UNIVERSITI TEKNOLOGI MARA

THE DOCTORAL RESEARCH ABSTRACTS

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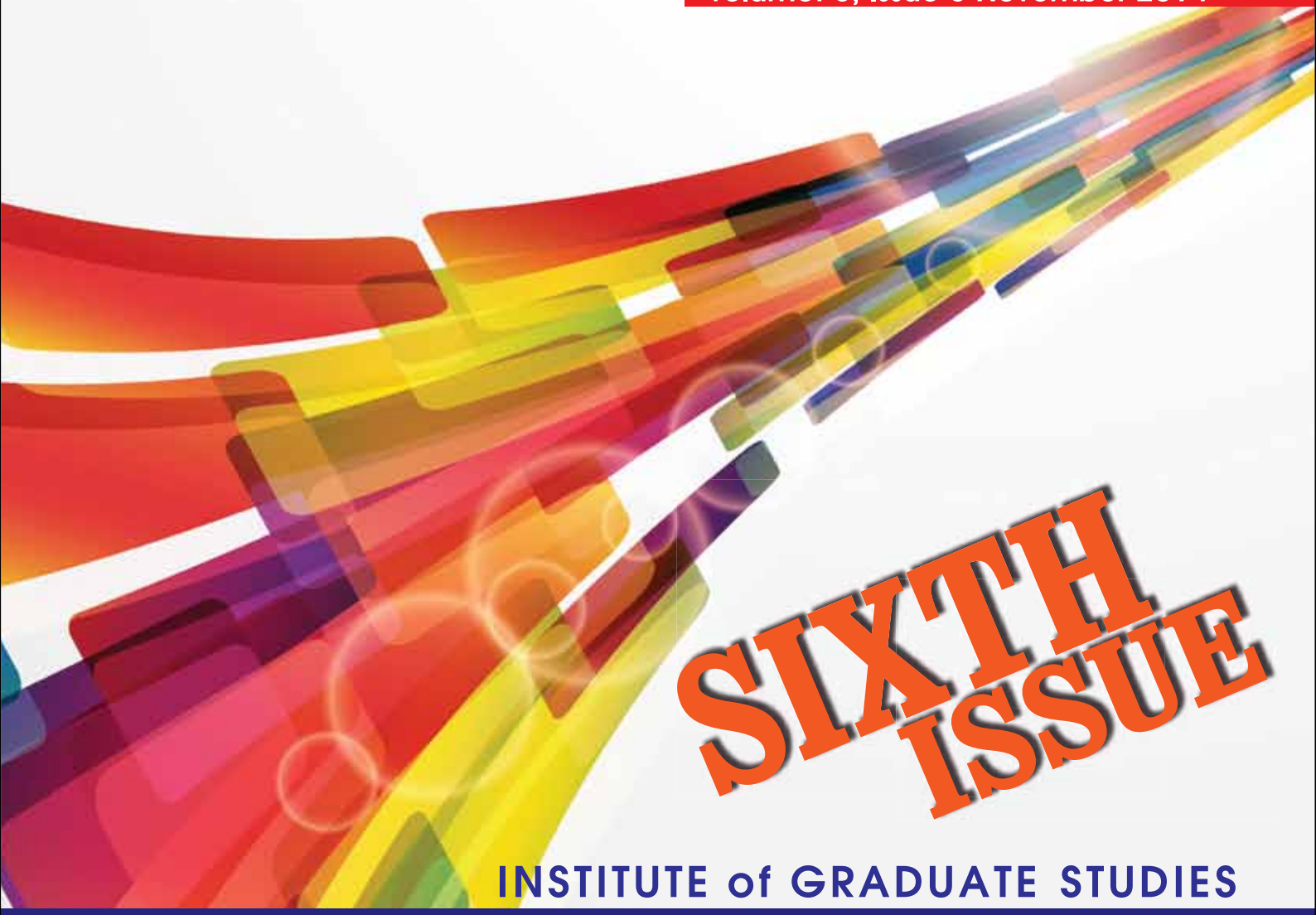

SIXTH ISSUE

INSTITUTE of GRADUATE STUDIES

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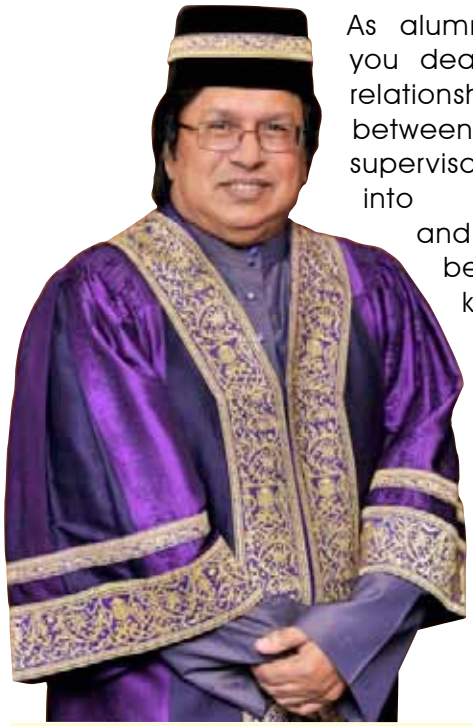
FOREWORD

Congratulations to Institute of Graduate Studies on the continuous efforts to publish the 6th issue of the Doctoral Research Abstracts which ranged from the discipline of science and technology, business and administration to social science and humanities.

This issue captures the novelty of research from 52 PhD doctorates receiving their scrolls in the UiTM's 81st Convocation. This convocation is very significant especially for UiTM since we are celebrating the success of 52 PhD graduands – the highest number ever conferred at any one time.

To the 52 doctorates, I would like it to be known that you have most certainly done UiTM proud by journeying through the scholastic path with its endless challenges and impediments, and by persevering right till the very end.

This convocation should not be regarded as the end of your highest scholarly achievement and contribution to the body of knowledge but rather as the beginning of embarking into more innovative research from knowledge gained during this academic journey, for the community and country.



As alumni of UiTM, we hold you dear to our hearts. The relationship that was once between a student and supervisor has now matured into comrades, forging and exploring together beyond the frontier of knowledge. We wish you all the best in your endeavour and may I offer my congratulations to all the graduands. 'UiTM sentiasa dihati ku'

Tan Sri Dato' Sri Prof Ir Dr Sahol Hamid Abu Bakar ,
FASc, PEng
Vice Chancellor
Universiti Teknologi MARA

EDITORIAL COMMITTEE

This newsletter was created to disseminate information on the research carried out by the doctoral graduates of UiTM by sharing the abstract of their thesis.
For more information do not hesitate to contact us at http://ipsis.uitm.edu.my

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Faculty of Civil Engineering

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Name :
Frag Ahmed Ma Kridan

Title :
Development And Performance Determination Of Warm Mix Asphalt Using Rap For Malaysian Conditions

Supervisor :
Associate Prof. Ir. Dr. Ahmad Kamil Arshad (MS)
Dr. Juraidah Hj. Ahmed (CS)

Current concerns on the scarcity of resources necessitate the road building industry to review its production of asphaltic concrete. The use of Warm Mix Asphalt (WMA) technologies with asphalt mixtures containing reclaimed asphalt pavement (RAP) may provide synergistic advantages. WMA-RAP mixes conserves scarce resources such as aggregates by using RAP as partial replacement of aggregates and reduces the use of energy (reduction in production temperature) by using WMA additives. Most specifications allow not more than 30% RAP as higher percentages of RAP introduces variability in the material properties and produces inconsistencies in asphalt mix properties. The goal of this study was to evaluate the performance of warm mix asphalt with high proportions of RAP (30%, 40% and 50%) and using Sasobit as the warm mix additive to reduce the mixing and compaction temperature. The research focused on performance investigations of conventional hot mix asphalt using AC14 gradation as control mix and three types of warm mix asphalt with AC14 gradation incorporating high proportions of RAP (30%, 40%, and 50% RAP). The research was carried out in three phases, namely; the pilot phase to ensure that all research materials conform to the specifications,

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Name :
Ismacahyadi Bagus Mohamed Jais

Title :
Modelling Of Collapse Settlement By Effective Stress And Shear Strength Interaction For Granite Residual Soil

Supervisor :
Associate Prof. Dr. Hj. Mohd Jamaludin Md Noor (MS)
Associate Prof. Dr. Yasmin Ashaari (CS)

Over the years, consolidation settlement has always been associated with effective stress increase. However, in unsaturated soils, volume change behaviour of soils due to wetting is always complex due to changes of the soil when it is inundated. The main objectives of this research are to evaluate the simulation of foundations on unsaturated soil using various soil models incorporating loading and wetting collapse of the soil and to verify the settlement behaviour through physical model and laboratory shear strength test on unsaturated soil samples. The double wall triaxial apparatus was used to determine the unsaturated shear strength of the soil following Curved Surface Envelope Soil Shear Strength Model. The Modified Rowe's cell apparatus was used to model the loading and wetting collapse behaviour of the soil, hence simulate using the Rotational Multiple Yield Surface Framework. The proposed shear strength equation and model for saturated and unsaturated conditions are in good agreements with the Kuala Kubu Baharu granite

3

Name :
Mohd Adib Mohammad Razi

Title :
Development Of Rainfall Model For Flood Level Simulation Incorporating Tidal Effects

Supervisor :
Prof. Ir. Dr. Hjh. Junaidah Ariffin (MS)
Associate Prof. Dr. Wardah Tahir (CS)
Dr. Wan Azli Wan Hassan (CS)

Flood simulation models that have been developed in these decades are mostly influenced by local factors. Building a good flood model begins with determining the amount of rainfall that is influenced by local meteorology; and this model can estimate the rainfall pattern in the next catchment area, in which the runoff will flow to the ocean. However, most of the developed models are not capable of merging the whole hydrologic cycle, where the models should incorporate rainfall models with meteorological parameters. This step is very important as to first, project the amount of rainfall in a particular catchment area, considering the overall hydrologic model and second, to identify the areas with flood risks, considering the tidal effect. In order to fix the shortcoming, this study introduces a rainfall model that has been developed using selected rainfall parameters with the aim to recognize rainfall depth in a catchment area. In order to examine its ability, the rainfall model will be integrated with selected hydrologic models after the development phase. The result will influence quantity of flood in the catchment area, if a flood simulation model that considers every factor in hydrologic cycle were to be developed. This study proposes a rainfall model that utilizes the amount of rainfall, temperature, humidity

* (MS) = Main Supervisor (CS) = Co Supervisor

the second phase was to carry out the mix design to produce the WMA-RAP mixes and the third phase was to investigate the performance of the mixes. Marshall Method was used to produce all samples to determine the proper concentration of Sasobit to be added into the asphaltic concrete, and in establishing the suitable mixing and compaction temperature, this phase also consist of the determination of optimum bitumen content for 30%, 40% and 50% RAP mixes. The criteria followed are those set in Section 4, Malaysian Specification for Road works, published by the Public Works Department of Malaysia (PWD Malaysia). Thereafter, the volumetric properties, Marshall stability, flow and the performance of all mixes in terms of stiffness, moisture damage, rut depth and fatigue were investigated. The results show no substantial differences in volumetric properties. The stability and stiffness values of WMA-RAP mixes were higher than those of the control mix. The rut depths of all WMA-RAP mixes were relatively lower than the control mix. The fatigue life-cycle, all WMA-RAP mixes performed better than the control mix. The WMA-RAP mixes also met the minimum Tensile Strength Ratio (TSR) criteria of 80%. The performance models have been developed through regression analysis for resilient modulus, moisture damage, rut depth, and fatigue. It can be concluded that WMA-RAP mixes performed similar to or better than the conventional hot mix asphalt. It is recommended that further research on the performance of WMA-RAP is carried out for other gradation types and asphalt mixes. Also, a full scale study should also be carried out to measure and compare the field performance of WMA-RAP mixes with conventional hot mix asphalt mixes.

residual soil, which proves that the Curved Surface Envelope Soil Shear Strength Model is applicable to gravels and granite residual soil with 30 % fines. Hence, the prediction of the stress strain response for every specimen can be established during initial shearing of the specimen producing a general unique relationship between minimum mobilised friction angle, $\phi'_{\min_{moh}}$ against axial strain, ε_a. The unique relationship curve follows the true behaviour of soil since the stiffness is related to the resisting strength parameters, which are $\phi'_{\min_{moh}}$ and ε_a. A settlement comparison was made between the simulated settlement values and the laboratory modelling showing that the simulation is almost similar to the laboratory modelling and is in good agreements to the laboratory modelling for unsaturated Kuala Kubu Baharu granite residual soil. This showed that significant settlements occurred when the soil is nearly saturated. In conclusion, the shear strength of granite residual soil predicted from the simulation using Curved Surface Envelope Soil Shear Strength Model is in good agreements with the triaxial test results and the wetting collapse settlement can be explained from the simulation and validation using Rotational Multiple Yield Surface Framework. In fact, the experimental results agreed with the simulation and formulation produced from this model and framework, hence, the complex wetting collapse behaviour of unsaturated soil can be explained and predicted with this fundamental approach.

and pressure records taken from selected stations in Peninsular Malaysia and they are analyzed using SPSS multiple regression model. The analysis shows that the selected meteorological parameters influence the rainfall development. As a result, the rainfall model developed for Senai proves that it can be used in Kota Tinggi catchment area within the limit boundaries, as the two stations are close from one another. Then, the amounts of rainfall at the Senai and Kota Tinggi stations are compared and the calibration analysis shows that the proposed rainfall model can be used in both areas. Kota Tinggi, Johor is chosen as the study area because of its flood records in 2006 and 2007. The amount of rainfall collected from selected stations in Kota Tinggi catchment has been processed using hydrologic model, HEC-HMS to identify the ability of Kota Tinggi as a catchment area in order to accommodate a huge amount of runoff that can cause flooding. During calibration process, the tests demonstrate that the simulation data and the data from previous floods are almost similar. This result suggests that the damaging floods in 2006 and 2007 were caused by Sungai Johor's incapability to accommodate the increased amount of rainfall and tidal effect at that time. In addition, flood inundation model is then developed for Kota Tinggi's catchment area, which includes Sungai Johor and the lowland areas in Kota Tinggi, using InfoWork RS and SURF7. The flood inundation model integrated with hydrologic and rainfall models produce data that resembles the data collected during flooding. In conclusion, the calibration analysis and validation for each suggested model show that the combination of rainfall, hydrologic and simulation models enhance the overall result and could be developed using selected parameters for each catchment area of interest.

