Consumer Purchase intention towards Synthetic Functional Foods
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Agriculture and Food
Leader Title:	Prof. Dr.
Leader Name:	Prof. Dr. Zainalabidin Mohamed
Researchers Name:	Phuah Kit Teng, Golnaz Rezai, Zainalabidin Mohamed, Mad Nasir Shamsudin
Faculty / Institute /	Faculty of Agriculture
School / Academy:	
Department /	Department of Agribusiness and Information System
Laboratory:	
Expertise:	Agribusiness Marketing and Agricultural Economic
Email:	zam@putra.upm.edu.my
Telephone (Office):	03-89474816
Fax:	03-89408213
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:WFPM-2014-0035
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
	just a new category of food products marketed for their health benefits, but their competitive market has made the consumers become more favorable toward firms that are involved in this industry. The public is increasingly concerned about health and food-related risks. They tend to make decisions on food consumption, food storage and food preparation on a more ideal perspective based on health and safety. Therefore, the objective of this study is to determine the factors and intention of Malaysian consumers to purchase synthetic functional foods. Structural equation modelling is used to accomplish the objectives of this study with the feedback received from the 2004 households who were interviewed through a structural questionnaire. The results show that the most influential factors influencing consumer purchasing intention towards synthetic functional foods are perceived benefits followed by attitude and subjective norms.
Short Description:	

Keyword:	Purchase intention, structural equation modeling, synthetic functional foods
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	A TRANSLATION ENGINE FOR SEMANTIC QUESTION ANSWERING SYSTEM
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Mathematical Sciences and ICT
Leader Title:	Dr.
Leader Name:	NURFADHLINA MOHD SHAREF
Researchers Name:	NURFADHLINA MOHD SHAREF, MASRAH AZRIFAH AZMI MURAD, MOHAMMAD YASER SHAFAZAND
Faculty / Institute / School / Academy:	Faculty of Computer Science and Information Technology
Department /	Department of Computer Science
Laboratory:	
Expertise:	TEXT MINING, INTELLIGENT SYSTEMS
Email:	nurfadhlina@upm.edu.my
Telephone (Office):	03-89471776
Fax:	03-89466550
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:NLI
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	Semantic guestion answering (SQA) enables user to pose guestion in natural
	language and the answer is retrieved from semantic knowledge base (KB) which
	saves the requirement for the users to know the technicality of the syntactical
	query (i.e., SPARQL). MyAutoSPARQL is an application that applies an engine
	which translates natural language to SPARQL. Several steps are needed which
	are the syntactic parsing and analysis, intention identification, gazetteer-based
	matching, triples generation and SPARQL construction. The SPARQL construction
	is the most critical part and disambiguation technique based on bottom-up
	reasoning strategy is performed. MyAutoSPARQL will enable more exploitation
	of semantic information in the web.
Short Description:	
Keyword:	semantic web, natural language, search engine
Advantages:	-
Market /	-

Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Hidden Markov Model Based Decision Model for Smart Homes
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Mathematical Sciences and ICT
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Assoc.Prof.Dr Md Nasir Sulaiman
Researchers Name:	Md Nasir Sulaiman, Norwati Mustapha, Thinagaran Perumal, Ahmad Shahi,
Faculty / Institute /	Faculty of Computer Science and Information Technology
School / Academy:	
Department /	Department of Computer Science
Laboratory:	
Expertise:	Intelligent Computing
Email:	nasir@upm.edu.my
Telephone (Office):	03-89471702
Fax:	03-89466576
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:1
Publication / SD:	
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	Smart home environment contain diversified systems ranging from
	entertainment to automation like devices that is heterogeneous in nature. For
	the reason that of systems heterogeneity, it is frequently challenging to execute
	interoperation around them and realize desired services preferred by the home
	occupants. The interoperation complexity stands at the bottleneck in ensuring
	various tasks executed jointly among diversified systems in smart home
	environment. The proposed invention, an Hidden-Markov Model (HMM) based
	decision model provides decision support ability for such environment. The
	decision model is highly applicable in data-intensive environment like smart
	nomes where many appliances are being introduced. The target market is
	model into their framework.
Short Description:	
Keyword:	Hidden Markov Model;Smart Homes
Advantages:	-

Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	N/A

Title	Easy and quick precipitation as green method for Synthesis of Zeolite/Fe3O4 nanocomposite
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Materials Science and Technology
Leader Title:	Dr.
Leader Name:	Hossein Jahangirian
Researchers Name:	Hossein Jahangirian
Faculty / Institute /	Faculty of Engineering
School / Academy:	, , , , , , , , , , , , , , , , , , , ,
Department /	Department of Chemical and Environmental Engineering
Laboratory:	
Expertise:	Analytical Chemistry
Email:	kamran.jahangirian@gmail.com
Telephone (Office):	03-89466268
Fax:	03-86567120
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:Vol. 8, No. 4, 2013, p. 1405 - 1413
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	A green quick precipitation method was successfully used for synthesis of
	Inagnetic from oxide nanoparticles (Fe3O4-NPS) off the surface of
	by dravide acuses solutions were used in the synthesis and coating of the
	Ee204-NPs on the surface of the zeolite for producing the zeolite/magnetic iron
	resolution = 100 magnetic non resolution = 1
	aqueous suspension phase under the ambient condition as one of its main
	advantages for saving energy. Also other advantage of this reaction is using
	friendly environmental and low cost raw materials and solvent. Reaction
	advantages as well as indicate that performing of zeolite/Fe3O4 -NCs synthesis is
	based on green chemistry method. The main applications of synthesized
	zeolite/Fe3O4 -NCs are as catalyst for biodiesel, smart nano fertilizer and
	antimicrobial agent. Results of Fourier transforms infrared spectroscopy (FT?IR),
	powder X-ray diffraction (PXRD), analysis, scanning electron microscopy (SEM),
	energy dispersive X-ray fluorescence (EDXF) and transmission electron

	microscopy (TEM) confirmed the formation of zeolite/Fe3O4 - NCs . Also the TEM results showed that the mean particle sizes of Fe3O4-NPs in the product were 3.55 ± 1.02 nm.
Short Description:	
Keyword:	Zeolite/Fe3O4 nanocomposite, Nanocomposites; Zeolite, Iron oxide
	nanoparticles, X-ray powder diffraction, Transmission electron microscopy,
	Scanning electron microscopy, Energy dispersive X-ray fluorescence
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Instrumen Kompetensi Rekaan Fesyen Pakaian (KReFP)
Product /	-
Technology Name:	
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Humanities and Nation Building
Leader Title:	Mrs.
Leader Name:	Arasinah Kamis
Researchers Name:	Ab. Rahim Bakar
Faculty / Institute /	Faculty of Educational Studies
School / Academy:	
Department /	Department of Science and Technical Education
Laboratory:	
Expertise:	Home Science Education
Email:	arasinah@gmail.com
Telephone (Office):	03-89468956
Fax:	03-89468962
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:LY2013001188
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	Instrumen Kompetensi Rekaan Fesyen Pakaian (KREFP) telan melalui fasa mereka bentuk, pembinaan dan pengesahan. Fasa mereka bentuk menggunakan kaedah kualitatif yang merangkumi analisis dokumen, temu bual individu bersama 7 orang pakar industri dalam bidang fesyen pakaian dan temu bual kumpulan berfokus bersama 16 orang tenaga pengajar di Institut Latihan Kemahiran (ILK) yang mengajar dalam bidang fesyen pakaian. Fasa pembinaan pula melibatkan proses membina item-item KReFP berdasarkan kepada jadual spesifikasi instrumen (JSI). Empat orang pakar dirujuk bagi tujuan pengesahan kandungan untuk setiap item. Persetujuan di antara mereka menyokong kesahan kandungan instrumen. Kesahan muka diperoleh apabila responden mendapati bahawa instrumen mengukur kompetensi pengetahuan dan kemahiran. Instrumen telah diuji melibatkan seramai 330 orang tenaga pengajar di ILK. yang dipilih secara rawak mudah. Instrumen KReFP yang digunakan mengandungi dua set pentaksiran iaitu pengetahuan dan kemahiran. Konstruk pengetahuan diukur

	dan penilaian tekstil. Konstruk kemahiran pula diukur dari aspek mereka bentuk,
	melakar pola, menjahit, komputer, kreatif dan perdagangan. Secara keseluruhan
	instrumen ini telah dibuktikan sebagai instrumen yang baik. Pengkaji
	berkeyakinan bahawa instrumen KReFP telah melepasi piawaian psikometrik dan
	boleh digunakan di ILK dengan mengekalkan 54 item pengetahuan dan 34 item
	kemahiran.
Short Description:	
Keyword:	Kompetensi Rekaan Fesyen Pakaian, Jadual Spesifikasi Instrumen, Institut Latihan
	Kemahiran.
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	Download Here

Title	Heavy Metals (As, Cd, Cr and Pb) Concentration In Freshwater Fish And Health Risk Assessment Among Adults In Two Areas At Kluang, Johor
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Health and Well Being
Leader Title:	Dr.
Leader Name:	Dr Saliza Mohd Elias
Researchers Name:	Saliza Mohd Elias, Ana Mardhiah Marzuki, Hilaliyah Mokhtar, Christopher George, Noor Azianti Zakaria, Ahmad Zaharin Aris
Faculty / Institute / School / Academy:	Faculty of Medicine and Health Sciences
Department /	Department of Community Health
Laboratory:	
Expertise:	Environmental Health
Email:	saliza2003@gmail.com
Telephone (Office):	03-894/2402
Fax:	03-89472395
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:DOI: 10.1007/978-981-4560-70-2_102
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	Freshwater fish is the main supply of protein in Malaysia. River pollution has contributed to heavy metals contamination in the fishes and could give negative effects to human health when consumed. A cross-sectional comparative study was conducted at two areas in Kluang, Johor to determine the heavy metals concentration in freshwater fish of polluted river of Sembrong and less polluted river of Kahang, and health risk assessment among adults in the two areas. A total of 30 respondents from each area were randomly selected based on inclusion criteria. A set of pre-tested questionnaire was used to obtain the sociodemographic information, food frequency intake and health status of respondents. Three species of freshwater fishes which mostly consumed were caught from both selected rivers and were analysed for arsenic (As), cadmium (Cd), chromium (Cr) and lead (Pb) concentration using Inductively Coupled Plasma-Mass Spectrometry (ICP-MS). The health risk assessment of respondents

	heavy metal concentration of freshwater fishes in polluted river (Sembrong
	River) were higher from the less polluted river (Kahang River). There was also a
	significant difference in the health risk of respondents of the two areas which
	indicated that the respondents who consumed fishes from the polluted river
	may have higher risk to developed health problems associated with heavy
	metals exposure.
Short Description:	
Keyword:	Sembrong River, Kahang River, adults, HQ, LCR
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Bio-based Crotonic Acid
Product /	-
Technology Name:	
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Applied Science and Engineering
Leader Title:	Dr.
Leader Name:	Hidayah Ariffin
Researchers Name:	Hidayah Ariffin, Mohd Rahimi Zakaria @ Mamat, Mohd Ali Hassan
Faculty / Institute / School / Academy:	Faculty of Biotechnology and Biomolecular Sciences
Department /	Department of Bioprocess Technology
Laboratory:	
Expertise:	Bioprocess Engineering, Environmental Biotechnology, Biopolymer
Email:	hidayah@upm.edu.my
Telephone (Office):	03-89467515
Fax:	03-89467510
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:Publication
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	Crotonic acid is a crystalline chemical which could be applied in a wide range of
	applications such as cosmetics, polymer, textile, paints, and resins. Current
	industrial production of crotonic acid is through petrochemical route which has
	several drawbacks. Firstly, the process is non-renewable, as it is derived from
	fossil resource. Secondly, it involves numerous complicated steps using high
	temperature and pressure. Lastly, chemical conversion from crotonaldehyde
	only produces approximately 30% of crotonic acid yield. Herewith, pyrolysis of
	bacterial biomass containing polyhydroxybutyrate (PHB) inclusions is proposed
	as production method for crotonic acid. Thermogravimetric profile of PHB
	inclusions showed PHB degradation occurred at a temperature range of 270°C to
	350°C with maximum degradation rate at 310°C. Analysis of products from
	isotnermal pyrolysis of PHB at 310°C revealed that pyrolysis of PHB inclusions
	yielded approximately 63% of crotonic acid. This is 30% higher than the
	conventional crotonic acid production via petrochemical method. The proposed method also offers other benefits such as renewable and simpler in processing.

	Besides, by-products of fermentation and pyrolysis are easy to treat, thus
	minimizing threat to the environment. Moreover, demands for bio-based
	products are expected to rise in the near future because of social, environmental and economical issues related to fossil resources which make bio-based production method more appealing and favourable. Therefore, pyrolysis of bacterial PHB inclusions provides new insight of renewable and green chemistry of the crotonic acid production.
Short Description:	
Keyword:	bio-based crotonic acid, polyhydroxybutyrate, bacterial biomass, pyrolysis
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	Download Here

Title	A Moringa oleifera bioactive fraction enhances wound closure in diabetic animal model.
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Health and Well Being
Leader Title:	Assoc. Prof. Dr.
Leader Name:	SHARIDA FAKURAZI
Researchers Name:	ABU BAKAR MUHAMMAD AMALI, FARIDAH ABAS, PALANISAMY ARULSELVAN, SHARIDA FAKURAZI
Faculty / Institute / School / Academy:	Institute of Bioscience
Department / Laboratory:	Laboratory of Industrial Biotechnology
Expertise:	BIOCHEMICAL AND MOLECULAR TOXICOLOGY
Email:	sharida.fakurazi@gmail.com
Telephone (Office):	03-89472117
Fax:	03-89472118
Patent Status:	Yes, Patent No.: patent
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:publication
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	Moringa oleifera is a plant well known of its impressive medicinal values. It has
	been reported to possess anti-inflammatory, anticancer and antidiabetic
	properties. We have conducted a study to confirm the wound healing activities
	of the biologically active fraction especially in diabetic animal model. We have
	conducted a bio guided differential fractionation of crude extract of the plant
	leaves. Screening of the fractions has been conducted using human dermal
	fibroblast (HDF) cells. The most biologically active fraction has been identified
	through fibroblast proliferation and viability assay. Further analysis has been
	analysed using HPLC and LCMS where bioactive compounds present in the
	traction has been identified. Antioxidant assays have further confirmed the
	presence of components with antioxidant activities in the identified active
	isolates responsible in chronic wounds. Treatment of dispetie induced Wister
	rats with a formulated substance containing bioactive fractions has reduced and

	contracts the size of the wound after less than 21 days. The treatment regime has also reduced the level of inflammatory markers responsible for delaying wound closure. This study has form a basis on the development of substance of medicinal value able to slow down the progression of chronic wound especially in diabetics.
Short Description:	
Keyword:	moringa oleifera, wound, diabetes mellitus
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Innovations in the Malaysian Forest Products Industry: Myths and Realities
Product / Technology Name:	-
Exhibition:	Pameran Reka Cinta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Forestry and Biodiversity
Leader Title:	Prof. Dr.
Leader Name:	PROF. DR. JEGATHESWARAN RATNASINGAM
Researchers Name:	CHONG YEN YOON, TOONG WEI CHING, LIM TAU WAI
Faculty / Institute /	Faculty of Forestry
School / Academy:	
Department /	Department of Forest Production
Laboratory:	
Expertise:	WOOD TECHNOLOGY AND PROCESSING
Email:	jegaratnasingam@yahoo.com
Telephone (Office):	03-89467175
Fax:	03-89432514
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:ISSN 0255-965X
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Irademark No.:
	both in terms of foreign exchange earnings and employment. However, with increasing competition from other cheaper producing nations particularly China and Vietnam, the Malaysian forest products industry is forced to transform and move along the value-chain through innovation and value-addition, in order to remain competitive. Although the government has played a pivotal role in
	providing a broad policy framework to support value-adding and innovative activities, success on the ground has been limited. A nation-wide survey of 500 forest products manufacturers were surveyed to evaluate the extent and challenges to innovation in the sector. The study, the first of its kind in the country, revealed that value addition and productivity growth within the industry has been stagnant over the last decade. In fact, the growth of the industry is driven primarily by incremental inputs rather than actual productivity gains. Against this background, most of innovation within the industry is confined to the realms of alternative raw materials, with minimal technological

	and design-based innovations. The industry is focused on working on established
	themes for products, with minimal original creativity, which emphasizes the
	industry's status as a leading contract-manufacturing hub. Although extensive
	research and development activities have been funded by the government, in
	reality, the impact of these research outputs on innovation in the industry is
	limited. The main reasons for the poor commercialization and uptake by the
	industry are that the research undertaken are not market-driven and application
	of the research outcomes on an industrial scale is difficult. Inevitably, innovation
	in the forest products sector must be based on market-needs and must be driven
	through technological and design change in order to ensure long-term
	competitiveness. The results of this study will help towards developing a new
	strategy for innovation in the industry.
Short Description:	
Keyword:	design, forest products, innovation, market, technology, value-addition
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	N/A

Title	Biochemical process to alleviate soil acidity and/or Al toxicity for rice cultivation by plant growth promoting bacteria
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Agriculture and Food
Leader Title:	Prof. Dr.
Leader Name:	Prof. Dr. Shamshuddin Jusop
Researchers Name:	Qurban Ali Panhwar, Radziah Othman, Umme Aminun Naher, Mohd Razi Ismail
Faculty / Institute /	Faculty of Agriculture
School / Academy:	
Department /	Department of Land Management
Laboratory:	
Expertise:	Soil Science, Soil Chemistry, Soil Mineralogy
Email:	shamshud@upm.edu.my
Telephone (Office):	03-89474924
Fax:	03-89474919
Patent Status:	Yes, Patent No.: PI2012000897
Copyright /	Yes, Copyright / Publication No. / SD No.:
Publication / SD:	Vac Desistuation No.
Registration:	fes, Registration No.:
Trademark:	Yes. Trademark No.:
Abstract:	The potential microbes have been isolated and identified from the acid sulfate
	soil Kelantan Malaysia. These microbes are being used for the acid and Al toxic
	soils. From the initial results it was found that these plant growth promoting
	bacteria play a vital role for the chelation of Al toxicity and reduced its
	determinant effect in the soil. These potential microbes solubilize the soil
	nutrients and enhance the crop growth. PGPR and other soil amendments with
	these bacteria perform a significant biochemical role for the soil acidity and Al
	toxicity.
Short Description:	
Keyword:	Al toxicity, plant growth promoting bacteria, polysaccharides, organic acids
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here

File:	
ResearchOutput:	Download Here

Title	Glucosinolates: Anti-Cancer Agents from Vegetables
Product /	-
Technology Name:	
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Agriculture and Food
Leader Title:	Dr.
Leader Name:	Dr. Ahmad Faizal Abdull Razis
Researchers Name:	Ahmad Faizal Abdull Razis, Noramaliza Mohd Noor
Faculty / Institute /	Faculty of Food Science and Technology
School / Academy:	
Department /	Department of Food Science
Laboratory:	
Expertise:	Food Toxicology
Email:	madfaizal@upm.edu.my
Telephone (Office):	03-89468252
Fax:	03-89423552
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD
Publication / SD:	No.://dx.doi.org/10.7314/APJCP.2013.14.3.1565
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	Relationships between diet and health have attracted attention for centuries;
	but links between diet and cancer have been a focus only in recent decades. The
	consumption of diet-containing carcinogens, including polycyclic aromatic
	hydrocarbons and heterocyclic amines is most closely correlated with increasing
	cancer risk. Epidemiological evidence strongly suggests that consumption of
	dietary phytochemicals found in vegetables and fruit can decrease cancer
	incidence. The protecting effects against cancer risk have been attributed, at
	least partly, due to their comparatively high amounts of glucosinolates, which
	differentiate them from other vegetables. Glucosinolates, a class of sulphur
	containing glycosides, present at substantial amounts in cruciferous vegetables,
	and their breakdown products such as the isothiocyanates, are believed to be
	responsible for their health benefits. These glucosinolates were isolated from
	varies vegetables including Broccoll, Dalkon and Brussels sprout. They were
	stable, sale and very potent anti-cancer against lung, liver, and breast cancers through modulation of biotransformation enzymes. Thus, they have potential to

	be commercialised as to replace synthetic drugs used for cancer treatment.
Short Description:	
Keyword:	Glucosinolates, anti-cancer, modulation, biotransformation
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A
Title	D'lexic: Diagnostik
----------------------------------	---
Product /	-
Technology Name:	Demoran Daka Cinta, Denualidikan dan Inguasi (DDDI) 2014
Exhibition:	Applied Desearch (D)
Category:	Applied Research (B)
Loador Titlo:	
Leader Name:	Assoc. Prof. Dr. Vijavaletshumv Subramaniam
Leader Name:	Assoc. Prof. Dr. Vijavaletchumy Subramaniam
Researchers Name:	Assoc. Prof. Dr. Vijayaletchully Subrahamaniani, Dr. Wali Mulla Ruzanna Wali Mohammad, Dr. Vong Chun Chuo, Assoc. Prof. Dr. Cho Ibrahim hin Salloh
Eaculty / Instituto /	Faculty of Modern Languages and Communication
School / Academy:	
Department /	Department of Malay Language
Laboratory:	
Expertise:	Applied Linguistics, Psychology, Language Acquisition, Translation, Terminology
Email:	letchumy1617@gmail.com
Telephone (Office):	03-89468680
Fax:	03-89439951
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:18 April 2014
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	Pembinaan D'lexic: Diagnostik bertujuan untuk memberi tumpuan kepada
	permasalahan dari aspek Faktor Am, Faktor Tingkah Laku, Penggunaan Lisan,
	Mengeja, Membaca, dan Menulis. Simptom awal disleksia yang telah
	disenaraikan adalah berlandaskan kepada kesalahan ejaan dan bacaan mengikut
	Teori Levinson (1994). Produk ini memberi kelebihan kepada guru dan ibu bapa
	untuk menjalankan dignostik awal sebelum dirujuk kepada Doktor Pakar.
	Kebolehpasaran produk ini adalah untuk para ibu bapa, guru, NGO's, sekolah
	swasta, dan Kementerian Pendidikan Malaysia dalam membantu
	pengenalpastian awal kanak-kanak disleksia. Produk ini boleh didapati secara
	online bagi memudahkan pengguna dalam mendapatkan D'Lexic (Diagnostik
	Disleksia) dengan harga yang berpatutan (RM15/satu) di samping mesra
	pengguna, dan mendapatkan pengesanan awal.
Short Description:	
Keyword:	Perisian Disleksia, Diagnostik, Faktor Am, Faktor Tingkah Laku, Penggunaan Lisan,

	Mengeja, Membaca, dan Menulis
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	Download Here

Title	Swiftlets Wave Sound Detection, Recognition and Synthesis Through Spectrogram Processing
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Applied Science and Engineering
Leader Title:	Prof. Dr.
Leader Name:	S.A.R Al Haddad
Researchers Name:	Mohammad Ali Nematollahi, S.A.R Al Haddad
Faculty / Institute / School / Academy:	Faculty of Engineering
Department / Laboratory:	Department of Computer and Communication System Engineering
Expertise:	Speech Recognition, Animal Sound Recognition, Mobile Embedded Apps
Email:	sar@upm.my
Telephone (Office):	03-89466440
Fax:	03-86567127
Patent Status:	Yes, Patent No.: PI12013701280
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	There are various vulnerable slots in online speaker recognition. A lot of challenges and opportunities in robustness, security, accuracy and recognition speed are needed to be explored. This thesis attempts to use this opportunity to
	improve security, recognition rate, accuracy and robustness of online speaker recognition systems by applying digital speech watermarking characteristic such
	authentication method is used which is combination of PIN and voice biometric through the watermark. For watermarking PIN in voice, a blind and robust digital
	speech watermarking is used by applying linear predictive analysis (LPA) and singular value decomposition (SVD). However, embedding robust watermark inside the speech signal can degrade the performance of the conventional online speaker recognition systems which are based on speaker-specific feature. Therefore, a frame selection technique is applied to weight the amount of speaker-specific information available inside the speech frames. In the proposed frame selection technique, LPA was applied to separate the system features

	(formants) and source features (residual errors) of the speech frames. Then, a frequency weighted function was used to quantify formants, and high order correlation as well as high order statistics are used for weighting the residual errors. Therefore, lower frames' weight can be ignored for speaker recognition and applied for digital speech watermarking.
Short Description:	
Keyword:	digital speech watermarking, online speaker recognition
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Malaysia as Global Halal Hub: OIC Food Manufacturers Perspective
Product / Technology Name:	RUGS
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Agriculture and Food
Leader Title:	Prof. Dr.
Leader Name:	Zainal Abidin Mohamed
Researchers Name:	Rozailin Abdul Rahman, Golnaz Rezai, Mad Nasir Shamsudin, Juwaidah Sharifuddin
Faculty / Institute /	Faculty of Agriculture
School / Academy:	
Department /	Department of Agribusiness and Information System
Laboratory:	
Expertise:	Agribusiness Marketing
Email:	zam@putra.upm.edu.my
Telephone (Office):	03-89474930
Fax:	03-89408213
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:WIFA-2013-0046.R1
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	Food hubs have received various attention and popularity from different groups
	of people who have interests related to food and agriculture. These include the
	food manufacturers, suppliers and also small and medium enterprises. Malaysia
	as a member of the Organization of the Islamic Conference (OIC) has aspirations
	to be the Halal Food Hub for the OIC member countries. The paper aims to
	understand the determinants that influence the OIC food manufacturers'
	intention to accept Malaysia as a Global Halal Hub. Three hundred (300)
	manufacturers were interviewed and the data were analysed descriptively
	through factor analysis. Theory of Planned Behaviour (TPB) was used to gauge
	the OIC manufacturers' intention to accept Malaysia as a Halal Hub. The factors
	affecting the food manufacturers to accept Malaysia as a Halal Hub for the OIC
	country members are knowledge of Malaysia's intention to become a Halal Hub,
Chart Description:	confidence in Malaysia, motivation to comply and the market potential.
Short Description:	The idea of a Halal Hub is coming from the efforts of the Islamic organizations

	and bodies including the Halal manufacturers, Halal traders, Halal suppliers, Halal buyers, and Halal consumers from all over the world. In order to be established as a World Halal Hub, the specific country must ensure that they can provide a suitable place to connect the global Halal supply chain and certification
	for Halal assurance. By taking advantages of the Halal business industry that
	caters to 1.8 billion Muslims, and becoming a World Halal Hub there will be great
	chances for a country to boost its economic performance. The strong linkage
	among producers, consumers and renounced Halal certification body will
	enhance the country's intention to become a Halal Hub for the world or in
	particular among the OIC countries.
Keyword:	intention, food manufacturer, Halal Hub, OIC, TPB
Advantages:	The intention of the OIC food manufacturers to accept and choose Malaysia as
	the Global Halal Hub is made up of their belief and awareness towards the
	existence of Malaysia as the forefront country to voice her intention in becoming
	a global Halal Hub. In the same token the renowned Jakim Halal logo has made
	Malaysia a leading certification of a Halal body among the OIC member states
	and the Muslim world. The attitude of food manufacturers and their choice of
	behaviour may also be influenced by the external factors such as company
	profiles and influence according to their type of ownership and country of origin.
	Similarly the knowledge, information and advertisement about Malaysia as a
	Halal Hub and Jakim Halal logo could also influence the decision on the choosing
	behaviour of the food manufactures management teams. All these factors may
	build the confidence and trust of the food manufacturers towards accepting and
	choosing Malaysia as the Global Halal Hub.
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	Download Here

Title	Use of acute gamma irradiation for development of desired new variants of Curcuma alismatifolia and detection of DNA polymorphism through SSR markers
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Agriculture and Food
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Thohirah Lee Abdullah
Researchers Name:	Sima Taheri, Thohirah Lee Abdullah, Zaiton Ahmad, and Nur Ashikin Psyquay Abdullah
Faculty / Institute / School / Academy:	Faculty of Agriculture
Department /	Department of Crop Science
Laboratory:	
Expertise:	Biotechnology of ornamental plants
Email:	thohirah@agri.upm.edu.my
Telephone (Office):	03-89471300
Fax:	03-89471300
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:Copyright © 2014 Sima Taheri et al.
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	New cut flowers with qualified potential to meet the growing local and foreign
	developed. Malaysian floriculture industry still has scope and notential for
	expansion to bring more revenue to the country as well as the industry itself
	Thus the introduction of new Curcuma alismatifolia variants is vital as it has vast
	notential in contributing to Malaysia's economic development. The innovation of
	this research is the development and registration of new variats of C.
	alismatifolia for the Malaysian market. In this study, the effects of different
	doses (0, 10, 20, 25, 35, 40, 60, and,100 Gy) of acute gamma irradiation on
	varieties of C. alismatifolia was investigated. From the ANOVA for three selected
	doses of 0, 10, and 20 Gy, significant variations were observed for 14
	morphological characteristics among the four varieties or of C. alismatifolia and
	dose levels as well as the dose × variety interaction. Some desired abnormalities
	such as dwarfism, albinism, striata, split leaves, double flower stalk in one plant,

	double inflorescence, marbled pink bracts, two-tone pink-purplish bracts, and
	two-flag petals were found in M1V1 plants and some of these characteristics
	were genetically transferred to the M1V4 generation. New type of Doi Tung 554
	(DT20-1) variety with dwarfism and dark purple bracts were
	produced.Morphological characterization is one of the required information for
	identifying and proposing of new plant hybrids with DNA marker as tools for best
	detections of new hybrids and assaying genetically stable new hybrids. This
	research has detected new Curcuma variants using SSR markers to determine
	the genetic stability of the Curcuma new hybrids. The new variant has this
	potential to register with Plant Variety Protection (PVP) and Department of
	Agriculture (DOA). New variant will then be referred for growth in the country.
Short Description:	
Keyword:	Gamma irradiation, Curcuma alismatifolia, Morphological characteristics, Simple
	sequence repeats (SSR)
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	Download Here