Faculty of Electrical Engineering

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Name :
Ahmad Ihsan Mohd Yassin

Title :
Nonlinear Auto-Regressive Model Structure Selection Using Binary Particle Swarm Optimization Algorithm

Supervisor :
Prof. Dr. Hj. Mohd Nasir Taib (MS)
Associate Prof. Dr. Ramli Adnan (CS)

System Identification (SI) is a control engineering discipline concerned with the discovery of mathematical models based on dynamic measurements collected from the system. It is an important discipline in the construction and design of controllers, as SI can be used for understanding the properties of the system as well as to forecast its behavior under certain past inputs and/or outputs. The NARMAX model and its derivatives (Nonlinear Auto-Regressive with Exogenous Inputs (NARX) and Nonlinear Auto-Regressive Moving Average (NARMA)) are powerful, efficient and unified representations of a variety of nonlinear models. The identification process of NARX/NARMA/NARMAX involves structure selection and parameter estimation, which can be simultaneously performed using the widely accepted Orthogonal Least Squares (OLS) algorithm. Several

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Name :
Mohamad Zhafran Hussin

Title :
A New Technique In Evaluation Of Stabilisation For The Design Of Amorphous Silicon Photovoltaic Modules In Grid Connected System Under Equatorial Climate

Supervisor :
Assoc. Prof. Dr. Hj. Zainazlan Md Zain (MS)
Assoc. Prof. Dr. Sulaiman Shaari (CS)
Assoc. Prof. Dr. Ahmad Maliki Omar (CS)

The use of thin-film photovoltaic (TFPV) technology is becoming more important with the increasing demands on PV installations in the full humid equatorial climate (Af) country such as Malaysia. There is a lack of literature on performance characterization of the grid-connected photovoltaic (GCPV) systems as well as a method in identifying the instability behaviour in TFPV technology, especially in this region. In this study, research on amorphous-Silicon (a-Si) based single-junction (SJ) TFPV technology was undertaken to find out the environmental suitability of the GC systems in Af climate. Three objectives have been identified: influence of Af climate on a-Si SJ TFPV technology on system performance, method of assessing the stabilization stages due to light-induced degradation (LID) phenomenon, designing on TFPV derating factor in matching of an Inverter-to-Array Power (IAP) ratio. This study includes field-test and analytical work on a newly installed GCPV system using a-Si SJ TFPV technology. The GC SJ TFPV system installed was 0.9 kWp, free standing on a concrete walkway

6

Name :
Muhammad Asraf Hairuddin

Title :
Automated Vision Recognition For Classifying Nutrient Deficiencies Based Of Elaeis Guineensis Leaf

Supervisor :
Associate Prof. Dr. Hjh. Nooritawati Md Tahir (MS)
Prof. Datin Dr. Ir. Shah Rizam Mohd Shah Baki (CS)

Automated vision recognition has been widely implemented for various fields such as automobiles, manufacturing, medical, agricultural sector, etc. However, automation recognition specifically in oil palm or scientifically known as Elaeis Guineensis industry is still lacking. To the best of our knowledge, automatic detection device for nutrition-lacking disease based on appearance of symptoms on leaf surfaces is unavailable since at present, the disease is inspected by human experts depending on the knowledge and experience possessed. Hence, this thesis proposed to automate the nutritional disease detection due to nutritional deficiencies namely nitrogen, potassium and magnesium instead of manual visual recognition. This is because automation process is necessary to lessen error and reduce cost due to human experts as well as to increase speed of disease detection. Generally, the proposed automation disease detection of oil palm involves three modules namely feature extraction based on image processing technique, statistical analysis as feature selection and classification

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Name :
Nur Fadilah Ab Aziz

Title :
New Techniques Incorporating Computational Intelligence Based For Voltage Stability Evaluation And Improvement In Power System

Supervisor :
Associate Prof. Dr. Zuhaina Hj. Zakaria (MS)
Prof. Dr. Hjh. Titik Khawa Abdul Rahman (CS)

Recently, there are still many cases of voltage collapse incidents occur all around the world. This is due to the reason that most power systems today are being operated very close to their stability limits because of the exponentially growing demands, the desires to obtain maximum economic benefits and environmental constraints. Therefore, this thesis presents novel techniques for voltage stability evaluation and enhancement in power system. Firstly, a new bus voltage stability index named as Voltage Stability Condition Indicator (VSCI) was developed. The competency of VSCI was corroborated in three tasks; weak bus identification, automatic line outage contingency ranking and weak area identification. In addition, a new method to detect weak areas in a system termed as Weak Area Clustering Margin (WACM) was also developed. In the first part of study, all methods were tested on IEEE 30-bus and IEEE 118-bus test system. Secondly, a new voltage stability prediction technique utilising state of the art machine learning, Support Vector Machine (SVM) was developed. At this stage, two popular SVM selection parameter methods, trial and error and cross validation were investigated and compared. The developed technique used VSCI as the voltage stability indicator to be predicted. The performance of SVM was also compared with the performance of Artificial Neural Network (ANN). To enhance the SVM performance, an outstanding

* (MS) = Main Supervisor (CS) = Co Supervisor

criticisms have been directed towards OLS for its tendency to select excessive or sub-optimal terms. The suboptimal selection of regressor terms leads to models that are non-parsimonious in nature. This thesis proposes the application of a stochastic optimization algorithm called Binary Particle Swarm Optimization algorithm for structure selection of polynomial NARX/NARMA/NARMAX models. The algorithm searches the solution space by selecting various model structures and evaluating its fitness. A MySQL database was created to analyze the optimization results and speed up computations of the optimization algorithm. The proposed optimization algorithm was tested on several benchmark datasets, namely the Direct Current Motor (DCM), Mackey-Glass Differential Equation (MG) and Flexible Robot Arm (FRA). The DCM motor was the least complication dataset, followed by the FRA (medium complexity) and MG (most complexity). The results suggest that the proposed method can reduce the number of correlation violations down to between 28.57% and 69.23% at the expense of increased model size (requirement of additional regressor terms to explain the behavior of the system).

with all parameters monitored in high resolution data, in five-minute intervals, for the duration of two consecutive years. The field datasets were analyzed and evaluated using established standards and guidelines: MS IEC 61724:2010 and IEA-PVPS Task 2. Analytical work on the performance revealed that the system showed a very high energy yield, final PV system yield and performance ratio at 3.05 kWh/d, 3.39 kWh/kWp.d, and 81%, respectively under the Af climate region. In this work, a new procedure and technique to assess the stabilization stages of the SJ TFPV modules has been discovered, whilst determining the stabilization period. This new P-G technique involved four steps: (i) prediction DC powers based Initial and Stabilized condition, (ii) linear correlation approach (LCA), (iii) outdoor's validation field-test condition, and (iv) comparison results between the two types of the stabilization period (SP) conditions. The process of the stabilization period has been revealed that requires up to 16 months of operation to achieve fully stable performance under this climatic condition. In addition, in this study, a new technique and concepts in matching TF derating factor as the optimal Inverter-to-Array Power (IAP) ratio has been established for this kind of climate. The new proposed IAP ratio lies within the range of 0.85 – 1.07. These new information have direct impact on all systems design of GCPV using SJ TFPV modules in Malaysia and similar climate region. Furthermore, this will assist the players of PV industry from aspects technical as well as economic for assurance of technology sustainability in solar PV application.

based on artificial intelligence. Firstly, the diseased-frond leaf surface image is captured at ambient environment. This uncontrolled processing environment approach implemented for disease detection based on leaf surface appearance is considered new and can be regarded as significant contribution in this research field. Next, the captured leaf image is transmitted to the host computer database for further processing. Further, the processor formulates its judgment through machine learning that is able to infer decision similar to human thinking. Here, the performances of several machine learning classifiers are compared. Once the processing stage is completed, the image will be retrieved online through the portable device of Apple's Operating System (iOS) (ipod/iphone/ipad tablet) technology. Results demonstrated that support vector machine (SVM) of radial basis function (RBF) outperformed other classifiers in recognizing the disease types from the leaf surface. Furthermore, it was also found that SVM-RBF is the most suitable method for classifying the disease in terms of accuracy and processing speed. Feature selection via Analysis of Variance (ANOVA) and Multiple Comparison Procedure (MCP) enhanced classifier prediction capability, thus resemble original features as closest as possible without compromising the accuracy rate. Results revealed that higher recognition rates attained with classification based on SVM-RBF along with appropriate feature selection that yields accuracy from 91.11% to 91.81%.

hybrid Artificial Immune Least square Support Vector Machine (AILSVM) that integrates SVM with Artificial Immune System (AIS) was introduced in voltage stability prediction. For comparison, another new hybrid algorithm incorporating ANN and AIS called as Artificial Immune Neural Network (AINN) for voltage stability prediction was also developed. It was found that AILSVM has outclassed AINN significantly in terms of prediction accuracy and computation time. Thirdly, new techniques for load margin improvement were developed. Initially, a superior performance of AIS named as Fast Artificial Immune System (FAIS) to estimate the maximum load margin of a system was developed. FAIS offers a better performance of AIS since several available approaches for cloning, mutation and selection have been explored and compared. The combination of these approaches that delivered the best performance in terms of accuracy and time was utilised in FAIS. Later on, another novel technique that incorporates FAIS and AILSVM known as Fast Artificial Immune Support Vector Machine (FAISVM) for maximum load margin improvement via RPP optimisation was developed. The integration of FAIS and AILSVM has resulted to a very fast and accurate prediction of maximum loading point (MLP) as the objective function for Reactive Power Planning (RPP) optimisation. The proposed technique employed the predetermined support vectors from AILSVM. VSCI was used as the indicator for the MLP of load buses. Another new hybrid algorithm that used Evolutionary Programming (EP) termed as Evolutionary Support Vector Machine (ESVM) was also developed for comparative study. The results showed that FAISVM has outperformed ESVM significantly in terms of load margin improvement, prediction accuracy and computation time. For the second and third part of the study, the developed techniques were tested on IEEE 30-bus test systems. In conclusion, this thesis has developed a new voltage stability index, VSCI and novel techniques known as AILSVM and FAISVM for voltage stability prediction and maximum load margin improvement that utilised biological optimisation method.

Faculty of Electrical Engineering

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Name :
Muhammad Sharfi Najib

Title :
Agarwood Classification Based On Odor Profile Using Intelligent Signal Processing Technique

Supervisor :
Prof. Dr. Hj. Mohd Nasir Taib (MS)
Dr. Nor Azah Mohd Ali (FRIM) (CS)

This thesis presents the classification of Agarwood from Malaysia and Indonesia regions based on signal processing technique. Signal processing for the Agarwood classification is a new area and has yet been actively implemented. In this thesis, the Agarwood has been pre-identified by experts using 32 sensor arrays to measure the Agarwood odor profile. General Agarwood pattern has been plot in 2D diagram. The odor profile from different samples have been normalized and pre-processed and visualized in 3D and 2D plot to find unique patterns. The variation of patterns that has been visualized has been marked as different group samples. From 32 data sensor arrays, several significant data sensor array have been pre-processed using principal component analysis (PCA) as data reduction process. The selected data from PCA are applied as

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Name :
Puteri Sarah Binti Mohamad Saad

Title :
Fabrication Of Hybrid Organic Solar Cell Using MEH-PPV : I-MWCNT As An Active Layer

Supervisor :
Prof. Engr. Dr. Mohamad Rusop Mahmood (MS)
En Uzer Mohd Noor (CS)

Attention in incorporating inorganic nanostructures into organic optoelectronic devices has been growing in the past few years. These so-called hybrid organic-inorganic nanocomposites systems are being studied more closely due to its possibility in combining the advantageous characteristics of inorganic and organic components. Within a single composite, the properties can easily be changed or tuned by varying the size of nanoparticle, material composition, and concentration in the composites to match the device requirement. The most important thing, they can maintain the fabrication advantages of organic device such as easy processing, low production and material cost, and manufacturing the devices on large and flexible substrates. These are important in device application and commercialization. Therefore, research on improving the performance of organic solar cells by incorporating inorganic nanostructures in the organic materials has become important topic of research. The nanocomposited photoactive layer thin film which is MEH-PPV:MWCNT were prepared and characterized. The parameters that involved in the optimization are different composition of MWCNT in tetrahydrofuran (THF) and toluene, different composition of Iodine doped Multiwalled Carbon nanotubes (I-MWCNT) with low and high concentration of I-MWCNT. The characterizations involved are current-voltage (*I-V*), absorbance, transmittance and photoluminescence

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Name :
Zakiah Mohd Yusoff

Title :
Self-Tuning Fuzzy Pid Control PF Hydro-Diffusion Essential Oil Extraction System

Supervisor :
Dr. Mohd Hezri Fazalul Rahiman (MS)
Prof. Dr. Hj. Mohd Nasir Taib (CS)

Essential oils (EO) is a substance extracted from a botanical material and always in high demanded. Steam distillation is a widespread method to isolate the essential oil from aromatic plants. The steam distillation method is most preferable due to factors of operational cost, cleanliness, system cost, high productivity and maintenance cost. However, some disadvantages of this method is loss of some volatile compounds, which will be diluted with boiling water within the distillation tank. The issue of steam distillation has not been given sufficient treatment in literature. The hydro-diffusion system was implemented as a viable alternative to overcome these setback. In the extraction process, the temperature will influence the final product of the extraction. The extraction temperature gives large effect on the percentage yield and quality of the oils. Almost all

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Name :
Zuhaila Mat Yasin

Title :
Performance Improvement Through Optimal Location And Sizing Of Distributed Generation

Supervisor :
Associate Prof. Dr. Zuhaina Hj. Zakaria (MS)
Prof. Dr. Hjh. Titik Khawa Abdul Rahman (CS)

This thesis presents a new technique to determine the optimal locations and sizing of multiple DG units in a distribution system based on the concepts and principles of quantum mechanics in the Evolutionary Programming (EP) namely Quantum-Inspired Evolutionary Programming (QIEP). The concept of Quantum-Inspired is implemented according to three levels namely quantum individuals, quantum groups and quantum global in order to accelerate the convergence time of the EP. To enhance the robustness of the algorithm, the QIEP technique is constructed based on multiobjective model in which the multiobjective functions consist of reducing power losses, increasing maximum loadability and cost minimisation. All simulations in this study were carried out using IEEE 69-bus distribution test system and 141-bus distribution test system. The performances of the multiobjective QIEP optimisation technique were compared with those obtained from EP optimisation technique in terms of fitness values, consistency

*** (MS) = Main Supervisor (CS) = Co Supervisor**

input to compute sensor centroid for k-NN and ANN model design. To test the robustness of the classification techniques, the data sets are randomized for both k-NN classifier and ANN model. The classification results of the k-NN classifier and the ANN model utilizing significant sensor centroid new features for Agarwood grades and regions. It was found that the k-NN classifier and the ANN model is able to classify 100% of Agarwood grade and region.

measurements and physical properties measurements which involved Field Emission Scanning Electron Microscopy (FESEM) and Atomic Force Microscopy (AFM). It was found that annealed MWCNT gave the best results in physical, electrical and optical properties. Meanwhile, comparing THF and toluene, THF convey the best results in all characterizations. The composition of I-MWCNT that was chosen to be used in organic solar cells was 60 wt% of I-MWCNT. In this work, bulk-heterojunction solar cells based on poly (2-methoxy-5-(2'-ethyl-hexyloxy)-p-phenylene vinylene) (MEH-PPV) and a highly conductive multiwalled carbon nanotubes (I-MWCNT) were fabricated and characterized by white light *I-V* and external quantum efficiency measurements. The influences of different temperature treatment of the nanocomposite layer, the various concentrations of Iodine and different metal contact used as cathode on the solar cell device performance were studied. It was found that the optimized temperature occurred at 75^{o}C with optimized Iodine concentration of 1g. The best metal contact with high efficiency was given when Platinum (Pt) was used. The achieved highest short circuit current density and energy conversion efficiency is 0.052mA/cm2 and 0.001%. Lastly, a new structure used Titanium dioxide (TiO_2) as n-type layer in organic solar cells was prepared. This layer act as hole blocking layer that prevents a direct contact between MEH-PPV:I-MWCNT and Indium Tin Oxide (ITO) substrates. The nanocomposited MEH-PPV:I-MWCNT with 60 wt% of I-MWCNT was prepared on ITO using Gold (Au) as the anode. It was found that interfacial area between MEH-PPV and TiO_2 has slight improved. Therefore, there is tendency to adapt device efficiency, short-circuit current (*JSC*), open-circuit voltage (V_{OC}) and the fill factor (FF). The initial values for both short circuit current density and power conversion efficiency are 0.115006 mA/cm2 and 0.414 x 10^{-3} % respectively.

compounds of essential oils are unstable at high temperature and should be regualted below the saturated temperture throughout the extraction process. In order to regulate the temperature, a suitable controller is required. Three controllers namely PID, HFPID and STFPID are proposed and integrated to hydro-diffusion system to control the steam temperature. All developed controllers are expected to improve system performance in both transient and steady state dynamics. The ARX structure has been used to represent the system dynamic and successfully implemented in the simulation studies. Real-time implementation of the simulated controllers have been carried out on the real extraction process. The performance of the proposed controllers were evaluated. All the controllers have shown their ability to track the set point change and curb the disturbance in real-time. However, the STFPID with 5 membership controller is the most preferable, and demonstrated better performance compared to the HFPID and PID controller. By applying the proper temperature control during extration process give better quality and preventing quality degradation of the essential oils.

and computation time. In addition, the comparison also has been made between single objective and multiobjective optimisation. On top of that, the multiobjective QIEP is also applied to determine the optimal undervoltage load shedding (UVLS) in various loading conditions according to load profile with and without DG. From the analysis, it was found that the multiobjective QIEP had yielded better optimal solutions and more consistent with faster convergence time as compared to other techniques. In order to ensure that the proposed technique is suitable for on-line application, a novel intelligent based technique is presented to predict the optimal output of DG and optimal undervoltage load shedding at various loading conditions. At this stage, a classical Artificial Neural Network (ANN) is developed using systematic training and testing procedures. Next, a novel hybrid Artificial Neural Network - Quantum-Inspired Evolutionary Programming (QIEP-ANN) is developed for comparison. Later, a Least-Squares Support Vector Machine (LS-SVM) model was developed using cross-validation technique. Finally, a novel hybrid Quantum-Inspired Evolutionary Programming - Least-Squares Support Vector Machine (QIEP-SVM) was presented. The results showed that the QIEP-SVM model had shown better prediction performance as compared to classical ANN, LS-SVM and QIEP-ANN.

Faculty of Mechanical Engineering

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Name :
Diyar I. Ahmed

Title :
Formulation, Performance Evaluation And Prediction Of Bio-Lubricant For Journal Bearings

Supervisor :
Associate Prof. Dr. Salmiah Kasolang @ Kasalung (MS)
Associate Prof. Dr. Basim A. Khidhir (CS)

This thesis is concerning about hydrodynamic lubrication in journal bearing. The research covers three primary areas: the formulation of an alternative biodegradable bio-lubricant using renewable resources; the performance evaluation of the formulated oil through a true-scale versatile journal bearing test rig; and the modeling and prediction the behavior of bio-lubricant around the bearing circumference. The first part of the research is focused upon the formulation of an environmentally-friendly lubricant using vegetable oil with various composition of petroleum base stock. The physico-chemical and tribo-chemical properties of the formulated oil have been analyzed using multiple standards apparatuses. This study provides valuable data to conform an ISO VG 68 hydraulic industrial lubricant by blending 52.70 % (wt) soybean oil, 40.55 % (wt) mineral oil, and 6.75 (%) additive packages. The experimental results clearly demonstrated that the formulated green lubricant was far more efficient than the synthetic lubricant in terms of friction coefficient, wear rates, wear volume loss and worn surface morphologies. However, the green lubricant failed to outperform conventional lubricant with respect to degradation test and wear scar diameter performance. From this study, the use of bio-lubricants as 'green' alternatives for machine lubrications will be significant in the reduction of environmental pollution and depletion of natural resources. The second part is about evaluating the performance of this novel bio-lubricant under practical

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Name :
Noor Azlina Mohd Salleh

Title :
Design And Development Of Integrated Quality Management Model Based On Tqm, Lm And Ems In Malaysian Automotive Companies

Supervisor :
Associate Prof. Dr. Salmiah Kasolang @ Kasalung (MS)
Prof. Ir. Dr. Hj. Ahmed Jaffar (CS)

Three specific manufacturing quality systems were found to be popularly adopted by the local manufacturers, namely; Total Quality Management (TQM), Lean Manufacturing (LM) and Environmental Management System (EMS). Application of the concepts independent of one another appears to be less effective and more often counterproductive toward achieving the desired quality output. This study was initiated towards identifying common parameters within the three systems with a view of formulating a valid Integrated Quality Management Model applicable to the automotive industry to enhance their quality management endeavours. The development of the integrated framework model was carried out in three phases of study. The first phase involved five prominent quality management parameters; Leadership, Information, Human Resource, Operational Control and Suppliers Organization and Customers Management. The parameters were used as the basis for assessing the current implementation standings among the automotive companies. A survey questionnaire was distributed to 30 active companies; MAJAICO and the Non-MAJAICO participants in Malaysia. The initial integrated framework model was developed based on the responses of the survey. In the second phase, the five common practices above were correlated to financial and non-financial performance measurement indicators (PMIs) using SPSS and Minitab. Based

Faculty of Architecture, Planning & Surveying

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Name :
Ainon Nisa Othman

Title :
Geographical Information System (Gis) Based Multi-Criteria Decision Making (Mcdm) For Landslide Hazard Zonation : A Case Study Of Ampang Jaya Municipal Council

Supervisor :
Associate Prof. Dr. Wan Mohd Naim Wan Mohd (MS)
Dr. Noraini Surip (CS)

Malaysia has undergone rapid development in many sectors. As the impact of fast economic growth, there will be an increase in land demand for sectors such as industries and housing area. The limitation of flat ground areas especially in urban areas such as Kuala Lumpur and Selangor has increased the demand for other alternatives such as in hilly areas. Landslides have caused large numbers of damages and losses especially in hilly development areas. Major landslide incidence that took place in Highland Tower, Ampang in 1993 was definitely an eye opener for the federal government and local authorities to properly manage hillslope development especially in high risk areas. Although there are various methods and criteria used to determine landslide hazard zones, it is not clear which criteria and models are appropriate to be used in the Malaysian environment. The aim of this study is to explore the potential integration between Geographical Information System (GIS) and Multi-criteria Decision Making (MCDM) to model landslide hazard zonation. The objectives are: i) to identify the different techniques, models and criteria used to map landslide hazard zones, ii) to propose the best criteria to predict landslides hazard zones, iii) to develop/propose new models to predict landslides hazard zones, iv) to evaluate the accuracy of the developed models, and v) to generate landslide hazard zonation maps of the study areas. This study covers areas under the administration of Ampang Jaya Municipal Council (MPAJ) and

* (MS) = Main Supervisor (CS) = Co Supervisor

application conditions and also to design a new eco-friendly lubricant-bearing combination in which the end goal was to maximize friction coefficient reduction and safeguard the environment. Two different bearings made of conventional steel and green lead-free materials were tested at various operating conditions. The formulated blend proved its viability as a promising alternate for base oil lubricants for industrial use due to its better performance, lower friction, lower operating temperature and on top of all, its bio-degradability and environment friendliness. This can contribute to reduce the global demand of petroleum-based lubricant substantially. The established lubricant-bearing duo is capable of replacing typical lubricants and bearing materials that include lead with regards to its higher availability and superb performance. The third part of this research is the first attempt to develop high-fidelity mathematical models based on Response Surface Methodology (RSM), which can be used to predict the hydrodynamic lubrication behavior of the bio-oil around the journal bearing circumference. The study employed the response surface methodology (RSM) with Box-Behnken experimental Design technique (BBD) for performing statistical predictions and appraising the influence of the three-level-three-independent variables (i.e. rotational speed, bearing load and oil-feed pressure) on the oil-film key characteristics (i.e. maximum pressure, temperature and bearing friction). Another exceptional aspect of this research was the examination of the embedded interactions among the three key parameters. This facilitated the acquirement of deeper knowledge regarding the significance of every parameter. Finally, a comparative study was conducted between the estimated data generated through RSM based models and the outcomes developed through fuzzy logic technique. The comparison showed that RSM offers an extensive variety of information on the control and response variables interrelationships, with a relatively small number of test runs. It is expected that the results of this research can be fairly helpful to the tribological community in general and the bearing designers in particular.

on the results of this statistical analysis the model was further refined. Two companies were selected for case study assessment in the third phase where the model was finalised based on the outcome of the assessment. It was revealed that EMS, LM and TQM are practiced separately by the high revenue, 100% locally owned companies having Research and Development (R&D) capabilities with only 10% product design capability. Years of establishment do not indicate the companies' readiness for change, capability to design and increase export, despite possessing R&D capabilities and improvement initiatives. Statistical analyses were conducted to triangulate the relationship between Integrated Practices with financial PMIs and non-financial PMIs. Using Mann Whitney Test in the first statistical analysis demonstrates that there is no difference in implementation between MAJAICO and Non-MAJAICO companies as far as practices and performance measurements indicators are concerned except for non-financial PMIs. Using correlation and regression analysis, the statistical results suggest that some practices have significant positive relationships with financial and non-financial performance indicators, while others are significantly negative. The practices with high mean values in the first phase do not necessarily have positive significant relationship in the second phase. With statistically small size sample, finding a relationship or the lack of it is treated with caution. Not finding any relationship does not necessarily mean no relationship due to multitude of reasons inherent in any survey-based study. In the third phase, based on the results from the questionnaire and the case studies, four existing criteria are enhanced demonstrating respective improvement with added values. The proposed integrated framework model was finalised and renamed as the **"Integrated Quality Management Model: Green Lean Total Quality Management: G-L-TQM"** to mark the merger of the three main quality system The model is therefore the main contribution of the work signifying the achievement of the thesis objectives.

Hulu Langat. Although there are various other methods such as deterministic, heuristic and statistical methods to map a landslide hazard zone, only heuristic method was considered in this study. Six (6) techniques in MCDM were considered to determine the weights for each of the criteria used. Twelve (12) criteria namely slope, elevation, aspect, drainage density, proximity to river, proximity to the road, lithology, geomorphology, soil type, land use, rainfall and flow accumulation were used in this research. Expert opinions from different agencies were gained to determine the criteria and score for each of the proposed criteria. Finally, nine (9) models were developed based on different criteria and techniques. Accuracies of different models were obtained by comparing the predicted results with the landslide historical data using two (2) methods. Different results were obtained when different methods and different models were used. Using Method 1, result for Model 1 (rank sum), Model 2 (rank reciprocal), Model 4 (rating) and Model 7 (pairwise comparison) were identified to have higher accuracies (i.e. 66.7%, 60.6%, 66.7% and 60% respectively). The accuracies of other developed models which are Model 3 (rank exponential), Model 5 (Analytical Hierarchical Process), Model 6 (pairwise comparison), Model 8 (Analytical Hierarchical Process) and Model 9 (Analytical Hierarchical Process) are 57.6%, 22.9%, 37.1%, 22.9% and 8.6% respectively. Using Method 2, accuracy for Model 1 is 97.1% and Model 2, Model 3 and Model 4 shows the same accuracies (i.e. 94.2%). The accuracies of Model 5, Model 6, Model 8, Model 9 and SINMAP are 94.2%, 80%, 97.1 %, 80%, 57.1% and 42.8% respectively. Relationship between criteria have indicated that there are four (4) important criteria namely slope, lithology, soil properties and geomorphology that need to be considered in mapping landslide hazard zones. Three (3) models (i.e. Models 1, 4 and 7) are used to generate the landslide hazard zones maps of Hulu Langat and the results have shown that the hazard zones match with the landslide scars of the study area. As a conclusion, integration of GIS and MCDM can be an important technique to predict and map landslide hazard zones.