Product / Technology Name:-Exhibition:Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014Category:Fundamental (A)Cluster:Business, Economics and GovernanceLeader Title:Assoc. Prof. Dr.Leader Title:Assoc. Prof. Dr.Leader Name:Rusmawati SaidResearchers Name:Rusmawati Said, Zunika MohamedFaculty / Institute /Faculty of Economics and ManagementSchool / Academy:Department of EconomicsLaboratory:Labour EconomicsLaboratory:Itabour EconomicsExpertise:Labour EconomicsEmail:rusmawatisaid@gmail.comTelephone (Office):03-89467580Fax:03-89486188Patent Status:Yes, Patent No.:Copyright /Yes, Copyright / Publication No. / SD No.:ISSN: 0128-7702Publication / SD:Industrial Design Registration:Trademark:Yes, Trademark No.:Abstract:We examine the demographic characteristics of the poor that influence chances to continue to be poor by applying the binary response variable. It is based on a country representative micro data from two waves of panel household and few income earners from East Malaysia or those with large household and few income earners from East Malaysia or those with large household and few income earners from East Malaysia or those with large household and few income earners from East Malaysia or those with large household and few income earners from East Malaysia or those with large household and few income earners from East Malaysia or those with large household and few income earners from East Malaysia or those	Title	The Probability to Be Persistent Poor in Malaysia:New Evidence from Panel Data
Exhibition:Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014Category:Fundamental (A)Cluster:Business, Economics and GovernanceLeader Title:Assoc. Prof. Dr.Leader Name:Rusmawati Said, Zunika MohamedResearchers Name:Rusmawati Said, Zunika MohamedFaculty / Institute /Faculty of Economics and ManagementSchool / Academy:Department of EconomicsLaboratory:Expertise:Labour EconomicsLabour EconomicsEmail:rusmawatisaid@gmail.comTelephone (Office):03-89465188Patent Status:Yes, Patent No.:Copyright /Yes, Registration No.:Registration:Yes, Registration No.:Trademark:Yes, Trademark No.:Abstract:We examine the demographic characteristics of the poor that influence chances to continue to be poor by applying the binary response variable. It is based on a country representative micro data from two waves of panel household income survey 2004 and 2007. The results show that household's characteristics, present economics and spatial disadvantage significantly influence the chances of continue to be poor by applying the binary response variable. It is based on a country representative micro data from two waves of panel household income survey 2004 and 2007. The results show that household's characteristics, present economics and spatial disadvantage significantly influence the chances of continue to be poor by applying the binary response variable. It is based on a country representative micro data from two waves of panel household income survey 2004 and 2007. The results show that household's characteristics, present economics and spatial disadvantage significantly influence t	Product / Technology Name:	-
Category:Fundamental (A)Cluster:Business, Economics and GovernanceLeader Title:Assoc. Prof. Dr.Leader Name:Rusmawati SaidResearchers Name:Rusmawati Said, Zunika MohamedFaculty / Institute /Faculty of Economics and ManagementSchool / Academy:Department /Department /Department of EconomicsLaboratory:Labour EconomicsExpertise:Labour EconomicsEmail:rusmawatisaid@gmail.comTelephone (Office):03-89486188Patent Status:Yes, Patent No.:Copyright /Yes, Copyright / Publication No. / SD No.:ISSN: 0128-7702Publication / SD:Yes, Registration No.:Registration:Yes, Trademark No.:Abstract:We examine the demographic characteristics of the poor that influence chances to continue to be poor by applying the binary response variable. It is based on a country representative micro data from two waves of panel household income survey 2004 and 2007. The results show that household's characteristics, present economics and spatial disadvantages significantly influence the chances of continue to be poor by applying the binary response variable. It is based on a country representative micro data from two waves of panel household income survey 2004 and 2007. The results show that household's characteristics, present economics and spatial disadvantages significantly influence the chances of continued poverty. The poor are either those with large household and few income earners from East Malayisi or those with low education level. They have higher risks to be trapped in poverty. Interestingly, gender and marital status are insignificant contributing factors. To help the disadvantage group, we pr	Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Cluster:Business, Economics and GovernanceLeader Title:Assoc. Prof. Dr.Leader Name:Rusmawati SaidResearchers Name:Rusmawati Said, Zunika MohamedFaculty / Institute /Faculty of Economics and ManagementSchool / Academy:Department of EconomicsDepartment /Department of EconomicsLaboratory:Labour EconomicsEmail:rusmawatisaid@gmail.comTelephone (Office):03-89467580Fax:03-8946188Patent Status:Yes, Patent No.:Copyright /Yes, Registration No. / SD No.:ISSN: 0128-7702Publication / SD:Industrial Design Registration:Yes, Registration No.:Trademark:Yes, Trademark No.:Abstract:We examine the demographic characteristics of the poor that influence chances to continue to be poor by applying the binary response variable. It is based on a country representative micro data from two waves of panel household income survey 2004 and 2007. The results show that household's characteristics, present economics and spatial disadvantages significantly influence the chances of continued poverty. The poor are either those with large household and few income earners from East Malaysia or those with low education level. They have higher risks to be trapped in poverty. Interestingly, gender and marital status are insignificant contributing factors. To help the disadvantage group, we propose improvement of the existing programmes and policy revisions to focus on other dimensions of poverty besides income and to address social exclusion issues.Short Description:Poverty, Malaysia	Category:	Fundamental (A)
Leader Title:Assoc. Prof. Dr.Leader Name:Rusmawati SaidResearchers Name:Rusmawati Said, Zunika MohamedFaculty / Institute /Faculty of Economics and ManagementSchool / Academy:Department of EconomicsDepartment /Department of EconomicsLaboratory:Expertise:Labour EconomicsEmail:Telephone (Office):03-8946188Patent Status:Yes, Patent No.:Copyright /Yes, Copyright / Publication No. / SD No.:ISSN: 0128-7702Publication / SD:Industrial DesignIndustrial DesignYes, Registration No.:Registration:We examine the demographic characteristics of the poor that influence chances to continue to be poor by applying the binary response variable. It is based on a country representative micro data from two awas of panel household income survey 2004 and 2007. The results show that household's characteristic, present economics and spatial disadvantages significantly influence the chances of continue do poverty. The poor are either those with large household and few income earners from East Malaysia or those with low education level. They have higher risks to be trapped in poverty. Interestingly, gender and marital status are insignificant contributing factors. To help the disadvantage group, we propose improvement of the existing programmes and policy revisions to focus on other dimensions of poverty besides income and to address social exclusion issues.Short Description:Poverty, Malaysia	Cluster:	Business, Economics and Governance
Leader Name:Rusmawati SaidResearchers Name:Rusmawati Said, Zunika MohamedFaculty / Institute /Faculty of Economics and ManagementSchool / Academy:Department of EconomicsDepartment /Department of EconomicsLaboratory:Laboratory:Expertise:Labour EconomicsEmail:rusmawatisaid@gmail.comTelephone (Office):03-89467580Fax:03-89486188Patent Status:Yes, Patent No.:Copyright /Yes, Copyright / Publication No. / SD No.:ISSN: 0128-7702Publication / SD:Yes, Registration No.:Industrial Design Registration:Yes, Trademark No.:Abstract:We examine the demographic characteristics of the poor that influence chances to continue to be poor by applying the binary response variable. It is based on a country representative micro data from two waves of panel household income survey 2004 and 2007. The results show that household's characteristics, present economics and spatial disadvantages significantly influence the chances of continued poverty. The poor are either those with large household and few income earners from East Malaysia or those with low education level. They have higher risks to be trapped in poverty. Interestingly, gender and marital status are insignificant contributing factors. To help the disadvantage group, we propose improvement of the existing programmes and policy revisions to focus on other dimensions of poverty besides income and to address social exclusion issues.Short Description:Poverty, Malaysia	Leader Title:	Assoc. Prof. Dr.
Researchers Name:Rusmawati Said, Zunika MohamedFaculty / Institute / School / Academy:Faculty of Economics and ManagementDepartment / Laboratory:Department of EconomicsExpertise:Labour EconomicsEmail:rusmawatisaid@gmail.comTelephone (Office):03-89467580Fax:03-89486188Patent Status:Yes, Patent No.:Copyright / Publication / SD:Yes, Registration No. / SD No.:ISSN: 0128-7702Industrial Design Registration:Yes, Registration No.:Trademark:Yes, Trademark No.:Abstract:We examine the demographic characteristics of the poor that influence chances to continue to be poor by applying the binary response variable. It is based on a country representative micro data from two waves of panel household income survey 2004 and 2007. The results show that household's characteristics, present economics and spatial disadvantages significantly influence the chances of continued poverty. The poor are either those with large household and few income earners from East Malaysia or those with low education level. They have higher risks to be trapped in poverty. Interestingly, gender and marital status are insignificant contributing factors. To help the disadvantage group, we propose improvement of the existing programmes and policy revisions to focus on other dimensions of poverty besides income and to address social exclusion issues.Short Description:Poverty, Malaysia	Leader Name:	Rusmawati Said
Faculty / Institute / School / Academy:Faculty of Economics and ManagementDepartment / Laboratory:Department of EconomicsExpertise:Labour EconomicsEmail:rusmawatisaid@gmail.comTelephone (Office):03-89467580Fax:03-89486188Patent Status:Yes, Patent No.:Copyright / Publication / SD:Yes, Registration No. / SD No.:ISSN: 0128-7702Industrial Design Registration:Yes, Registration No.:Registration:We examine the demographic characteristics of the poor that influence chances to continue to be poor by applying the binary response variable. It is based on a country representative micro data from two waves of panel household income survey 2004 and 2007. The results show that household's characteristics, present economics and spatial disadvantages significantly influence the chances of continued poverty. The poor are either those with large household and few income earners from East Malaysia or those with low education level. They have higher risks to be trapped in poverty. Interestingly, gender and marital status are insignificant contributing factors. To help the disadvantage group, we propose improvement of the existing programmes and policy revisions to focus on other dimensions of poverty besides income and to address social exclusion issues.Short Description:Poverty, Malaysia	Researchers Name:	Rusmawati Said, Zunika Mohamed
Department / Laboratory:Department of EconomicsExpertise:Labour EconomicsEmail:rusmawatisaid@gmail.comTelephone (Office):03-89467580Fax:03-89486188Patent Status:Yes, Patent No.:Copyright / Publication / SD:Yes, Copyright / Publication No. / SD No.:ISSN: 0128-7702Publication / SD:Industrial Design Registration:Trademark:Yes, Trademark No.:Abstract:We examine the demographic characteristics of the poor that influence chances to continue to be poor by applying the binary response variable. It is based on a country representative micro data from two waves of panel household income survey 2004 and 2007. The results show that household's characteristics, present economics and spatial disadvantages significantly influence the chances of continued poverty. The poor are either those with large household and few income earners from East Malaysia or those with large household and few income earners from East Malaysia or those with large noused and few provement of the existing programmes and policy revisions to focus on other dimensions of poverty besides income and to address social exclusion issues.Short Description:Poverty, Malaysia	Faculty / Institute / School / Academy:	Faculty of Economics and Management
Laboratory:Labour EconomicsExpertise:Labour EconomicsEmail:rusmawatisaid@gmail.comTelephone (Office):03-89467580Fax:03-89486188Patent Status:Yes, Patent No.:Copyright /Yes, Copyright / Publication No. / SD No.:ISSN: 0128-7702Publication / SD:Industrial DesignYes, Registration No.:Registration:Trademark:Yes, Trademark No.:Abstract:We examine the demographic characteristics of the poor that influence chances to continue to be poor by applying the binary response variable. It is based on a country representative micro data from two waves of panel household income survey 2004 and 2007. The results show that household's characteristics, present economics and spatial disadvantage significantly influence the chances of continued poverty. The poor are either those with low education level. They have higher risks to be trapped in poverty. Interestingly, gender and marital status are insignificant contributing factors. To help the disadvantage group, we propose improvement of the existing programmes and policy revisions to focus on other dimensions of poverty besides income and to address social exclusion issues.Short Description:Foverty, Malaysia	Department /	Department of Economics
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Email:rusmawatisaid@gmail.comTelephone (Office):03-89467580Fax:03-89486188Patent Status:Yes, Patent No.:Copyright /Yes, Copyright / Publication No. / SD No.:ISSN: 0128-7702Publication / SD:Industrial Design Registration:Trademark:Yes, Trademark No.:Abstract:We examine the demographic characteristics of the poor that influence chances to continue to be poor by applying the binary response variable. It is based on a country representative micro data from two waves of panel household income 	Expertise:	Labour Economics
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Fax:03-89486188Patent Status:Yes, Patent No.:Copyright /Yes, Copyright / Publication No. / SD No.:ISSN: 0128-7702Publication / SD:Industrial Design Registration:Trademark:Yes, Trademark No.:Abstract:We examine the demographic characteristics of the poor that influence chances to continue to be poor by applying the binary response variable. It is based on a country representative micro data from two waves of panel household income survey 2004 and 2007. The results show that household's characteristics, present economics and spatial disadvantages significantly influence the chances of continued poverty. The poor are either those with large household and few income earners from East Malaysia or those with low education level. They have higher risks to be trapped in poverty. Interestingly, gender and marital status are insignificant contributing factors. To help the disadvantage group, we propose improvement of the existing programmes and policy revisions to focus on other dimensions of poverty besides income and to address social exclusion issues.Short Description:Keyword:Keyword:Poverty, Malaysia	Telephone (Office):	03-89467580
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Publication / SD:Yes, Registration No.:Industrial Design Registration:Yes, Registration No.:Trademark:Yes, Trademark No.:Abstract:We examine the demographic characteristics of the poor that influence chances to continue to be poor by applying the binary response variable. It is based on a country representative micro data from two waves of panel household income survey 2004 and 2007. The results show that household's characteristics, present economics and spatial disadvantages significantly influence the chances of continued poverty. The poor are either those with large household and few income earners from East Malaysia or those with low education level. They have higher risks to be trapped in poverty. Interestingly, gender and marital status are insignificant contributing factors. To help the disadvantage group, we propose improvement of the existing programmes and policy revisions to focus on other dimensions of poverty besides income and to address social exclusion issues.Short Description:Keyword: Poverty, Malaysia	Copyright /	Yes, Copyright / Publication No. / SD No.:ISSN: 0128-7702
Industrial Design Registration:Yes, Registration No.:Trademark:Yes, Trademark No.:Abstract:We examine the demographic characteristics of the poor that influence chances to continue to be poor by applying the binary response variable. It is based on a country representative micro data from two waves of panel household income survey 2004 and 2007. The results show that household's characteristics, present economics and spatial disadvantages significantly influence the chances of continued poverty. The poor are either those with large household and few income earners from East Malaysia or those with low education level. They have higher risks to be trapped in poverty. Interestingly, gender and marital status are insignificant contributing factors. To help the disadvantage group, we propose improvement of the existing programmes and policy revisions to focus on other dimensions of poverty besides income and to address social exclusion issues.Short Description:Keyword: Poverty, Malaysia	Publication / SD:	
Registration:Trademark:Yes, Trademark No.:Abstract:We examine the demographic characteristics of the poor that influence chances to continue to be poor by applying the binary response variable. It is based on a country representative micro data from two waves of panel household income survey 2004 and 2007. The results show that household's characteristics, present economics and spatial disadvantages significantly influence the chances of continued poverty. The poor are either those with large household and few income earners from East Malaysia or those with low education level. They have higher risks to be trapped in poverty. Interestingly, gender and marital status are insignificant contributing factors. To help the disadvantage group, we propose improvement of the existing programmes and policy revisions to focus on other dimensions of poverty besides income and to address social exclusion issues.Short Description:Keyword:Poverty, Malaysia	Industrial Design	Yes, Registration No.:
Trademark:Yes, Trademark No.:Abstract:We examine the demographic characteristics of the poor that influence chances to continue to be poor by applying the binary response variable. It is based on a country representative micro data from two waves of panel household income survey 2004 and 2007. The results show that household's characteristics, present economics and spatial disadvantages significantly influence the chances of continued poverty. The poor are either those with large household and few income earners from East Malaysia or those with low education level. They have higher risks to be trapped in poverty. Interestingly, gender and marital status are insignificant contributing factors. To help the disadvantage group, we propose improvement of the existing programmes and policy revisions to focus on other dimensions of poverty besides income and to address social exclusion issues.Short Description:Keyword:Keyword:Poverty, Malaysia	Registration:	
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Keyword: Poverty, Malaysia	Short Description:	annensions of poverty besides income and to address social exclusion issues.
	Keyword	Poverty Malaysia
Advantages:	Advantages:	-
Market / -	Market /	-

Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	Download Here

Title	New species of Molineria spp. Colla: Propagations, agronomic practices and potential utilizations.
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Agriculture and Food
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Nur Ashikin Psyquay Abdullah
Researchers Name:	Rozilawati Shahari, Ghizan Saleh, Thohirah Lee Abdullah, Rusea Go, Kaslamiah
	Mokhtar, Mohd. Firdaus Ismail, Nahid Babaei
Faculty / Institute / School / Academy:	Faculty of Educational Studies
Department /	Department of Foundations of Education
Laboratory:	
Expertise:	Botany & Biotechnology
Email:	nurashikin@upm.edu.my
Telephone (Office):	03-8946600
Fax:	03-89487273
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:Article ID 275028
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	Lemba was previously known by its synonymous latin name Curculigo spp. and is now accepted as Molineria spp. Colla. The fruits contained sweet protein known as curculin which was sweeter than sucrose but with lower calories which made
	have the taste modifying capacity, when fruits were consume, any food eaten
	low genetic variations among accessions but fairly high variations among
	organs. Taxonomic revisions based on morphological characterizations were carried out resulting in finding of five new species and two new records. This was later confirmed from phylogenetics studies using markers from the ribosomal and chloroplast DNA. Two main environmental characteristics were also observed, the sun and shade loving species. These two species were later selected and planted under nursery and field conditions. From these

	experiments, the agronomic practices for the two species were obtained which
	includes shade, planting media and fertilizing requirements. Vegetative rhizomes
	were reported as the best mean of propagation and micropropagation for this
	species was also found to be successful. Included in this study were their
	pollination ecology and fruit development studies. In the end, one particularly
	new species named Molineria rubiclavata was found to be most suitable for
	cultivation as a new economic crop. This species is sun loving, able to bear high
	number of infructescence, its petiole is made of high quality fibre and has fast
	growth in field conditions. Apart from source of curculin and natural fibre
	another new species which bears maroon leaf abaxial is seen to be highly
	valuable as an ornamental plant.
Short Description:	
Keyword:	lemba, sweet protein, natural fibre, micropropagation
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title The Perception of Musical Phrasing in Correlation to Movements in Sports Routines	
Product /	
Exhibition: Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 20)14
Category: Applied Research (B)	-
Cluster: Humanities and Nation Building	
Leader Title: Dr.	
Leader Name: Dr. Loo Fung Chiat	
Researchers Name: Loo Fung Chiat, Loo Fung Ying	
Faculty / Institute / Faculty of Human Ecology	
School / Academy:	
Department / Department of Music	
Laboratory:	
Expertise: Music	
Email: fungchiat@hotmail.com	
Telephone (Office): 03-89367126	
Fax: 03-86561689	
Patent Status: Yes, Patent No.:	
Copyright / Yes, Copyright / Publication No. / SD No.:25 (4): 592-59	9
Publication / SD:	
Industrial Design Yes, Registration No.:	
Registration:	
Trademark: Yes, Trademark No.:	
Abstract: This study aimed to experiment the congruence betwee	en music and movements
in sports routine. A Taichi routine was chosen and new	accompaniment was
composed to 'match' every movement of the athletes.	Survey in this research
showed that the new accompaniment from the musical	l perspective could
enhance the visual perception of the routine. This mean	ns that the approach of
composing music based on the existed routine could ha	ave been more effective
than the conventional way, where athletes or coach cus	stomary choose a music
hist before they choreograph the routine. This paper to	ocused on the phrasing on
and musician. The outcome of this project is a collection	n of music
and musician. The outcome of this project is a conection	rovide a more unique
audio-visual experience to the audience as music accord	nnaniment is tailor-made
for the particular routine.	
Short Description:	

Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Trade Openness and Wage Inequality: Evidence for Malaysia
Product /	-
Technology Name:	Damoran Poka Cinta, Donyolidikan dan Inovasi (DPDI) 2014
	Applied Research (P)
Cluster:	Applied Research (B)
Loador Titlo:	Accor Drof. Dr
Leader Name:	Assoc. Prof. Dr. Rucmawati Binti Said
Leauer Name:	ASSOC. PTOT. DF RUSTINGWALT BITTLI SAID
	Rusifidwali Salu, Rubert Michabb
School / Academy:	Faculty of Economics and Management
Department /	Department of Economics
Laboratory:	
Expertise:	Labour Economics
Email:	rusmawatisaid@gmail.com
Telephone (Office):	03-89467580
Fax:	03-89467580
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:10.1080/00220388.2013.794263
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	This article examines the impact of trade openness on wage inequality in Malaysia during the period 1984-1997. Malaysia has operated a very open trade regime since the 1960s and has pursued aggressive import substitution and export supporting policies. This development strategy is very different to that adopted in many other emerging economies where trade liberalisation has been associated with greater wage inequality. The aim of the present study is to examine whether Malaysia's more open approach to international trade has had a similar effect on wage inequality. The results suggest, in fact, that this is not the case.
Short Description:	
Keyword:	Trade Openness, Wage inequality, Malaysia labour Market
Advantages:	-
Market /	-
Commercialisation Potential:	

Abstract Additional	Download Here
File:	
ResearchOutput:	N/A

Title	Factors related to critical thinking disposition and critical thinking skills among undergraduate at a Malaysia Research University Image: Comparison of the second se
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Humanities and Nation Building
Leader Title:	Prof. Dr.
Leader Name:	PROF. DR KAMARIAH ABU BAKAR
Researchers Name:	Kamariah Abu Bakar, Ibrahim Nazem Mahmoud Ghadi & Nor Hayati Alwi
Faculty / Institute /	Institute of Mathematical Research
School / Academy:	
Department /	Laboratory of Innovational Methods in Mathematics Education
Laboratory:	
Expertise:	Science and Mathematics Education, Teacher Education, Teaching and Learning,
	SoTL, E-learning, Professional Development
Email:	kamarab@gmail.com
Telephone (Office):	03-89466875
Fax:	03-89466973
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:Publication
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	This project was carried out to examine the predictive relationships of student
	characteristics towards Critical Thinking Dispositions (CTD) and Critical Thinking
	Skills (CTS). Three objectives were studied: 1) to identify the CTD levels among
	undergraduates from different majors of study (science- and arts-based),
	gender, and academic year of study; 2) to identify the CTS levels among the
	undergraduates based on majors, gender and academic year of study; and 3) to
	Kamariah developed two sets of instruments, namely, one to measure the seven
	elements of CTD is Analyticity: Tendency to examine a situation carefully:
	Open-mindedness: Willingness to consider new or different ideas and opinions:
	Truth seeking: Looking for real facts about a situation: Systematicity: Tendency
	towards a focused and organized plan: Self-confidence: Being sure about oneself
	and one's ability; Inquisitiveness: Curious and desire to explore: and Maturity:
	Quality of cognitive and epistemic development. The CTS instrument measured

	Analysis: Tendency to examine a situation carefully and thoroughly; Evaluation:
	Making value judgment; Deduction: Solve the problems using available premises
	information; and Induction: Drawing reasonable conclusions from various
	elements. A total of 951 undergraduates from a Malaysian public university were
	the sample of the study. Confirmatory Factor Analysis (CFA) using AMOS was
	used to confirm the construct validity for 23 items of the CTD instrument.
	Exploratory Factor Analysis (EFA) using SPSS was employed on the CTS items,
	resulting in the improved 18 item instrument. Results further showed significant
	differences existed on CTD based on gender, and for CTS based on year of
	studies. However, no significance differences existed in CTD levels according to
	major and year of study, and in CTS levels according to gender and major.
	Furthermore, the CTD elements that influenced CTS were analyticity, truth
	seeking, self-confidence and maturity.
Short Description:	
Keyword:	Critical Thinking Dispositions (CTD), Critical Thinking Skills (CTS), analyticity, open
	minded, truth seeking, systematicity, self- confidence, inquisitiveness, maturity,
	analysis, evaluation, deduction and induction.
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Improved Runge-Kutta Methods for Solving Ordinary Differential Equations
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Mathematical Sciences and ICT
Leader Title:	Dr.
Leader Name:	Faranak Rabiei
Researchers Name:	Faranak Rabiei, Fudziah Ismail, Mohamd Suleiman
Faculty / Institute /	Institute of Mathematical Research
School / Academy:	
Department /	Laboratory of Applied and Computational Statistics
Laboratory:	
Expertise:	Numerical Analysis
Email:	faranak.rabiei@gmail.com
Telephone (Office):	03-89466924
Fax:	03-89466924
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.: Publication
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	In this research the explicit Improved Runge-Kutta (IRK) methods for solving
	first-order ordinary differential equations is proposed. These method is two-step
	in nature and require lower number of stages compared to the classical Runge-
	Kutta method. Therefore the new scheme is computationally more efficient at
	achieving the same order of local accuracy. The order conditions of the new
	third and fourth order methods with different stages are derived based on the
	order conditions. The free parameters are obtained through minimization of the
	error norm. Convergence of the method is proven and the stability regions are
	obtained.
Short Description:	
Keyword:	Convergence and stability region; improved Runge-Kutta methods; order
	conditions; ordinary differential equations; two-step methods
Advantages:	-
Market /	-

Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	ON HIGHER-ORDER BOUNDARY VALUE PROBLEMS BY USING DIFFERENTIAL TRANSFORMATION METHOD WITH CONVOLUTION TERMS
Product / Technology Name:	-
Fxhibition:	Pameran Reka Cinta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Mathematical Sciences and ICT
Leader Title:	Prof. Dr.
Leader Name:	Adem Kilicman
Researchers Name:	Omer Altun. Adem Kilicman
Faculty / Institute /	Faculty of Science
School / Academy:	,
Department /	Department of Mathematics
Laboratory:	
Expertise:	Functional Analysis and Topology
Email:	akilic@upm.edu.my
Telephone (Office):	03-89466813
Fax:	03-89437958
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:S0016003212001846
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	The concept of differential transformation method was first proposed and
	applied to solve linear and nonlinear initial value problems in electric circuit
	analysis by Zhou. DTM is a transformation technique which is based on the
	Taylor series expansion. In the DTM, certain transformation rules are applied and
	the governing differential equations and boundary conditions of the system are
	transformed into a set of algebraic equation in terms of the differential
	give the desired solution of the problem. In this work, we study higher order
	houndary value problems for higher-order poplinear differential equations
	having convolution terms. We also extend and prove some theorems for
	nonlinear differential equations by using the differential transform method
Short Description:	
Keyword:	Taylor series expansion, differential transformation method. higher-order
,	boundary value problems
Advantages:	-

Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	KMNB-IDS
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Mathematical Sciences and ICT
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Assoc. Prof. Dr. Nur Izura Udzir
Researchers Name:	Nur Izura Udzir, Warusia Yassin, Zaiton Muda, Md Nasir Sulaiman
Faculty / Institute / School / Academy:	Faculty of Computer Science and Information Technology
Department / Laboratory:	Department of Computer Science
Expertise:	Information Security
Email:	izura@upm.edu.my
Telephone (Office):	03-89471747
Fax:	03-89466577
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:DOI: 10.3923/itj.2011.648.655
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	We propose a hybrid learning approach through the combination of K-Means clustering and Naïve Bayes classification called (KMNB) for intrusion detection. K-Means clustering is used to label and cluster all data into the corresponding group based on data behavior, i.e. malicious and non-malicious, while the Naïve Bayes classifier is used to reorder the misclustered data into correct categories, i.e. Attack and Normal.
Short Description:	
Keyword:	Hybrid Learning, K-Means, Naive Bayes, Intrusion Detection
Advantages:	-
Market /	-
Commercialisation	
Polenual:	
File:	N/A
ResearchOutput:	N/A