Faculty of Architecture, Planning & Surveying

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Name :
Datuk Ir Haji Abdul Latif Mohd Som

Title :
Antecedents Of Export Performance : Empirical Evidence From Malaysian Construction Professional Consultants

Supervisor :
Associate Prof. Sr. Dr. Hj Mohammad Fadhil Mohammad (MS)

Associate Prof. Sr. Dr. Rohana Mahbub (CS)

The effects of globalization have resulted in many firms exploring beyond their national boundaries in search of a better business performance. Resulting therefrom, increasing efforts have been made by researchers in the recent past in order to determine the antecedents of export venture performance of firms in addition to defining the appropriate dimensions of export performance. The objectives of this study are: (i) to explore the possible dimensions of export performance including its relationship between one dimension and another, (ii) to identify the main antecedent variable to export performance, (iii) to analyze the relationships between one antecedent variable and another, and (iv) to analyze the moderating effects of the 4 moderators on five critical links. Data were collected from 55 participating firms which were drawn from the Malaysian Construction Professional Consultants specifically those which are construction. total of 205 usable questionnaires were returned. Data analyses were conducted by a process of multivariate analysis using structural equation modelling (SEM) via AMOS (Analysis of Moment Structures) software package Version 21.0. Exploratory factor analysis (EFA) and confirmatory factor

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Name :
Fariza Yunus

Title :
Modelling Of Surface Air Temperature Elements : Integration Of Multiple Regression Model And Spatial Interpolation Technique

Supervisor :
Associate Prof. Sr. Dr. Jasmee Jaafar (MS)

Associate Prof. Dr. Zamalia @ Hajah Zamalia Mahmud (CS)

The surface air temperature is a significant meteorological element in agricultural studies and the demand for this data has increased. Thus, satisfactory exactness is required, especially over un-sampled areas. Spatial models of surface air temperature elements were developed for the Peninsular Malaysia region. There were eight environmental variables – elevation, locations (latitude and longitude), and five nearest distances of coastline and four land use types (water bodies, forest, agriculture and built-up) – that are significant to surface air temperature elements, evaluated in this study. A multiple regression model was generated to explain the contributions of these environmental factors for each surface air temperature element. The seasonal and regional roles were also considered in the modelling process. Peninsular Malaysia experiences four seasons; namely, northeast monsoon, spring transition, southwest monsoon and autumn transition. The new regionalization of Peninsular Malaysia was delineated using a multi-step approach by integrating in-situ data for the surface air temperature elements and raster data of Geographical Information System (GIS). The developed climate region divided the area into three regions – West Coast, East Coast and the Main Range. In selecting the most appropriate model, which considered environmental, seasonal and regional factors, four categories of

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Name :
Haryati Mohd Isa

Title :
An Improved Operational Framework For Defects Liability Management System In Design And Build Public Hospital Projects

Supervisor :
Associate Prof. Sr. Dr. Padzil @ Fadzil Hassan (MS)

Associate Prof. Dr. Roshana Takim (CS)

Contrary to the belief that the Design and Build (DB) procurement approach will result in better project outcomes, many DB projects, particularly public buildings are short of meeting the expectations. One of the major issues faced is the construction defects. Clients usually are at loss while trying to configure how this matter should be dealt with. Consequently, they normally end up rectifying most of the defects at their own cost. In appreciating the need to resolve this continuing problem, the government has introduced a Defects Liability Management (DLM) System by appointing a Service Provider (SP) to record and manage the defects identified during the Defects Liability Period (DLP). Realising the opportunity that can be learnt from this system in providing insights to improve the implementation of future projects, this research was mooted. The aim of this study is to develop an operational framework for improving the current DLM system practiced in DB public hospitals in Malaysia. Seven public hospitals are chosen as the case study. A mixed method approach was adopted for the research. The qualitative enquiry data was drawn from two main project documents namely Procedure Guideline Manuals (PGM) and Condition Appraisal Reports (CAR). The rationale for analysing PGM is to investigate the process of

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analysis (CFA) were performed to validate the scales. The results of the structural modelling revealed that for the direct relationships, 13 out of 20 hypotheses tested were supported whereas the remaining 7 were rejected. Only one hypothesis on the mediating variable was supported whereas out of 20 sub-hypotheses on the 4 moderators tested, all were supported except for 2 which were rejected. The results provide evidence that management factors are important antecedent towards shaping up the necessary resources, products/services characteristics of the firm and the export market strategy of the firm. On the most crucial outcome of export financial performance, the study revealed that it is dependent upon the degree of internationalisation of the firm and the export market strategy that the firm is pursuing. Additionally, capabilities were found to have a mediating effect on the relationship between management characteristics and the degree of internationalisation. The four moderators were found to have significant effects on several relationship links. Hence, it is proven by this study that the traditional model of export performance applied to manufactured goods comprising the same variables can be applied to describe the antecedents of export performance of service firms as validated. On the relationship between the two main dimensions of export performance and export non-financial performance, it was established in this study, for the first time to the best of the researcher's knowledge, that strategic export performance is positively linked to economic export performance. This study also contributes towards empirical research in export performance in a full-service firm setting from an emerging economy and in particular within the context of Malaysia.

models were developed for each of the three surface air temperature elements. These categories were 'all clusters and all seasons', w_c_s (three models), 'all clusters and each season', s (12 models), 'each cluster and all seasons', c (nine models) and 'each cluster and each season', c_s (36 models). In modelling of surface air temperature elements, analysis of spatial interpolation plays a vital role to produce continuous surface of discrete data, in which all un-sampled values of surface air temperature elements are able to be estimated. In implementing integration of multiple regression models and spatial interpolation technique, the monthly data of T-T' was generated, in which T was surface air temperature values and T' was estimated values of the 60 developed models. Interpolation analyses for 70% of T-T' monthly data were carried out by applying the Inverse Distance Weighting (IDW) technique, since this technique has been widely used, tested and evaluated. IDW direct interpolation of monthly data for surface air temperature elements was also carried out to examine the effect of environmental factors. Cross validation analysis was conducted by using 30% of the monthly data to determine the performance of the models. Although the model category for 'each cluster and each season' (c_s model category) produced the lowest errors, the model category for 'each cluster and all seasons' (c model category) was recommended as the most appropriate model for each of the three surface air temperature elements. The statistical test to determine the differences between two groups, found that there is no significant difference between the performances of both model categories. Furthermore, the selected model category is simple, practical and user friendly. This research discovered that in addition to the environmental factor, the regional factor plays a significant role in estimating the surface air temperature elements of maximum, minimum and mean in Peninsular Malaysia.

DLM System implemented and its comprehensiveness. Meanwhile, data for defects identified during the DLP were obtained by analysing CAR. The data were sorted, sieved, grouped and transferred into the SPSS software to identify the extent of the DLM System in providing insights to the problems along the project stage and hospital nature. Three statistical analyses were adopted namely (i) frequency analysis to analyse the defects pattern (ii) Two-way ANOVA to analyse the impact of work discipline and hospital towards number of defects and (iii) Chi-Square Test of Association to test on the association of the defects occurrence with the project stage and hospital nature. The second stage of the research enquiry involved a two stage semi-structured interview with the hospital project teams and industry experts. The first stage interview was conducted to determine the comprehensiveness of the current process and to solicit recommendations for improvement. Finally, the improved operational framework was feasibly validated in the second stage interview. The qualitative data were converted and transcribed into Microsoft Word format and analysed manually. The findings suggest that with a comprehensive methodology in place, defects can be effectively traced and categorised to track their root cause and stages of occurrence. It is also established that there is a significant association between the defects occurrence with the project stages and the nature of the hospitals. Therefore, clients can have better recourse to address the issue of defects and provide lessons learnt to manage future projects. Notwithstanding this, the research also highlights the importance of appointing SP to manage defects during the DLP, particularly in complex projects. The research outputs seek to facilitate a comprehensive dimension of defects liability management process and provide significant impacts to the industry.

Faculty of Applied Sciences

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Name :
Agustono Wibowo

Title :
Phytochemical Study Of Dryobalanops From Malaysian Dipterocarpaceae, And Structure - Activity Relationship Studies

Supervisor :
Associate Prof. Dr. Norizan Ahmat (MS)

Prof. Dr. Ahmad Sazali Hamzah (CS)

Associate Prof. Dr. Zurina Hj. Shaameri (CS)

Dryobalanops is one of the genera in the Dipterocarpaceae family, which is distributed as major species in emergent canopy of Lambir Forest and Sarawak lowland dipterocarps forest. The genus is very unique, as there are only seven species available in the whole world, which confined to the tropical forests of West Malesia. The chemical constituents of Dipterocarpaceae are reported to possess various biological activities such as cytotoxicity, antiviral, antibacterial and anti-inflammatory activities. The aims of this study are to isolate secondary metabolites, to determine their antibacterial, DPPH scavenging and cytotoxic activities, to study structure-activity relationship, and to propose biogenesis pathway and chemotaxonomic significance in *Dryobalanops*. The dried powder of the stem bark of *D. aromatica*, *D. lanceolata*, *D. rappa* and *D. becarii* were macerated with acetone and evaporated under reduced pressure. The crude acetone extract was subjected to vacuum liquid chromatography to give several fractions. Purification of fraction with combination of several chromatography techniques gave four new oligostilbenoid derivatives; malaysianol A (**1**), B (**2**), C (**3**) and D (**4**), and a new galloylglucoside derivative; malaysin A (**5**), together with 15 known oligostilbenoid (**6-20**) and six known non-oligomeric compounds (**21-26**). The chemical structures of isolated compounds were elucidated

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Name :
Amalina Mohd Tajuddin

Title :
Synthesis And Characterization Of Palladium(Ii) And Nickel(Ii) Complexes Of Schiff Bases And The Potential Of The Palladium (Ii) Complexes As Catalysts For C-C Bond Formation

Supervisor :
Prof. Dr. Hadariah Bahron (MS)

Dr. Karimah Kassim (CS)

Mrs. Wan Nazihah Wan Ibrahim (CS)

This study reports the synthesis, characterization and catalytic activities of palladium(II) Schiff base complexes, both as homogeneous and MCM-41 supported heterogeneous catalysts for cross-coupling C-C bond formation reactions. Three broad groups of inexpensive Schiff base ligands (L1, L2 and L3) have been synthesized through condensation process between four benzylamine derivatives with aldehyde or ketone in 1:1 molar ratio. 12 ligands and 20 metal complexes of Pd(II) and Ni(II) have been successfully obtained. The metal complexes were prepared through the complexation reaction between the Schiff base ligands with Pd(II) and Ni(II) acetates in a 2:1 molar ratio. All the synthesized ligands and complexes have been characterized using CHN elemental analysis, infrared, ^{1}H and ^{13}C NMR, UV-Visible, melting point determination, molar conductance and magnetic susceptibility. The molecular geometries of ten complexes namely PdL1c, PdL1d, NiL1c, NiL1d, PdL2a, PdL2d, PdL3b, PdL3c, PdL3d and NiL3d have been solved by single crystal X-ray crystallography. It revealed that these Schiff bases behave as bidentate ligands, coordinating through the imine N and phenolic O donor atoms, as also shown by the infrared data. Magnetic susceptibility suggests square planar

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Name :
Serina Abdul Rahman

Title :
Coastal Habitat Conservation Using Community Education As A Tool : A Case Study In Mukim Tanjung Kupang, Johor

Supervisor :
Dr. Harinder Rai Singh (MS)

Dr. Esther Daniel (CS)

Mukim Tg Kupang and its adjacent coastal habitats harbour a rich variety of seagrass meadows, mangroves and rocky shores which are home to myriad endangered species and other cryptic fauna. However this area is slated for development and the local fishing community who depend on it needs to be equipped with the ability to cope with inevitable urbanisation and change. This case study proposed a long-term science-based environmental education program aimed at a primary audience of local children and youth (aged 6-18, n=34) that would disseminate conservation knowledge and encourage environmentally-friendly behaviour and a conservation mindset to the wider community. After two years of the education program, another year on-site focussed on developing community empowerment through an extended initiative that roped in older youth (aged19-28) and local women, and this proved to be the key success factor in the study. Document analysis and the collation of local ecological knowledge by local youth as well as their habitat

Faculty of Computer & Mathematical Sciences

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Name :
Hanizan Shaker Hussain

Title :
DCT Domain Stegasvm-Shifted Lsb Model For Highly Imperceptible And Robust Cover-Image

Supervisor :
Prof. Dr. Saadiah Yahya (MS)

Dr. Fakariah Hani Mohd Ali (CS)

The importance of information security in protecting data and information has increased due to the increased use of computers and the Internet. Similarly, with one of its exciting subfields i.e. information hiding. Information hiding is a technology where the secret-messages are hidden inside other files (e.g image files). One of the areas that are popular now applying this technology is digital image steganography (image steganography). In image steganography, the most popular and widely usedtechniques is the least significant bit (LSB) that hide data into a cover-image in a spatial and discrete cosine transform (DCT) domain as well. Beside the LSB technique, there is other technique that is also influential i.e support vector machine (SVM) normally used to strengthen the embedding algorithm.Whatever techniques used in the image steganography

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based on the spectroscopic data evidences and comparison with reported authentic data. Biogenetically, the biosynthesis routes of non-oligomeric compounds were formed from the shikimate pathway, while oligomeric compounds were from the combination of shikimate and acetate malonate pathways. Based on the radical species and their condensation types, 19 oligostilbenoids isolated from this study were formed from the oxidative coupling reaction of two radicals with active site at carbons C-8 and C-14 (**C8-C14** type), carbons C-8 and C-8 (**C8-C8** type), carbons C-3 and C-8 (**C3-C8** type), and oxygen O-13 and carbon C-8 (**C7-C14** type). The finding of oligostilbenoids with the condensation types **C3-C8** and **C7-C14** are not commonly found in Dipterocarpaceae family. Based on the chemotaxonomic study, the presence of several compounds that were only found in the tribe Dipterocarpeae and never reported in the tribe Shoreae supported the previous studies on the morphological character that suggested the placement of *Dryobalanops* under the tribe Dipterocarpeae. In the antibacterial assay, flexuosol A (**16**) and upunaphenol D (**18**) showed moderately antibacterial activity against *S. epidermidis, S. aureus, S. xylosus* with MIC value of 50.0/16.7, 66.7/33.3 and 50.0/16.7 μM, respectively. In the cytotoxic assay, vaticanol C (**20**) were found to be moderately active against A549 cell line (IC_{50} 11.8 μM), as well as α-viniferin (**11**) and ampelopsin E (**12**) against MCF-7 cell line (IC_{50} 23.1 and 21.0 μM, respectively), while other compounds were either weak or not active. In the DPPH assay, malaysianol A (**1**), flexuosol A (16) and vaticanol B (19) displayed great scavenging activity with IC_{50} values 15.7, 15.0 and 11.8 μM, respectively. In the structure-activity relationship study, the scavenging activity of oligostilbenoid depend on the number of hydroxyl group and their stereochemistry, otherwise no definitive correlation between unit structures of oligostilbenoid and cytotoxicity was observed, but its conformation seem to be responsible for the cytotoxic properties.

Pd(II) and Ni(II) complexes, while non-electrolytic behaviour indicated the absence of ions in chloroform. PdL3a, PdL3b, PdL3c and PdL3d have been chosen to catalyze the Heck and Suzuki cross-coupling reactions because of their good performances in the screening phase. Three parameters have been chosen for optimization of the reaction conditions, which were types of bases, catalyst loadings and reaction temperatures. This study has found that the complexes performed well at a relatively low catalyst loading of 1 mmol%. They were effective catalysts for Heck reaction of iodobenzene with methyl acrylate to form methyl cinnamate and for Suzuki reaction of iodobenzene with phenylboronic acid to form 1,1'-biphenyl where the conversions of iodobenzene reached up to 100% at 100oC within 24 hours of reaction time. For the heterogeneous catalytic investigations, two modified MCM-41 moieties, namely MCM-41-Pd-Ovan and MCM-41-PdL3c, were investigated. The PdL3c complex was chosen for heterogeneous catalytic study due to its superior performance during homogeneous catalysis study. The synthesized MCM-41 supported species were characterized using CHN elemental analysis, ICP-OES, infrared, XRD, TGA-DTA, BET and nitrogen sorption and FESEM-EDX analyses. ICP-OES data revealed that the palladium loading in MCM-41-Pd-Ovan and MCM-41-PdL3c were 0.259 and 0.097 $mmolg^{-1}$, respectively. Both were found to be moderately good catalysts. Some leaching of active species in reaction mixtures especially for the MCM-41-Pd-Ovan was detected. The leaching was found to be less extensive for the MCM-41-PdL3c. As additional work in this study, six metal complexes namely PdL1c, PdL1d, PdL3d, NiL1c, NiL1d and NiL3d have undergone antibacterial investigation as a representatives group. The complexes have shown a little or no inhibition against *E. coli*, *B. subtilis* and *S. aureus*, most likely due to the low solubility of the complexes in DMSO solvent.

monitoring data resulted in an assessment of local natural resources and provide an indication of the habitats' potential economic value. A paired t-test of the primary audience's (n=31) pre- and post-test results indicated significant knowledge gain while the one-way ANOVA and the Newman-Keuls post hoc test demonstrated significant learning across content categories, with the history/socioeconomics topics being significantly different from the rest. Extensive qualitative analysis through post-program interviews, structured observation checklists, detailed field notes and other sources, supplemented by triangulation of data for additional reliability and validity showed both intra- and intergenerational information dissemination to a secondary audience of local and visiting peers and elders. The emergent community education and empowerment framework and the Kelab Alami methodology are proposed as a model for coastal habitat conservation. Put through a preliminary test in Fraser's Hill Pahang, recommendations for the application of these tools in other habitats and locations are also suggested. The primary participants in this study (the youth) have shown that they have become effective agents of change and drivers of conservation action and attitudes in Mukim Tg Kupang, as well as capable local habitat experts. The program has enabled the youth and the wider community to better cope with impending change and take the first steps towards ensuring their participation and inclusion in inclusive sustainable development.

field,the main purpose is to keep the existence of the secret-message secret. But many of the techniques previously proposed have failed to attain this main purpose. The primary concern that contribute to this problem is the non-random changes on a cover-image that constantly occurred after the embedding process. Secondly, the non-robustness of embedding algorithm to image processing operation. Therefore in this research, the new model is proposed called StegaSVM-Shifted LSB model in DCT domain to preserve the imperceptibility and increase the robustness of stego-images. The StegaSVM-Shifted LSB model that has been proposed that utilize HVS and embedding technique through Shifted LSB showed a good performance. This can be seen when PSNR record high value, where it displays a good quality cover-image with 48.94dB while high quality robustness for secret-message with NC value is about 1.0. Therefore, StegaSVM-Shifted LSB model were acceptable in which it shows a higher quality steganography, thus enhancing the performance of existing works. In extracting process, by exploiting the SVM learning ability, the right secret-bits can be recovered.

Faculty of Computer & Mathematical Sciences

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Name :
Hasan Kahtan Khalaf Al-Ani

Title :
A Model For Developing Dependable System Using Component-Based Software Development Approach

Supervisor :
Associate Prof. Dr. Nordin Abu Bakar (MS)

Associate Prof. Dr. Rosmawati Nordin (CS)

Component-based software development (CBSD) is an emerging technology that focuses on building systems by integrating existing software components. The software industry has adopted CBSD to rapidly build and deploy large and complex software systems with enormous savings despite minimal engineering effort, cost, and time. CBSD provides several benefits, such as improved ability to reuse existing codes, reduced development costs of high-quality systems, and shorter development time. However, CBSD encounter issues in terms of security trust mainly in dependability attributes. A system is considered dependable when it can be depended on to produce the consequences for which it was designed, with no adverse effect in its intended environment. Dependability comprises several attributes that imply availability, confidentiality, integrity, reliability, safety, and maintainability. Embedding dependability attributes in CBSD is essential for developing dependable component software. Thus, dependability attributes should be incorporated into the CBSD model. An evaluation method for detecting the vulnerabilities in the software system is vital due to the vulnerabilities presented by existing

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Name :
Zulkefli Mansor

Title :
An Approach For Cost Management Model In Agile Software Development Projects

Supervisor :
Datin Prof. Dr. Noor Habibah Hj. Arshad (MS)

Prof. Dr. Saadiah Yahya (CS)

The successful outcome of software development projects is a crucial issue for the economy at large. Yet, a majority of the software development projects carried out today fails when it comes to finishing on time, within budget and with requirements intact. The often cited reasons contributing to failure include inappropriate methodology, complex development processes, ineffective project management, project managers' incompetence, ineffective communication, uncoordinated stakeholders and the lack of automated tools. Due to these challenges and limitations, organizations are looking into agile software development which offers the advantage of having simple processes, involving active customers and project teams. Subsequently, past researchers attempted to define the determinant factors for agile success but there is still much ambiguity about these factors and how they can be determined. This study extends and builds on past research by focusing on one of the core factors, that is, cost management. Managing the cost of software development projects is a global phenomenon most frequently debated by software development communities since many projects suffer from budget overruns. Therefore, this study aims to develop a model for cost management in agile software

Faculty of Dentistry

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Name :
Rami Albatran

Title :
The Mechanism Of Andrographolide As Antiatherogenic Agent Against Atherosclerosis Induced By Porphyromonas Gingivalis - An Experimental Study In Rabbit

Supervisor :
Prof. Dr. Fouad Hussain Al-Bayaty (MS)

Prof. Dr. Mahmood Ameen Abdulla Hassan (CS)

Atherosclerosis has been widely accepted as an inflammatory disease of the vascular system. An association between atherosclerosis and *Porphyromonas gingivalis (Pg)*, a major periodontopathogen, has been shown. The aim of the present study was to evaluate the mechanism of the anti-atherogenic effect of andrographolide (AND) on atherosclerosis induced by *Pg* in male white New Zealand rabbits. The level of acute toxicity of AND has been assessed in *Sprague Dawley* (SD) rats and no sign of toxicity either through clinical or histopathological examination. Thirty rabbits were used and divided into five groups (six rabbits for each group) as follows: Group 1 stand as normal group; Groups 2-5 were orally challenged with *Pg* ATCC 33277 (0.2 mL of 1.5 x 10^{12} bacterial cells/mL in 2% CMC with PBS) five times; Group 2 stand as control group; Group 3 received atorvastatin (AV, 5 mg/kg), and Groups 4-5 received 10 and 20 mg/kg of AND, respectively, over 12 weeks. Rabbits in the control group (G2) were challenged only with *Pg* over 12 weeks developed a significant progression of atherosclerosis compared with the normal group (G1). Rabbits treated with AV and AND had significantly lower ($p<0.05$) LDL and total cholesterol (TC) compared with the control group (G2). Meanwhile

*** (MS) = Main Supervisor (CS) = Co Supervisor**

web application systems. Therefore, this study embarks on three objectives which are, to investigate CBSD and its influence based on dependability attributes, to design a model for developing a dependable system that mitigates the vulnerabilities in software components and to evaluate the proposed model. The model proposed in this study is referred as developing dependable component-based software (2DCBS). A systematic literature review was carried out to investigate related existing studies on CBSD and software security. For the 2DCBS model development, framing the CBSD architectural phases and processes, as well as embedding the six dependability attributes, was performed using the best practise method. Meanwhile, the expert opinion method was applied to evaluate the 2DCBS framing. In addition, an empirical study method was utilized to apply the 2DCBS model to the development of an information communication technology (ICT) portal. Vulnerability assessment tools (VATs) was employed in order to verify the dependability attributes of the developed ICT portal, whereas, semi-markov process (SMP) was considered as well to validate the dependable behaviour of the developed ICT portal. Results show that the 2DCBS model can be adopted to develop web application systems and mitigate the vulnerabilities in the developed systems. The results also show that the SMP can model the dependable behaviour of the developed system. This study contributes to CBSD, which allows the specification and evaluation of the dependability attributes throughout the model development. Furthermore, the reliability of the dependable model can increase the confidence of using CBSD in industries.

development projects to assist project managers in managing project costs with greater efficiency. This study began with the examination of cost management practices in agile software development projects. Next, determinants that contributed to the success of cost management in agile software development projects were assembled and analysed. To achieve the third objective, the competency of project managers in managing cost in agile software development was further analysed. Following this, the issues and challenges faced by these project managers in Agile cost management in agile software were also diagnosed and ascertained. Both quantitative and qualitative methods were used for data gathering. The survey results revealed that cost management in agile software development projects is commonly practiced. However, the level of practices differed in accordance to project managers' experience with agile methods. Cost was also not managed effectively due to the continued use of manual processes. The interview results revealed that there are two main issues in managing cost of agile software development project which are the managers' or personnel's lack of knowledge on agile and the unavailability of computerized tools to help the project managers in managing costs. The findings of both methods are used as the basis for the development of a new cost management model that proposes simple steps in managing costs. A tool prototype was developed to verify the validity of the model. The tool was then validated through Software Measurement Usability Inventory (SUMI). Notably, results from the validation show that the model and tool enable managers to execute project costing in a more effective and efficient manner.

high-density lipoprotein (HDL) showed a significant increase ($p<0.05$) compared to the control group (G2). The study also showed a significant reduction in lipid peroxidation index indicated by a low TBARs-MDA level ($p<0.05$) in the groups treated with AV and AND compared to the control group (G2). The histopathology analysis of rabbits' aorta presented with thick foam cell formation in the control group (G2). However, there were fewer foam cell formations in the group treated with AV and AND. The kidney and liver analyses showed a lesser infiltration of inflammatory cells in the groups treated with AV and AND. On the other hand, AND improved the enzymatic activity of (SOD, CAT, GPx and GSH) in the groups treated with AV and AND compared to the control group (G2) due to its potent antioxidant activity. Further, AND reduced TNFα, IL-1β, IL-6 and CRP levels in treated groups compared to the control group (G2). *Pg* 16S ribosomal DNA was used to detect *Pg* DNA in the rabbits' aorta and the results showed that Pg DNA amplification was higher in the control group (G2), while mild DNA amplification was seen in the groups treated with AV and AND. Protein expression (α-SMA) of the aortas of the groups treated with AV and AND showed mild expression of α-SMA protein compared to the control group (G2). This was supported by immunohistochemical examination of α-SMA protein. In conclusion, the feeding of 10 or 20 mg/kg of AND was able to inhibit and reduce the progression of atherosclerotic plaque development induced by *Pg*. That could be due to two main mechanisms: first, the anti-inflammatory mechanism involved in the reduction of inflammatory cytokines: and second, the potent antioxidant properties of AND.