Title	Dielectric Properties as rapid On-site Detection And Screening Of Halal and Non-Halal Food
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Applied Science and Engineering
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Assoc. Prof. Dr. Zurina Zainal Abidin
Researchers Name:	Zurina Zainal Abidin, Fatin Nordalila Omar, Dayang Radiah Awang Biak, Yaakob Che Man
Faculty / Institute / School / Academy:	Faculty of Engineering
Department /	Department of Chemical and Environmental Engineering
Laboratory:	
Expertise:	Biochemical Engineering, Microfluidics, Sensor, Bioseparation
Email:	zurina@upm.edu.my
Telephone (Office):	03-89464371
Fax:	03-86567120
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.: ISSN: 1546-9239
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	A potential method for detection and discrimination of products for halal
	authentication using dielectric properties has been investigated in this study.
	Halal verification has becoming increasingly important especially to the Muslim
	communities and has become very challenging nowadays due to the
	unavailability of a robust and rapid method to detect halal products. By taking
	the interests of consumers particularly on food intake, this study focuses on
	meat and alcohol. The objectives of this work are to establish the suitability of
	using the dielectric properties as potentially rapid on-site determination for halal
	and non-halal products and to characterize the dielectric properties response for
	selected samples. Measurements were made with frequency domain technique
	Irom U.S-SU GHZ by means of an open-ended coaxial probe connected to
	Network Analyzer. For alcohol, the results showed dielectric properties of
	allowed by JAKIM is <0.5%). The dielectric spectra of pure alcohol, alcoholic and

	non-alcoholic liquid solutions showed good agreement with Debye model and
	Higasi's relaxation time parameter. A clear separation of each alcohol solutions
	was found in range of 10-25 GHz. For the second part, sample of beef, chicken
	and pork were measured by dielectric to find the significant trends in order to
	distinguish different species. The samples showed different properties in
	response of dielectric permittivity. Prominent peak could be seen at frequency 7
	GHz (Peak A) and 30 GHz (Peak B). These peaks could be the potential biomarker
	to discriminate halal and non-halal meat since it was not seen in beef and
	chicken. Dielectric method can be utilized as a support and initial screening of
	alcohol and meat especially for deciding status of doubtful (syubhat) material
	before proceeding to details analysis using other time-consuming. Faster
	decision making can be done to avoid further complication.
Short Description:	
Keyword:	dielectric, halal authentication, alcohol, pork
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	FAKTOR YANG MEMPENGARUHI PERILAKU NIAT m- PEMBELAJARAN DALAM KALANGAN PELAJAR FAKULTI PENGAJIAN PENDIDIKAN, UNIVERSITI PUTRA MALAYSIA
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Humanities and Nation Building
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Ahmad Fauzi Mohd Ayub
Researchers Name:	Jazihan Mahat, Wong Su Luan
Faculty / Institute /	Faculty of Educational Studies
School / Academy:	,
Department /	Department of Foundations of Education
Laboratory:	
Expertise:	Mathematics Education, Computer Education, Integrating Technology in
	Teaching and learning
Email:	afmy@upm.edu.my
Telephone (Office):	03-89467913
Fax:	603-89468246
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:Journal of Innovation in Social Sciences
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	m-Pembelajaran merupakan satu inovasi baru dalam pengajaran dan pembelajaran yang masih di peringkat permulaan di Malaysia. Fokus kajian ini adalah untuk mengenalpasti faktor yang mempengaruhi perilaku niat m- Pembelajaran dalam kalangan pelajar Fakulti Pengajian Pendidikan, Universiti Putra Malaysia. Pembolehubah dalam kajian ini adalah efikasi swadiri m- Pembelajaran, inovasi peribadi, kesediaan m-Pembelajaran, persepsi kemudahgunaan m-Pembelajaran, persepsi kebergunaan m-Pembelajaran, sikap terhadap m-Pembelajaran dan perilaku niat terhadap penggunaan m- Pembelajaran. Kajian ini akan menghasilkan satu model kajian bagi mengenalpasti perilaku niat m-Pembelajaran dalam kalangan pelajar. Kajian ini dijalankan secara tinjauan yang menggunakan set soal selidik. Satu kajian rintis telah dijalankan ke atas 47 orang dengan nilai kebolehpercayaan setiap
	pembolehubah melebihi .70. Seramai 210 orang responden telah dipilih berdasarkan persampelan rawak berstrata daripada keseluruhan populasi yang

	terlibat dalam kajian ini. Analisis deskriptif telah digunakan untuk menganalisis
	setiap pembolehubah kajian. Selepas itu, analisis statistik lanjutan menggunakan
	Pemodelan Persamaan Berstruktur (Structural Equation Modeling (SEM)) telah
	digunakan untuk menguji fit keseluruhan bagi model cadangan kajian ini. Kajian
	ini telah menunjukkan beberapa penemuan yang signifikan. Antaranya ialah
	penghasilan sebuah model yang dapat meramal perilaku niat m-Pembelajaran
	dalam kalangan pelajar Fakulti Pengajian Pendidikan, Universiti Putra Malaysia.
	Daripada sebelas hipotesis yang dicadangkan dalam kajian ini, sembilan hipotesis
	disokong dan dua hipotesis ditolak. Selain daripada itu, terdapat dua dapatan
	baru yang telah di kenalpasti dari model yang diuji iaitu inovasi peribadi meramal
	sikap terhadap m-Pembelajaran dan efikasi swadiri m-Pembelajaran meramal
	perilaku niat terhadap penggunaan m-Pembelajaran. Kedua-dua dapatan yang
	ditemui ini adalah signifikan secara statistik.
Short Description:	
Keyword:	m-Pembelajaran, efikasi swadiri m-Pembelajaran, inovasi peribadi, kesediaan m-
	Pembelajaran, persepsi kemudahgunaan m-Pembelajaran, persepsi kebergunaan
	m-Pembelajaran, sikap terhadap m-Pembelajaran dan perilaku niat terhadap
	penggunaan m-Pembelajaran
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Release behavior and toxicity profiles towards A549 cell lines of ciprofloxacin from its layered zinc hydroxide nanocomposite
Product / Technology Name:	Sunscreen active agent
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Materials Science and Technology
Leader Title:	Prof. Dr.
Leader Name:	MOHD ZOBIR HUSSEIN
Researchers Name:	Mohd Zobir Hussein, Ahmad Faiz Abdul Latip, Johnson Stanslas, Charng Choon Wong and Rohana Adnan
Faculty / Institute / School / Academy:	Institute of Advanced Technology
Department / Laboratory:	Laboratory of Advanced Materials and Nanotechnology
Expertise:	NANOMATERIALS AND NANOMEDICINE
Email:	mzobir@upm.edu.my
Telephone (Office):	03-89468092
Fax:	03-89467006
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:CCJ 2013, 7:119
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	Layered hydroxides salts (LHS), a layered inorganic compound is gaining attention in a wide range of applications, particularly due to its unique anion exchange properties. In this work, layered zinc hydroxide nitrate (LZH), a family member of LHS was intercalated with anionic ciprofloxacin (CFX), a broad spectrum antibiotic via ion exchange in a mixture solution of water:ethanol. Powder x-ray diffraction (XRD), Fourier transform infrared (FTIR) and thermogravimetric analysis (TGA) confirmed the drug anions were successfully intercalated in the interlayer space of LZH. Specific surface area of the obtained compound was increased compared to that of the host due to the different pore textures between the two materials. CFX anions were slowly released over 80 hours in phosphate-buffered saline (PBS) solution due to strong interactions that occurred between the intercalated anions and the host lattices. The intercalation
	compound demonstrated enhanced antiproliferative effects towards A549 cancer cells compared to the toxicity of CFX alone. Strong host-guest interactions

	between the LZH lattice and the CFX anion give rise to a new intercalation
	compound that demonstrates sustained release mode and enhanced toxicity
	effects towards A549 cell lines. These findings should serve as foundations
	towards further developments of the brucite-like host material in drug delivery
	systems.
Short Description:	Multiple intercalation of organic UV absorbers provide broad spectrum
	protection in both UVB and UVA range Inorganic host restraint
	photocarcinogenic activity of UV absorbers Long lasting UV protection and long
	shelf life of product due stabilization of photodegradable UV absorber
	stabilization in inorganic host Light skin feeling, non-greasy finish
Keyword:	Drug delivery, Layered zinc hydroxide nitrate, Ciprofloxacin, Anion exchange,
	Sustained release, Release mechanisms, Cytotoxicity.
Advantages:	EUS gives a non-oily finish. Due to Malaysia's hot and humid climate, oil-free
	cosmetics are in good demand. B4 are efficient in protecting degradation of
	other organic UV absorbers. If released B4 can further protect EUS from
	degradation Layered double hydroxide (LDH) host prevent UV absorbers from
	leaching out, degrading, losing its UV shielding ability and producing toxic
	byproducts. Limit close contact between toxic UV absorbers. Non oily, broad UV
	protection and long lasting sunscreen formulation
Market /	Potential in health care and cosmetics industry. In 2007, Malaysians spend an
Commercialisation	estimated \$550 million on cosmetics. Demand for sun protection is expected to
Potential:	increase as consumers are becoming more aware of the harmful damage of UV
	rays to the skin. Sun protection products are expected to grow further as most
	Malaysians prefer their complexion be as fair as possible in keeping with fashion
	trends throughout Asia. The global sun-care products market grew in retail value
	from \$4.5 billion (?3.4 billion) in 2003 to \$7.8 billion in 2008, an increase of
	72.6% - or 11.5% a year. The biggest growth has been among higher sun
	protection factor (SPF) products - the market share of SPF 40 and 50+ products
	swelled in Europe from 15% in 2004 to 20% in 2008. Euromonitor forecasts
	market growth in these regions of 2-3%/year over the coming years, and growth
	in Asia and South America will maintain momentum.
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	A Theoretical Insight into Palm Oil-based Nano-emulsion Self-assembly Containing Drug
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Materials Science and Technology
Leader Title:	Dr.
Leader Name:	Roghayeh Abedi Karjiban
Researchers Name:	Mahiran Basri, Mohd Basyaruddin Abdul Rahman, Abu Bakar Salleh
Faculty / Institute /	Faculty of Science
School / Academy:	
Department /	Department of Chemistry
Laboratory:	
Expertise:	Computational & Theoretical Chemistry
Email:	roghayeh@upm.edu.my
Telephone (Office):	03-89467487
Fax:	03-89432508
Patent Status:	Yes, Patent No.: no
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:yes
Industrial Design	Yes, Registration No.: no
Registration:	
Trademark:	Yes, Trademark No.: no
Abstract:	Drug carriers are compounds which can attach to drug molecules to improve the
	delivery and the effectiveness of drugs. Currently, the development of nano-
	emulsions in transdermal drug delivery has been shown improvement in the
	therapeutic efficacy and bioavailability of drug without any side effects. Their
	long-term physical stability in blood makes them very unique for transdermal
	drug delivery products. Drug delivery systems are designed based on an
	interdisciplinary approach. However, for designing and producing a new drug
	delivery system, it must be fully understand the drug molecule and its properties
	as well as the processing variables that affect its release into the body. This
	project aimed at computational simulation of the paim-oil based micelles in
	(NSAIDs) applications. The micelles are formed from the colubilisation of the
	nonionic surfactants in the nano-emulsion system which may then provide an
	effective solution to the problems associated with drug delivery
Short Description:	As part of this project, we carried out an all-atom level molecular dynamics (MD)

	simulations of a ratio of palmitate ester and nonionic Tween80 surfactant with and without diclofenac as drug which was chosen from our experimentally determined phase diagram. Molecular dynamics simulations were performed for selected compositions for a period of 15 ns. Both micelles formed showed a prolate-like shape while adding drug produced a more compact micellar structure. Our simulation results revealed that the drug could behave as a co- surfactant.
Keyword:	Palm oil based Nano-emulsion; Diclofenac; Self-assembly; Molecular Dynamics Simulation
Advantages:	The findings obtained here can confirm the importance of theoretical exploration & fundamental theories for transdermal drug nano-delivery systems. Furthermore, computational simulation techniques would be a promising tool to identify, elucidate and determine the drug delivery mechanism through skin for lipophilic drugs such as diclofenac and hydrophobic drugs such as ibuprofen. Currently, most researchers estimate the structural properties of the micellar system and nano-emulsions by observing the spectrum data from Small Angle Neutron and X-ray Scattering (SANS and SAXS)while these spectrums do not precisely describe the structural and dynamics properties of the nano-emulsions particles since the size is too small (in nm range).
Market /	-
Commercialisation	
Abstract Additional File:	N/A
ResearchOutput:	Download Here

Title	Variable Stiffness Bracing System For Framed Structures
Product / Technology Name:	Variable Stiffness Bracing System
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Applied Science and Engineering
Leader Title:	Dr.
Leader Name:	Farzad Hejazi
Researchers Name:	Amir Fateh, Mohd Saleh jaafar, Azlan Adnan, Izian Abd. Karim
Faculty / Institute /	Faculty of Engineering
School / Academy:	
Department /	Department of Civil Engineering
Laboratory:	
Expertise:	Finite Element, Non linear Analysis, Structural Dynamic, Control of Structures,
	Optimization, intelligent strcutures
Email:	farzad@upm.edu.my
Telephone (Office):	03-89466362
Fax:	03-86567129
Patent Status:	Yes, Patent No.: PI 2014701608
Copyright /	Yes, Copyright / Publication No. / SD No.:
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	Severe vibration events due to ground motion, wind load, vehicle, machinery,
	tsunami and earthquake have underscored the necessity of dynamic excitations
	protecting techniques for the existing moment resistance frames. These design
	techniques are supposed to include detailed considerations of the effect of
	supplementary controller device on the original frames response The variable
	stiffness bracing (VSB) scheme is one of the innovative passive structural
	controller technique which increase overall lateral stiffness of structure under
	dynamic loads. The variable stiffness bracing component or intelligent structural
	control system does not operate for small and medium vibration amplitudes by
	and or nonlinear variable summess that depends on structural displacement
	through small vibration of structure in accontable range. For large vibration
	amplitudes the VSP system acting and restrain unaccentably large story drift
	and protect the structure against risky vibration. Mathematical and constitutive

	model of VSB is formulated base on flexible bar theory and variable stiffness characteristic of system is developed. The Newmarks method with considering variable stiffness system is performed to evaluate the seismic response of structure equipped with VSB system. Then, the effect of proposed system is evaluated by application of variable stiffness bracing component in numerical modeling by aid of time history analysis. The seismic response of modeled structures furnished with VSB system revealed the efficiency of VSB system in decreasing seismic effects on structure.
Short Description:	Four leaf springs acting in bending situations under large displacement. The main core that can move fro and back in longitudinal direction of steel rail. The cable is installed and fixed to the circle core and it is passes in to the rubber damper.When the force is applied to the cable, the steel core moves and contacts with the C shape member, where the spring are clamped. The C-shapes element helps to keep the initial spring shape and changing it during system performance. In addition to the global stiffness Nonlinear spring should be protected from curvature extension, therefore, curvature shape support are essential in addition to, the spring protection systems ensure that the leaf springs are not yielded when they reach the maximum curvature.
Keyword:	dynamic load, variable stiffness bracing system, seismic rehabilitation system, structural dynamic, finite element simulation
Advantages:	Prevent devastating toll of human life & properties. Alleviate seismic damage to structural elements. Diminish the structure response. Enhance seismic energy dissipation tendency.
Market / Commercialisation Potential:	Local market: This product is appropriate for high rise building which are located in seismic regions in Malaysia such as Sarawak to diminish the structural damage and ensure structure stability during the vibration load such as wind and earthquake. Global Market: Considering the seismic effects on the structures which are located in seismic area is compulsory. So, Variable stiffness bracing system has shown enough capability to put into practice as cheap and useful supplementary product to install in new and existing structure to mitigate and eliminate the structural damage.
Abstract Additional File:	Download Here
ResearchOutput:	N/A

Title	Interoperability among Heterogeneous Systems in Intelligent Building
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Mathematical Sciences and ICT
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Assoc.Prof.Dr Md Nasir Sulaiman
Researchers Name:	Md Nasir Sulaiman, Norwati Mustapha, Thinagaran Perumal, Ahmad Shahi,
Faculty / Institute /	Faculty of Computer Science and Information Technology
School / Academy:	
Department /	Department of Computer Science
Laboratory:	
Expertise:	Intelligent Computing
Email:	nasir@upm.edu.my
Telephone (Office):	03-89471702
Fax:	03-89466576
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:1
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	Invention: A new method to predict and solve interoperability among
	heterogeneous systems in intelligent building using rule sets Advantages: The
	rule sets could solve the heterogeneous systems run-time and interoperation
	delay that is critical in many situations. Target consumers: Elderly and disabled
	citizens, whereas their lifestyle is depend on various heterogeneous systems in
	the intelligent building environment. Cost: The cost of implementation is lower,
	could be absorbed during software development for any neterogeneous systems
Short Description:	
Short Description.	Pule based system: Intereperability:Intelligent Puilding
Advantages:	
Market /	
Commercialisation	
Potential	
Abstract Additional	N/A
, astract , authoridi	

File:	
ResearchOutput:	N/A
Title	Kerelevanan Majlis Belia Malaysia (MBM) sebagai Pemangkin Gerakan Belia di Malaysia
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Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Humanities and Nation Building
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Prof. Madya Dr. Haslinda Abdullah
Researchers Name:	Azimi Hamzah, Ismi Arif Ismail, Ezhar Tamam, Steven Eric Krauss, Sarjit S. Gill,
	Turiman Suandi, Nobaya Ahmad, Dzuhailmi Dahalan
Faculty / Institute / School / Academy:	Institute of Social Science Studies
Department /	Laboratory of Community Education and Youth Studies
Laboratory:	
Expertise:	Applied Psychology
Email:	lynn@upm.edu.my
Telephone (Office):	03-89471851
Fax:	03-89471856
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:Penerbitan
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	Malaysia Youth Council (MBM) which is also known as National Youth Council is
	a Non-Governmental Organization (NGO) accredited to represent the voice of
	youth generation in Malaysia. Its' main aim is to boost and motivate youth
	organizations to play a positive and effective role towards society and country.
	However, does MBM currently being transformed holistically in the true sense as
	the catalyst of Malaysian youth development? Does MBM's presence being felt
	by youth in Malaysia completely? Data for this study were collected based on
	literature analysis, random observations on the scenario that happened,
	discussion among reliow researchers in the field of youth development and
	selective and informal reedback from a number of fellow practitioners that are
	active in youth work in walaysia. Analysis found that there are suit several
	the youth organizations in Malaysia, whereby this not reflect the
	acknowledgement of MBM as the body that fight for the youth concerns in

	Malaysia. The findings provide space for further research on issues raised from
	various perspectives apart from empowering Malaysian youth in the near future.
Short Description:	
Keyword:	MBM, championing youth, youth development, relevancy of MBM, non-
	governmental organization (NGO)
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Optimization of Pitaya Seed Extracts - based Nanocosmeceutical Formulations using Response Surface Methodology (RSM)
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Applied Science and Engineering
Leader Title:	Dr.
Leader Name:	Siti Salwa Abd Gani
Researchers Name:	Siti Salwa Abd Gani, Hasmah Bidin, Mahiran Basri, Emilia Abd. Malek, Mohamed Salama Mohamed
Faculty / Institute / School / Academy:	Faculty of Science
Department / Laboratory:	Department of Chemistry
Expertise:	Oleochemistry, Cosmeceuticals, Formulation Science
Email:	ssalwaag@upm.edu.my
Telephone (Office):	03-89468431
Fax:	03-89466997
Patent Status:	Yes, Patent No.: in process
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	Pitaya seed extracts are the ideal based for skin nutritive cosmeceuticals due to
	their excellent compositions such as high content of essential polyunsaturated
	fatty acids (linoleic and linolenic acids) and antioxidant compounds (phenolic and
	flavonoid). Pitaya seed nanoemulsion was successfully formulated using high
	employed to evaluate the interactive effects of various parameters. The
	parameters involved were amount of Pitava seed extract (Δ): (8.00 - 15.00%)
	amount of emulsifier (B): (6.00 - 10.00%) and amount of xanthan gum (C): (0.80 -
	1.50%). The optimum condition derived via RSM was amount of Pitava seed
	extract; 9.45%, amount of emulsifier; 8.88% and amount of xanthan gum; 0.95%.
	The experimental particle size was 289.20 nm under the optimum condition,
	which compared well with the predicted value of 308.82 nm. Hence, this model
	could be used to predict the particle size of Pitaya seed nanoemulsion under any
	given conditions within the experimental range.

Short Description:	
Keyword:	pitaya,phenolic, flavanoid, linolic acid,response surface methodology (RSM)
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	Download Here

Title	Iron extraction using Benzyl Fatty Hydroxamic Acids and Methyl Fatty Hydroxamic Acids synthesized based on Palm Kernel Oil
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Applied Science and Engineering
Leader Title:	Dr.
Leader Name:	Hossein Jahangirian
Researchers Name:	Hossein Jahangirian
Faculty / Institute /	Faculty of Engineering
School / Academy:	
Department /	Department of Chemical and Environmental Engineering
Laboratory:	
Expertise:	Analytical Chemistry
Email:	kamran.jahangirian@gmail.com
Telephone (Office):	03-89466268
Fax:	03-86567120
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:2012, 13, 2148-2159
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	Methyl fatty hydroxamic acids (MFHAs) and benzyl fatty hydroxamic acids
	(BFHAs) based on palm kernel oil as chelating agents were applied for Liquid-
	liquid iron(III) extraction through the formation of iron(III) methyl fatty
	hydroxamate (Fe-MFHs) and iron(III) benzyl fatty hydroxamate (Fe-BFHs) in the
	organic phase. The results showed that the optimum conditions for extraction of
	100 mg/L iron(III) with 0.0158 M fatty hydroxamic derivatives were Vorg/Vaq =
	50 mL/50 mL and at pH(aq) 1.9. The results obtained under optimized
	conditions, showed that the cherding agents in nexalie extract from (iii) were
	MEHAs and BEHAs, respectively). Separation factor (BE) for Eq(11) extraction
	from Co(II) Ni(II) Mn(II) Mg(II) and Al(III) for both MEHAs and REHAs were
	higher than 10,000 which indicates that the iron(III) can be effectively separated
	from those jons. In other words the presence of the above mentioned metal jons
	at a high concentration did not significantly affect the percentages of iron(III)
	extraction. Finally stripping studies for recovering iron(III) from organic phase

	(Fe-MFHs or Fe-BFHs dissolved in hexane) were carried out at various
	concentrations of HCl, HNO3 and H2SO4. The results showed that Iron(III) ion
	from Fe-MFHs or Fe-BFHs in 25 mL hexane containing 5 mg/L Fe(III) can be
	quantitatively stripped into 50 mL HCl (5M) aqueous solution. Among the
	advantages of using this product as ligand are its simple preparation and the use
	of vegetable oil (palm kernel oil) as raw material which is cheap and readily
	available, mild condition of procedure for the purpose of good energy saving and
	using of friendly environmental solvents for achieving to green chemistry
	methods.
Short Description:	
Keyword:	Extraction, Liquid-liquid extraction, Iron extraction, methyl fatty hydroxamic
	acid, benzyl fatty hydroxamic acid, iron(III) methyl fatty hydroxamate, iron(III)
	benzyl fatty hydroxamate, palm kernel oil
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Development and testing the effectiveness of statistical learning tool (SLT)
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Humanities and Nation Building
Leader Title:	Prof. Dr.
Leader Name:	Bahaman Abu Samah
Researchers Name:	Rusli Abdullah, Jusang Bolong, Jeffrey Lawrence D'Silva, Hayrol Azril Mohamed Shaffril
Faculty / Institute / School / Academy:	Institute of Social Science Studies
Department /	Laboratory of Rural Advancement and Agriculture Extension
Laboratory:	
Expertise:	Education Extension, Social Science Statistic
Email:	majudesa.desa@gmail.com
Telephone (Office):	03-89471852
Fax:	03-89471856
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:Statistical Learning Tool -
Publication / SD:	LY2013001181
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	This study aims to determine the impacts of Statistical Learning Tool (SLT) on
	students' statistic performance. The study is quantitative in nature where a
	developed questionnaire was used to as the main data collection tool. Via a
	simple random sampling, a total of 129 statistic students were selected as the
	tespondents. Based on the analysis performed, the respondents have informed
	further analysis has confirmed that behaviour dynamics such as service quality
	system quality and information quality have a moderate and significant
	relationship with students' statistics performance. A number of discussions have
	been highlighted and expectantly it can further improve students' performance
	in statistical learning.
Short Description:	-
Keyword:	Statistical Learning Tool (SLT), student performance, statistical learning process
Advantages:	-

Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Purification of a novel protease enzyme from kesinai plant (Streblus asper) leaves using a surfactant-salt aqueous micellar two-phase system: a potential low cost source of enzyme and purification method
Product /	-
Technology Name:	Pamaran Baka Cinta, Danvalidikan dan Ingyasi (DBBI) 2014
Catagory:	Fundamental (A)
Category:	Agriculture and Food
Cluster:	
Leader Title:	Dr.
Leader Name:	Mehrnoush Amid Mahd Varid ADD Manan
Researchers Name:	Menrhoush Amid, Mond Yazid ABD Manap
School / Academy:	Faculty of Food Science and Technology
Department /	Department of Food Technology
Laboratory:	
Expertise:	Food Enzyme Biotechnology
Email:	mehrnoush@upm.edu.my
Telephone (Office):	03-89468413
Fax:	03-89423552
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:ytkyil
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
ADSTRUCT.	As a novel method of purification, an aqueous organic phase system (AOPS) was employed to purify pectinasefrom mango waste. The effect of different parameters, such as the alcohol concentration (ethanol,1-propanol, and 2- propanol), the salt type and concentration (ammonium sulfate, potassium phosphateand sodium citrate), the feed stock crude load, the aqueous phase pH and NaCl concentration, wereinvestigated in the recovery of pectinase from mango peel. The partition coefficient (K), selectivity (S),purification factor (PF) and yield (Y, %) were investigated in this study as important parameters for theevaluation of enzyme recovery. The desirable partition efficiency for pectinase purification was achievedin an AOPS of 19% (w/w) ethanol and 22% (w/w) potassium phosphate in the presence of 5% (w/w) NaClat pH 7.0. Based on the system, the purification factor of pectinase was enhanced 11.7, with a high yieldof 97.1%.
Short Description:	
Keyword:	Purification, Organic solvent, Aqueous organic phase system, Pectinase, Mango

	peel
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Does Food Insufficiency in Childhood Contribute to Dementia in Later Life
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inoyasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Health and Well Being
Leader Title:	Prof. Dr.
Leader Name:	Yadollah Abolfathi Momtaz
Researchers Name:	Yadollah Abolfathi Momtaz; Tengku Aizan Hamid; Sharifah Azizah Haron; Rahimah Ibrahim; Jariah Masud
Faculty / Institute / School / Academy:	Institute of Gerontology
Department / Laboratory:	Laboratory of Gerontechnology
Expertise:	Gerontology
Email:	yabolfathi@gmail.com
Telephone (Office):	03-89471126
Fax:	03-89472738
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:Publication
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	Background: Despite several studies attempting to identify the risk factors for dementia, little is known about the impacts of childhood living conditions on cognitive function in later life. Objective: The present study aims to examine the unique contribution of food insufficiency in childhood to dementia in old age. Methods: Data for this study consisted of 2745 older Malaysians aged 60 years and older were obtained from a national survey entitled "Mental Health and Quality of Life of Older Malaysians (MHQoLOM)" which was conducted from 2003 through 2005 using a cross-sectional design. The Geriatric Mental State- Automated Geriatric Examination for Computer Assisted Taxonomy (GMS- AGECAT) was used to measure dementia. A multiple binary logistic regression using SPSS Version 21 was conducted to assess the unique effect of food insufficiency in childhood on developing dementia in old age. Results: A notably higher prevalence of dementia was found in respondents who indicated they had experienced food insufficiency in childhood than in their food sufficient

	counterparts (23.5% vs. 14.3%). The findings from multiple logistic regression
	analysis revealed that food insufficiency in childhood would independently
	increase the risk of developing dementia in old age by 81%, after adjusting for
	sociodemographic factors (OR=1.81, 95% CI: 1.13-2.92, p<0.01). Conclusion: The
	findings from the present study showing that food insufficiency in early-life
	significantly increases the risk of dementia in later life, imply that health and
	social care professionals should be mindful of the increased risk of dementia in
	persons with experience of food insufficiency in childhood. It is suggested that
	older adults with childhood food insufficiency might be targeted for programs
	designed to prevent dementia
Short Description:	
Keyword:	aged; dementia; food insufficiency; Malaysia
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Graphene-Based Flexible Supercapacitor
Product /	-
Technology Name:	
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Materials Science and Technology
Leader Title:	Dr.
Leader Name:	Lim Hong Ngee
Researchers Name:	Chee Wei Kit
Faculty / Institute /	Faculty of Science
School / Academy:	
Department /	Department of Chemistry
Laboratory:	
Expertise:	Materials Science
Email:	hongngee@upm.edu.my
Telephone (Office):	03-89467494
Fax:	03-89435830
Patent Status:	Yes, Patent No.: PCT/MY2014/000054
Copyright /	Yes, Copyright / Publication No. / SD No.:
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	Enormous demands for energy storage devices have resulted in development of
	supercapacitor, especially for applications in electronic devices and hybrid
	vehicles. Recent developments in the domain of supercapacitors disclose use of
	graphene as a carbon material for use in fabrication of supercapacitors. The
	properties of graphene such as theoretically large surface area, excellent
	conductivity, good capacitance behavior, and low production cost make it a
	promising carbon material for supercapacitors. It has been evident by
	experimental exercises that graphene exhibits a very high electron mobility and
	a low resistivity, which are ideal for electrochemical storage devices. A flexible
	supercapacitor comprising an electrolyte sandwiched between nickel foams
	electrodeposited with a graphene-based nanocomposite. The nanocomposite
	comprises of a conducting polymer, graphene oxide and/or a metal oxide. The
	process comprises electrodepositing a nanocomposite electro-potentiostatically
	on a nickel loam from an aqueous solution comprising of a conducting
	monomer, graphene oxide and/or a metal salt, placed in one compartment cell

	followed by compressing an electrolyte between at least two layers of
	electrodeposited nickel foams.
Short Description:	
Keyword:	Flexible, Graphene, Energy Storage, Supercapacitor
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	Download Here

Title	Unlocking fixed nutrients in acid soil to increase crop yield
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Agriculture and Food
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Associate Prof. Dr. Ahmed Osumanu Haruna
Researchers Name:	Ahmed Osumanu Haruna, Huck-Ywih Ch'ng, and Nik Muhamad Ab Majid
Faculty / Institute /	Faculty of Agriculture and Food Sciences
School / Academy:	, .
Department /	Department of Crop Science
Laboratory:	
Expertise:	Soil Fertility and Management
Email:	osumanu@upm.edu.my
Telephone (Office):	08-6885406
Fax:	08-6855415
Patent Status:	Yes, Patent No.: PI2010004792
Copyright /	Yes, Copyright / Publication No. / SD No.:
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	In acid soils, soluble inorganic phosphorus reacts with aluminium and iron to
	form a compound that precipitates out of the soil solution. Over liming of acid
	soils also locks P because of excess calcium. These reactions lead to poor
	availability of phosphorus to crops. Hence, excessive amounts of phosphatic
	fertilizers are used. However, this approach is expensive and environmental
	unifientially because excessive and unbalanced use of fertilizers causes air, soil,
	charged biochar that rather fives aluminium and iron instead of phosphorus
	thereby rendering phosphorus readily available for ontimum cron use. With this
	innovation, we have for example increased maize vield by 50% and reduced
	fertilizer and labour cost by 25%. By adopting our innovation, farmers are
	assured of profitable yield and good soil health. The added advantage with this
	innovation is that farmers will not need to lime their soils to inactivate
	aluminium and iron.
Short Description:	In acid soils, soluble inorganic phosphorus is fixed by aluminium and iron. This

	reaction makes phosphorus unavailable for most crops and because of this large amounts of phosphatic fertilizers are used. However, this approach is expensive and environmental unfriendly because excessive and unbalanced use of fertilizers causes environmental pollution. To reverse this problem, we have used highly negative charged biochar that rather fixes aluminium and iron instead of phosphorus thereby rendering phosphorus readily available for optimum crop use. With this innovation, we have for example increased maize yield by 50% and reduced fertilizer and labour cost by 25%. By adopting our innovation, farmers are assured of profitable yield and good soil health. The added advantage with this innovation is that farmers will not need to lime their soils to inactivate aluminium and iron.
Keyword:	Biochar, phosphatic fertilizers, phosphorus fixation, wastes management, acids soils
Advantages:	In acid soils, soluble inorganic phosphorus is fixed by aluminium and iron. This reaction makes phosphorus unavailable for most crops and because of this large amounts of phosphatic fertilizers are used. However, this approach is expensive and environmental unfriendly because excessive and unbalanced use of fertilizers causes environmental pollution. To reverse this problem, we have used highly negative charged biochar that rather fixes aluminium and iron instead of phosphorus thereby rendering phosphorus readily available for optimum crop use. With this innovation, we have for example increased maize yield by 50% and reduced fertilizer and labour cost by 25%. By adopting our innovation, farmers are assured of profitable yield and good soil health. The added advantage with this innovation is that farmers will not need to lime their soils to inactivate aluminium and iron.
Market /	Our innovation could be of benefit to farmers, environmentalists, agro-industrial
Commercialisation Potential:	wastes producers, fertilizer and related industries
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Innovative Culture Techniques of Snakehead, Channa striatus in Tank
Product /	-
Fxhibition:	Pameran Reka Cinta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Agriculture and Food
Leader Title:	Dr.
Leader Name:	Dr. S. M. Nurul Amin
Researchers Name:	S. M. Nurul Amin, Afzan Muntazizna Mohd Pazai, Mohd Salleh Kamarudin and Abdullah Abdul Rahim
Faculty / Institute / School / Academy:	Faculty of Agriculture
Department / Laboratory:	Department of Aquaculture
Expertise:	Fisheries Biology
Email:	smnabd@gmail.com
Telephone (Office):	03-89474891
Fax:	03-89408311
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:Publication
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	Growth and survival of endangered snakehead Channa striatus were
	investigated at different diets, feeding frequencies and stocking densities under
	captive rearing condition. The fry fed with trash fish showed significantly higher
	(p < 0.05) weight gain percentage (376.50 ± 20.74 %) than those fed with Acetes
	shrimp (233.05 \pm 10.18 %) and bloodworm (199.08 \pm 17.25 %). The best FCR
	value (5.05 ± 0.27) was round in fish led with trash fish compared to those fed with Acetes shrimp (7.41 ± 0.88) and bloodwarm (11.48 ± 1.51). The feeding
	frequency experiment was carried out using nellet that contained 44% protein
	for 42 days. The fry were fed at 6 % of body weight daily at 2, 4, 6 and 8
	times/day. The result showed significant ($p < 0.05$) differences in the weight gain
	(%) among the treatments where 2 times/day yield the highest value (316.23
	±36.94 %). The highest survival percentage was found in the fry fed 2 times/day
	(100.00 \pm 0.00 %) while, the lowest was found in fry fed 8 times/ day (80.00 \pm
	0.00 %). The final experiment was on the effect of different stocking density of C.

	striatus in captivity. There were three treatment of stocking density in this
	experiment which was 20 individual/m2 in treatment 1 (T1), 30 individual/m2 in
	treatment 2 (T2) and 40 individual/m2 in treatment 3 (T3). The estimated gross
	and net production was higher in T3 (1775.79 g/m2), followed by T2 (1498.56
	g/m2) and T1 (1111.08 g/m2). Over all it could be concluded that 40 pcs/m2 was
	the most suitable stocking density under a monoculture system in the tank in
	term of production
Short Description:	
Keyword:	Snake head, Channa striatus, Tank culture, Maximum production
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Effect ofCurcuma longatuber powder extract on size of silver nanoparticles prepared by green method
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Materials Science and Technology
Leader Title:	Dr.
Leader Name:	Kamyar Shameli
Researchers Name:	Kamyar Shameli
Faculty / Institute /	Faculty of Science
School / Academy:	
Department /	Department of Chemistry
Laboratory:	
Expertise:	Polymer and Nanomaterials
Email:	kamyar@upm.edu.my
Telephone (Office):	03-89466784
Fax:	03-89466043
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:84 Published papers
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	Green synthesis of noble metal nanoparticles is a vast developing area of research. Metallic nanoparticles have received great attention from chemists, physicists, biologists and engineers who wish to use them for the development of a new generation of nano-devices. In this study silver nanoparticles (Ag-NPs) were biosynthesized from aqueous silver nitrate through a simple and eco-friendly route using Curcuma longa (C. longa) tuber powder, extracts which acted as a reductant and stabilizer simultaneously. Characterizations of nanoparticles were done using different methods, which include; ultraviolet-visible spectroscopy (UV-vis), powder X-ray diffraction (XRD), transmission electron microscopy (TEM), scanning electron microscopy (SEM), energy dispersive X-ray fluorescence (EDXF) spectrometry and Fourier transform infrared (FT?IR) spectroscopy. UV-visible spectrum of the aqueous medium containing silver nanoparticles showed absorption peak at around 415 nm. The TEM study showed that mean diameter and standard deviation for the formation of silver nanoparticles were 6 30±2 64 nm. The XRD study showed that the

	particles are crystalline in nature, with a face centered cubic (fcc) structure. The most needed outcome of this work will be the development of value added products from C. longa for biomedical and nanotechnology based industries.
Short Description:	
Keyword:	silver nanoparticles, Curcuma longa, biosynthesis, green synthesis, transmission
	electron microscopy.
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	Download Here

Title	Selection of Superior Rice Genotypes Resistant to Bacterial Blight based on Morphological and Molecular Markers Techniques
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Agriculture and Food
Leader Title:	Prof. Dr.
Leader Name:	Prof. Dr. Mohd Rafii Yusop
Researchers Name:	Mohd Rafii yusop, Mohd Siraj Mazid, Mohamad Hanafi Musa, Abdul Rahim Harun, Md. Abdul Latif, Sadegh Ashkani
Faculty / Institute / School / Academy:	Institute of Tropical Agriculture
Department /	Laboratory of Food Crops and Floriculture
Laboratory:	
Expertise:	Plant Breeding and Genetics
Email:	mrafii@upm.edu.my
Telephone (Office):	03-89471149
Fax:	03-89381612
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.: 1560-8530
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	A pot experiment was carried out in order to evaluate genetic diversity of 41 rice genotypes using physiological traits and molecular markers. All the genotypes showed the variations in crop growth rate (CGR), relative growth rate (RGR), net assimilation rate (NAR), yield per hill (Yhill-1), total dry matter (TDM), harvest index (HI), photosynthetic rate (PR), leaf area index (LAI), chlorophyll-a, and chlorophyll-b at maximum tillering stage. The CGR values varied from 0.23 to 0.76 gm cm-2 day-1. The Yhill-1 ranged from 15.91 to 92.26 g while TDM value was in the range of 7.49 to 20.45 g hill-1. Photosynthetic rate was found to vary from 9.40 to 22.34 μ mol m-2 s-1. Photosynthetic rate expressed positive relation with Yhill-1. Positive co-relation was found between CGR and TDM (r = 0.61**), NAR and CGR (r = 0.62**) and between TDM and NAR (r = 0.31**). High heritability was found in RGR and Yhill-1. Cluster analysis based on the traits grouped 41 rice genotypes into seven clusters. A total of 310 polymorphic loci

	dendrogram grouped genotypes into 11 clusters including several sub-clusters.
	In Mantel test, positive correlation between quantitative traits and molecular
	markers (r=0.41) was found. Based on physiological traits and molecular marker
	analyses parental genotypes, IRBB54 with MR84, IRBB60 with MR84, Purbachi
	with MR263, IRBB65 with BR29, IRBB65 with Pulut Siding, and MRQ74 with
	Purbachi could be hybridized for future breeding programme.
Short Description:	
Keyword:	Genetic diversity; Inter-simple sequence repeats; Total dry matter; Net
	assimilation rate; Photosynthetic rate; Bacterial blight resistance
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Plasmodium berghei ANKA infection in ICR mice as a model of cerebral malaria
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Health and Well Being
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Assoc. Prof. Dr. Rusliza Basir
Researchers Name:	Rusliza Basir, Siti Sarah Fazalul Rahiman, Kartini Hasballah, Chong Wing Chui,
	Herni Talib, Yam Mun Fei, Marzieh Jabbarzare, Tie Tung Hing, Fauziah Othman,
	Mohamad Aris Mohd Moklas, Wan Omar Abdulllah, Zalinah Ahmad
Faculty / Institute /	Faculty of Medicine and Health Sciences
School / Academy:	
Department /	Department of Human Anatomy
Laboratory:	
Expertise:	Pharmacology, Immunopharmacology, Malaria immunology
Email:	rusliza@upm.edu.my
Telephone (Office):	03-89472448
Fax:	03-89422341
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:!!!!!!!
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	Experimental animal models have been paramount towards the understanding
	of human diseases. They represent the first crucial step in the research of the
	underlying disease pathogenesis and development of new drug compounds and
	vaccines, and had paved the way into a modern biomedical research without
	which we would know very little. Animal models with various combination of
	nost-parasite nave long been employed to study malaria pathogenesis. Here, we
	a model of cerebral malaria (CM). Infection in mice was initiated by
	a model of cerebral matana (CM). Mechon in thice was initiated by intraneritoneal injection of 2 x 107 (0 2ml) parasitized red blood cells (DPRCs)
	Results showed that this model can produce a severe degree of infection
	presented by the high degree of parasitaemia followed by death 6-7 days nost
	infection. Severe anaemia, splenomegalv, hepatomegalv and discolourations of
	major organs were observed. Histopathological findings revealed several

	important features mimicking human CM including, microvascular sequestration
	of PRBCs in major organs, particularly in the brain, hypertrophy and hyperplasia
	of the kupffer cells in the liver, pulmonary edema and hyaline membrane
	formation in the lungs and haemorrhages in the spleen and also in kidney's
	medulla and cortex. Proinflammatory cytokines TNF?, IFN?, IL-1, IL-6 and IL-18,
	and anti-inflammatory cytokine IL-10 were all found to be elevated in the plasma
	of infected mice. Based on the findings, this model can reproduce many of the
	important features of CM and therefore can be used as a tool to advance our
	understanding of the disease pathogenesis. This combination of host-parasite
	should be considered as an additional strength as they will undoubtedly bring
	advances in our knowledge and understanding of cerebral malaria pathogenesis
	and can also be utilized in the screening of potential new compounds or vaccine
	candidates to treat severe malaria like CM.
Short Description:	
Keyword:	Cerebral malaria, Animal model, Plasmodium berghei, ICR mice
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	Download Here

Title	MODELING AND SIMULATION FOR MANAGEMENT IN MALAYSIAN EDUCATIONAL INSTITUTIONS
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Humanities and Nation Building
Leader Title:	Dr.
Leader Name:	HABIBAH AB. JALIL
Researchers Name:	MASRAH AZRIFAH AZMI MURAD, ROSNANI JUSOH, FADZILAH ABD. RAHMAN, ERZAM MARLISAH
Faculty / Institute / School / Academy:	Faculty of Educational Studies
Department /	Department of Foundations of Education
Laboratory:	
Expertise:	TEKNOLOGI MAKLUMAT, TEKNOLOGI PENDIDIKAN, E-LEARNING
Email:	habibahjalil@upm.edu.my
Telephone (Office):	03-89468554
Fax:	03-89468246
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:LY2014000323
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	In Malaysia, simulation models as a tool for planning educational management
	are not particularly well established, although the characteristics of the
	Malaysian education plan would suggest that implementing planning systems of
	this type might be worthwhile. Simulation models for Malaysian School
	Management can aid educational management training in decision-making in the
	pursuit of a more efficient and equitable educational system. They allow changes
	In educational demand to be detected and can also be used to assess the impact
	or education policies before they are implemented and to interpret the results of
	decision-making. A simulator is expected to be built in this research, which with
	situation and real problem of school settings. Data from Malaysian schools
	region were collected and cleaned. Database include number of students
	enrollment their achievement staff background and training cost school
	infrastructure, community background and other relevant information. Analysis

	using decision tree shall be performed to the data to obtain an established patterns or models of different nature of Malaysian schools that soon shall support the system.
Short Description:	
Keyword:	PutraEduSim, modeling, simulation, management, malaysian educational
	institutions
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Software Architectural Analysis in Component-Based Software Development
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Mathematical Sciences and ICT
Leader Title:	Dr.
Leader Name:	Novia Admodisastro
Researchers Name:	Novia Admodisastro
Faculty / Institute /	Faculty of Computer Science and Information Technology
School / Academy:	
Department /	Department of Information System
Laboratory:	
Expertise:	Software Engineering, Software Design, CBSE
Email:	novia@upm.edu.my
Telephone (Office):	03-89471755
Fax:	03-89466576
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:4
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	The importance of architecture in reuse-driven development is widely recognized. Architecture provides a framework for establishing a match between available components and the system context. It is a key part of the system documentation; enforces the integrity of component composition and provides a basis for managing change. However, one of the most difficult problems in component-based system development (CBD) is ensuring that the software architecture provides an acceptable match with its intended application, business and evolutionary context. Unlike custom development where architectural design relies solely on a detailed requirements specification and where deficiencies in application context can be corrected by 'tweaking' the source code, in component-based system development the typical unit of development is often a black-box component whose source code is inaccessible to the developer. Getting the architecture right is therefore key to ensuring quality in a component-based system. Architecture analysis in CBD provides the development with a means to expose interface mismatches, assess configurations

	with respect to specific structural and behavioural constraints and to verify the
	adequacy of compositions with respect to quality constraints. However, support
	for key component-based system design issues is still patchy in most architecture
	analysis approaches. This work proposed the Component-based Software
	Architecture analysis FramEwork (CSAFE), a scenario-driven architecture analysis
	approach that combines and extends the strengths of current approaches using
	pluggable analysis. CSAFE is process-pluggable and recognises that negotiation
	(trade-off analysis) is central to black-box software development. However,
	while CSAFE is primarily intended to support black-box development, we
	recognise that there may be aspects of the system for which a black-box solution
	is not feasible. CSAFE supports custom development in such situations by
	treating abstract components as placeholders for custom development. CSAFE is
	supported by an extensible toolset.
Short Description:	
Keyword:	Architectural analysis, Components, Services, Black-box
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	A NEW COLLABORATION SYSTEM ON HETEROGENEOUS LEARNING MANAGEMENT SYSTEMS BY UTILIZING MULTI- AGENT SYSTEM
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Materials Science and Technology
Leader Title:	Assoc. Prof. Dr.
Leader Name:	SYED ABDUL RAHMAN AL-HADDAD BIN SYED MOHAMED
Researchers Name:	Rusli bin Hj Abdullah, Shaiful Jahari Hashim, Amir Kombo Mwinyi
Faculty / Institute /	Faculty of Engineering
School / Academy:	
Department /	Department of Computer and Communication System Engineering
Laboratory:	
Expertise:	Speech processing, Image processing and Computer Telephony Integration
Email:	sar@upm.my
Telephone (Office):	03-89466440
Fax:	03-86567127
Patent Status:	Yes, Patent No.: Patent is pending for presentation
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	The main intention of this invention is to use file synchronization in
	Heterogeneous Learning Management system (HLMS). In this, the new
	technology of Multi-Agent Systems (MAS) will be integrated with rsync which is a
	famous open source algorithm for file transfer between two machines. The main
	idea is to develop a learning system environment which will provide the
	interoperability and collaboration among the Higher Learning Institutions (HLIs).
	The motivation behind this invention rose from the problem of developing a
	learning system based on massive open on-line course sharing learning system in
	learning institutions, which attracts the attention of many researchers in the
	communication overhead in terms of searching process of outdated learning
	contents in the synchronization process during file transfer among different
	Learning Management Systems (LMSs). Therefore, a new model utilizing
	intelligent MAS to do course sharing work and monitor interoperability among
	HLMS is presented to enhance teaching performance and to increase

	collaboration among HLIs by utilizing a web-based e-learning system.
	Advantages of this invention are very open. Firstly, it will provide course sharing
	among HLIs hence students' can be able to register course in any of the higher
	learning institution and be able to receive learning contents in their common
	student's portal. Secondly, it will enable students to receive updated learning
	contents automatically by utilizing MAS. Thirdly, it will enhance the collaboration
	among HLIs which in turn increase the students' learning outcome. This
	invention has potential of getting acceptance to other ministries of higher
	education worldwide, due it its potential of improving teaching performance and
	simplification of learning process. The expected cost of this invention is
	estimated to be RM 100,000
Short Description:	
Keyword:	Synchronization, Heterogeneous Learning Management System, Interoperability,
	Collaboration, Multi-Agent System
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	Download Here

Title	Solving Second-Order Delay Differential Equations by Direct Adams-Moulton Method
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Mathematical Sciences and ICT
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Assoc Prof Dr. Zanariah Abdul Majid
Researchers Name:	Hoo Yann Seong, Zanariah Abdul Majid, Fudziah Ismail
Faculty / Institute /	Institute of Mathematical Research
School / Academy:	
Department /	Laboratory of Computational Sciences and Informatics
Laboratory:	
Expertise:	Numerical analysis
Email:	zanariah@science.upm.edu.my
Telephone (Office):	03-89466874
Fax:	03-89437958
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:Article ID 261240
Publication / SD:	
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	This research will consider the implementation of fifth-order direct method in the form of Adams-Moulton method for solving directly second-order delay differential equations (DDEs). The proposed direct method approximates the solutions using constant step size. The delay differential equations will be treated in their original forms without being reduced to systems of first-order ordinary differential equations (ODEs). Numerical results are presented to show that the proposed direct method is suitable for solving second-order delay differential equations.
Short Description:	
Keyword:	delay differential equations, direct method
Advantages:	-
Market /	-
Commercialisation Potential:	
Abstract Additional	N/A

File:	
ResearchOutput:	N/A

litie	Estimating Technical Efficiency of Cage Fish Farming in Peninsular Malaysia: A Stochastic Frontier Analysis Approach
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Agriculture and Food
Leader Title:	Prof. Dr.
Leader Name:	Zainal Abidin Mohamed
Researchers Name:	Abdullahi Iliyasu, Zainal Abidin Mohamed, Mohamed Mansor Ismail, Abdullah Mahir Amin, Hashim Mazuki
Faculty / Institute / School / Academy:	Faculty of Agriculture
Department / Laboratory:	Department of Agribusiness and Information System
Expertise:	Agricultural Economics
Email:	zam@agri.upm.edu.my
Telephone (Office):	03-89474816
Fax:	03-89408213
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:doi:10.1111/are.12474
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	The study estimates technical efficiency and investigates the factors affecting the technical inefficiency of cage fish farming in Peninsular Malaysia. The study employs the stochastic frontier function to estimate a production frontier and technical inefficiency model. The data were collected using standard structured questionnaires completed by sample cage fish farmers in the study area. The
	questionnaires completed by sample cage fish farmers in the study area. The result reveals an estimated mean technical efficiency score of 0.79, implying that the sample fish farmers are operating 21% below the production frontier and thus, there is room for improvement. The production function involves the use of one output and four inputs, which are stocking density, feed, labour and other relevant production costs. The coefficients of all the inputs have positive signs and statistically significant impacts on the output. The output elasticity associated with stocking density is the highest (0.634), followed by feed (0.317). The null hypotheses that the technical inefficiency effects are absent from the

	are strongly rejected. The individual's null hypotheses of no age effect, no experience effect, no education effect, no species effect, no extension services
	effect, no workshop attended effect and no diseases effect on technical
	inefficiency are all rejected at different levels of statistical significance.
Short Description:	
Keyword:	stochastic frontier production function, technical efficiency, cage fish farming,
	aquaculture, Malaysia
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Sustainable Agriculture in Malaysia: Organic Farmers' Challenges towards Adoption
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta. Penyelidikan dan Inoyasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Humanities and Nation Building
Leader Title:	Prof. Dr.
Leader Name:	Prof Azimi Hamzah
Researchers Name:	NEDA TIRAIEAYRI, AZIMI HAMZAH, BAHAMAN ABU SAMAH
Faculty / Institute /	Institute of Social Science Studies
School / Academy:	
Department /	Department of Professional Development and Continuing Education
Laboratory:	
Expertise:	Extension education, youth development
Email:	azimihamzah49@gmail.com
Telephone (Office):	03-89468230
Fax:	03-89471856
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:10.5539/ass.v10n4p1
Publication / SD:	
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	Agriculture in Malaysia is characterised by high levels of fertiliser and manure applications and consequently environmental pollution. Sustainable agriculture and organic farming are being promoted by the government as a way of eliminating unsustainable agriculture. Despite the benefits that organic farming brings to farmers and environments, its adoption rate is still low among Malaysian farmers. A study of organic farmers in the Cameron Highlands was conducted to reveal the challenges that have been occurred with regard to adoption of the practice. The results indicate that organic farmers face challenges with regard to land tenure, certification processes, hiring foreign workers, marketing, training and extension services and governmental support. Issues and challenges were discussed. The paper concludes with some recommendations.
Short Description:	organic formers, organic forming, small coole producers, sustainable equivalence
keyword:	organic farmers, organic farming, small-scale producers, sustainable agriculture, Malaysia

Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	Download Here
Title	PINEWASTE PELLET AS A FEED FOR HERBIVORES
--	--
Product / Technology Name:	PINEWASTE PELLET
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Agriculture and Food
Leader Title:	Assoc. Prof. Dr.
Leader Name:	ROSNAH SHAMSUDIN
Researchers Name:	MUHAMMAD FAKHRI BIN ZAINUDDIN, ROSNAH BINTI SHAMSUDIN, MOHD NORIZNAN BIN MOKHTAR, DAHLAN BIN ISMAIL
Faculty / Institute / School / Academy:	Faculty of Engineering
Department / Laboratory:	Department of Process and Food Engineering
Expertise:	Food Machinery Design, Food Engineering Properties
Email:	rosnahs@upm.edu.my
Telephone (Office):	03-89466366
Fax:	03-89466366
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:BioRes5499
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	The utilization of agro-industrial wastes as animal-feed can reduce the
	worldwide agro-waste that is increasing every year. This research gives a new
	alternative for ruminant-feed producers by using pineapple crops as an
	alternative source to replace by-products from industry such as oil palm fronds
	(OPF), empty fruit bunch (EFB), cocoa husk, soy waste and corn. The whole parts
	of pineapple plant are being utilized as forage for ruminants due to high in
	nutritional value in fiber. The whole part of the pineapple plant (leaves and
	stems) is processed and extruded into pellet form by using an extrusion process.
Short Description:	I ne optimum temperature, screw speed, die diameter and moisture content of
	material were found at 100 °C, 150 rpm, 8mm and 35-50%. The result from the
	carbohydrate were in the range between 6.8% 20.40% 8.6.8.7% 4.2.6.4% and
	32-34% From 72 hours of in vitro test the pellets show that it can be directed in
	the rumen up to 76-80% of its initial weight. This pellet has good replacement

	for fiber source since it contains a high percentage of fiber, 30-40% and this fiber
	is used as a source for energy.
Keyword:	animal feed, agro-waste, pellets, pineapple plant
Advantages:	The optimum temperature, screw speed, die diameter and moisture content of material were found at 100?C, 150rpm, 8mm and 35-50%. The result from the process show that the crude protein, crude fiber, moisture content, ash and carbohydrate were in the range between 6-8%, 30-40%, 8.6-8.7%, 4.2-6.4% and 33-34%. From 72 hours of in vitro test, the pellets show that it can be digested in the rumen up to 76-80% of its initial weight. This pellet has good replacement for fiber source since it contains a high percentage of fiber, 30-40% and this fiber is used as a source for energy.
Market /	Animal feed industries, Research centres in the pineapple industries, Food
Commercialisation Potential:	industries
Abstract Additional File:	N/A
ResearchOutput:	N/A

Title	Synthesis and Characterization of Graphene Oxide
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Materials Science and Technology
Leader Title:	Dr.
Leader Name:	Dr. Nor Azowa Ibrahim
Researchers Name:	Nor Azowa Ibrahim, Chieng Buong Woei, Mohd Zobir Hussein
Faculty / Institute /	Faculty of Science
School / Academy:	
Department /	Department of Chemistry
Laboratory:	
Expertise:	polymer blend, polymer nanocomposites, nanomaterials, polymer membrane
Email:	norazowa@upm.edu.my
Telephone (Office):	03-89466802
Fax:	03-89432508
Patent Status:	Yes, Patent No.: PI2014700668
Copyright /	Yes, Copyright / Publication No. / SD No.:
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	An improved Hummers method without using NaNO3 was developed. This
	modification does not decrease the yield of product, eliminating the release of
	NO2 and N2O4 toxic gases and simplifying the conventional Hummers method.
	Graphite oxide was first obtained by intercalation of sulphuric acid and
	subsequent oxidation using oxidizing agent potassium permanganate.
	Subsequently, thermal and vacuum was applied to exfoliate the graphite oxide
	to single layer graphene oxide (GO). This method offers simple protocol as no
	additional extraneous chemical agents are required. GO shows no apparent
	peaks in XKD, which indicate the absence of stacked layer structure and single
	TIP study which confirm the CO formation TENA image clearly illustrates that
	the GO existed in the sheet like shape
Short Description:	
Koword:	Carbon materials: granhene ovide: synthesis
Advantages:	
Auvaniages.	

Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	Download Here

Title	Pegangan Agama dalam kalangan Belia Awal Pelbagai Kaum di Malaysia
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Humanities and Nation Building
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Assoc. Prof. Dr. Steven Eric Krauss
Researchers Name:	Azimi Hamzah, Mohamed Azam Mohamed Adil, Dzuhailmi Dahalan, Abd Hadi Sulaiman
Faculty / Institute / School / Academy:	Institute of Social Science Studies
Department / Laboratory:	Laboratory of Community Education and Youth Studies
Expertise:	Pembangunan Belia
Email:	lateef@upm.edu.my
Telephone (Office):	03-89471865
Fax:	03-89471856
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:Publication
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	Kajian ini meneliti tahap pegangan agama dalam kalangan belia awal pelbagai kaum di Malaysia. Dapatan yang dibentangkan secara deskriptif ini merupakan sebahagian daripada dapatan kajian yang lebih besar mengenai Pembentukan Model Risiko dan Faktor Penyebab Fenomena Keluar Agama dalam kalangan Belia di Malaysia. Kajian ini menggunakan pendekatan kuantitatif ke atas 1893 pelajar tingkatan empat di seluruh negara melibatkan beberapa negeri terpilih. Kajian mendapati belia pelbagai kaum di Malaysia mempunyai tahap pengamalan agama yang rendah. Keadaan yang sama turut berlaku ke atas sosialisasi agama responden dengan rakan-rakan dari sudut perbincangan iman/kepercayaan. Selain itu, kajian turut mendapati faktor ibu bapa dan rakan- rakan sebagai rujukan dalam perkara keimanan begitu penting dari sudut
	menyokong pegangan iman/kepercayaan belia. Belia dilihat masih memiliki identifikasi pegangan agama yang kuat di dalam menjustifikasikan dirinya dengan agamanya serta dirinya dengan komuniti seagama. Ringkasnya,

	walaupun agama begitu signifikan dalam kehidupan belia, namun tahap amalan agama dilihat sedikit longgar. Peningkatan sosialisasi agama dengan ibu bapa dan rakan-rakan dilihat berpotensi menyumbang ke arah tahap pengamalan agama yang lebih positif dalam kalangan belia pelbagai kaum di Malaysia.
Short Description:	
Keyword:	Pegangan agama, Belia awal, Pelbagai kaum, Malaysia
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Ionic mixture-compatibilized biocomposites with improved mechanical properties
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Materials Science and Technology
Leader Title:	Mr.
Leader Name:	Ahmad Adlie Shamsuri
Researchers Name:	Prof. Dr. Rusli Daik, Assoc. Prof. Dr. Edi Syams Zainudin, Prof. Dr. Paridah Md Tahir
Faculty / Institute / School / Academy:	Institute of Tropical Forestry and Forest Products
Department / Laboratory:	Laboratory of Biocomposite Technology
Expertise:	Biocomposites
Email:	adlie@upm.edu.my
Telephone (Office):	03-89471889
Fax:	03-89467012
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:10.1177/0731684413516688
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	In recent times, polysaccharides are gaining attention due to their non-toxicity, biocompatibility and excellent biodegradability. Combination between synthetic polymer e.g. HDPE and polysaccharide e.g. agar to produce biocomposites have attracted the researchers' interest, as they are easy to prepare and their production cost is also low. Nevertheless, this approach has given biocomposites with low physicochemical properties due to incompatibility between HDPE and agar. Therefore, this project has involved the use of ionic mixture as a compatibilizer. The eutectic-based ionic liquid specifically choline chloride/glycerol (ChCl/Gly) was mixed with the different contents of HTAB surfactant to produce the mixture. Then, they were introduced into HDPE/agar biocomposites through melt mixing. The introduction of ChCl/Gly-HTAB ionic mixture has increased the impact strength and tensile extension of the biocomposites as exhibited in the mechanical testing results. The number of agar

	biocomposites are significantly decreased with the introduction of the ionic
	mixture as indicated in the SEM, DSC and TGA results. Furthermore, the
	presence of physical interactions (hydrogen bonding and hydrophobic-
	hydrophobic interaction) in the biocomposites is also due to the introduction of
	the ionic mixture as implied in the FTIR spectra and XRD patterns. This has
	contributed to the increase of compatibility between both HDPE and agar. It
	would benefit industries that interested to utilize natural fibers in their products
	since this approach does not require any chemical treatment of the fillers.
Short Description:	
Keyword:	High-density polyethylene, agar, biocomposite, ionic mixture
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Paddy Quality Determination using Imaging Technology
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Agriculture and Food
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Assoc. Prof. Dr. Siti Khairunniza Bejo
Researchers Name:	Norsolehah Azman, Wan Ishak Wan Ismail, AimrunWayayok
Faculty / Institute /	Faculty of Engineering
School / Academy:	, , , , , , , , , , , , , , , , , , , ,
Department /	Department of Biological and Agricultural Engineering
Laboratory:	
Expertise:	Imaging technology
Email:	skbejo@upm.edu.my
Telephone (Office):	03-89464332
Fax:	03-89466424
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:Vol.12 (1): 188-191. 2014
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	This research presents the use of imaging technology in determining quality of
	fresh harvested paddy. The maturity estimation models and moisture content
	determination models were developed and tested using sample of paddy taken
	from Sawah Sempadan, Selangor. Based on the results, Red index give the
	lowest root mean square error (RMSE) and was selected as a model to predict
	value of moisture content and maturity stage of paddy. The model performed
	R2-0.0806 in a maisture content determination. Compared to the traditional
	method of naddy quality determination, this method can replace the meisture
	meter and human manual grading method by using a single image. Potential
	consumers include farmers and milling companies. Estimated cost over benefit is
	around 1:5.
Short Description:	
Keyword:	Paddy, maturity, moisture content, color, image processing
, Advantages:	-

Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	Download Here

Title	Optical and Thermal Properties of Virgin Coconut Oil: Comparative Study to Olive Oil
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Applied Science and Engineering
Leader Title:	Prof. Dr.
Leader Name:	Prof. Dr. W. Mahmood Mat Yunus
Researchers Name:	Prof. Dr. W.Mahmood Mat Yunus, Prof. Dr. Zainal Abidin Talib, Dr. Yap Wing Fen
Faculty / Institute /	Faculty of Science
Department /	Department of Dhycics
Laboratory:	
Exportiso:	Photoscoustic 7-Scan Surface Plasmon Resonance, and Photoflash Techniques
Expertise.	mahmood@upm_odu_my
Telephone (Office):	02-80466684
Fax.	03-89400084
Patent Status:	Ves Patent No ·
Convright /	Ves Convright / Publication No. / SD No. :No.:6 (2): 328-331, 2009
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	Nowadays, virgin coconut oil and olive oil are the most valuable oil. The reason is
	because they have the potential effects on human health. However, to the best
	of our knowledge, there is lack of comparative fundamental studies for these
	oils. Hence, this finding focuses on the fundamental studies of optical and
	thermal properties of virgin coconut oil, as compared to the virgin olive oil. The
	thermal conductivity for virgin coconut oil is slightly lower than the olive oil, i.e.
	0.159 and 0.161 (W/m.K) respectively. On the other hand, the absorption
	spectrum shows that no absorption was observed as compared to virgin olive oil.
	However in virgin olive oil a high absorption peak occurred at 300 nm. The
	retractive index of virgin coconut oil is in the range of 1.449-1.460 as compare to
	1.405-1.478 for onversion on the results show that virgin coconut on has potential
	and commercialization notential in worldwide industry
Short Description:	
Keyword	Ontical properties thermal properties virgin coconut oil olive oil index
Reyword.	optical properties, thermal properties, virgin coconation, onve on, index

	matching medium
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	Download Here