Faculty of Medicine

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Name :
Aqil Mohammad Daher

Title :
Determinants Of Health Related Quality Of Life Among Type 2 Diabetic Patients Attending National University Of Malaysia Medical Centre

Supervisor :
Prof. Dr. Syed Hassan Syed Al Ahmad Mashoor (MS)

Prof. Dr. Than Winn (CS)

Prof. Dr. Norazmi Kamaruddin (CS)

Diabetes Mellitus is notorious for its metabolic effect, acute and long term complications and impact on Quality of Life (QOL). Plethora of literature has documented the negative impact of DM on QOL. Currently, religion and spirituality constitute a topic of great importance to most of the world's population where researchers have notably focused attention on the relationship between religion, spirituality and Quality of Life (QOL). However there is little, if none is known about the relationship of spirituality and diabetes-related QOL. The primary aim of this study was to determine factors affecting QOL among sample of patients with type 2 diabetes mellitus attending the medical centre of National University of Malaysia, Kuala Lumpur, Malaysia specifically in relation to spirituality. For this purpose we had to translate the English version of Spiritual Wellbeing Scale (SWBS) into Malay language as well as validate the Malay version of SWBS among Malaysian general population at Klang Valley and thence we proceeded to measure diabetes-related QOL among diabetic patients at the National University of Malaysia Teaching Hospital. Two questionnaires were used in this study; the Malay version of Spiritual Wellbeing Scale and the Audit of Diabetes Dependent Quality of Life (ADDQOL-18). The Malay SWBS is made of 20 items rated on 6 point Likert scale. The ADDQOL-18

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Name :
Hisham Saleh Ibrahim

Title :
Effect Of Exogenous Leptin On Blood Pressure, Urinary Protein Excresion, Endothelial Activation And Ace2 Expression During Pregnancy In The Rat

Supervisor :
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Dr. Nor Ashikin Mohamed Noor Khan (CS)

Associate Prof. Dr. Gabriele Ruth Anisah Froemming (CS)

Raised leptin levels have been reported in placentae and serum of women with elevated blood pressure and proteinuria during pregnancy. The role of leptin in this however remains unclear. ACE2 is a new member in RAAS, which is reported to have hypotensive and anti-inflammatory effect and its suppression leads to increased blood pressure and endothelial activation. Therefore, this study investigated the effect of leptin and xanthenone (ACE2 activator) administration on systolic blood pressure (SBP), proteinuria and serum markers of endothelial activation during pregnancy in Sprague-Dawley rats. Eighty female Sprague-Dawley rats, aged 12-13 weeks were randomised into 10 groups, Group 1 acted as a control non-pregnant group and given saline (NSNP). Group 2, control pregnant rats, was given saline (NSP), group 3 was given 60 µg / kg /day of leptin starting from the 1st day of pregnancy (LD1-60), group 4, was given 60 µg / kg /day of leptin starting from the 10th day of pregnancy (LD10), group 5, given leptin from day 16 of pregnancy (LD16). Group 6 (L14D-60), given

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Name :
Maimunah Mustakim

Title :
Molecular Events Associated With Underlying Changes Of The Vascular Endothelium And Subendothelial Space During Atherogenesis In An Animal Model

Supervisor :
Associate Prof. Dr. Mohamed Saifulaman Mohamed Said (MS)

Prof. Dr. Nafeeza Mohd Ismail (CS)

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The development of atherosclerotic plaques is a multistep process involving changes in blood lipid composition, dysfunction of the endothelium, and infiltration of inflammatory cells. Cellular and molecular studies revealed enhanced expressions of several genes in development of atherosclerosis. This thesis aimed to investigate whether changed expressions of endothelial surface genes (VCAM, ICAM, and selectins), MCP-1, MMPs, and tissue inhibitor of MMPs (TIMPs) are associated with the underlying changes of the endothelium and subendothelial space in the development of atherosclerosis. In addition, the present study also determined whether any novel differentially expressed gene (DEG) is associated with atherogenesis. Rabbits were fed with 1 % cholesterol to induce atherosclerosis. Blood serum was collected for lipid profile analysis. Aorta tissues were used to study changes in morphology, ultrastructure, and gene expressions. Luminal endothelial surface from rabbit aortic tissue was examined by scanning electron microscopy (SEM) using low vacuum mode. The tissue cross-sections were stained with hematoxylin and eosin (H&E) for microscopic observations of intimal thickening. Total RNA was extracted from aorta tissues for gene expressions analysis. Differentially expressed genes (DEG, were analyzed by Real-time polymerase chain reaction (PCR) and Quantigene® Plex. Annealing

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is composed of two overview items and 18 life domains which are rated for both impact of diabetes and importance to diabetic patients. Data for the validation phase were collected from 623 Malaysians from three main ethnic groups in Klang valley by trained enumerators. Data for measuring diabetes-related QOL was collected by trained research assistant from 256 patients with type 2 DM who were attending diabetes clinic at the National University of Malaysia Medical Centre. Descriptive statistics were produced for all study variables. Exploratory factor analysis with promax rotation was used to explore the factor structure of the Malay SWBS and determine the reliability coefficient. Stepwise multiple linear regression was used to identify factors associated with diabetes QOL. The results of the study showed an equivalent translated version of the Malay SWBS .The validity of the Malay SWBS was ascertained with the findings of three factors model explaning 59.70% of the total variance, and a reliability coefficient of more than 0.7. Diabetic patients had high proportion of diabetes complications, poor glycemic control, hypertension and obesity. The QOL among diabetic patients in this study was negatively affected. Multiple linear regression showed that glycaemic control (HbA1c), diabetes worry, use of insulin, more than 10 years' duration of diabetes, neuropathy and retinopathy were associated with poor quality of life, whereas being satisfied with waiting time for consultation and being spiritually affiliated , were associated with better QOL. We concluded that the QOL among the study sample was negatively affected by diabetes. Measures to reduce diabetes complications through better glycemic control and well-tolerated treatment modality, and reducing waiting time would go a long way to improve the quality of life. The positive relation of spirituality to QOL among diabetic patients opens new vista for further research in the field.

leptin approximately 14 days before pregnancy, Group 7 was non-pregnant rats receiving leptin for a period of 20 days (LNP). Group 8, given 60 µg / kg /day of leptin with 600 µg / kg /day of xanthenone (XNT), an ACE2 stimulant from day 1 of pregnancy (L+ACE2a), while group 9 was given 600 µg / kg /day of XNT alone starting from day 1 of pregnancy (ACE2a). Group 10 was given 120 µg / kg /day of Leptin starting from day 1 of pregnancy (LD1-120). SBP, serum ACE, ACE2, endothelin-1, E-selectin and ICAM-1 levels were estimated. ACE2, endothelin-1, E-selectin and ICAM-1 gene expressions were determined in the kidney and aorta. Data were analysed using ANOVA and post-hoc analysis, data are presented as mean ± S.E.M. Compared to group 1, SBP was higher in the leptin only treated group ($P<0.001$) and lower in rats treated with xanthenone alone ($P< 0.01$). ACE2 activity and expression were lower in leptin only treated rats ($P<0.05$). Urine protein excretion, serum endothelin-1, serum E-selectin, and ICAM-1 levels were significantly higher than controls in leptin only treated rats ($P<0.05$) but not in the others. It seems, leptin administration during pregnancy significantly increases SBP, urinary protein excretion, levels and expression of markers of endothelial activation, but decreases the level and expression of ACE2. These effects are prevented by xanthenone, implicating the role of ACE2 in leptin-induced raised blood pressure and proteinuria during pregnancy. However, further studies are required to examine the underlying mechanism responsible for this and its relevance to preeclampsia in humans.

control primer (ACP)-based GeneFishing™ PCR was used to analyze differentially expressed unknown genes. The DNA fragment from DEG was cloned, sequenced, and validated by Real-time PCR. Presence of highly expressed MMP genes in the intimal thickening of atherosclerotic tissues was detected using immunohistochemistry (IHC) staining. Lipid profiles obtained from rabbits fed with 1 % cholesterol showed highly significant difference ($p < 0.001$) in total cholesterol and low density lipoprotein (LDL) while terminating the study at week-2 and week-8. Ultrastructural observations of the aortic luminal surface by low vacuum mode SEM showed changes from normal regular smooth intact endothelium to irregular luminal surface including endothelial swelling and formation of 'craters' on the endothelial surface. In the present study, we examined the aorta tissues much closer to its natural conditions using a preparation not subjected to critical drying point and heavy metal coating. Ultrastructural changes of the luminal surface in atherogenesis indicate dysfunction of the endothelium. Higher expression of VCAM, P-selectin, E-selectin, and chemokine (MCP-1) might influence structural integrity of the luminal endothelium. H&E stained aorta tissues exhibited discernible intimal thickening at week-8 of atherogenesis; the tissues were found to be consisted of abundant foam cells. MMPs and TIMPs showed different expression profiles in Real-time PCR and Quantigene® Plex assays. Highest MMP-12 expression was detected by both assays at week-8 atherogenesis. IHC staining of the foam cells detected expressions of MMP -1, -3, and -12 in week-8 aorta tissues. We identified DEG detected from ACP-41 as cathepsin B gene; it was highly expressed at week-8 and week-12 of atherogenesis. Based on the findings of the present study, we can conclude that loss of endothelium integrity is associated with higher expressions of several types of endothelial surface genes. Additionally, we also found that intimal thickening was associated with differential expression profiles of MMPs and TIMPs genes. We also identified Cathepsin B as proatherogenic.

Faculty of Medicine

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Name :
Yuhaniza Shafinie Binti Kamsani

Title :
Gamma-Tocotrienol Reverses Nicotine-Induced Oxidatives Stress-Related *In Vitro* And *In Vivo* Embryonic Development And Pregnancy Outcome In Mice

Supervisor :
Prof. Dr. Mohd Hamim Rajikin (MS)

Prof. Dr. Amar Chatterjee (CS)

Assoc. Prof. Dr. Nor Ashikin Mohd Noor Khan (CS)

Assoc. Prof. Dr. Nuraliza Abd Satar (CS)

A study to evaluate the effects of nicotine and simultaneous supplementation of γ-tocotrienol (γ-TCT), one of the four isomers in tocotrienols (TCT), and nicotine, on *in vitro* and *in vivo* embryonic development in mice (*Mus musculus*) had been carried out. Several approaches were undertaken including an investigation on in vitro effects of various doses and durations of nicotine treatment on pre-implantation embryonic development. Results showed that nicotine treatment decreased the number of retrieved embryos, resulted embryo degeneration, delayed embryo cleavage, induced disproportionate size of blastomeres and degraded blastomeres ($p<0.05$). Moreover, the deleterious impact of nicotine on pre-implantation embryonic development was dose- and treatment duration-dependent with a corresponding increase in plasma malondialdehyde (MDA) concentrations ($p<0.05$). Based on this finding, the study was further elucidated in terms of examining the dose-related beneficial effects of γ–TCT in nicotine-induced cessation of pre-implantation embryonic development *in vitro*. Results showed that γ-TCT could prevent the duration- and dose-related

Faculty of Pharmacy

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Name :
Assad Ali Faraj Elyagoby

Title :
Colon-Specific Delivery Of 5-Fluorouracil From Zinc Pectinate Spheroids Through *In Situ* Intra-Capsular Ethylcellulose-Pectin Plug Formation

Supervisor :
Associate Prof. Dr. Wong Tin Wui (MS)

Conventional fluid-bed and immersion film coating of hydrophilic zinc pectinate spheroids using ethylcellulose-pectin mixture is met with fast drug release due to hydrophobic ethylcellulose coat detachment. This study explored *in situ* intra-capsular spheroid coating for colon-specific delivery of 5-fluorouracil. The solid coating powder was constituted of ethylcellulose and pectin in weight ratios of 11:0 to 2:9. Its weight ratio to spheroids was varied between 2:3 and 3:2. Delayed 5-fluorouracil release was obtained when the weight ratio of ethylcellulose and pectin in coating powder was kept at 8:3, and weight ratio of solid coating powder to spheroids was kept at 3:2 with particle size of ethylcellulose reduced to 22 µm. *In situ* intra-capsular wetting of pectin coat by dissolution medium resulted in the formation of ethylcellulose plug interconnecting with spheroids through the binding action of pectin. The majority of drug was released in the colon

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Name :
Mohd Nazif Samat @ Darawi

Title :
Development Of An Allele-Specific Polymerase Chain Reaction Genotyping Test And Association Of Selected Single Nucleotide Polymorphisms And Analytes With The Risk Of Alzheimer's Disease

Supervisor :
Prof. Dato' Dr. Abu Bakar Abdul Majeed (MS)

Associate Prof. Dr. Chin Al-Vryn (CS)

The incidence of Alzheimer"s disease (AD) is expected to increase exponentially as the population ages. Continuing research in this area is essential to better understand this disease and develop strategies for prevention and treatment. Recent genome-wide association studies have identified several novel loci as genetic risk factors of AD. Previous studies also suggest the total plasma homocysteine (tHcy) level and its biological determinants such as folate and vitamin B_{12} contribute to the risk of AD. Some of them highlight the correlation between AD risk and genetic polymorphisms of methylenetetrahydrofolate reductase (*MTHFR*) and transcobalamin (*TCN II*) since they are directly associated with the Hcy metabolism. Replication studies of these loci are performed actively in developed countries. Thus, the present study is focused on a selected Malaysian population. As genetic research in developing countries is often limited by lack of funding and expertise, this study has also developed a cost-effective polymerase chain reaction (PCR) based technique to determine these single nucleotide polymorphisms (SNPs). The study was conducted with the approval of human ethic committees. An allele-specific PCR method was developed to detect SNPs of Top 10 Alzgene Results (updated 18 April 2011), *MTHFR* rs1801133, *MTHFR* rs1801131 and *TCN II* rs1801198. Validation was by direct DNA sequencing. A

*** (MS) = Main Supervisor (CS) = Co Supervisor**

deterioration of pre-implantation embryo quality when supplemented simultaneously with nicotine. Moreover, γ–TCT of 60 mg/kg bw/day was found to be the optimal effective dose in lowering plasma levels of MDA during pre-implantation embryo development ($p<0.05$). Findings of *in vitro* study were applied in *in vivo* approach to evaluate the effect of simultaneous supplementation of γ-TCT with nicotine on embryo development, blastocyst implantation, foetal growth, length of gestation, foetal outcome and survival rate of the neonates. Results showed that nicotine impaired post-implantation embryo growth and development ($p<0.05$). Pregnancy outcome and survival of the neonates were also reduced ($p<0.05$). The rise in oxidant levels reduced the enzymatic antioxidant defense system ($p<0.05$). Pregnancy-related levels of progesterone (P_4) and oestrogen (E_2) were also significantly affected ($p<0.05$). Through combating nicotine-induced oxidative stress, γ-TCT was able to sustain the physiological/normal sequence of blastocyst implantation, foetal growth, pregnancy outcome and survival of the neonates. Moreover, maintenance of pregnancy until term possibly resulted from sustaining the levels of plasma P_4 and E_2 as evident in normal pregnancy. In conclusion, γ-TCT could be used to minimize nicotine-induced oxidative stress-related deterioration of pre- and post-implantation embryo development, intrauterine foetal growth, pregnancy outcome and survival of the neonates.