Title	DEVELOPMENT OF CHLORAMPHENICOL-LOADED NANOEMULSION SYSTEM USING PALM KERNEL OIL ESTERS FOR MENINGITIS TREATMENT VIA PARENTERAL ROUTE
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Applied Science and Engineering
Leader Title:	Prof. Dr.
Leader Name:	Mahiran Basri
Researchers Name:	Siti Hajar Musa, Mahiran Basri, Roghayeh Abedi Karjiban, Emilia Abd Malek, Hamidon Basri, Ahmad Fuad Shamsuddin, Hamid Reza Fard Masoumi
Faculty / Institute / School / Academy:	Institute of Bioscience
Department / Laboratory:	Laboratory of Molecular Biomedicine
Expertise:	Oleochemistry Biopharmaceutical
Email:	mahiran@upm_edu_my
Telephone (Office):	03-89467266
Fax:	03-89426539
Patent Status:	Yes. Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:-
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	Meningitis is a disease caused by bacterial infection in the brain. Streptococcus
	pneumonia is the most common causative agent for meningitis disease.
	Chloramphenicol used to be drug used for the treatment of meningitis. Current
	medication in treating meningitis is using the family of cephalosporin drug.
	However, due to the drug resistant problem, this family of drug is no longer
	efficient towards the meningitis bacteria. Thus, the use of chloramphenicol has
	caught back the attention in treating meningitis disease. Chloramphenicol is
	claimed to be toxic towards numan cells since higher dosage is needed per
	of this hydrophobic drug. Nanoemulsion is believed to be the best ention in
	transporting chloramphenicol to the brain by intravenous route A good
	combination of oil mixture with surfactant mixture led to the formation of
	formulation with small particle sizes with low PDI values. Ontimization of
	nanoemulsion's composition using Response Surface Methodology (RSM)

	suggested that the best amount of oil, lecithin and glycerol were 4%, 2.5% and
	2.25%, respectively. The optimized formulation was then modified due to the
	instability and insufficient osmolality value of the formulation. The
	physicochemical characteristics (particle size, PDI, zeta potential, osmolality,
	viscosity and pH) of the formulation successfully fulfilled the requirement for
	parenteral application. Toxicity analysis showed that chloramphenicol
	encapsulated nanoemulsion system was much safer compared to the standard
	chloramphenicol. Storage of the chloramphenicol-loaded nanoemulsion at 4°C
	showed a good stability for 3 months with no significant changes on the particle
	size.
Short Description:	
Keyword:	Nanoemulsion, Palm kernel oil esters, Chloramphenicol, Meningitis, Parenteral
	route
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Sentimetrics Engine and Reputation Metre Application
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Mathematical Sciences and ICT
Leader Title:	Dr.
Leader Name:	NURFADHLINA MOHD SHAREF
Researchers Name:	NURFADHLINA MOHD SHAREF, MASRAH AZRIFAH AZMI MURAD, MOHAMMAD YASER SHAFAZAND
Names Printed on	NURFADHLINA MOHD SHAREF, MASRAH AZRIFAH AZMI MURAD, MOHAMMAD
Eaculty / Institute /	Faculty of Computer Science and Information Technology
School / Academy:	
Department / Laboratory:	Department of Computer Science
Expertise:	TEXT MINING, INTELLIGENT SYSTEMS
Email:	nurfadhlina@upm.edu.my
Telephone (Office):	03-89471776
Fax:	03-89466550
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:Sentimetrics
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	Sentimetrics is the analyser engine of the Reputation Metre application which is
	s kind of social media analytics business intelligence technology. It inspired by
	the needs to know the public perception towards organisational reputation and
	the power of branding. The Sentimetrics engine is based on the hybrid
	Integration of Stanford Sentiment Mining (SSM) tool and SentiWordNet to gain
	the efficiency of SSIVI in terms of the sentence structure exploitation and the
	scoring ability in Sentiwordiver. The main functions of the Reputation Metre
	application are gathering online social uata, analysing the expressions and visualising their summarized contents. The application is also be able to monitor
	nublic favouritism and complaints, and intelligently delivers the information to
	the user. The information provided will benefit the organisation in their strategic
	decision making for the purpose of their marketing plan and sustaining the

	organisation's reputation.
Short Description:	
Keyword:	Social Media Analytics, Business Intelligence
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	Download Here

Title	Ascertained Fish Larval Diversity and Feeding Guilds in the Seagrass-Mangrove Ecosystem of Johor Strait
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Agriculture and Food
Leader Title:	Prof. Dr.
Leader Name:	Prof. Dr. Aziz Arshad
Researchers Name:	Aziz Arshad, Roushon Ara, S. M. Nurul Amin, Mazlan Abdul Ghaffar
Faculty / Institute /	Faculty of Agriculture
School / Academy:	
Department /	Department of Aquaculture
Laboratory:	
Expertise:	Fisheries Biology
Email:	azizar.upm@gmail.com
Telephone (Office):	03-89474939
Fax:	03-89408311
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:Publication
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	Fish larval composition, spatio-temporal distribution, density, family richness, Shannon-Wiener index and feeding habits were determined by analyzing samples collected from the seagrass-mangrove ecosystem of Gelang Patah, Johor Strait between October 2007 and September 2008. Five sampling stations were selected and each station was approximately 1 km apart from each other. Fish larvae were collected by subsurface towing of bongo net equipped with a flow meter. In total, 24 families of fish larvae were identified from the coastal waters of Gelang Patah, Johor. Among them, 14 occurred in upper estuary, 17 in middle estuary, 16 in lower estuary, 20 in seagrass beds and 16 in open sea. Overall five families (Clupeidae, Blenniidae, Terapontidae, Gobiidae and Sillaginidae) were the most dominant in study areas. Shannon-Wiener index varied significantly within monsoon and intermonsoon seasons peaking in the months October-January and May-August. The highest density of larval fishes was recorded at seagrass station (S4) and the spatial variations in larval density were significant (n < 0.05) between seagrass and other four sampling sides.

	Analyses of prey in the stomachs identified 24 important items (%Rs > 0.05)
	belonging to six major groups: phytoplankton, zooplankton, algae, plant like
	matter, debris and unidentified materials. The predominant food item in the
	stomach of all four families (Blenniidae, Clupeidae, Gobiidae and Terapontidae)
	was phytoplankton (> 60%). Among phytoplankton, Dacytyloccopsis fasicularis
	(26.31%) was large quantity in the stomachs of Bleniidae and this was followed
	by Nitzschia baccata (23.38%). Overall, two most dominant phytoplankton
	(Dacytyloccopsis fasicularis and Nitzschia sp.) was observed among the four
	larval families. It is revealed that various food items were found in the stomachs
	of fish larvae and remarkable those phytoplanktons were more than 60% in the
	diet composition. Therefore, all studied fish larval families in the study areas are
	exclusively herbivore.
Short Description:	
Keyword:	Fish larvae, Seagrass, Mangrove, Ecosystem, Diversity, Food Habits, Johor Strait
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Dynamic watemarking system for confidential and sensitive text documents
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Mathematical Sciences and ICT
Leader Title:	Dr.
Leader Name:	Dr. Wan Azizun Binti Wan Adnan
Researchers Name:	Assoc. Prof. Dr. Abdul Rahman Ramli, Dr. Khairulmizam Samsuddin, Dr. Sharifah Mumtazah Syed Abdul Rahman, Nassrddin
Faculty / Institute / School / Academy:	Faculty of Engineering
Department / Laboratory:	Department of Computer and Communication System Engineering
Expertise:	Information security(watermarking, Biometrics), Software Development
Email:	wawa@upm.edu.my
Telephone (Office):	03-89466442
Fax:	03-89466442
Patent Status:	Yes, Patent No.: PI2013701895
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	The current era has shown a rapid growth of multimedia resources including
	(text, images, audio and video) transmission over internet. The problem of
	ensuring content integrity and copyright protection has encouraged researchers
	to find out the best methods and tools to achieve multimedia content
	protection.Confidential and sensitive documents exchange over internet became
	an increasing challenge not to end up in the wrong hands or being re-distributed
	to an unauthorized individuals. Wikileaks website is a wakeup call for
	governments and organizations to protect nignly sensitive information. Strong
	Digital watermarking will be used to offer a potential solution It involves
	embedding additional data such as string or number into the document content
	which will be used to trace the source of illegal conies. The system uses
	watermarking technology in the client side. Watermarking part in the system
	works in a dynamic and silent way by the time the document reaches the client

	machine before any kind of usage. The method of watermarking the text is
	developed in a way that achieves 100% of imperceptibility. In addition, the
	proposed method is robust against reformatting (font, color, alignment,
	justifying), file conversion, copying to another environment, text insertion.
	Moreover, the proposed method protect the text from reordering and still be
	able to retrieve the watermark under any kind of the previous possible attacks.
	The watermark is kept in a secure way where it is not easy to detect or retrieve
	by normal users It also provides a high level of accuracy upon extracting the
	watermark from the leaked document. Potential applications pf the developed
	product is in Government's Departments such as Intelligence agencies, Military
	and Embassies. It can also be used in any private organizations that would like
	to have a secure document transfer
Short Description:	
Keyword:	text watermarking, client server
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	N/A

Title	A Lactococcal Bicistronic Vector System for Gene Delivery in Eukaryotic Cells
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Biosystems and Biotechnology
Leader Title:	Dr.
Leader Name:	Dr Nurulfiza Mat Isa
Researchers Name:	Nur Elina Abdul Mutalib, Noorjahan Banu Mohamed Alitheen, Raha Abdul Rahim
Faculty / Institute /	Faculty of Biotechnology and Biomolecular Sciences
School / Academy:	
Department /	Department of Cell and Molecular Biology
Laboratory:	
Expertise:	Bioinformatics and Molecular Biology
Email:	nurulfiza@upm.edu.my
Telephone (Office):	03-89471942
Fax:	03-89467510
Patent Status:	Yes, Patent No.: PI2013701635
Copyright /	Yes, Copyright / Publication No. / SD No.:
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	The present invention provides a bicistronic vector system (pNZ:vig) based on
	Lactococcus lactis plasmid DNA into which an eukaryotic promoter, a first gene
	to be transcribed by the promoter, internal ribosome entry (IRES), a second gene
	to be transcribed by IRES and transcription terminator signal are incorporated in
	said order downstream of each other. This bicistronic vector have yet to
	(GRAS) status (either the vector itself or together with the best cells, lactic acid
	hacteria) may enable the safe delivery of genes of interest into targeted
	eukarvotic cells. Transient expression of both genes in eukarvotic cells with
	positive staining indicates the ability of the bicistronic lactococcal vector to
	perform co-expression of two genes simultaneously, thus making it feasible for
	expression of other antigenic or therapeutic genes for vaccine and other
	beneficial protein delivery into eukaryotes. Thus, the system can be used for
	research purposes as well as cancer research, vaccine development, drug
	delivery, pharmaceutical and nutraceutical industry. None Malaysian Biotech

	companies search provides the product of novel vectors either for replication
	and/or expression in prokaryotes and eukaryotes. Potential products such as
	lyophilized plasmid using this invention will have a good opportunity for
	commercialization and the targeted customers will be the kit manufacturers and
	distributors company. The cost for manufacturing of this product will be cost
	effective since it is not require biosafety cabinet due to its GRAS status organism.
Short Description:	
Keyword:	Lactococcus lactis, Internal ribosome entry element (IRES), eukaryotic cells,
	bicistronic vector
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	N/A

Title	Phage-based Biocontrol Agent for Salmonellosis in Broiler Chickens
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Agriculture and Food
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Assoc. Prof. Dr. Sieo Chin Chin
Researchers Name:	Wong Chuan Loo, Tan Wen Siang, Norhani Abdullah, Mohd. Hair-Bejo, Jalila Abu,
	Ho Yin Wan
Faculty / Institute / School / Academy:	Institute of Bioscience
Department /	Laboratory of Industrial Biotechnology
Laboratory:	
Expertise:	Applied Microbiology
Email:	sieo@upm.edu.my
Telephone (Office):	03-89466702
Fax:	09-89430913
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:International Journal of Food
Publication / SD:	Microbiology
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	Salmonellosis is one of the leading bacterial food-borne disease affecting
	humans and animals worldwide. Chickens, the most consumed meat by human
	population, have been identified as the main reservoir of this zoonotic pathogen.
	This infection has become a concern as infected chickens may not show clinical
	signs and is transferred to humans via consumption of contaminated chickens or
	egg products. The current on farm preventive measures have not produced
	promising outcomes. The last phase of effort to control contamination can be
	made during transportation of animals to the slaughter processing plants. In
	this invention, an environmental-friendly phage-based agent which targets to
	reduce the Salmonella load on politry in between the period of holding to
	slaughter is introduced. The phage, STPhage, which was isolated from the
	environment, was characterized. Based on the characteristics, inoculation
	count by 6 log cfu/ml (65%) within 6 h and and at 24 h, the Salmonella was not

	detected. Salmonella was also not observed in the visceral organs of the
	treated chickens, indicating that the severity of infection was lowered.
	Approximately 1.6 log PFU/ml of STPhage was found in the caecal wall of the
	chicks 24 h after the Salmonella was eliminated. This gives extended protection
	to the chickens. The invention provides rapid, efficient and safe method for
	elimination of Salmonella in poultry and its products. This would contribute to
	the safety of food that reaches the consumers.
Short Description:	
Keyword:	Phage, salmonellosis, broiler
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	Download Here

litle	Automated Term Extraction Engine
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inoyasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Mathematical Sciences and ICT
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Masrah Azrifah Azmi Murad
Researchers Name:	Rizwan Igbal
Faculty / Institute /	Faculty of Computer Science and Information Technology
School / Academy:	
Department /	Department of Information System
Laboratory:	
Expertise:	Text Mining, Intelligent Information Systems
Email:	masrah@upm.edu.my
Telephone (Office):	03-89471727
Fax:	03-89471795
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:720911105280
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
	(including concepts, instances, and relationships) occurring in the natural language text and is used in the development of ontologies. The terms extracted by this engine can be effectively used for constructing domain ontologies. It provides a rich collection of domain related terms, which are suitable for ontology development. The utility of this engine is not only limited to ontology development, it can also be used for other educational and learning purposes. The proposed engine reduces the work of humans and expedites the term identification process. In addition, it assures that none of the potential terms are missed out. The interface of the engine is simple and user friendly where operations for extraction can be easily executed by click of a button. The engine benefits any research institutes and centers, education and learning industries, and bioinformatics and medical industries where ontologies are becoming vital in knowledge sharing.
Short Description:	

Keyword:	ontology, term extraction, natural language, part of speech, concepts
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	Download Here

Title	Optimality of Input Used, Input Demand and Supply Response of Rice Production: Experience in MADA Malaysia
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penvelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Agriculture and Food
Leader Title:	Prof. Dr.
Leader Name:	Prof.Datuk.Dr. Mad Nasir Shamsudin
Researchers Name:	Mad Nasir Shamsudin, Lira Mailena, Zainal Abidin Mohamed, Ismail Abdul Latif, Alias Radam
Faculty / Institute / School / Academy:	Faculty of Agriculture
Department /	Department of Crop Science
Laboratory:	
Expertise:	Agriculture and Resource Economics
Email:	mns@upm.edu.my
Telephone (Office):	03-89474930
Fax:	03-89408213
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:ISSN 2222-2855 Vol 4. No.18 2013
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	This study attempts to measure the optimum use of production inputs and analyze the behavior of input demand and output supply of rice production in MADA, Malaysia. Restricted normalized transcendental logarithm profit function is utilized as it is able to depict the behaviour of input demand and output supply simultaneously. The findings indicate that farmers in MADA were not utilizing the production inputs optimally. Fertilizer prices and area planted had a significant effect on the profit, and farmers are responsive to the changes of input prices in term of input demand behavior. Thus extension with regards to the optimal input used should be emphasized in order to improve the economic efficiency and the profitability of the rice production.
Short Description:	
Keyword:	Optimum input used, Input demand, Output supply, Rice
Advantages:	-
Market /	-

Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	N/A

Title	Semi empirical pathways from experimental designs to industrial applications for lipase-catalyzed synthesis of esteramines-based esterquats in 2-liter bioreactor
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Applied Science and Engineering
Leader Title:	Dr.
Leader Name:	Hamid Reza Fard Masoumi
Researchers Name:	Hamid Reza Fard Masoumi, Mahiran Basri, Anuar Kassim, Dzulkefly Kuang Abdullah
Faculty / Institute / School / Academy:	Faculty of Science
Department /	Department of Chemistry
Laboratory:	
Expertise:	Synthesis and Modeling
Email:	fardmasoumi@upm.edu.my
Telephone (Office):	03-89466783
Fax:	03-89435380
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:5
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	Lipase-catalyzed production of esteramines-based esterquat by esterification of
	oleic acid (OA) with triethanolamine (TEA) in n-hexane was performed in 2 L
	stirred-tank reactor. A set of experiments was designed by central composite
	design to process modeling and statistically evaluate the findings. Five
	independent process variables, including enzyme amount, reaction time,
	reaction temperature, substrates molar ratio of OA to TEA, and agitation speed,
	were studied under the given conditions designed by Design Expert software.
	Light different models were found to be adequate and statistically accurate to
	predict the optimum conversion of product. For this purpose, the Response
	Surrace internodology (KSIN), Artificial Neural Networks (ANNs), wavelet Neural
	(CCD) were adopted for predicting conversion reaction in entimal condition
	Experiment was then carried out under the recommended condition and
	resulting response was compared to the predicted values. The optimum reaction

	parameters were: enzyme amount of 4.77 wt%, reaction time of 24 h, reaction
	temperature of 61.9°C, substrates molar ratio (OA:TEA) of 1:1mol (708 mmole of
	OA and TEA) and agitation speed of 480 r.p.m. The corresponding predicted
	value of percentage conversion was 62.64% as compared to the actual
	experimental value of 63.57%.
Short Description:	
Keyword:	Semi empirical pathways, lipase-catalyzed synthesis, esterquats, optimization,
	modeling
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	OVCoP SYSTEM MODEL
Product / Technology Name [.]	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Mathematical Sciences and ICT
Leader Title:	Assoc. Prof. Dr.
Leader Name:	
Researchers Name:	RUSLI BIN HJ. ABDULLAH, MASRAH AZRIFAH BINTI AZMI MURAD, SITI HAJAR BINTI ABDUL RAZAK
Faculty / Institute / School / Academy:	Faculty of Computer Science and Information Technology
Department / Laboratory:	Department of Information System
Expertise:	KNOWLEDGE MANAGEMENT
Email:	rusli@upm.edu.mv
Telephone (Office):	03-89466557
Fax:	03-89466576
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:UPM/100-45/2(C)
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	The increasing number of Virtual Communities of Practice (VCoP) leads to the needs of having an ontological model in mapping new members of researcher to the relevant Research Group(s) especially in Higher Learning Institution (HLI). The concern of this system model is to help new members of researcher to identify themselves to the suitability of joining research groups efficiently. The efficiency of our model based on mapping technique that was adopted from Ehrig & Staab, (2004) Quick Ontology Mapping (QOM). OVCoP system model applied ontology to represent knowledge and QOM to map data between new member of researcher and research groups. A preliminary survey was conducted to get the user requirement for the OVCoP system model. The result shows most of the respondents agreed OVCoP system model may help new researchers to identify research groups based on their research interest efficiently. A post survey was conducted to investigate the usefulness and effectiveness of the

	in analyzing the small sample size. The findings indicate that: (i) up to 63% of
	respondents agreed with the effectiveness of OVCoP system model; and (ii) Up
	to 60% of respondents strongly agreed with Method 2 that was applied QOM
	compared to Method 1 that applied Schema- based matching (40%). Hence, this
	research showed that OVCoP system model can be used as a guide for new
	members of researchers to identify the right research groups effectively.
Short Description:	
Keyword:	Virtual Community of Practice, Ontology, Quick Ontology Mapping, Research,
	Research Group, High Learning Institution.
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	Download Here

Title	Green Synthesis of Silver Nanoparticles using Tea Leaf Extracts
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Applied Science and Engineering
Leader Title:	Prof. Dr.
Leader Name:	Son Radu
Researchers Name:	Loo Yuet Ying, Chieng Buong Woei, Mitsuaki Nishibuchi
Faculty / Institute / School / Academy:	Faculty of Food Science and Technology
Department /	Department of Food Science
Laboratory:	
Expertise:	Molecular Microbiology, Nanotechnology, Microbial Biotechnology, Food Safety
Email:	son@upm.edu.my
Telephone (Office):	03-89468361
Fax:	03-89423552
Patent Status:	Yes, Patent No.: PI2012003185
Copyright /	Yes, Copyright / Publication No. / SD No.:
Publication / SD:	
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	The development of green synthesis of nanoparticles using microorganisms or
	plant extracts plays an important role in the field of nanotechnology as it is
	environmentally friendly and does not involve any harmful chemicals. In this
	study, the synthesis of silver nanoparticles using tea leaves extract is reported.
	The characterisation of synthesized nanoparticles were done by using UV-vis
	spectroscopy, X-ray diffraction (XRD), transmission electron microscopy (TEM)
	and FTIR technique. The XRD analysis shows that the synthesized silver
	nanoparticles are of face centered cubic structure. Well-dispersed silver
	nanoparticles with size ~4nm are observed in TEM image. The green synthesized
	silver nanoparticles are widely apply in many fields especially in food industries
	such as equiple tood coating and tood packaging to prolong shelf-life. Besides
	area
Short Description:	aica.
Koword	Silver nanonarticles green synthesis leaf extract nanotechnology
iteyworu.	אויבי, המוטףמו נוכובי, גובביו גיוונובאא, ובמו בגנומנו, וומוטנפנוווטוטצע

Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	Download Here

Title	Development of low cost technology for coating fertilizer to reduce environmental impact
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Materials Science and Technology
Leader Title:	Prof. Dr.
Leader Name:	Prof. Dr. Robiah Yunus
Researchers Name:	Farahnaz Eghbali Babadi, Robiah Yunus, Khairul Ridzwan Mohd Ibrahim
Faculty / Institute /	Institute of Advanced Technology
School / Academy:	
Department /	Laboratory of Advanced Materials and Nanotechnology
Laboratory:	
Expertise:	Chemical Engineering
Email:	robiah@eng.upm.edu.my
Telephone (Office):	03-89467533
Fax:	03-892167006
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:1674-2001/© 2014 Published by
Publication / SD:	Elsevier B.V.
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	orea is the most popular hitrogenous fertilizer because of its low cost and easy availability. However, the major disadvantages of urea are its high solubility in water and it is very much susceptible to nitrogen loss through various pathways like leaching, ammonia volatilization, nitrification and denitrification. This adds extra cost for materials and labor and causes inconvenience and a high solute concentration in the soil. The slow release fertilizer (SRF) is a new trend to reduce fertilizer consumption and to minimize environmental pollution. SRF by coating can be used to reduce losses and to increase the fertilizer efficiency. The coating process of fertilizer has been performed with different techniques (rotating drum, fluidized bed, spouted bed, rotating pan) and various materials such as sulfur, polymers and resin. The main limitation of the use of SRF in large hectare commodity crops has been the high cost of the coating technologies. To reduce operational cost, among different techniques, rotary pan has been chosen for producing slow release urea because of its flexibility, large

	invention related to a method for producing slow released coated urea having uniform morphology with semi-permeable coated layer, by using a rotary pan with a cost effective process and materials. This invention has high potential commercial value as it provides ways for agricultural industries to choose the low cost material for producing slow release fertilizers.
Short Description:	
Keyword:	Coating, Urea, Rotary Pan, Slow release fertilizer
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	Download Here
Title	The potential of oil palm mesocarp fiber in particleboard manufacturing
--	--
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Materials Science and Technology
Leader Title:	Dr.
Leader Name:	Dr. Nor Azowa Ibrahim
Researchers Name:	Nor Azowa Ibrahim, Yoon Yee Then, Norhazlin Zainuddin, Hidayah Ariffin, Buong Woei Chieng
Faculty / Institute / School / Academy:	Faculty of Science
Department / Laboratory:	Department of Chemistry
Expertise:	polymer blend, polymer nanocomposites, nanomaterials, polymer membrane
Email:	norazowa@upm.edu.my
Telephone (Office):	03-89466802
Fax:	03-89432508
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:International Journal of Polymer
Publication / SD:	Science
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	Developing value-added products from biomass could play a critical role in
	economical development as well as biomass management of any country. This
	work demonstrated the potential of using oil palm mesocarp fiber (OPMF) in
	production of particleboard. The OPMF was collected from the local palm oil
	plantation area located at Serting Hilir, Malaysia. In this work, an eco-friendly
	and sustainable thermoplastic was used as an adhesive for particleboard instead
	or formaldenyde, a chemical that can cause health problem. The board was
	Evaluated for physical and mechanical properties based on European Standards
	reporties of the prepared boards exceed the minimum requirements of EN for
	furniture manufacturing Conclusively OPME can be used as an alternative raw
	material for narticleboard industry and resulting value-added nanels owing to
	their high mechanical properties and interesting design esthetics could be used
	for furniture and interior decoration.

Short Description:	
Keyword:	Oil palm mesocarp fiber, particleboard, thermoplastic
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	Download Here

Title	Solving Directly Third Order Ordinary Differential Equations Using Block Method
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Mathematical Sciences and ICT
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Assoc Prof Dr. Zanariah Abdul Majid
Researchers Name:	Zanariah Abdul Majid, Nurul Ashikin Azmi, Mohamed Suleiman
Faculty / Institute /	Institute of Mathematical Research
School / Academy:	
Department /	Laboratory of Computational Sciences and Informatics
Laboratory:	
Expertise:	Analisis Berangka
Email:	zanariah@science.upm.edu.my
Telephone (Office):	03-89466874
Fax:	03-89437958
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:2012
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	Two-point four step direct implicit block method is presented by applying the
	simple form of Adams- Moulton method for solving directly the general third
	order ordinary differential equations (ODEs) using variable step size. This
	method is implemented to get the solutions of initial value problems (IVPs) at
	two points simultaneously in a block using four backward steps. The numerical
	results showed that the performance of the developed method is better in terms
	of maximum error at all tested tolerances and lesser total number of steps as the
Short Description	Under and the sector of the se
	then solve using first order ODEs methods. This approach is york well established
	but it obviously will enlarge the system of first order ODEs and can be very costly
	in timing. Therefore, the developed method will solve the higher order ODEs
	directly without reduced it to the system of first order equations
Kevword:	Block method: higher order ordinary differential equations: two point
Advantages:	The higher order Ordinary Differential Equations (ODEs) arises from many

	physical phenomena in a wide variety of applications especially in engineering
	such as the motion of rocket or satellite, fluid dynamic, electric circuit and other
	area of applications. The advancement in computing also influenced the
	development of numerical methods for solving the higher order ODEs. This new
	research is expected to achieve better numerical results in terms of accuracy and
	execution times using the new block methods when solving the higher order
	ODEs.
Market /	The code developed would be useful to the scientist, engineers, applied
Commercialisation	mathematicians and educators to solve many mathematical models in the form
Potential:	of higher order ordinary differential equations in various areas including physics,
	chemistry biology, engineering and economics.
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Numerical solution for an epicycloid crack
Product / Technology Name	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Mathematical Sciences and ICT
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Nik Mohd Asri Nik Long
Researchers Name:	Nik Mohd Asri Nik Long, Koo Lee Feng, Wong Tze Jin and Z.K. Eshkuvatovav
Faculty / Institute /	Institute of Mathematical Research
School / Academy:	
Department /	Laboratory of Computational Sciences and Informatics
Laboratory:	
Expertise:	crack analysis, hypersingular integral equation
Email:	nmasri@upm.edu.my
Telephone (Office):	03-89466863
Fax:	03-89466863
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:213478
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	A flat crack, ?, is lying in a three-dimensional homogenous isotropic elastic solid subjected to shear loading. A mathematical formulation is developed based on the mixed boundary values for ? such that the problem of finding the resulting force can be written in the form of hypersingular integral equation. Employing conformal mapping, the integral equation is transformed to a similar equation over a circular region, ??. By making a suitable representation of hypersingular integral equation, the problem is reduced to solve a system of linear equations. Numerical solution for the shear stress intensity factors, maximum stress intensity, and strain energy release rate is obtained. Our results give an excellent agreement to the existing asymptotic solutions.
Short Description:	
Keyword:	conformal mapping, hypersingular integral equation, shear stress intensity factors, maximum stress intensity, and strain energy release rate
Advantages:	-
Market /	-

Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Liquid - liquid copper extraction using synthesized fatty hydroxamic acid derivatives based on palm kernel oil
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Applied Science and Engineering
Leader Title:	Dr.
Leader Name:	Hossein Jahangirian
Researchers Name:	Hossein Jahangirian
Faculty / Institute /	Faculty of Engineering
School / Academy:	, , , , , , , , , , , , , , , , , , , ,
Department /	Department of Chemical and Environmental Engineering
Laboratory:	
Expertise:	Analytical Chemistry
Email:	kamran.jahangirian@gmail.com
Telephone (Office):	03-89466268
Fax:	03-86567120
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:61, (4), 189-195 (2012)
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	Liquid-liquid copper extraction was investigated by MFHAs, IPFHAs, PFHA and
	BFHAs based on palm kernel oil as chelating agents. The extraction of copper
	from aqueous solution were carried out in hexane as an organic phase through
	the formation of copper methyl fatty hydroxamate (Cu-MFHs), copper isopropyl
	fatty hydroxamate (Cu-IPFHs), copper phenyl fatty hydroxamate (Cu-PFHs) and
	copper benzyl fatty hydroxamate (Cu-BFHs). The results indicated that the fatty
	hydroxamic acid derivatives could extract copper at pH 6.2 effectively with high
	percentage of extraction (the percentages of copper extraction by MFHAs,
	PFHAS, IPFHS and BFHAS were found to be 99.3%, 87.5%, 82.3% and 90.2%,
	0.008 M fatty hydroxamic derivatives were Verg/Verg = 25 ml/25 ml and st all
	(an) 6.2 However the connection from C_{12} MEHs C_{12} DEHs C_{12} REHs of C_{12} IDEHs
	in 20 ml organic phase (5 mg/l as $Cu(II)$) can be quantitatively stringed back into
	30 ml H2SO4 (3M) aqueous solution. The obtained results showed that the
	copper recovery percentages from Cu-MFHs, Cu-PFHs, Cu-BFHs and Cu-IPFHs are

	99.1, 99.4, 99.6 and 99.9 respectively. The copper extraction was not affected
	in the aqueous solution. The senaration factor, RE of Cu(II), extraction from Co(II)
	Ni(II), Mn(II), Mg(II), and Al(III) for each MFHAs, PFHAs, IPFHs and BFHAs were
	higher than 10000 which indicate that the Cu(II) can be effectively separated
	from those ions. Among the advantages of this extraction is the use of easily
	available and low cost raw material mild condition of procedure for the purpose
	of good energy saving and using of friendly environmental solvents for achieving
	to green chemistry methods.
Short Description:	
Keyword:	Copper extraction, copper phenyl fatty hydroxamates, copper methyl fatty
	hydroxamates, copper isopropyl fatty hydroxamates, copper benzyl fatty
	hydroxamates, fatty hydroxamic acid derivatives, palm kernel oil, solvent
	extraction
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	PRICING CURRENCY OPTIONS IN A MIXED FRACTIONAL BROWNIAN MOTION WITH JUMPS ENVIRONMENT
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Mathematical Sciences and ICT
Leader Title:	Prof. Dr.
Leader Name:	Adem Kilicman
Researchers Name:	Adem Kilicman and Foad Shokrollahi
Faculty / Institute /	Institute of Mathematical Research
School / Academy:	
Department /	Laboratory of Theoretical Studies
Laboratory:	
Expertise:	Functional Analysis and Topology
Email:	akilic@upm.edu.my
Telephone (Office):	03-89466813
Fax:	03-89437958
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:858210
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	A currency option is a contract, which gives the owner the right but not the
	obligation to purchase or sell the indicated amount of foreign currency at a
	specified price within a specified period of time (American Option) or on a fixed
	date (European Option). Since the currency option can be used as a tool for
	investment and hedging, it is one of the best tools for corporations or individuals
	to hedge against adverse movements in exchange rates. Thus in the present
	fractional Brownian motion in jumps onvironment
Short Description:	
Keyword	ontion pricing mixed fractional Brownian motion hedging
Advantages:	
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A

File:	
ResearchOutput:	N/A

Title	Molecular Cloning and Characterization of a superior QTL Linked to Blast Disease Resistance in Malaysian Rice Variety Pongsu Seribu 2
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Agriculture and Food
Leader Title:	Prof. Dr.
Leader Name:	MOHD RAFII YUSOP
Researchers Name:	MOHD RAFII YUSOP, TANWEER FATAH, ABDUL RAHIM HARUN, KAMARUZAMAN SIJAM AND MUHAMMAD ABDUL LATIF
Faculty / Institute / School / Academy:	Institute of Tropical Agriculture
Department /	Laboratory of Food Crops and Floriculture
Laboratory:	
Expertise:	Plant Breeding and Genetics
Email:	mrafii@upm.edu.my
Telephone (Office):	03-89471149
Fax:	03-89381612
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.: 1560-8530
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	Blast, caused by Magnaporthe oryzae, is considered to be a global rice disease around the world including Malaysia. Limited information is available on the identification of quantitative trait loci (QTL) and linked markers associated with blast resistance within local rice varieties e.g. Pongsu Seribu 2. Partial resistance against blast disease is widely observed in this variety with mapping of QTLs linked to resistance genes. However, knowledge about the blast resistance genes on chromosome 3 is very limited and no specific blast resistance gene have been identified on chromosome 3 in rice genome of Pongsu Seribu 2. In order to find the similarity of sequence, QTL qRBr-3.1 located on chromosome 3 in Pongsu Seribu 2 was cloned and compared with identified blast resistant genes from other varieties. Sequence analysis of cloned fragment revealed a tandem of (CA)23 repeats. The similarity of sequence was searched in Basic Local Alignment
	Search 1001 (BLAST), which expressed similarity with different clones of rice located on chromosome 3. The cloned QTL fragment also expressed the

	similarity of 46% with Pi-b, 52% with Pi-kh, 23% with Pi-9 and 38% with Pi-zt,
	blast resistance genes located at different chromosomes in rice. The QTL
	fragment produced none of distribution of leucine rich repeats (LRRs) and
	nucleotide binding site (NBS-LRR). However, the domain contains maximum
	distribution of leucine amino acid which is responsible for the pathogen
	recognition in host-plant interaction and play important role in resistance
	mechanism against diseases. This result concluded that Pongsu Seribu 2 has
	homology to other resistant genes which are allelic to Pi-b, Pi9, Pi-zt and Pi-kh at
	different chromosomes.
Short Description:	
Keyword:	Partial resistance; QTL; Microsatellite marker; Six frame translation; Leucine rich
	repeat
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Pendekatan Ekologi Dalam Pengajaran Kekeluargaan
Product /	-
Technology Name:	Demoran Daka Cinta, Denvalidikan dan Ingyasi (DDDI) 2014
Exhibition:	Applied Research (R)
Category:	Applied Research (B)
Cluster:	Humanities and Nation Building
Leader Title:	Dr.
Leader Name:	Rahimah binti Jamaluddin
Researchers Name:	Rahimah Jamaluddin
Faculty / Institute /	Faculty of Educational Studies
School / Academy:	
Department /	Department of Science and Technical Education
Laboratory:	Llana Crisses Education
Expertise:	Home Science Education
Email:	sayaraniman@gmail.com
Telephone (Office):	03-89468224
Fax:	03-89468962
Patent Status:	Yes, Patent No.:
Publication / SD:	Yes, Copyright / Publication No. / SD No.:JSSH-0/17
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	Pendekatan ekologi merupakan satu kaedah pengajaran yang melibatkan
	pelbagai aspek yang wujud dalam persekitaran murid seperti keluarga, rakan,
	bilik darjah, jiran, komuniti, media dan lain-lain. Pendekatan ekologi merupakan
	satu kaedah yang praktis kerana ia memberi penekanan terhadap aspek
	penyesuaian dalam proses pembelajaran. Melalui pendekatan ekologi, segala
	aspek yang berpotensi mempengaruhi sesuatu isu, topik atau fenomena boleh
	diteliti dari pelbagai sudut. Ini penting bagi mewujudkan kesimbungan antara
	topik yang diajar dengan realiti yang berlaku dalam kehidupan sebenar. Dengan
	itu, kefahaman dan proses pengajaran pembelajaran akan jadi lebih bermakna
	dan berkesan. Namun begitu dalam konteks pendidikan di Malaysia, guru
	dilaporkan menghadapi kekangan dalam melaksanakan pengajaran dan
	pembelajaran yang menjurus kepada aspek penerapan nilai. Taitu kelemahan
	dari segi penguasaan pedagogi dan kesukaran dalam menghubungkaitkan antara
	isi pelajaran dengan nilai murni. Tinjauan literatur menunjukkan guru tidak
	berupaya untuk merancang dan mengajar kekeluargaan secara merentas

	kurikulum. Berdasarkan kajian kuantitatif yang dijalankan oleh penyelidik ke
	atas 419 orang guru dari 50 buah sekolah menengah di semenanjung Malaysia,
	didapati hanya 52% guru yang mengambilkira aspek persekitaran murid semasa
	mengajar kekeluargaan. Ini menunjukkan bahawa masih terdapat ramai guru
	yang tidak sedar bahawa faktor persekitaran murid sangat penting untuk
	dikaitkan lebih-lebih lagi dalam mengajar aspek yang melibatkan penerapan
	nilai. Oleh yang demikian, penyelidik merasakan perlu untuk memperkenalkan
	pendekatan ekologi kepada guru-guru sekolah menengah khususnya yang
	mengajar aspek kekeluargaan bagi memastikan pengajaran guru jadi lebih
	bermakna, tersusun dan penerapan nilai yang dibuat sampai kepada murid.
Short Description:	
Keyword:	Pendekatan ekologi, Pengajaran Kekeluargaan
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	N/A

Title	Combined chemistry anticoagulant to prevent rapid blood clotting in warm water fish
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Agriculture and Food
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Assoc. Prof. Dr. Maha Abdullah
Researchers Name:	Fatimah Md Yusoff, Mariana Nor Shamsudin, Leslie Than Thian Lung, Chong Chou Min
Faculty / Institute / School / Academy:	Faculty of Medicine and Health Sciences
Department / Laboratory:	Department of Pathology
Expertise:	Immunology
Email:	maha@upm.edu.my
Telephone (Office):	03-89472375
Fax:	03-89412787
Patent Status:	Yes, Patent No.: PI 2013702580
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	Blood collection as an essential non-lethal sampling approach for enormous aquaculture applications, have been hindered by rapid blood coagulation in tropical fish. The current invention describes a new and more effective fish blood anticoagulant composition, which incorporates two excellent chelating agents, i.e. EDTA and trisodium citrate in a ratio that isotonic to fish physiology. The current anticoagulant has been effectively employed to prevent blood clotting in grouper whereas other conventional anticoagulants had failed to give satisfactory result. The present anticoagulant was successfully applied on tropical freshwater and marine aquaculture species including brown-marbled groupers (Epinephelus fuscoguttatus), giant grouper (Epinephelus lanceolatus), barramundi (Lates calcarifer), mahseer (Tor tambroides) and GIFT tilapia (Oreochromis niloticus) as well as other species such as human and frog. The leukocytes obtained from anticoagulated blood cells were of high viability. The

	heparin-free anticoagulant did not create staining artifacts or affect the
	morphology of blood cells. Leukocytes also underwent lymphoproliferation upon
	stimulation with both lipopolysaccharide and phytohaemagglutinin mitogens.
	Thus, the use of the current concoction functioned well as an anticoagulant and
	maintained cell viability and immune responses of blood cells. The cost of the
	current invented anticoagulant is low, i.e. RM 0.70 per litter of anticoagulant.
	The collection of anticoagulated blood from fish is applied in many aquaculture
	studies including sex determination assay, serological analysis, and disease and
	pathogen identification, assessment of vaccines, cell lineage marker
	development and enzyme or endocrinology tests.
Short Description:	
Keyword:	Anticoagulant, Tropical fish, blood clotting, aquaculture, fish blood
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	Download Here

Title	SOLVING NONLINEAR FRACTIONAL PARTIAL DIFFERENTIAL EQUATIONS BY USING CORRECTED FOURIER SERIES
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Mathematical Sciences and ICT
Leader Title:	Prof. Dr.
Leader Name:	Adem Kilicman
Researchers Name:	Nor Hafizah binti Zainal, Adem Kilicman
Faculty / Institute / School / Academy:	Institute of Mathematical Research
Department / Laboratory:	Laboratory of Theoretical Studies
Expertise:	Functional Analysis and Topology
Email:	akilic@upm.edu.my
Telephone (Office):	03-89466813
Fax:	03-89437958
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:958931
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	The theory of derivatives and integrals of fractional (non-integer) order was
	started over 300 years ago. In recent years, fractional calculus has been revisited in various research problems due to its extensive application in engineering and science. In this study, we solve partial differential equations with fractional time derivative by using corrected Fourier series method where we described the fractional derivatives in Riemann-Liouville sense and solve simple time fractional PDEs. We also provide some examples of nonlinear fractional PDE cases.
Short Description:	
Keyword:	Fractional derivative, Nonlinear fractional partial differential equations, Corrected Fourier series
Advantages:	-
Market /	-
Commercialisation Potential:	
Abstract Additional	N/A

File:	
ResearchOutput:	N/A

Title	Purification of pectinase from mango (Mangifera indica L. cv. Chokanan) waste using an aqueous organic phase system: A potential low cost source of the enzyme
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Agriculture and Food
Leader Title:	Prof. Dr.
Leader Name:	Mehrnoush Amid
Researchers Name:	Mehrnoush Amid, Mohd Yazid ABD Manap
Faculty / Institute / School / Academy:	Faculty of Food Science and Technology
Department / Laboratory:	Department of Food Technology
Expertise:	Food Enzyme Biotechnology
Email:	mehrnoush@upm.edu.my
Telephone (Office):	03-89468413
Fax:	03-89423552
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:876544
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	As a novel method of purification, an aqueous organic phase system (AOPS) was employed to purify pectinase from mango waste. The effect of different parameters, such as the alcohol concentration (ethanol,1-propanol, and 2- propanol), the salt type and concentration (ammonium sulfate, potassium phosphate and sodium citrate), the feed stock crude load, the aqueous phase pH and NaCl concentration, were investigated in the recovery of pectinase from mango peel. The partition coefficient (K), selectivity (S), purification factor (PF) and yield (Y, %) were investigated in this study as important parameters for the evaluation of enzyme recovery. The desirable partition efficiency for pectinase purification was achieved in an AOPS of 19% (w/w) ethanol and 22% (w/w) potassium phosphate in the presence of 5% (w/w) NaCl at pH 7.0. Based on the system, the purification factor of pectinase was enhanced 11.7, with a high yield of 97.1%.
Short Description:	
Keyword:	Purification, Organic solvent, Aqueous organic phase system, Pectinase, Mango

	peel
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	A Pedagogic Corpus and Word List of Agriculture Textbooks
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Humanities and Nation Building
Leader Title:	Prof. Dr.
Leader Name:	Prof. Dr. Jayakaran Mukundan
Researchers Name:	Jayakaran Mukundan, Hong Siaw Swin , Hong Siaw Theng, Seyed Ali Rezvani Kalajahi, Ng Yu Jin
Faculty / Institute / School / Academy:	Faculty of Educational Studies
Department / Laboratory:	Department of Foundations of Education
Expertise:	TESL
Email:	jaya@upm.edu.my
Telephone (Office):	03-89468172
Fax:	03-89468222
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:Journal
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	Despite the importance of corpus generation and corpus-based studies, there is limited awareness of the importance of a pedagogic corpus of agriculture textbooks. Internet search has revealed that none exists in the world. Building a specialized pedagogical corpus can serve as a useful resource for discovering many aspects of the language of agriculture- register, lexico-grammar, and phraseology (Reppen, 2010). Thus, the main objective of this project is to develop a pedagogic corpus of agriculture textbooks. Another objective is to create a wordlist for an EAP syllabus. In order to build this corpus, available textbooks in the field of agriculture will be used, which includes textbooks from secondary schools, vocational schools, foundation studies, diploma, and undergraduate programs. Textbooks from those educational levels will be compiled, digitized, coded, sorted and stored accordingly. Upon corpus generation, a wordlist will be created based on frequency. In order to create a

	utilized. As for possible outcomes, it is worth mentioning that building this
	pedagogic corpus will be highly beneficial to researchers, students, syllabus
	designers as they may be interested in conducting extended research. Besides,
	creating a wordlist out of this pedagogic corpus will aid students socialize into
	their discourse community at a much faster pace. Syllabus designers of EAP and
	ESP programs and publishers of textbooks and specialized dictionaries will also
	benefit from the word list.
Short Description:	
Keyword:	Pedagogic Corpus, Agriculture, Wordlist
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	A practical approach to increase the nutritional value of oil palm (Elais guineensis Jacq.) fronds for ruminants
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Agriculture and Food
Leader Title:	Prof. Dr.
Leader Name:	Mohamed Ali rajion
Researchers Name:	MOHAMED ALI RAJION,GOH YONG MENG, AWIS QURNI SAZALI, MAHDI EBRAHIMI
Faculty / Institute / School / Academy:	Faculty of Veterinary Medicine
Department /	Department of Veterinary Preclinical Sciences
Euboratory.	Nutritional Physiology
Expertise.	mohdali@upm_edu_my
Telephone (Office):	03-86093/11
Fax:	03-89/71971
Patent Status:	Ves Patent No :
Convright /	Yes Convright / Publication No. / SD No. Nutritional Physiology
Publication / SD:	
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	One of the main reasons for the slow development of the ruminant livestock industry in Malaysia is the insufficient feed for ruminant production. The oil palm frond (OPF) is one of the most abundant agricultural byproducts which are
	available throughout the year and its effective utilization may provide a
	contain 740 g/Kg of NDE which is considered high and can limit the availability of
	structural carbohydrates for microhial fermentation in the rumen. Fresh OPE was
	ensiled either without additives or with cellulase or Lactobacillus (LAR) culture or
	a combination of cellulase and LAB. Ensiling was carried out by storing 2 kg
	samples in airtight glass jars at 25-30oC for 12 weeks. Fermentation of OPF
	without additives appeared to be unsuccessful where both the pH (4.9) and
	ammonia content (9.9 %) were too high. In vitro digestibility of dry matter was
	significantly higher in the cellulase treated silages. In conclusion, the use of
	cellulase additive appears to be a practical tool to safeguard the process of

	rumen fermentation. Using a cellulase enzyme or its combination with LAB
	improved the fermentation profile and increased the nutritional value of the oil
	palm frond silage. Cellulase appeared to be the most effective additive in
	relation to the OPF silage quality. The results of the current study indicate that
	OPF can be well preserved by ensiling with cellulase additives and used as a
	continuous source of roughage for ruminant livestock diets in Malaysia.
Short Description:	
Keyword:	Oil palm frond, Digestibility, Ruminant
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Edible biodegradable rice starch-fish gelatin packaging film
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Agriculture and Food
Leader Title:	Prof. Dr.
Leader Name:	Jamilah Bakar
Researchers Name:	Jamilah Bakar, Rozhin Ahangari, Russly Abdul Rahman & Roselina Karim
Faculty / Institute / School / Academy:	Institute of Products Halal Research
Department / Laboratory:	Laboratory of Product Innovation and Process
Expertise:	Food Technology/Aquatic Product Technology
Email:	jamilah@upm.edu.my
Telephone (Office):	03-89471309
Fax:	03-89439745
Patent Status:	Yes, Patent No.: 000000 (Download Here)
Copyright / Publication / SD:	No
Industrial Design Registration:	No
Trademark:	No
Abstract:	About 150 million tons of plastics are manufactured annually throughout the globe, which leads to critical environmental pollution because of wasted and non-degradable polymers. The recycling of plastics is limited and plastics cannot be reused forever, since wasted plastics are finally burnt or buried in ground. Monomers from plastic packaging films can leach and migrate to packaged foods and thus pose health risk to consumers. Hence the developed edible biodegradable film could lessen these problems. The edible biodegradable film developed was formulated from common rice starch which is relatively cheap and easily available. Aqueous solutions were prepared using blends of rice starch and varying concentrations of fish gelatin (bloom 250) with added plasticizers (glycerol or sorbitol). Components were dissolved stepwise to obtain a homogenous solution by heating. The dissolved solutions were casted into molds such as trays or plates and allowed to dry. Upon drying, the edible film sheets were removed from the cast. Commercially, this film forming could be formed and dried simultaneously on roller drums as in the conventional commercial

	production of plastic sheets. The combination of the rice starch and fish gelatin
	allows one to take advantage of the unique properties of both biopolymers as
	packaging films. The developed film exhibits good functional properties such as
	gas and moisture barriers, and physical strength suitable for most food and
	pharmaceutical applications comparable to the present plastic packaging
	materials such as polyethylene. The combination of the rice starch and fish
	gelatin allows one to take advantage of the unique properties of both
	biopolymers as packaging films as result a much enhanced film properties were
	obtained. The film could be used in dry food packaging such as confectionaries
	and dry food products such as powders and as packaging for pharmaceutical and
	neutraceutical products such as soaps and the like.
Keyword:	edible film, biodegradable film, rice starch-fish gelatin film,
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	No
File:	
ResearchOutput:	No

Title	Green Nanoparticle fabrication in Graphene Oxide
Product /	-
Technology Name:	
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Materials Science and Technology
Leader Title:	Dr.
Leader Name:	Ahmad Shukri Muhammad Noor
Researchers Name:	Amir Reza Sadrolhosseini, N.M. Hung, Azmi Zakaria, Mohd. Adzir Mahdi
Faculty / Institute /	Faculty of Engineering
School / Academy:	
Department /	Department of Computer and Communication System Engineering
Laboratory:	
Expertise:	Photonics and nanomaterials
Email:	amir17984818@gmail.com
Telephone (Office):	03-89466283
Fax:	03-89466122
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD
Publication / SD:	No.:http://dx.doi.org/10.1155/2013/986764
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	The application of the laser ablation technique offers a novel unique tool for
	nanofabrication. When the laser ablation is used to produce the metal
	nanoparticles in an aqueous solution, the nanoparticles are released inside the
	solution, and nanofluid is formed. Metal nanoparticles preparations are
	relatively difficult to create because they are easily oxidized. The properties of
	nanoparticles using laser ablation are unique, and they are not reproducible by
	any other method. For example, the labrication of nickel, silver, gold and
	platinum nanoparticle in inquid do not require any chemical reduction agent, and dimension control is easier than with chemical methods. Nickel paperparticles
	(Ni-NPs) have many important applications as catalysts, conducting and
	magnetic materials, and an electrode layer in multilayer coramic canacitors and
	have both unique properties and potential applications in a variety of fields
	including electronics, magnetic, energy technology, and hiomedicine. Many
	methods have been used to fabricate the gold nickel and silver nanonarticles
	such as chemical and physical methods. In addition, they have been synthesized

	in water, oil, starch and polymer based stabilizer. The application of the laser
	ablation technique offers a novel unique tool for nanofabrication. When the
	laser ablation is used to produce the metal nanoparticles in an aqueous solution,
	the nanoparticles are released inside the solution, and nanofluid is formed.
	Metal nanoparticles preparations are relatively difficult to create because they
	are easily oxidized. The properties of nanoparticles using laser ablation are
	unique, and they are not reproducible by any other method. For example, the
	fabrication of Ag-NPs, Au-NPs and Ni-NPs in liquid do not require any chemical
	reduction agent, and dimension control is easier than with chemical methods.
Short Description:	
Keyword:	grapheme oxide, Ni nanoparticle, laser ablation, thermal diffusivity
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	CHEMO-ENZYMATIC EPOXIDATION OF 1-NONENE AND OTHER ALKENES
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Applied Science and Engineering
Leader Title:	Dr.
Leader Name:	EMILIA ABD MALEK
Researchers Name:	Emilia Abd Malek, Mahashanon Arumugam, Mohd Basyaruddin Abdul Rahman
Faculty / Institute /	Faculty of Science
School / Academy:	
Department /	Department of Chemistry
Laboratory:	
Expertise:	Organic Chemistry
Email:	emilia@upm.edu.my
Telephone (Office):	03-89466795
Fax:	03-89435380
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:3
Publication / SD:	
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	Chemoenzymatic epoxidation of 1-nonene and other alkenes were achieved
	when a peroxy acid was generated in situ from an immobilized Candida
	antarctica lipase B, hydrogen peroxide (H2O2) and phenylacetic acid. The
	reaction conditions were optimized using 1-nonene as model alkene to give
	excellent yields (97%-99%). Epoxidation of other were also achieved in good to
	excellent yield. Interestingly, the phenylacetic acid can be recycled and therefore
	would help towards achieving a totally green process.
Short Description:	
Keyword:	epoxidation, chemoenzymatic, immobilized Candida antarctica lipase B, 1- nonene
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here

File:	
ResearchOutput:	N/A

Title	Novel Ionophore-Based Selective Optical Sensor for Metal
	Ion Measurement
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Applied Science and Engineering
Leader Title:	Dr.
Leader Name:	Dr. Yap Wing Fen
Researchers Name:	W. Mahmood Mat Yunus, Zainal Abidin Talib, Nor Azah Yusof
Faculty / Institute /	Institute of Advanced Technology
School / Academy:	
Department /	Laboratory of Advanced Materials and Nanotechnology
Laboratory:	
Expertise:	Applied Optics, Optical and Biosensor
Email:	yapwingfen@gmail.com
Telephone (Office):	03-89466689
Fax:	03-89454454
Patent Status:	Yes, Patent No.: PI 2012003191
Copyright /	Yes, Copyright / Publication No. / SD No.:DOI: 10.1016/j.saa.2014.06.081
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	This novel finding is based on the development of novel active nanolayers in
	combination with surface plasmon resonance (SPR) optical system for zinc ion
	(Zn2+) detection. The gold surface used for the SPR system was modified with
	the novel developed active nanolayers, i.e. chitosan and chitosan-tetrabutyl
	thiuram disulfide (chitosan-TBTDS). Both chitosan and chitosan-TBTDS active
	layers were fabricated on the gold surface by spin coating technique. The system
	was used to monitor SPR signal for Zn2+ in aqueous media with and without
	sensitivity enhancement by IBIDS. For both active nanolayers, the shift of
	resonance angle is directly proportional to the concentration of Zn2+ in aqueous
	media. The higher shift of resonance angle was obtained for chitosan-IBIDS
	active nanolayer due to a specific binding of TBTDS with 2n2+. The chitosan-
	and also induced a selective detection towards 72
Short Description:	and also induced a selective detection towards 2012+.
	metal ions has been developed. The gold surface used for the SPR system was

	modified with the novel developed active nanolayer, i.e. chitosan-tetrabutyl
	thiuram disulfide (chitosan-TBTDS). The chitosan-TBTDS active layer was
	fabricated on the gold surface by spin coating technique. The system was used to
	monitor SPR signal for zinc ion in solution with and without sensitivity
	enhancement by chitosan-TBTDS. By using this active nanolayer, the shift of
	resonance angle is directly proportional to the concentration of zinc ion. The
	chitosan-TBTDS active nanolayer enhanced the sensitivity of detection down to
	0.1 ppm and also induced a selective detection towards zinc ion.
Keyword:	Ionophore-based, optical sensor, metal ion, surface plasmon resonance
Advantages:	The combination of the new developed active nanolayer and the optical sensor
	based on surface plasmon resonance technique is a high potential alternative for
	detection of metal ion owing to its proven advantages such as cost-effective,
	portable, fast measurement capability, non-destructive, simple preparation of
	sample and no necessity of reference solution. This method also able to monitor
	kinetic behavior of the detection process.
Market /	This innovation has high commercial potential in various field including pollution
Commercialisation	monitoring laboratory, waste water treatment system, food and drinking water
Potential:	industries.
Abstract Additional	Download Here
File:	
ResearchOutput:	Download Here

Title	Cardiothoracic 2D and 3D Informative Visualization Medical Storage System
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Health and Well Being
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Assoc. Prof. Dr. Rahmita Wirza O.K. Rahmat
Researchers Name:	Rahmita Wirza, Lilly Suriani Affendey, Mohd. Hasan Selamat, Mohd Zamrin
	Dimon, Rohaya Latip, Nor Fazlida Mohd Sani
Faculty / Institute / School / Academy:	Faculty of Computer Science and Information Technology
Department /	Department of Multimedia
Laboratory:	
Expertise:	Computer Graphics
Email:	rahmita@upm.edu.my
Telephone (Office):	03-89471704
Fax:	03-89466577
Patent Status:	Yes, Patent No.: PI2012001329
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:SD No.:LY2014000295
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	In Malaysia, cardiovascular disease remains the number one killer and the
	National Health and Morbidity survey showed that 61% of the patients had one
	risk factor or more. There are several public and private hospitals in the country
	that specialized on this disease and provide treatments for heart patients, with
	computerized systems, state-of-the-art and sophisticated equipment as well as
	very specialized team of medical experts such as doctors, surgeons, anesthetics,
	and percussionists. Unfortunately they are known for having separate
	avports, this prototype system has three modules that link together to assist
	experts, this prototype system has three modules that link together to assist modical experts and lab technicians to retrieve big data such as MPI and CT scan
	in high speed network at their desk to be analyses for diagnosis nurnoses. These
	three modules are: (i) Clinical Assisted System (ii) 2D/3D Cardiac Informative
	Visualization System and (iii) Grid-based Medical Data Storage. The integration
	between these three modules will offer a unique clinical system to manage the

	heart patient's treatments, to increase the accuracy of the diagnosis, to increase
	the speed of retrieving large medical data and finally to visualize medical image
	data which all these are not included in any Hospital Information System. There
	are 24 government hospitals and numbers of private hospital that have
	cardiothoracic unit that are located in Putrajaya, Kuala Lumpur and Selangor, 15
	government and private hospital situated in Penang and Hospital USM in
	Kelantan. With the assumption that 10% of these hospitals will be interested
	with this system, within a year, three hospitals will be our potential clients and
	center of observatory. We propose RM3000,000 for each system with maximum
	50 user licence, consultation fees RM50,000 and overhead staffing for 1st year
	during the implementation RM150,000. The total cost will be RM5000,000 for
	each hospital.
Short Description:	
Keyword:	Information Visualization, Cardiovascular, Clinical Assisted System
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	The Effects of Cognitive Restructuring Intervention on
-	Anxiety and Achievement among High School Students
Product /	-
Technology Name:	
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Humanities and Nation Building
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Samsilah Roslan
Researchers Name:	Assoc.Prof Dr. Samsilah Roslan, Assoc.Prof Dr. Tajularipin Sulaiman, Prof.Dr.
	Mohd Sahandri Ghani Hamzah & Saeid Motevalli
Faculty / Institute /	Faculty of Educational Studies
School / Academy:	
Department /	Department of Foundations of Education
Laboratory:	
Expertise:	Philosophy of Education
Email:	samsilah@gmail.com
Telephone (Office):	03-89471241
Fax:	03-89471635
Patent Status:	No
Copyright /	Yes, Copyright / Publication No. / SD No.:publication
Publication / SD:	
Industrial Design	No
Registration:	
Trademark:	No
Abstract:	The aim of this study was to examine the effects of cognitive restructuring and
	study skill training on anxiety (state and trait) and academic achievementIn this
	study, 94 high school students were randomly selected to receive cognitive
	restructuring through eight psycho-educational sessions. Repeated-measures
	ANOVA indicated that there were significant differences in students' trait anxiety
	across pretests, post tests and follow up tests, $F(1.31, 973.71) = 164.21$, p < .001.
	The effect size is .64, f=.96. The findings also showed that there was a
	statistically significant difference in the mean of grade point average scores
	among cognitive restructuring, study skills training and control group, F(2,91) =
	6.089, p = .003. This study also concurred that study skills intervention promotes
	the decreasing levels of anxiety on both state and trait anxiety, while also
	increasing academic achievement. Cognitive restructuring, on the other hand,
	was found to assist in decreasing trait anxiety that related directly to the
	cognitive component of anxiety, but did not have significant effects on state
	anxiety and academic achievement.
Short Description:	
Keyword:	Anxiety, state anxiety, trait anxiety, Cognitive restructuring
Advantages:	-
Market /	-