region and complete drug release was obtained through digestion of core spheroids by pectinase. Through *in vivo* pharmacokinetic and pharmacodynamic studies, the intra-capsular coated spheroids were found to be able to reduce the drug bioavailability, enhance its accumulation at colon and reduce both number and size of tumor through reforming the tubular epithelium with basement membrane and restricting the expression of cancer from adenoma to adenocarcinoma. Given a dosage regimen of 15 mg/kg/day for 5 days in rats, the intra-capsular coated spheroids also eliminated the formation of aberrant crypt foci which represented a putative preneoplastic lesion in colon cancer, unlike other treatment modes. Inferring from blood levels of hemoglobin, red blood cell, white blood cell, hematocrit, mean corpuscular hemoglobin, platelet, urea, creatinine, alkaline phosphatase, alanine aminotransferase, aspartate aminotransferase and bilirubin, intra-capsular spheroid coating to target 5-fluorouracil delivery at cancerous colon is concluded as a feasible colon cancer formulation approach with reduced risks of systemic adversity.

hundred-and-twelve cases and a hundred-and-nineteen controls were successfully recruited and analyzed for the selected SNPs and analytes. Cross tabulation analyses and logistic regression were performed in four different models. Genetic analyses showed that APOE ε4, *APOE* rs429358, *ABCA7* rs3764650, *MS4A4E* rs670139, *MS4A6A* rs610932, and *CD2AP* rs9349407 were statistically significantly associated with AD risk. The distribution of all selected SNPs was also determined after stratifying all samples by the presence of *APOE ε4* copy. In the stratified samples, statistically significantly different values were observed only in subjects without *APOE ε4* copy for *ABCA7* rs3764650 and *MS4A4E* rs670139. The AD risk of a person with GG genotype for *ABCA7* rs3764650 is increased to around 3.7-fold in model I and 5.2-fold in model III. Whereas, the AD risk of a person with AA genotype for *MS4A4E* rs670139 is increased to around 3.3-fold in model I and III. The mean tHcy levels were statistically significantly higher in cases than in controls while the mean serum holotranscobalamin (holoTC) levels were statistically significantly lower in cases than in controls. The logistic regression analysis showed that the *APOE* rs429358 is the main predictor variable. Other significant predictor variables were age at assessment, social class, holoTC, *ABCA7* rs3764650, *MS4A6A* rs610932, folate and LDL. The combination of them significantly predicted 35.8% of variance in the model. The developed method will enable researchers to study AD-related SNPs using an inexpensive method. Our findings show that the significant SNPs may influence the AD risk in the population. It is plausible that the effect of other SNPs on AD risk is specific to certain ethnic group or that effect is not large enough to be identified reliably by a cohort of our size. To the best of our knowledge, this is the first study aimed to determine the potential contribution of the SNPs to AD in a Malaysian population.

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Name :
Nor Amlizan Ramli

Title :
Carboxymethylcellulose Scaffolds For Treatment Of Partial Thickness Burn Wound - The Aspects Of Wound Moist Regulation, Bacterial Burden Control And Tocotrienol Therapeutic

Supervisor :
Associate Prof. Dr. Wong Tin Wui (MS)

Sodium carboxymethylcellulose (SCMC) is widely used in the design of wound dressing owing to its high water bonding capacity, good compatibility with skin and mucous membrane, biocompatibility and abundant availability at a low cost. This study aims to design drug-free (low (LV), medium (MV) and high molecular weight (HV)) SCMC scaffolds and promote their ability to promote partial thickness burn wound healing via wound moist regulation and microbial burden control. In addition, SCMC scaffolds of distinct wound healing ability is incorporated with γ-tocotrienol as antioxidant therapeutic and has its wound healing property assessed against pure tocopherol and tocotrienol. SCMC scaffolds were prepared by means of solvent evaporation technique and their physicochemical properties namely, in vitro erosion, moisture affinity, morphology, tensile strength, polymer molecular weight and carboxymethyl substitution were investigated against partial thickness burn wound. The transepidermal water loss (TEWL) from wound of rats treated by control > HV scaffold > LV – MV scaffold. HV scaffold possessed the highest tensile strength of all matrices and was resistant to erosion in simulated wound fluid. In spite of constituting small nanopores, it afforded a substantial TEWL than MV and LV scaffolds from wound across an intact matrix through its low

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Name :
Nurjaya Sumiran

Title :
Pectinate Micro-And Nano-Matrices As Small Molecule And Protein Drug Carrier

Supervisor :
Associate Prof. Dr. Wong Tin Wui (MS)

Dr. Ibtisam Abdul Wahab (CS)

Pectin has received a widespread application in oral drug delivery system design due to its biodegradability, biocompatibility and non-toxicity. This study aims to formulate sustained-release pectinate beads with diclofenac sodium as small molecule drug model by means of microwave technology and pectinate nanoparticles with insulin as macromolecular drug. The pectinate beads were prepared by an extrusion method with chitosan loading internally in the pectinate beads or externally via coacervation. These beads were treated by microwave at 80 W for 5, 10, 21 and 40 min, and had their drug release examined against physicochemical changes of matrices. Treatment of pectinate beads by microwave did not lead to a decrease, but an increase in the extent of drug released at 4 h of dissolution. The drug release of pectinate beads was reduced only upon core loading of chitosan on treating the externally coacervated pectinate-chitosonium beads with microwave. The treatment of chitosan–pectinate matrix by microwave brought about an increase in the extent of drug released unlike those of pectinate–chitosonium beads. Apparently, the loading of chitosan into the interior of pectinate matrix could effectively

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Name :
Salizatul Ilyana Ibrahim

Title :
Structured Lipids From Virgin Coconut Oil As Permeation Enhancers And Emollients In Cosmetics

Supervisor :
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Associate Prof. Dr. Mamot Said (CS)

The influence of novel triacylglycerols (TAGs) on the topical delivery of α-tocopherol and their role as emollients was investigated. For topical application, TAGs as enhancers were developed to improve the delivery of actives across the skin as the skin barrier limited their use. Medium chain triacylglycerols (MCTs) have previously been used as carriers and enhancers for fat soluble vitamins and other actives as they work efficiently in delivering the active through the skin by modifying properties of the stratum corneum (SC) barrier. However, little published data are available concerning the permeation and effects of MCTs following topical application. The first part of the study was aimed to: i) develop and validate an assay method for determining α-tocopherol in methanolic solution and rat skin extract; ii) develop and validate an assay method for determining fatty acids methyl esters using gas chromatography; and iii) validate the automated diffusion equipment for *in vitro* experiment. The second part of the study was to produce novel TAGs namely structured virgin coconut oil (SVCO), by lipase catalysed acidolysis of caprylic acid and the virgin coconut oil (VCO). The percentage of caprylic acid finally incorporated

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moisture affinity characteristics. HV scaffold was also found to protect moisture loss with minimal accumulation at wound bed thus promoted reepithelialisation process. Transepidermal water movement wound healing by scaffolds was governed by SCMC molecular weight instead of its carboxymethyl substitution degree or matrix pore size distribution. In infected partial thickness wound, *in vitro* polymer characteristics, microstructure, gelling, bioadhesiveness, microbial inhibitory, *in vivo* microbe-colonized wound healing, microbe removal and infection control properties were examined against Gram positive *Staphylococcus aureus* and Gram negative *Pseudomonas aeruginosa. P. aeruginosa* was removed via gelling action of LV scaffold which encapsulated microbes possibly with the binding aid of their extracellular by-product. *S. aureus* was removed via HV scaffolds ability to crease into multiple tight folds to accommodate the microbes under compression and retarded its growth. SCMC scaffolds promoted healing via physical attachment and removal from wound bed which was generally aided via high polymeric carboxymethyl substitution degree and subseqeuent increased of bioadhesive property of the scaffolds. The HV-PVP scaffolds served as the vehicle of γ-tocotrienol. The vitamin incorporation was characterised by drug content of 91.238 ± 0.137 %. The instantaneous vitamin release from the carrier may affect the initial wound healing process as bi-mechanisms of modulating the transepidermal water loss contributed by the HV-PVP carrier and antioxidant activity of γ-tocotrienol. The used of HV-PVP scaffold as the carrier for γ-tocotrienol deemed to optimize its delivery to the wounded area and showed promising outcome in wound healing process.

retard the drug release without subjecting the beads to the treatment of microwave. The microwave was merely essential to reduce the release of drug from pectinate beads when the chitosan was introduced to the pectinate matrix by means of coacervation. The calcium pectinate-insulin nanoparticles were prepared by ionotropic gelation method, with alginate, sodium chloride or Tween 80 as additive. Their *in vitro* physicochemical, drug release and *in vivo* blood glucose lowering characteristics were evaluated. Spherical calcium pectinate-insulin nanoparticles were characterized by size, zeta potential, insulin content and insulin association efficiency of 348.4 ± 12.9 nm, −17.9 ± 0.8 mV, 8.4 ± 1.0% and 63.8 ± 7.4%, respectively. They released less than 25% insulin following 24 h in simulated intestinal medium and exhibited delayed blood glucose lowering effect in rats. Incorporation of solubilizer sodium chloride or Tween 80 into nanoparticles did not enhance blood glucose lowering capacity owing to sodium chloride reduced matrix insulin content and Tween 80 interacted with water and had its blood glucose dilution effect negated. Combination of nanoparticles with alginate gel to allow prolonged intestinal residence and more insulin release did not enhance their blood glucose lowering capacity because of calcium alginate-cross-linked gel formation that could retard insulin release and migration into systemic circulation. Physicochemical responses of additives *in vivo* affected blood glucose regulation property of pectin-insulin nanoparticles.

in the reaction products was optimized using the central composite design (CCD). It was suggested that the highest incorporation of caprylic acid (68.07%) would be achieved by: caprylic acid to VCO ratio of 1.70 (w/w); an enzyme load of 22.60%; at 63.4°C; a water content of 3.53%; and at 96 h. Using the predicted optimum conditions, pentaplicate experiments gave a good result (64.11 ± 1.14%) that coincided with the predicted value and the model was deemed to be adequate. The third part of the study looked at the effect of permeation enhancer formulations on the permeation of α-tocopherol, a model permeant, *in vitro* and *in vivo*. Both approaches revealed that SVCO was a significantly better permeation enhancer than VCO. This probably indicated that the shorter carbon chain SVCO might be a better permeation enhancer. The final part of the study investigated the emollient properties of the newly develop enhancers. These were determined using instrumental measurement and sensorial perspective by trained panels. Skin biophysical studies on various skin parameters such as moisture and transepidermal water loss (TEWL) contents, skin firmness and elasticity and surface evaluation on the living skin (SELS) from topical application to human healthy volunteers showed statistically significantly improved effects by both SVCO creams and VCO creams compared to the skin before creams application. In conclusion, novel permeation enhancers were successfully developed by acidolysis of VCO and caprylic acid. The SVCO was found to exert better skin permeation enhancing effect on α-tocopherol than VCO. Both VCO and SVCO gave emolliency effect when applied topically

Faculty of Pharmacy

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Name :
Tommy Julianto Bustami Effendi

Title :
Nanoemulsion Loaded With Palm Vitamin E For Cosmeceutical Applications

Supervisor :
Prof. Dato' Dr. Abu Bakar Abdul Majeed (MS)

Prof. Dr. Yuen Kah Hay (CS)

Nanoemulsion is one of the alternative nano-lipid delivery systems of lipophilic active ingredients into the human skin in pharmaceutical and cosmetic applications. Palm vitamin E extract is a natural lipophilic active that contains α-, β-, δ-, γ-tocotrienols and α-tocopherol. Palm vitamin E has the potency as an antioxidant for delaying the skin ageing process in cosmetic application, although the skin absorption of palm vitamin E in conventional formulations is considered low. The high lipophilicity of palm vitamin E isomers causes the limitation in the skin permeation. The skin penetration can be enhanced by the loading of palm vitamin E extract in an oil phase of a nanolipid-delivery system such as nanoemulsion. Therefore, the potency of nanoemulsion loaded with palm vitamin E extract was studied. Palm vitamin E extract was loaded in two nanoemulsions prepared by two different techniques and then incorporated into polymeric hydrogels. The skin absorption and pharmacokinetics of vitamin E isomers loaded in nanoemulsion hydrogels were investigated. Liquid chromatography assay method of α-, δ-, γ-tocotrienols and α-tocopherol in various samples of the different stages of this study was successfully validated and re-validated. Nanoemulsion formulations were developed firstly by the

Faculty of Art & Design

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Name :
Asliza Aris

Title :
The Evolution & Transformation Of *Baju Kurung* In The Peninsular Of Malaysia

Supervisor :
Associate Prof. Dr. Norwani Md Nawawi (MS)

Baju Kurung has existed over more than 600 years ago. It has been the pride and heritage of the Malay society since the Great Malaccan Sultanate in the 15th Century. Since then, *Baju Kurung* has gone through some changes, which include its length, cut and shape, fabrics, style and coordination. *Baju Kurung* name is well- known to Malaysian society especially to the Malay people. It is common that any garment that resemblance the form of *Baju Kurung* is often called *Baju Kurung (Moden)*. Due to this assumption, this research tends to construct an understanding that draws the line between traditional *Baju Kurung* and *Baju Kurung Moden*. Hence, the character definition of *Baju Kurung* is clearly drawn. The research looks at historical study of the *Baju Kurung* through references of historical literature, journals and visual evidence (photographic documentations) obtained from the libraries, museums,

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Name :
Saemah Yusoff

Title :
***Tekat* As A Malaysian Heritage : A Study Of Motif, Form And Meaning**

Supervisor :
Prof. Dr. Muliyadi Mahamood (MS)