Commercialisation	
Potential:	
ResearchOutput:	N/A
Title	Efficient controlled released anti parkinsonian nanodrug delivery system intercalated with levodopa
--	--
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Health and Well Being
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Assoc Prof Dr Sharida Fakurazi
Researchers Name:	AMINU UMAR KURA, MOHD ZOBIR HUSSEIN, PALANISAMY ARULSELVAN, CHEAH PIKE SEE, NORAINI MOHD 'AIN, SHARIDA FAKURAZI
Faculty / Institute / School / Academy:	Institute of Bioscience
Department /	Laboratory of Industrial Biotechnology
Laboratory:	
Expertise:	BIOCHEMICAL AND MOLECULAR TOXICOLOGY
Email:	sharida.fakurazi@gmail.com
Telephone (Office):	03-89472117
Fax:	03-89472118
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:publication
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	Antiparkinsonian drug, L-3-(3,4-dihydroxyphenyl) alanine or levodopa is
	intercalated into a Zn/Al- layered double hydroxide (LDH) to provide a key
	solution to efficiently deliver levodopa to the brain in Parkinson's disease
	patient. This preparation has controlled and sustained release formulations
	which allow proficient time for levodopa to enter the brain. Coating with
	Tween-80 on the external surface has improved the viability of the delivery
	system, by increasing the stability of the substance. We believed that by coating
	the drug preparation, increases successful endurance of the materials in the
	pheripheral tissue, to ensure successful delivery to the brain cells. Uncoated
	highering substance rendering them unsuitable for medical applications
	Observation that was conducted in PC12 donaminergic cells has shown that the
	prenaration is biocompatible and release levodona in a slow and sustained
	manner. Our study has also shown that the drug preparation is biocompatible,

	and less toxic compared to levodopa alone. This has made our drug preparation
	is an acceptable alternative drug delivery system.
Short Description:	
Keyword:	Layered double hydroxide, Parkinson's disease, neuroscience, levodopa
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	N/A

Title	Level of prejudice among Youth in Klang Valley towards Public Transport
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Humanities and Nation Building
Leader Title:	Mr.
Leader Name:	Mr. Dzuhailmi Dahalan
Researchers Name:	Haslinda Abdullah, Jeffrey Lawrence D'Silva, Ismi Arif Ismail, Nobaya Ahmad
Faculty / Institute /	Institute of Social Science Studies
School / Academy:	
Department /	Laboratory of Community Education and Youth Studies
Laboratory:	
Expertise:	Youth Development
Email:	dzuhailmi@upm.edu.my
Telephone (Office):	03-89471869
Fax:	03-89471856
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:Publication
Publication / SD:	
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	Psychological constructs are undeniably pertinent in influencing users' willingness to choose public transport as their primary means of getting around. The aim of this study is to determine the level of prejudice among urban youth in Klang Valley, Malaysia towards public transport. This study involved a total of 445 respondents living in Klang Valley. In general, this study showed that the level of prejudice of youth in Klang Valley towards public transport is moderate. Significant differences were noted in terms of prejudice levels based on gender and ethnicity. The study suggests some ways on how to reduce negative perceptions of public transport among youth.
Short Description:	
Keyword:	Public transport, Premier mode of transport, Prejudice, Youth
Advantages:	-
Market /	-
Commercialisation Potential:	

Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Anti-bacterial and Anti-cancer Properties of Barrientosiimonas humi extracts
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Health and Well Being
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Assoc. Prof. Dr. Cheah Yoke Kqueen
Researchers Name:	Cheah Yoke Kqueen, Chu Pek Lim, Khoo Chai Hoon
Faculty / Institute / School / Academy:	Faculty of Medicine and Health Sciences
Department / Laboratory:	Department of Biomedical Science
Expertise:	Genetic Engineering, Molecular Medicine, Medical Biotechnology & Molecular Biology
Email:	ykcheah@upm.edu.my
Telephone (Office):	03-89472343
Fax:	03-89472343
Patent Status:	Yes, Patent No.: 000000
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	Barrientosiimonashumi is a novel genus of phylum Actinobacteria and was first
	discovered from Antarctica, a pristine continent on Earth with extreme and
	harsh environment that limited the survival of microorganisms by Assoc. Prof.
	Dr. Cheah Yoke Kqueen and team members in 2011 during XI Ecuadorian
	Antarctic Expedition (2007). Actinobacteria are known as the most prolific
	producers of numerous natural products with diverse biological activities that
	associated with medicinal value such as antibiotic, anti-tumor, anti-cancer, and
	anti-infection. To date, this is the first report of antibacterial and anticancer
	Actinobacteria. The culture of B humi in Actinomyces broth was extracted with
	ethyl acetate and dried to obtained crude extract. During the expression-based
	screening, the ethyl acetate extract of B humi was active against hoard spectrum
	of Gram-positive and Gram-negative bacteria pathogens, included the antibiotic-
	resistant pathogen, methicillin-resistant Staphylococcus aureus (MRSA). For anti-

	cancer assay, the ethyl acetate extracts were prepared in the concentration of 62.5μ g/ml, 125μ g/ml, 250μ g/ml and 500μ g/ml. From the Real Time Cell Aalysis (RTCA) profile generated by impedence-based time-dependent cell response, the ethyl acetate extract of B.humi exhibited cytotoxicity against human colon cancer cell (HT29) (>250\mug/ml), human ovarian carcinoma cell (A2780)
	adenocarcinoma cell(LNCAP) (>500 μ g/ml)and human breast cancer cell (MCF7) (>500 μ g/ml).No cytotoxicity was observed against the mouse embryonic
	fibroblast cell (3T3). Different pattern of cell index reduction exhibited by the ethyl acetate extract of B. humi compared to Cisplatin suggested that different mechanisms acquired by this cytotoxic drug. Moreover, different mode of action was observed against different cell line suggested that crude ethyl acetate
	contains a mixture of bioactive composition. Bioactive compounds derived from
	drugs for animal and human use.
Short Description:	
Keyword:	Barrientosiimonas humi, anti-cancer, anti-bacteria, actinobacteria
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional File:	N/A
ResearchOutput:	N/A

Title	Financial Development and Income Inequality at Different Institutional Quality
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Business, Economics and Governance
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Law Siong Hook
Researchers Name:	Tan Hui Boon, Wan Azman Saini Wan Ngah
Faculty / Institute / School / Academy:	Faculty of Economics and Management
Department /	Department of Economics
Laboratory:	
Expertise:	Financial Economics
Email:	lawsh@upm.edu.my
Telephone (Office):	03-89467768
Fax:	03-89486188
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:Emerging Markets Finance and Trade
Publication / SD:	
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	This study examines whether the relationship between financial development and income inequality varies with levels of institutional quality. The empirical evidence based on the threshold regression approach shows that there indeed exists an institutional quality threshold effect in the relationship between financial development and income inequality. Financial development tends to reduce income inequality only after a certain threshold level of institutional quality has been achieved. Until then, the effect of financial development on income inequality is nonexistent. This finding suggests that institutional quality affects the link between financial development and income inequality, reflecting the notion that better quality finance results in more equal income distribution.
Short Description:	
Keyword:	financial development, income inequality, institutions, threshold regression
Advantages:	-
Market /	-
Commercialisation	

Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Nano clay and phenolic resin admixture for novel bulking agent of lignocellulosic materials
Product /	-
Exhibition	Pameran Reka Cinta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Forestry and Biodiversity
Leader Title:	Prof. Dr.
Leader Name:	Zaidon Ashaari
Researchers Name:	Nabil Fikri Leemon, Edi Suhaimi Bakar, Paridah Md, Tahir, Khairul Anwar Uyup
Faculty / Institute /	Faculty of Forestry
School / Academy:	
Department /	Department of Forest Production
Laboratory:	
Expertise:	Wood Quality Enhancement
Email:	zaidon@upm.edu.my
Telephone (Office):	03-89467174
Fax:	03-89432514
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:REVIEW
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	Bulking treatment of wood with phenol formaldehyde (PF) resin has shown satisfactory result in enhancing the strength properties, dimensional stability and durability of wood against decay. The successful of this treatment is determined by the resin's molecular weight (mw). PF resin with mw 600 had successfully improved dimensional stability and properties of low density tropical hardwood, oil palm stem plywood and bamboo. One of the drawbacks using LmwPF is its high amount of formaldehyde emission during soaking and hot pressing process due to the resin contains substantial amounts of methylol groups in the oligomeric chains and some of these methylol groups is released as free formaldehyde upon being exposed to high temperature and humidity. Incorporation of nano particle to the phenolic matrix could possibly reduce the use of high concentration LMwPF in the treatment system and as a result would lower the formaldehyde emission. In addition, the properties of the treated could be better enhanced. The aim of the present study was to examine the characteristics and physical properties of LmwPF (mw 600) and modified

	nanoclay admixture. LmwPF resins (45% w/v) were added separately with 0.5%,
	1.0% and 1.5% w/w montmorillonite nanoclay nanomer (based on solid PF) and
	ultrasonicated using sonifier. The dispersion of nanoclay in LmwPF was examined
	using X-ray diffraction (XRD), and transmission electron microscopy (TEM). It was
	found that ultrasonication in a sonifier at 50 kHz for 60 min was able to disperse
	modified nanoclay up to 1.5% into the resin. XRD and TEM analyses showed that
	the nanoclay dispersion in the resin were either intercalated or exfoliated. The
	results also showed that the presence of nanocaly in the admixture significantly
	increased the non-volatile content and reduced gelation time and pH values.
Short Description:	
Keyword:	Phenol formaldehyde, Nanoclay, ultrasonication, dispersion, x-ray diffraction
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	N/A

Title	Potential Jatropha curcas genotype for cultivation in Malaysia
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Agriculture and Food
Leader Title:	Prof. Dr.
Leader Name:	Prof. Dr. Mohd Rafii Yusop
Researchers Name:	Mohd Rafii Yusop, Mahmoodreza Shabanimofrad, Sadegh Ashkani
Faculty / Institute /	Institute of Tropical Agriculture
School / Academy:	
Department /	Laboratory of Food Crops and Floriculture
Laboratory:	
Expertise:	Plant Breeding and Genetics
Email:	mrafii@upm.edu.my
Telephone (Office):	03-89471149
Fax:	03-89381612
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.: 1560-8530
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
	world. The present study was conducted to determine superior Malaysian J. curcas accessions using morphological traits of 48 accessions. Morphological traits including total number of seeds per plant, total number of branches per plant, number of primary branches per plant and seed yields per ha exhibited a high genotypic coefficient of variation, heritability and genetic advance. Seed yield showed significant positively relation with plant height, total branches, leaf greenish, total number of seeds, number of fruits and oil yield. On the basis of UPGMA cluster and principal component analyses, the accessions, D-01-09 and B-03-02 (clustered into a single group) had above average seed yield, oil yield, number of fruits, total number of seeds, leaf greenish, plant height and primary branch compared to other accessions. These superior genotypes can be utilized as promising varieties in J. curcas breeding program and can be used as parents in hybridization program with the other L curcas accessions
Short Description:	

Keyword:	Jatropha curcas, Biodiesel, Genetic improvement, Oil yield
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Low Complexity High Efficiency Crest Factor Reduction in Broadband Communication Systems
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Applied Science and Engineering
Leader Title:	Prof. Dr.
Leader Name:	Borhanuddin Mohd Ali
Researchers Name:	Khalid Taher Mohammed Al-Hussaini, Pooria Varahram, Borhanuddin Mohd Ali,
Faculty / Institute / School / Academy:	Faculty of Engineering
Department / Laboratory:	Department of Computer and Communication System Engineering
Expertise:	Wireless Communication System
Email:	borhan@upm.edu.my
Telephone (Office):	03-89466443
Fax:	03-86567127
Patent Status:	Yes, Patent No.: PI 2013702570
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	Orthogonal frequency division multiplexing (OFDM) is considered as one of the most significant technologies ideal for different communication and broadcasting systems. This is because OFDM offers high spectral efficiency, robustness to frequency selective fading, tolerant to radio-channel delay spread and power efficient. Consequently, OFDM has been adopted as a standard for high data rate communications like worldwide interoperability for microwave access (WiMAX), Digital Video Broadcasting (DVB) and Long Term Evolution (LTE). We proposed a novel technique to reduce the peak to average power ratio (PAPR) in orthogonal frequency division multiplexing (OFDM) systems. In this technique, the output of inverse fast Fourier transforms (IFFT modulator) is partitioned into sub-blocks, which are subsequently interleaved. Then, a new optimization scheme is introduced in which only a single two phase sequence need to be applied. This optimization scheme eliminates multiplication operations entirely. Unlike the conventional partial transmit sequence (C-PTS) which provide the proposed to change IEET.

	block. Clearly, this will reduce significantly the computational complexity and hence the hardware resource required while giving a superior PAPR performance at the same time. The other salient feature of this scheme is that there is no side information needed which leads to increased transmission efficiency.
Short Description:	information needed when leads to increased transmission encloney.
Keyword:	PAPR, OFDM, Power Amplifier, Inverse Fast Fourier Transform (IFFT), CCDF
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	Download Here

Title	AquaGelatin: Halal and Safe Food Source for Healthy Living
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Agriculture and Food
Leader Title:	Prof. Dr.
Leader Name:	Fatimah Md. Yusoff
Researchers Name:	Nicholas M.H. Khong, Jamilah Bakar, Mahiran Basri, Maznah Ismail & Kim Wei Chan
Faculty / Institute / School / Academy:	Institute of Bioscience
Department / Laboratory:	Laboratory of Marine Science and Aquaculture
Expertise:	Aquatic Biotechnology, Aquaculture & Limnology
Email:	fatimamy@upm.edu.my
Telephone (Office):	03-89472192
Fax:	03-89472191
Patent Status:	Yes, Patent No.: PI2013701147
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	Gelatin products encompassed 35.2% of the global hydrocolloid market with
	market value of US\$ 1.6 billion in 2010 (Frost & Sullivan, 2012). Gelatin is
	extensively used in the food industry for its diverse and irreplaceable functional
	properties such as gelling, thickening, texturising, emulsifying, clarifying and
	stabilising properties. Currently, major issues surrounding gelatine in the market
	includes (1) hygiene and safety concern (health scare led by bovine spongiform
	consumable to Hindus and porcine-sourced are non-consumable to Muslims and
	lews); and (3) higher demand for skin and hides for other applications, which led
	to the decrease in raw material availability and a subsequent dramatic rise in
	price over the past few years. Our innovative invention is the world's first
	gelatin from highly sustainable tropical marine invertebrate with high Bloom
	strength (>200 g Bloom) and good sensory properties (white in color and
	minimal odor), designed as a promising alternative to address this shortage in

	gelatin availability. AquaGelatin has high protein content (>80%) and gel strength
	while low in ash content (<2%). Whereas, glycine, threonine and proline are
	found to be the major amino acids present. AquaGelatin solution has the
	average pH of 5.0 which implies minimal product degradation. AquaGelatin,
	produced from the locally abundant marine invertebrate has high market
	potential both at home and abroad as it is widely used in various food, beverage,
	biomedical, cosmeceutical, pharmaceutical, nutraceutical, photography and
	other industrial applications.
Short Description:	
Keyword:	gelatin, halal, marine invertebrates, good sensory properties
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

BIOFORTIFICATION OF RICE WITH SELENIUM
-
Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Applied Research (B)
Agriculture and Food
Prof. Dr.
Zaharah A Rahman
Che Fauziah Ishak, Yahya Awang and Nafiseh Alifar
Faculty of Agriculture
Department of Land Management
Soil Fertility and Plant Nutrition
zahaar@upm.edu.my
03-89474867
03-89474919
Yes, Patent No.:
Yes, Copyright / Publication No. / SD No.:1994-7879
Yes, Registration No.:
Vee Trademark No :
Yes, Trademark No.:
of its antioxidant effects (Fairweather-Tait et al., 2011). For plants, Se is not considered essentia, but its deficiency affects humans in different ways, such as viral infection, reproduction (especially male fertility), hypothyroidism, asthma, a weakened immune system and the incidence of cancer (Whanger, 2004, Combs, 2005). One of the ways for humans to have Se in their system is through food. Since rice is the staple food for Asians, enriching rice grains with Se will be a method to introduce Se into the human body. Se concentration in rice in Asian countries may be insufficient to maintain good human health. In Findland, addition of Se in fertilizers for crop production has been used since 1984 (Ylaranta, 1983; Eurola et al., 1991; Hartikainen, 2005), and this has helped to improve Se intake through food by the people of Finland, which helped to

	Se into organic forms which is more bioavailable to humans. This study was
	undertaken to determine the response of Se application to three rice varieties
	(MR219, MR232 and MR253). A glasshouse trial was carried out using five
	selenium rates of 0, 100, 300, 500, 700 g Se/ha as sodium selenite (Na2SeO3).
	The Se rates chosen have been able to increase Se in rice grains to a level
	acceptable for human consumption. But plant dry matter, grain yield and yield
	component were not affected by the Se addition. Thus fortifying rice grain with
	Se can be made through agronomic biofortification.
Short Description:	
Keyword:	Selenium, rice grains, biofortification
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	N/A

Title	Mobile Learning Management System
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inoyasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Mathematical Sciences and ICT
Leader Title:	Mrs.
Leader Name:	Sazlinah Binti Hasan
Researchers Name:	Sharifah Md. Yasin, Nor Fazlida Mohd Sani, Zurina Mohd Hanapi, Muhammad
	'Azizan Hazim B Supian Najib, Muhammad Syairazi Bin Jaafar Sidik
Faculty / Institute / School / Academy:	Faculty of Computer Science and Information Technology
Department / Laboratory:	Department of Communication Technology and Network
Expertise:	mobile and computer network
Email:	sazlinah@upm.edu.mv
Telephone (Office):	03-89471732
Fax:	03-89471795
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:UPM/TNCPI/100-45/C
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	Most of E-learning system used by students and lecturers in many universities is in web-based. As an alternative we have developed a mobile application with a title "Mobile Learning Management System(M-LMS)" specifically for student and lecturer. We have used the IDE Java tools, Eclipse and Macromedia Dreamweaver CS3 to develop this application. This tool uses Java, PHP and HTML as their programming language and WAMP Server. User can directly use the application when they online as alternative for the web-based LMS. M-LMS assist educational purposes for students and lecturers faster and easier related to notes, assignment, announcement, attendance and assessment. M-LMS strives to present a low cost mobile platform for UPM lecturers and students to ease educational activities. Lecturers can monitor or update courses information via M-LMS anywhere and anytime. M-LMS is an alternative application that continuous promotes teaching activities by the lecturers since they can access

	LMS application applies in mobile in Malaysia. Exposure of lecturers and students to M-LMS can give a lot of benefits for their educational purposes.
	Through the development of this product, we hope we are able to enhance
	educational activities of the lecturers and students of UPM.
Short Description:	
Keyword:	mobile, learning management system
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	Download Here

	
	A simplified image processing method for bread crumb image analysis
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inoyasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Applied Science and Engineering
Leader Title:	Assoc. Prof. Ir. Dr.
Leader Name:	CHIN NYUK LING
Researchers Name:	Nasrul Fikry Che Pa, Chin Nyuk Ling, Yus Aniza Yusof, Norashikin Abd Aziz
Faculty / Institute /	Faculty of Engineering
School / Academy:	
Department /	Department of Process and Food Engineering
Laboratory:	
Expertise:	Food Engineering
Email:	chinnl@eng.upm.edu.my
Telephone (Office):	03-89466353
Fax:	03-89464440
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:NO
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	A simplified image processing method was developed based on a scanned red,
	green and blue (RGB) colour image model to evaluate the bread crumb
	characteristics via commercially available image processing software. It is nighly
	objective with highlights on minimal basic imaging requirement e.g. the
	duaptation of automatic threshold segmentation technique based on statistical
	and ability of call detection sensitivity of up to 94 2m in diameter. This method
	has the ability to compute crumb cell structure for a single bread slice with 422
	500 pixels per image accurately within 2 seconds. Evaluation on the results of
	individual cell characteristics obtained from this method including the total cell
	count, cell area, and cell average diameter maybe used to derive other cell
	crumb characteristics like crumb fineness, void fraction and cell uniformity. It is
	validated experimentally by successfully segregating the crumb characteristics of
	four types of different bread i.e. closed and open lid sandwich loaves; country
	white bread and the baguette; in term of its cell-total area ratio which was found

	to increase from the closed sandwich (22%), open sandwich (29%), country
	(35%) and baguette (42%). The outcome of this research is the production of a
	simple and practical image processing method using readily available
	commercial image processing software for evaluating the texture of bread
	crumbs. This research differs from previous researchers in term of its
	simplification using common and commercially available software for the image
	processing. It is needed by the research community to help analyse and compare
	their results universally via a simple and straightforward, inexpensive,
	reasonably accurate and accessible method.
Short Description:	
Keyword:	Image processing, bread crumb structure, bread texture, crumb characteristics
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	Download Here

Title	Smart Money Kit: Bright Kids Smart Money
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inoyasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Humanities and Nation Building
Leader Title:	Dr.
Leader Name:	Mohamad Fazli Sabri
Researchers Name:	Mohamad Fazli Sabri, Nurhayatul Nira Ramli, Rozita Wahab
Faculty / Institute /	Faculty of Human Ecology
School / Academy:	
Department /	Department of Resource Management and Consumer Studies
Laboratory:	
Expertise:	Consumer Finance
Email:	ames1304@gmail.com
Telephone (Office):	03-89467094
Fax:	03-89436157
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:LY2014000315
Industrial Design	Yes, Registration No.:
Trademark:	Yes Trademark No : 2013059510
Abstract:	Few financial literacy programs are explicit in Malaysia about how the concepts
	taught and the lessons developed are expected to improve financial knowledge
	and rarely discuss the expected relationship between early financial educational
	and later financial behavior. Consumer socialization research suggests that much
	of the consumer knowledge and behavior in adults was learned during pre adults
	years through the influence of socialization agents. Thus, what young adults and
	adults learn and experience as children and youth may affect both their
	knowledge and management of personal finances. The focus on young children
	is valuable because it may be that skills acquired in childhood and habits instilled
	by parents that are most important to later patterns of financial behavior. Since
	young children are financially dependent on parents and have few resources
	(monetary or property) that they independently control, financial education
	targeted to this age group, in contrast to older individuals, generally does not
	aim to teach financial facts that would immediately change financial behavior. As
	responsible parents, teachers and adults, children should always be exposed to

	the knowledge when they are very young. Home and school is the most
	appropriate institution for children to start their financial education because it is
	the most convenience and familiar environment for them. However, literature
	review shows that most parents and teachers do not know how to deliver the
	message with regard to personal finance and money management. The
	researchers have developed a financial education kit called "Smart Money Kit:
	Bright Kids Smart Money" as a teaching module related with the basic concepts
	of personal finance and money management. The smart money kit comes out
	with a complete manual to help parents, teachers and adults in educating
	children and students about money management
Short Description:	
Keyword:	Smart money, financial education, personal finance, money management
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	SPECIAL CONNECTION FOR PRECAST WALLS SUBJECTED TO DYNAMIC LOAD
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Applied Science and Engineering
Leader Title:	Dr.
Leader Name:	Farzad Hejazi
Researchers Name:	Ramin Vaghei, Prof. Dato' Ir. Dr. Mohd Saleh Jaafar, Prof. Abang Abdullah Abang Ali, Dr. Nora Farah Abd Aznieta. Aziz, Hafez Taheri
Faculty / Institute / School / Academy:	Faculty of Engineering
Department /	Department of Civil Engineering
Exportico:	Industrialized Building System Drocast Walls Connection Bubber Material
	Finite Element, Non linear Analysis, Structural Dynamic
Email:	farzad@upm.edu.my
Telephone (Office):	03-89466362
Fax:	03-86567129
Patent Status:	Yes, Patent No.: PI2014701723
Copyright /	Yes, Copyright / Publication No. / SD No.:
Industrial Design	Vec. Peristration No :
Registration:	
Trademark:	Ves Trademark No :
Abstract:	One of the most vital and controversial issues in the precast structures which
	subjected to the dynamic loading including seismic loading and vibration is the
	integrity of structure. Therefore, there is huge tendency among the structural
	engineers who are involving with construction, especially in seismic zones, to
	come up with new connection, which is really efficient in terms of performance,
	construction cost and time; The present invention relates to development of
	special connection for precast walls in Industrialized Building System (IBS)
	subjected to dynamic loading due to ground motion, earthquake, wind, tsunami,
	machine vibration, etc. The system comprising two steel U shaped channels as
	male and female channel which attached to the walls and connect the walls to
	each other using bolt and nuts. The Rubber Channel also is implemented
	between male and female channel to reduce dynamic force and dissipate
	vibration effect. The configuration of developed connection is design in order to

	perform in all direction (6 degree of freedom) to resist multidirectional dynamic force such as axial, shear and torional force and bending moment. Implementing of proposed connection is lead to increase integrity of structural component during vibration and show high efficiency, desirable performance against dynamic load, affordable cost and reasonable construction time. The new precast connection is consider as one of the inventive energy dissipation connection by implementing the latest concept of rubber damping which can increase the overall lateral resistance capacity and damping characteristic of the structures subjected to vibration and it can be assure the serviceability and
	safety design criteria. The performance of a precast connection is evaluated by dynamic analysis of numerical model and conduct experimental test. The results reveal the efficiency of proposed precast connection to diminish and dissipate the energy compared with conventional precast connection such as loop connection.
Short Description:	
Keyword:	Industrialized Building System, Precast Wall, Connection, Finite Element Model, Rubber Material, Dynamic Load, Earthquake.
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional File:	Download Here
ResearchOutput:	Download Here

Title	Non-standard Motorcycle Safety Helmets in Malaysia
Product /	-
Exhibition:	Pameran Reka Cinta, Penyelidikan dan Inovasi (PRDI) 2014
	Fundamental (A)
Cluster	Health and Well Being
Leader Title	Dr
Leader Name:	Kulanthayan KC Mani
Researchers Name:	Lai Git See, Y. Kaviyarasu, MZ Nor Afiah
Faculty / Institute /	Faculty of Medicine and Health Sciences
School / Academy:	
Department /	Department of Community Health
Laboratory:	
Expertise:	Traffic Injuries, Child Injuries and Public Health
Email:	kulan@upm.edu.my
Telephone (Office):	03-89472398
Fax:	03-89450151
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:43 (2012) 653-659
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	A cross sectional study was conducted among fast food restaurant's delivery workers in Selangor and Kuala Lumpur to observe the pattern of standard and non-standard helmet usage among them. The main objective of this study was to determine the factors that influence standard and non-standard safety helmets used among food delivery workers. This study was conducted using an observation and questionnaire method. Helmets observed were classified as standard helmet in the presence of Standard and Industrial Research Institute of Malaysia (SIRIM) label and as non-standard helmet in the absence of the label. Then, they were approached for questionnaire participation. At the end of the questionnaire session, each respondent was requested to exchange their own helmet with a new standard helmet on a voluntary basis. All helmets exchanged were sent to SIRIM for penetration tests. A total of 150 respondents were involved in this study. Logistic regression analysis was applied to determine the inter-relationship of four indentified variables (social demographic, knowledge on standard helmet, helmet cost and precious crash history) with type of

	helmets used by respondents (standard and non-standard helmet). The response
	rate for this study was 85.2%. 67 (44.7%) respondents were wearing helmets
	with SIRIM sticker. 50 (74.6%) helmets out of 67 helmets with SIRIM certification
	complied with the SIRIM penetration test requirements. Among the 83 helmets
	without SIRIM stickers, 43 (51.8%) helmets complied with the penetration tests
	and 40 (48.2%) helmets failed to comply the tests. The analysis results shows
	there were significant relationship between helmets with SIRIM label and
	penetration tests with p=0.005 and odd ratio = 0.366 at 95% level of confidence.
	Helmets with SIRIM label passed the helmet penetration test, thus it is safe in
	protecting the wearer's head compared to the helmets without SIRIM label,
	which fails the penetration test.
Short Description:	
Keyword:	Motorcycle crashes, Head injuries, Non-standard safety helmet
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	Download Here

Title	The Behavior of External Debt in Asian Countries: Evidence based on Panel Unit Root Tests
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Business, Economics and Governance
Leader Title:	Prof. Dr.
Leader Name:	Prof. Dato' Dr. Ahmad Zubaidi Baharumshah
Researchers Name:	Evan Lau, Ahmad Zubaidi Baharumshah, Siew-Voon Soon
Faculty / Institute / School / Academy:	Faculty of Economics and Management
Department / Laboratory:	Department of Economics
Expertise:	International Finance. Macroeoconomics
Email:	zubaidi@upm.edu.mv
Telephone (Office):	03-89467247
Fax:	03-89486188
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:DOI:10.3846/16111699.2012.720589
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	This article investigates the mean-reverting behavior of the external debt ratio based on a clustered of 19 Asian countries from 1981 to 2010. For this purpose, we use a government's intertemporal budget constraint (GIBC) model popularized by Hamilton and Flavin (1986). Our conclusions were drawn from panel data based tests, including the newly developed test based on Carrion-i- Silvestre et al. (2005, CDL) that accounts for both cross-sectional dependency and structural breaks. Two major findings are noteworthy; first majority debt ratios in the Asian countries are affected by structural breaks. Second, we find unit root tests that do not accommodate breaks are less likely to detect mean reversion in the debt ratios. In all, our results indicate debt sustainability is a general characteristic of all the Asian countries.
Short Description:	
Keyword:	external debt, mean reversion, Government Intertemporal Budget Constraint (GIBC), unit root tests, breaks, Asian
Advantages:	-

Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	Download Here

Title	An Agent-Based Model for Computational Problem Solving
Product /	-
Technology Name:	
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Mathematical Sciences and ICT
Leader Title:	Dr.
Leader Name:	Teh Noranis Mohd Aris
Researchers Name:	Teh Noranis Mohd Aris
Faculty / Institute /	Faculty of Computer Science and Information Technology
School / Academy:	
Department /	Department of Computer Science
Laboratory:	
Expertise:	Artificial Intelligence, Parallel Processing, Programming Science, Software
	Agents, Bio-nanorobotics
Email:	nuranis@upm.edu.my
Telephone (Office):	03-89471712
Fax:	03-89466577
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:18022014
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	In the fundamental of the computer programming course, understanding a
	problem is vital before source code writing. However, novice students face
	difficulties to understand problems and transform them to problem solving
	documents. A novel model based on agents has been designed to assist novices
	in computational problem solving. This model focuses from the very first step
	starting from a problem given in text form. This feature differentiates the
	proposed model from other existing models. The problem needs to be
	transformed using problem solving documents consisting of the Problem
	Analysis Chart (PAC) and input Process Output (IPO) chart. The main role of
	agents in this model is to extract information, transform to problem solving
	and IDO agonts. The model is tested with different kinds of problems and proved
	that the proposed algorithm worked accurately. This model is your hereficial to
	novice students from various disciplines enrolling the computer programming

	course and expected to have a high commercialization potential. In addition, the invention assists instructors in teaching the problem solving topic because more emphasis and time is allocated to teach the topic.
Short Description:	
Keyword:	agent, computational problem solving, extract, transform, novice
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	Download Here

Title	Effect of seaweed Kappaphycus alvarezii in the synthesis of Cu@Cu2O nanoparticles prepared by chemical reduction method
Product / Technology Name:	-
Fxhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Materials Science and Technology
Leader Title:	Dr.
Leader Name:	Kamyar Shameli
Researchers Name:	Hajar Khanehzaei
Faculty / Institute /	Faculty of Science
School / Academy:	
Department /	Department of Chemistry
Laboratory:	
Expertise:	Polymer and Nanomaterials
Email:	kamyar@upm.edu.my
Telephone (Office):	03-89466784
Fax:	03-89466043
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:84 Publiction5
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
	Kappaphycus alvarezii (K. alvarezii) for synthesis of Cu@Cu2O core shell nanoparticles (NPs) in aqueous solution. The core shell nanoparticles were prepared by a chemical reduction method using K. alvarezii, CuSO4.5H2O, NaOH,
	ascorbic acid, hydrazinium hydroxide, as stabilizer, cupper precursor, pH moderator, antioxidant and reducing agent under 120°C temperature, respectively. Formation of Cu@Cu2O-NPs was determined by UV-vis
	spectroscopy that where surface plasmon absorption maxima can be observed at 390-590 nm. The synthesized core shell nanoparticles were also characterized by X-ray diffraction (XRD). Moreover, the morphology and structure of the K. alvarezii/Cu@Cu2O-NPs were investigated by TEM, FESEM and EDXRF. The Fourier transform infrared (FT-IR) spectrum suggested the complexation present between K. alvarezii and Cu@Cu2O-NPs. The study clearly showed that using various amounts of K. alvarezii lead to produce different ratio and size of Cu@Cu2O nanoparticles. The size of the Cu@Cu2O-NPs decreased as the

	amount of K. alvarezii was increased. The ratio of Cu@Cu2O increases with the
	increasing concentration of K. alvarezii until 0.2 wt%.
Short Description:	
Keyword:	Kappaphycus alvarezii, cupper nanoparticle, core shell nanoparticles, seaweed,
	X-ray diffraction.
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	N/A

Title	Nano-encapsulated organic phase change material based on copolymer nanocomposites for thermal energy storage
Product / Technology Name:	Sunscreen active agent
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Environment and Energy
Leader Title:	Prof. Dr.
Leader Name:	MOHD ZOBIR HUSSEIN
Researchers Name:	Mohd Zobir Hussein, Tumirah Kadiran, Zulkarnain Zainal and Rafeadah Rusli
Faculty / Institute /	Institute of Advanced Technology
School / Academy:	
Department /	Laboratory of Advanced Materials and Nanotechnology
Laboratory:	
Expertise:	NANOMATERIALS AND NANOMEDICINE
Email:	mzobir@upm.edu.my
Telephone (Office):	03-89468092
Fax:	03-89467006
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:Energy 66 (2014) pp. 881-890
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
	octadecane nanocapsules as organic phase change material (PCM) for thermal energy storage (TES) were accomplished. Nano-encapsulated organic PCM was fabricated by encapsulation of n-octadecane as a core with St (styrene)/MMA (methylmethacrylate) copolymer shell using miniemulsion in-situ polymerization method. The influence of St/MMA and n-octadecane/copolymer mass ratio on
	the encapsulation processes, physico-chemical and thermal properties of the resulting nanocapsules has been studied systematically. Differential scanning calorimeter analysis indicated that the n-octadecane in the nanocapsules form melts at 29.5 oC and crystallize at 24.6 oC. n-octadecane nanocapsules has an enthalpy of 107.9 and 104.9 Jg-1 for melting and crystallization, respectively. Thermal gravimetric analysis showed that the nano-encapsulated organic PCM degraded in two distinguishable steps and has a good chemical stability. The thermal cycling test of the nanocapsules was carried out for 360 heating/cooling cycles and indicates that the developed nanomaterial has good chemical stability

	and thermal reliability. Based on all the results obtained, it can be concluded
	that n-octadecane/St-MMA nanocapsules have a great potential for thermal
	energy storage for buildings and other applications.
Short Description:	Multiple intercalation of organic UV absorbers provide broad spectrum
	protection in both UVB and UVA range Inorganic host restraint
	photocarcinogenic activity of UV absorbers Long lasting UV protection and long
	shelf life of product due stabilization of photodegradable UV absorber
	stabilization in inorganic host Light skin feeling, non-greasy finish
Keyword:	Styrene-methyl methacrylate copolymer shell, nano-encapsulated phase change
	materials, n-octadecane, miniemulsion in-situ polymerization, thermal energy
	storage.
Advantages:	EUS gives a non-oily finish. Due to Malaysia's hot and humid climate, oil-free
	cosmetics are in good demand. B4 are efficient in protecting degradation of
	other organic UV absorbers. If released B4 can further protect EUS from
	degradation Layered double hydroxide (LDH) host prevent UV absorbers from
	leaching out, degrading, losing its UV shielding ability and producing toxic
	byproducts. Limit close contact between toxic UV absorbers. Non oily, broad UV
	protection and long lasting sunscreen formulation
Market /	Potential in health care and cosmetics industry. In 2007, Malaysians spend an
Commercialisation	estimated \$550 million on cosmetics. Demand for sun protection is expected to
Potential:	increase as consumers are becoming more aware of the harmful damage of UV
	rays to the skin. Sun protection products are expected to grow further as most
	Malaysians prefer their complexion be as fair as possible in keeping with fashion
	trends throughout Asia. The global sun-care products market grew in retail value
	from \$4.5 billion (?3.4 billion) in 2003 to \$7.8 billion in 2008, an increase of
	72.6% - or 11.5% a year. The biggest growth has been among higher sun
	protection factor (SPF) products - the market share of SPF 40 and 50+ products
	swelled in Europe from 15% in 2004 to 20% in 2008. Euromonitor forecasts
	market growth in these regions of 2-3%/year over the coming years, and growth
	in Asia and South America will maintain momentum.
Abstract Additional	N/A
File:	
ResearchOutput:	N/A
Title	Honeycomb monolith supported sugar catalyst and its catalytic activity on esterification reactions
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Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Applied Science and Engineering
Leader Title:	Prof. Ir. Dr.
Leader Name:	Prof. Thomas S.Y. Choong
Researchers Name:	Soraya Hosseini, Thomas S.Y. Choong, Luqman Chuah bin Abdulah
Faculty / Institute / School / Academy:	Faculty of Engineering
Department / Laboratory:	Department of Chemical and Environmental Engineering
Expertise:	Adsorption Science and Technology, Separation Process, Process Simulation
Email:	csthomas@upm.edu.my
Telephone (Office):	03-89466293
Fax:	03-86567120
Patent Status:	Yes, Patent No.: PI2012001326
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:1226-086X/\$ - see front matter@2014
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	Biodiesel or Fatty Acid Methyl Ester (FAME), as a promising renewable fuel offers low rates of pollution, low emissions with unburned hydrocarbons and greater combustion efficiency compared to fossil fuels which produced via esterification reactions. In tropical countries such as Malaysia, Indonesia and Thailand, palm fatty acid distillate (PFAD) as low-cost feedstock can be used as an alternative to minimize production cost. Due to high free fatty acid (FFA %) of PFAD, a suitable acid catalyst is required to overcome disadvantages homogeneous acid catalysts. In contrast homogeneous catalysts, sulfonated sugar catalyst as solid acid catalyst is highly reactive for esterification reaction. However, sugar catalyst, being a fine powder has some drawbacks such as agglomeration and difficulty of filtration due to the formation of fines for slurry phase operation or the high pressure drop for gas phase operation. One of the possible techniques to overcome this drawback is by incorporating sugar catalyst onto supports. Honeycomb monolith as sugar catalyst support provided an interesting alternative for conventional catalysts in packed beds or slurry reactors.

	Sulfonation of incomplete carbonized carbon coated monolith based on sucrose
	solution 65 wt.% was prepared in order to synthesize solid acid catalyst. The
	sulfonation process had been performed by using vapour of concentrated H2SO4
	in order to yield the catalyst with total acidity value about 4.2 mmol/g. The aims
	of this work are to impregnate sucrose solution 65 wt.% on honeycomb monolith
	by dip-coating method and evaluate its catalytic activity on esterification of PFAD
	with methanol. Effect of different operating conditions was examined in order to
	find the optimum condition.
Short Description:	
Keyword:	Biodiesel; Carbon Coated Monolith; Palm Fatty Acid Distillate; Solid acid catalyst;
	Sucrose
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	Download Here

Title	Tocotrienol-rich fraction of palm oil can improve prenatal and postnatal cognitive function in male rats.
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Agriculture and Food
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Goh Yong Meng
Researchers Name:	Goh Yong Meng, Gowri Nagapan, Intan Shameha Abdul Razak, Kalanithi Nesaretnam, Mahdi Ebrahimi
Faculty / Institute / School / Academy:	Faculty of Veterinary Medicine
Department /	Department of Veterinary Preclinical Sciences
Laboratory:	
Expertise:	Physiology
Email:	ymgoh@upm.edu.my
Telephone (Office):	03-86093401
Fax:	03-89471971
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:Publication
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	The incidence of childhood neurodevelopmental disorders (NDD), such as autism, attention-deficit hyperactivity disorders, and apraxia, are increasing worldwide and have a profound effect on the behaviors, cognitive skills, mood, and self-esteem of these children. Although the etiologies of these disorders are unclear, they often accompany genetic and biochemical abnormalities resulting in cognitive and communication difficulties. cognitive and neural development require essential fatty acids (particularly long-chain ?-3 fatty acids often lacking in mother's and children's diets) during critical growth periods, the potential
	behavior-modifying effects of these fatty acids as "brain nutrients" has attracted considerable attention. Increased intake these fatty acids may increase oxidative stress and alter antioxidant defense system in the brain. Thus, intake of powerful antioxidants such as vitamin E are needed to combat oxidative stress during early life. Vitamin E is a lipid soluble natural antioxidant, which comprise of two major families of tocopherols and tocotrienols. The tocotrienols are the major

	form of vitamin E found in palm oil with the ratio of 30% tocopherols and 70%
	tocotrienols. Palm tocotrienols are well known for its beneficial health
	promoting effects. Studies have shown that tocotrienols have potent
	antioxidant, cardioprotective, hypocholesterolemic, anti-cancer and
	neuroprotectiveproperties that are not exhibited by tocopherols. The beneficial
	health effects of tocotrienols are mostly demonstrated in adulthood however,
	the potential effects tocotrienol intake during early life are still lacking. Thus, our
	current work has been shown that tocotrienol supplementation during prenatal
	and early postnatal period has beneficially increase the tocotrienols content in
	brain and plasma in male F1 rats. This resulted in better behavioral performance
	and cognitive function development in the F1 progeny.Our current finding has
	open a new platform for more future work in potential mechanisms and also
	pursuing clinical trials evaluating tocotrienols as complementary therapeutic
	option for children with NDD.
Short Description:	
Keyword:	Tocotrienols, Palm Oil, Cognitive Function, Rat
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Purification and characterization of a novel amylase enzyme from red pitaya (Hylocereus polyrhizus) peel
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Agriculture and Food
Leader Title:	Dr.
Leader Name:	Mehrnoush Amid
Researchers Name:	Mehrnoush Amid, Mohd Yazid ABD Manap
Faculty / Institute /	Faculty of Food Science and Technology
School / Academy:	
Department /	Department of Food Technology
Laboratory:	
Expertise:	Food Enzyme Biotechnology
Email:	mehrnoush@upm.edu.my
Telephone (Office):	03-89468413
Fax:	03-89423552
Patent Status:	Yes, Patent No.:
Copyright /	Yes, Copyright / Publication No. / SD No.:ilkl;
Publication / SD:	
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	An amylase enzyme from pitaya peel was purified 234.2 folds with 72.1% recovery using ammonium sulphate precipitation, gel filtration and ion exchange chromatography. Gel filtration chromatography and SDS-PAGE revealed that the enzyme is monomeric with a molecular weight of 42.1 kDa. The apparent Km and Vmax of the amylase were 2.7 mg/ml and 34.30u/min/mg of protein, respectively. The enzyme was highly active and stable over a wide pH range from pH 3 to pH 11.0, with optimum activity being observed at pH 5.0. The enzyme washighly selective for soluble starch, amylopectin, glycogen and pulullan. The purified amylase did not require calcium and displayed extreme stability with regard to surfactants and oxidising agents. EDTA, a powerful chelating agent, did not have any significant effect on the stability of the enzyme. Such characteristics have not been previously reported for this type of enzyme from fruit peel. This enzyme, which possesses unique properties, could be widely used in different types of industries, especially in food and biotechnological applications.

Short Description:	
Keyword:	Amylase; pitaya peel; purification; characterization; yield
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Serum AFB1-lysine adduct and urinary AFM1: The tools to assess human exposure to aflatoxin using molecular biomarker
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Health and Well Being
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Rosita Jamaluddin
Researchers Name:	Mohd Redzwan Sabran, Mohd Sokhini Abd. Mutalib, Nurul Aqilah Abdul Rahman, Jia Sheng Wang, Min Su Kang, Zuraini Ahmad
Faculty / Institute / School / Academy:	Faculty of Medicine and Health Sciences
Department / Laboratory:	Department of Nutrition and Dietetic
Expertise:	Nutrition
Email:	rositaj@upm.edu.my
Telephone (Office):	03-89472467
Fax:	03-89426769
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:IJHEH12729
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	The measurement of aflatoxin in the foodstuffs for risk assessment is of low reliability as different individuals may be exposed at different rate and level. Serum AFB1-lysine adduct and urinary AFM1 are metabolites of aflatoxin B1 (AFB1). AFB1 is classified as Group 1 carcinogen by the International Agency for Research on Cancer (IARC) and linked to the development of hepatocellular carcinoma (HCC). These biomarkers have great utility as they are aflatoxin- specific biomarkers and reliable tools for studying human exposure to aflatoxin. Therefore, this research was conducted to measure serum AFB1-lysine adduct and urinary AFM1 levels among seventy-one (n=71) adults and to assess their exposure rate to aflatoxin. Blood and urine samples were collected and serum
	AFB1-lysine adduct and urinary AFM1 were extracted using solid phase column. An authentic AFB1-lysine standard was developed and the serum AFB1-lysine adduct levels were quantified using validated HPLC-FLD. Besides, an optimized and validated UHPLC-FLD was used to measure urinary AFM1 levels. All 71

	subjects had detectable levels of serum AFB1-lysine adduct ranging from 1.13 to
	18.85 pg/mg albumin. Nevertheless, urinary AFM1 was only detected in thirteen
	subjects (n=13) ranging from 2.4 to 100.34 pg/ml. The levels of these biomarkers
	were low compared to the populations with high prevalence of aflatoxin
	exposure and it can be postulated that the subjects were moderately exposed to
	aflatoxin. Male subjects had significantly high serum AFB1-lysine adduct levels
	than female subjects. Moreover, there was an increasing trend of urinary AFM1
	levels with age among the male subjects. The use of molecular biomarkers to
	assess aflatoxin exposure in Malaysia is still in its infancy stage and these findings
	provide significant and additional information on the extent of human exposure
	to aflatoxin. Moreover, further investigations with a big sample size should be
	warranted to determine the risks associated with aflatoxin exposure.
Short Description:	
Keyword:	aflatoxin, AFB1-lysine adduct, urinary AFM1, molecular biomarker
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	NOVEL ANTIFUNGAL AND ANTICANCER PROPERTIES OF THE LEAF OF DIFFERENT VARIETIES OF LABISIA PUMILA BENTH. (KACIP FATIMAH) USING MICROWAVE ASSISTED EXTRACTION (MAE).
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inoyasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Agriculture and Food
Leader Title:	Prof. Dr.
Leader Name:	Hawa Jaafar
Researchers Name:	Prof. Dr. Hawa ZEE Jaafar and Dr. Ehsan Karimi
Faculty / Institute /	Faculty of Agriculture
School / Academy:	
Department /	Department of Crop Science
Laboratory:	
Expertise:	Plant secondary metabolites and physiology
Email:	hawazej@gmail.com
Telephone (Office):	03-89471801
Fax:	03-89471801
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:Publication
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	Currently, there is growing interest in the application of plants as a medicinal agent since synthetic drugs have shown several side effects on the human body. Experimental investigations demonstrated that many naturally occurring agents in plant extracts have shown antioxidant, antimicrobial and anticancer potential in a variety of bioassay systems and animal models, having relevance to human disease. Medicinal plants are known to have weak or strong therapeutic abilities and contribute in reducing risk of diseases of various etiologies such as inflammatory and cancer. This is attributed to the large amounts of phytoconstituents such as flavonoids, phenolics and saponins found in medicinal plants. Labisia pumila, locally known as Kacip Fatimah, is a forest-floor plant that has tremendous potential in the herbal industry. It is one of the five herbal plants identified by the government as one of the national key economic areas to be developed for commercial purposes. There are three varieties of L. pumila namely, L. pumila var. pumila, L. pumila var. alata and L. pumila var. lanceolata and each has its own use. This present study was carried out to evaluate the

	antifungal and cytotoxic activity of leaf extracts derived by microwave extraction
	from the three varieties of Labisia pumila Benth. The overall result demonstrated
	that leaf extracts of all three varieties of L. pumila exhibited moderate to
	appreciable antifungal activity against Fusarium sp., Candida sp. and Mucor
	compared to streptomycin used as positive control. In addition, Cytotoxic activity
	against MCF-7, MDA-MB-231 and Chang cell lines were observed with all
	extracts. These findings suggest the potential use of L. pumila Benth. as a natural
	medicine and indicated the possible application of this medicinal plant such
	antifungal activity and cytotoxic agents.
Short Description:	
Keyword:	Antifungal potential, Anticancer activity and labisia pumila benth:
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	N/A

Title	Amino acids fortification of low-protein diet for broiler chickens under tropical climate: ideal essential amino acids profile
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Agriculture and Food
Leader Title:	Prof. Dr.
Leader Name:	ZULKIFLI IDRUS
Researchers Name:	ELMUTAZ A. AWAD, MOHAMAD FADLULLAH, ZULKIFLI IDRUS, ABDOREZA SOLEIMANI FARJAM, LOH TECK CHWEN
Faculty / Institute / School / Academy:	Institute of Tropical Agriculture
Department /	Laboratory of Animal Production
Laboratory:	
Expertise:	POULTRY SCIENCE
Email:	zulidrus@upm.edu.my
Telephone (Office):	03-89471042
Fax:	03-89381612
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:publication
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	The price of common protein sources like soybean meal is on the rise worldwide. Therefore, it is economically valuable to move to exact feeding of amino acids (AA) under different conditions. Poultry require a specific quantity and balance of essential amino acids (EAA) and nitrogen (for synthesis of nonessential amino acids; NEAA), rather than crude protein per se. Dietary protein level (DPL) could be reduced if there are adequate levels of AA to support the growth. Standard dietary recommendations can be met by supplementing the lower protein diets with EAA to meet the exact requirement. This will allow a relative feed cost reduction together with lowering nitrogen excretion as an arising global concern.
	protein (CP) without adverse effect on broiler performance in hot and humid tropics. The present work showed that CP of broiler starter can be reduced till 19.2% with EAA fortification and without any adverse effects on growth performance under the hot, humid tropics. Although, all the nutrients

	requirements of NRC (1994) were met, reducing DPL to 17.7% or lower impaired
	the performance of broiler chickens during the starter period. Poorer
	performance with low DPL could also be associated with the lack of sufficient
	nitrogen quantity for NEAA synthesis. Chickens fed to the standard levels of
	dietary protein can synthesize NEAA in the body from excess EAA. Therefore,
	when low DPL diets are fed, this excess is reduced, leaving less EAA available for
	conversion to the NEAA. The study will provide the basis for future formulation
	of low cost feed without compromising on the production efficiency of broiler
	chickens under the hot tropical environment.
Short Description:	
Keyword:	Amino acids fortification, broiler chickens, tropical climate
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Automated Template for Software Requirements Elicitation
Product /	-
Technology Name:	Pamaran Paka Cinta, Danvalidikan dan Ingyasi (DPDI) 2014
Category:	Applied Research (R)
Cluster:	Applied Research (b) Mathematical Sciences and ICT
Leader Title	Assoc Prof Dr
Leader Name	Assoc Prof. Dr. Marzanah Binti A. Jahar
Researchers Name	Marzanah A. Jabar, Azim Abdul Ghani, Saadah Hasan, Fatimah Sidi, Ramin
	Ahmadi, Mohammad Yaser Shafazan
Faculty / Institute / School / Academy:	Faculty of Computer Science and Information Technology
Department /	Department of Information System
Laboratory:	
Expertise:	Management Information System, Knowledge Management and Software Engineering
Email:	marzanah@upm.edu.my
Telephone (Office):	03-89471733
Fax:	03-89471795
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:27Dec2013
Industrial Design	Yes. Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	Information requirement determination is an important phase of software
	development. Since it happens at the beginning stages of software development,
	improvement in this process may lead to significant results for the entire
	software development. However, it is widely admitted that most of the
	conventional methods for collecting and analyzing requirements are not
	successful because several weaknesses such as lack of a certain automatic tool to
	elicit and analyze knowledge, or a well-structured model to facilitate the
	generation, analysis, and presentation of information requirements. We present
	a system to improve information requirement determination and structuring in
	solume development by asking questions based on SWIT model of Knowledge structure. Our unique contribution is that the proposed method uses a data
	mining method known as part-of-speech tagging tailored for requirement
	analysis to identify and organize target elements and their dependencies. We

	conduct experiments on a case study, demonstrating effectiveness of the
	system.
Short Description:	
Keyword:	Software Development, Requirement Analysis, Elicitation process, 5W1H,
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

The Oncolytic Activity of Newcastle Disease Virus in Clear Cell Renal Carcinoma Cells in Normoxic and Hypoxic Conditions: The Interplay between VHL and Interferon-beta Signaling
-
Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Fundamental (A)
Health and Well Being
Assoc. Prof. Dr.
Norazizah Shafee
Wei-Choong Ch'ng, Eric J Stanbridge, Khatijah Yusoff, Norazizah Shafee
Faculty of Biotechnology and Biomolecular Sciences
Department of Microbiology
Molecular Virology
nshafee@upm.edu.my
03-89466719
03-89430913
Yes, Patent No.:
Yes, Copyright / Publication No. / SD No.:DOI: 10.1089/jir.2012.0095
Yes, Registration No.:
Yes, Trademark No.:
Viral-mediated oncolysis is a promising cancer therapeutic approach, offering an increased efficacy with less toxicity than the current therapies. The complexity of solid tumor microenvironments includes regions of hypoxia. In these regions, the transcription factor, hypoxia inducible factor (HIF), is active and regulates expression of many genes that contribute to aggressive malignancy, radio- and chemo-resistance. To investigate the oncolytic efficacy of a highly virulent (velogenic) Newcastle disease virus (NDV) in the presence or absence of HIF-2alpha, renal cell carcinoma (RCC) cell lines with defective or reconstituted wild type (wt) von Hippel-Lindau (VHL) gene activity were used. We show that these RCC cells responded to NDV by producing only IFN-beta, but not IFN-alpha, and is associated with increased STAT1 phosphorylation. Restoration of wt VHL expression enhanced NDV-induced IFN-beta production, leading to prolonged

	hypoxic cancer cells.
Short Description:	
Keyword:	Hypoxia, Newcastle disease virus, Oncolysis, Clear cell renal carcinoma cells, Von
	Hippel-Lindau
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Globalisation, Institutional Reforms and FInancial Development in East Asian Economies
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Business, Economics and Governance
Leader Title:	Assoc. Prof. Dr.
Leader Name:	Law Siong Hook
Researchers Name:	Tan Hui Boon, Wan Azman Saini Wan Ngah
Faculty / Institute / School / Academy:	Faculty of Economics and Management
Department /	Department of Economics
Laboratory:	
Expertise:	Financial Economics
Email:	lawsh@upm.edu.my
Telephone (Office):	03-89467768
Fax:	03-89486188
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:World Economy
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes. Trademark No.:
Abstract:	This study examines the role of globalisation in influencing financial
	development of eight East Asian economies from 1984 to 2008. In particular, we
	aim to evaluate whether globalisation indeed improves institutional reform, and
	whether in turn these sound institutions are essential in promoting financial
	development, a hypothesis put forward by Mishkin (2009). The empirical results
	demonstrate that there is strong evidence in favor of a long-run relationship
	among globalisation, institutions, financial development and economic
	development. The long-run estimations indicate that the institutional variable is
	a statistically significant determinant of both banking sector development and
	stock market development. However, globalisation plays a greater role in
	directly promoting stock market development, while indirectly influencing
	banking sector development via institutional reforms. With respect to short-run
	dynamic relationships, the empirical results reveal that there is a Granger
	in turn further promote financial development, especially in the banking sector.

	With reference to the stock market, globalisation is found to have a favourable
	direct causal impact on stock market development without passing through the
	institutional channel. This finding supports Mishkin (2009) hypothesis, which
	contends that globalization is a key factor in promoting institutional reforms
	which encourage the development of financial markets, particularly banking
	sector development.
Short Description:	
Keyword:	Banking sector development, stock market development, institutions,
	globalization, panel cointegration
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	QKD Simulator For Cloud
Product /	-
Exhibition:	Pameran Reka Cinta, Penyelidikan dan Ingyasi (PRPI) 2014
	Applied Research (B)
Cluster:	Mathematical Sciences and ICT
Leader Title	Assoc Prof Dr
Leader Name	Zuriati Rinti Ahmad Zukarnain
Researchers Name	Zuriati Ahmad Zukarnain, Roszelinda Binti Khalid, Abudhahir Buhari, Zurina
Researchers Name.	Mohd Hanapi and Affendi Muhammad
Faculty / Institute / School / Academy:	Faculty of Computer Science and Information Technology
Department /	Department of Communication Technology and Network
Laboratory:	
Expertise:	Quantum Computing and Communication
Email:	zuriati@upm.edu.my
Telephone (Office):	03-89471777
Fax:	03-89471777
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:5450563
Industrial Design	Yes, Registration No.:
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	This is a tool to simulate and analyze the attack resilient for transferring "n"
	number of bits utilizing the Quantum Key Distribution protocol which is BB84
	dedicated for cloud infrastructure. This tool thus let researchers in the field of
	Quantum Cryptography measure the different final key length from different
	kind of attack. Various parameters pertaining to real physical transmissions are
	kept variables and can be set as desired. Thus this simulator require a small
	amount of cost and maintain the green environment.
Short Description:	
Keyword:	quantum key distribution, cloud infrastructure, attack resilient
Advantages:	-
Warket /	-
Commercialisation	
Potential:	Download Hore
Abstract Additional	Download Here

File:	
ResearchOutput:	Download Here

Title	Life Satisfaction among Farmers in Paddy Granaries in Malaysia
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Fundamental (A)
Cluster:	Agriculture and Food
Leader Title:	Prof. Dr.
Leader Name:	Prof.Dr.Zainal Abidin Mohamed
Researchers Name:	Zainal Abidin Mohamed, Rika Terano
Faculty / Institute /	Faculty of Agriculture
School / Academy:	
Department /	Department of Agribusiness and Information System
Laboratory:	
Expertise:	Agricultural and Livestock Economic
Email:	zam@upm.edu.my
Telephone (Office):	03-89474930
Fax:	03-89474930
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:ISSN 1911-2017
Industrial Design	Yes Registration No :
Registration:	
Trademark:	Yes, Trademark No.:
Abstract:	The industrial policy that was undertaken by the Malaysian government has
	spurred economic development and prosperity for the last 3 decades.
	Nevertheless the economic development has been heavily concentrated on the
	west coast of Peninsular Malaysia, thus causing income disparity between urban
	and rural areas. The government has published a series of reports on Malaysian
	Quality of Life (QoL) since 2002. It measured QoL among Malaysian people
	narrowly from the material aspects of QoL. However, it is also very important to
	approach people's QoL not only from the material aspects but also from non-
	material aspect of QoL including happiness, satisfaction and desire and how
	they generally feel about their life. It would provide distinctive indicators among
	Malaysian people. This paper aims to approach life satisfaction weather people
	are satisfied with their life or not especially from both material and non-material
	aspects of QoL among ivialaysian people living in two granary areas of Penang
	auestionnaires, and binary logistic regression was used to determine the

	influential socio-demographic factors and important dimension of the QoL on
	life satisfaction. The result indicates that age, family size and four dimensions of
	QoL such as community, residential condition, economic level, and
	family/partner were important factors in influencing on life satisfaction.
	Especially, QoL in terms of community dimension was the most influential factor
	on life satisfaction
Short Description:	
Keyword:	life satisfaction, non-material aspect of QoL, granaries area, binary logistic
	regression, QoL
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	N/A
File:	
ResearchOutput:	N/A

Title	Optimization of the ceramic microstructure used in zinc oxide based low-voltage varistor devices by empirical and semi-empirical methods
Product / Technology Name:	-
Exhibition:	Pameran Reka Cipta, Penyelidikan dan Inovasi (PRPI) 2014
Category:	Applied Research (B)
Cluster:	Materials Science and Technology
Leader Title:	Prof. Dr.
Leader Name:	Azmi Zakaria
Researchers Name:	Yadollah Abdollahi, Azmi Zakaria, Masoumeh Doraj, Seyedehmaryam Moosavi
Faculty / Institute / School / Academy:	Institute of Advanced Technology
Department / Laboratory:	Laboratory of Advanced Materials and Nanotechnology
Expertise:	Electrical ceramics
Email:	yadollahabdolla@upm.edu.my
Telephone (Office):	03-89467503
Fax:	03-89467533
Patent Status:	Yes, Patent No.:
Copyright / Publication / SD:	Yes, Copyright / Publication No. / SD No.:Publication
Industrial Design Registration:	Yes, Registration No.:
Trademark:	Yes, Trademark No.:
Abstract:	Zinc oxide based low voltage varistor which consists of an electronic ceramic core, has been widely used to protect the very-large-scale integration (VLSI) electronics from unwanted surge. The quality protection depends to the non- linear property which is originated of the ceramic's microstructure. The microstructure is fabricated by mixing and then sintering the powder of ZnO and small amount of several additives such as Bi2O3, TiO2, Co3O4, Mn2O3, Sb2O3 and Al2O3. Therefore, the property of the ceramic is affected by mixing and sintering process as well as the amount of the additives. To maximize the non- linear property of the final varistor, the sintering process and the amount of the additives were optimized by semi-empirical methods such as response surface methodology and artificial neural network while empirical (solution coating) and the semi-empirical methods were used to optimize the mixing process. The final result of the optimizations was ceramic with homogeneous microstructure which used as the core of the varistor. The varistor has presented the high quality

	consumers' demanded. The low starting point to protection (breakdown voltage was 4 volts) is the great potential for commercialization the produced varistor due to the high rate developing of the VLSI. Moreover, the fabrication cost of the optimized condition was less than the existing varistors.
Short Description:	
Keyword:	Optimization, ZnO-varistor, Modeling, RSM, ANN, Ceramic, additives, solution
	coating, low-voltage varistor
Advantages:	-
Market /	-
Commercialisation	
Potential:	
Abstract Additional	Download Here
File:	
ResearchOutput:	N/A