Tekat is a form of embroidery on cloth, usually velvet, using gold threads whereby shapes and patterns are formed by stitching the gold threads over a core of medium-thickness pre-cut papers (*mempulur*). It is one of the traditional handicrafts that have been handed down the generations. Today, this Malay art of embroidery still lives on but only in a few locations. Almost all practitioners of *tekat tuji* are to be found in the royal town of Kuala Kangsar, Perak. Even so, their days are numbered as many are old and often have no heirs to their knowledge. Hence, the art of *tekat* is facing severe decline if not total extinction. Several reasons are attributed to this phenomenon. Firstly, is the lack of practitioners of *tekat*. The second reason is that very few of the younger generation are involved in *tekat* art. Thirdly, the products of tekat are not commercial enough. If nothing is done to arrest this decline, the art

Faculty of Film, Animation & Theatre

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Name :
Maszalida Hamzah

Title :
The *Angin* Of The *Dalang* In The Kelantan Shadow Play

Supervisor :
Prof. Dr. Solehah Ishak (MS)

It is said that the journey of the *Dalang* of the Kelantan Shadow play is first and foremost determined by the existence of the Angin in him for without which, this vocation will not materialise. Once confirmed, he will undergo the basic, intermediate and advanced level of the 'Way of the *Dalang*'. There are twelve types of *Angin* in the human that is divided into three. First is the *Angin* found in all Malay traditional arts inclusive of *Wayang Kulit* and *Mak Yong*. It is also present in the traditional Kelantan arts through lineage that includes *Dalang Wayang Kulit* (Malay Shadow play *Dalang*), *Bomoh* (healer) or *Dukun*, *Bidan* (midwife), *Tukang Urut* (masseur). The third is the *Angin* called *Saka* and this seem to point to the darker side of the *Angin*. This thesis is concerned only with the first and the second type of *Angin* while acknowledging the existence of the third. *Angin* is also said to be a concept of energy or soul or *semangat*, or *nafsu* that could also lead to pity or *belas* and intense pleasure or as an artistic temperament. Some *Dalangs* also added the word *kehendak* (will) as

*** (MS) = Main Supervisor (CS) = Co Supervisor**

formation of lyotropic phase system as a pro-nanoemulsion (nanophase gel) by heat mixing, and secondly by using self nano-emulsifying technique by cold mixing. Two oils were used in the nanoemulsion formulation development; palm oil was formulated as a nanoemulsion by using hot mixing technique and, *Nigella sativa* oil nanoemulsion was prepared by using cold mixing of self emulsifying system. Palm oil nanoemulsion was formulated with the aid of design experiment as semisolid hydrogel by loading carbomers (Carbopol 934 and 940) and then characterized by the droplet size distribution to determine the best formulation for loading with palm vitamin E extract. The effect of carbomers incorporated in nanoemulsion formulations on the droplet size distribution, semisolid rheology and texture was determined by using expert design experiment to select a stable formulation for permeation studies. The *in vitro* vitamin E isomers permeation through the polycarbonate membrane was investigated using Franz diffusion cells. The vitamin E isomers permeation through polycarbonate membrane depended on the pore size of membrane and the concentration of Carbopol 940 in nanoemulsion hydrogel formulations. The different formulation of nanoemulsion formulation has not shown any affect on the permeation profiles of vitamin E isomers. Finally, the *in vivo* skin penetration of α-, δ-, γ-tocotrienols and α-tocopherol loaded in nanoemulsion hydrogel by topical application on the hairless rat abdominal skin was investigated. The accumulative amount of vitamin E isomers in rat skin epidermis and the bioavailability of vitamin E isomers measured in the rat plasma showed that nanoemulsion hydrogels with small droplets size provided high skin absorption. δ-tocotrienol in the form of nanoemulsion hydrogel with mean droplet size of 100nm was preferably absorbed through the rat skin compared to γ-, α-tocotrienols and α-tocopherol.

National Archive Malaysia and personal collections. A study of samples of man's and woman's *Baju Kurung* constructed a systematic analysis to document the *Baju Kurung's* workmanship, measurement and fabric choice during a certain period of time. From historical study, literature review of current trend and the study of the *Baju Kurung* samples the research successfully trace the chronology of the development of *Baju Kurung* in the Peninsular of Malaysia. Unstructured interviews were conducted with people who were involved with *Baju Kurung* industries, academia, traditionalists and maker. The issues that incorporate *Baju Kurung* traditional identity is solved by categorization of the garments into several different groups according to their style and character. The identity of traditional *Baju Kurung* is strengthened by imparting the method of evaluation of Malay aesthetic principles to the garment. This will be an added value to the existing character definition of *Baju Kurung*. Character definition of the traditional *Baju Kurung* will protect the *Baju Kurung* from being misused by fashion industries. Based on the development of the B*aju Kurung* it is believed that *Baju Kurung* will continue to inspire modern Malay garments in the future. It is hoped that this research will be a major reference in future study in related field.

will only be relegated to only a few treasured pieces kept by the museums or collectors. As such, this study is intended to document the art of *tekat* as a means to continue and preserve this art before its demise. Three hypotheses are forwarded in this study. The first hypothesis is that describing and documenting all aspects of the art of *tekat* can help to preserve and perpetuate it for the future generation. The second hypothesis claims that new *tekat* products can be created so as to make them more commercial and practical for daily uses. The third hypothesis is that the art of *tekat* can attract fresh interest among the younger generation especially, if it is often introduced and widely promoted to the public. The methodology used is a qualitative descriptive research using interviews as the instrument. Eleven respondents comprising of *tekat* makers, academicians, authors and government officials were selected. The data collected was analysed using "Content Analysis". In addition, a Formalistic Study was also conducted on selected samples of motifs. The overall findings showed that *tekat* is indeed in dire straits and facing extinction in the near future. Nevertheless, the researcher felt there is still hope for it and had made several recommendations to preserve and perpetuate this art form.

the *Angin* while agreeing to the word *semangat* (will), *nafsu* (ego/consciousness) and *belas* (Mercy) and *nafas* (breath). However, in all of the definitions above, none has explained in detail what the *Angin* is and how it is derived. The *Angin* of the *Dalang* in this research has been determined to reside in the Internal knowledge of the *Dalang*. Its presence is in the advanced training known as *Sumpah Aturan Rahsia* (The Oath of Secrecy). It consists of the process of *Penyatuan dan Penyebatian* (Union and Subsistence), *Pertapaan/ Meditasi* (Meditation) and *Mantera* (Invocation). Through purposive sampling, the words uttered by the *Dalang* in the in-depth interviews conducted and what is revealed about their training, before or pre-performance knowledge, the stories during the performances and the characters involved becomes the clues and signposts in developing the idea of the *Angin* within the *Dalang*. By applying the qualitative method which includes In-depth interview through the approach of Islamic Mysticism and Philosophy, the researcher is able to interprete the meaning (*Ta'wil*) of the *Angin* of the *Dalang* and its intrumentation internally and externally. It is found that the *Angin* of the *Dalang* is the spiritual principle guiding him in the process of *menanggung pesaka* (safeguarding tradition). This is seen as the survival kit that will determine the survival of the *Dalang o*f the Kelantan Shadow play with Islam as its pillar.

Faculty of Communication & Media Studies

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Name :
Saleh Zaid S Alenizi

Title :
Understanding The Commitment Efficiency, Process And Influence Of Journalism Professionalism Practices Amongst Web Newspaper Journalists In Saudi Arabia

Supervisor :
Associate Prof. Dr. Rahmat Ghazali (MS)

The phenomenon of web journalism in the Kingdom of Saudi Arabia is one of the new practices in Saudi journalism. Despite the newness of this journalistic phenomenon, a number of Saudi web newspapers (more than 250 web newspapers according to a mini¬survey conducted to determine the number of Saudi web newspapers) differs in terms of their ideological and professional orientations. There are web newspapers that cover specific regions in Saudi Arabia, web newspapers specializing in a given topic such as sports, children, women, business web newspapers, as well as general web newspapers that cover various topics. With regard to the diversity of the contents of these newspapers, we see it necessary to evaluate and understand the nature of the professional practice in these web newspapers because it is a new experience in

Faculty of Education

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Name :
Jasmine Anak Jain

Title :
The Variation Of Conceptions On The Nature Of Science: A Phenomenographic Study On Science Learners From Multiple Educational Tiers

Supervisor :
Dr. Nabilah Abdullah (MS)
Associate Prof. Dr. Beh Kian Lim (CS)

The study was grounded in the goal of science education to produce individuals who are scientifically literate. Understanding the Nature of Science (NOS) has been regarded as a crucial essence in producing Science literate individuals. Following this, there have been extensive researches worldwide to measure various groups' conceptions on NOS using instruments developed to cater this need. However, the previous studies in Malaysia only measured the same aspects of NOS while sidelining others, hence limiting the holistic understanding of NOS among Malaysians. Therefore, this study sought to investigate the understanding of other NOS aspects among Malaysians namely a) Tentativeness of scientific theories, b) The scientific theory-law relationship, c) The aim of scientific experimentation, and d) The structure of scientific experimentation. Participants of the study involved science learners with different science achievements from three different educational levels:

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Name :
Nazlinda Abdullah

Title :
A Profile Of The Engineering Students' Conceptual Understanding On Electricity

Supervisor :
Associate Prof. Dr. Beh Kian Lim (MS)
Prof. Dr. Chan Yuen Fook (CS)

This study aimed in revalidating a reliable diagnostic instrument on electricity which emphasized on parallel resistors. At the same time, it has also established an academic profile of the engineering students' conceptual understanding on electricity; examined the difficulty and discrimination level of the items and assessed the students' conception and misconceptions on electricity. Five intact classes chosen by cluster sampling from fifteen existing classes of PHY193 were involved in this study, namely the second semester engineering students undergoing a Diploma in Engineering program. The respondents comprised 102 engineering students with 56 from the Electrical Engineering group, 28 from the Mechanical Engineering and 18 Civil Engineering students studying in a local university. The descriptive approach was used in this study, aimed at addressing the four research questions which examined the academic profiles of the engineering students' conceptual understanding on electricity, analyzed the validity and reliability of the instrument PCCUT (*Parallel Circuit Conceptual Understanding Test, PCCUT*), assessed the items' difficulty and discriminating levels and the students' conceptions and misconceptions on electricity. The

Faculty of Accountancy

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Name :
Eley Suzana Kasim

Title :
Supply Chain Management Practices And Performance Measures : Case Evidence From Malaysian Automotive Manufacturers

Supervisor :
Associate Prof. Dr. Indra Devi Rajamanoharan (MS)
Prof. Dr. Normah Hj Omar (CS)

It has been noted that businesses seek to capitalize on their supply chain resources and capabilities as a way to achieve competitive advantage. From a competitive advantage viewpoint, supply chain management (SCM) has been widely advocated as a potential competitive management tool that contributes to firm performance, particularly in the automotive industry, the focus of this study. This industry is important because automotive firms are constantly responding to the changes following the environmental forces of globalization. A possible opportunity for advancement of SCM as a competitive management tool is the potential contribution of management accounting (MA) in utilizing SCM as a value creation tool. However, this is largely neglected in the literature. Furthermore, the shift towards value creation within SCM is consistent with recent developments in management accounting. Yet, studies which examine value creation within SCM from a MA perspective are limited. The thesis addresses this literature gap by providing additional insights on how value creation, the current focus of MA, is accomplished through SCM practices. In particular, four fundamental issues in SCM are examined: the automotive SCM practices for value creation,

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Saudi journalism based on measurements of the professional practice developed in previous studies. This study investigates the principles of the professional practice (the journalist's knowledge about the nature of the professional work and the skills he applied in his work) and the internal and external factors that influence the nature of the practice. The study is divided into five chapters. Chapter One covers an overview about the introduction of web journalism in Saudi Arabia, with the problem statement and research questions. Chapter Two is the literature review. Chapter Three is about the methodology of the study. Chapter Four is about the results and discussion of the study. Finally, Chapter Five covers the conclusion, the scientific and professional contribution of the study in web newspapers, and the recommendations of the study.

Lower secondary level (aged 13), Upper secondary level (aged 16) and Post Matriculation level (aged 19-21). Using the phenomenographic approach which was guided by the structure of awareness, the participants were engaged through semi structured interview sessions, aided by instances and drawings to map out the way they conceptualize Nature of Science. Ten categories reflecting the various ways NOS aspects as conceptualized by repondents were found, with few categories unique to the local setting. The variation of conceptualizing NOS increased with the educational tiers, indicating more ways of understanding NOS at a higher level. Students from the higher educational tiers were also more confident articulating their notion of NOS although the notion was similar with what was inferred by their younger counterparts. No specific trend was found in conceptualizing NOS across different science achievers. Further analysis conducted across all the aspects at individual level indicated that all participants of this study perceive science as an objective knowledge. This study implied that there is a need for explicit NOS instructions in Malaysia in order to achieve the objectives as outlined in the curriculum. It is envisaged that an implementation of both contextualized and de-contextualized NOS instructions is prudent as it will promote continous and sound understanding of NOS. Such endeavour is also able to leverage learners' scientific literacy in acheiving nation's aspirations.

diagnostic instrument (PCCUT) used in this study was distributed to the students and the Rasch Measurement Model was used with the WINSTEP software version 3.71.0.1 during the analysis process. The result has produced a good Cronbach Alpha reliability value of 0.82 and an excellent item reliability of 0.97. In order to clarify the responses provided by the students in terms of the difficulties that they encountered in electricity, a set of interview questions was given to the lecturers teaching the course. The lecturers confirmed that the students had difficulties in understanding the concepts of current and voltage. Written responses given by the students have acted as guidelines to the source of misconceptions. The findings of this study indicated that each of the engineering students can be categorized into one of the six academic bands which are the 'exceptional', the 'proficient', the 'have some knowledge', the 'need improvement', the 'problematic' and the 'not recommended'. These categories act as performance indicators informing the students and others of their basic level of conceptual understanding on electricity. The analysis of PCCUT has also enabled the items to be placed in hierarchical order and according to its discrimination level, with the concept of current being the most difficult and the most non-discriminating (item 13). Some conceptions and most importantly, misconceptions which occurred among the students have also been uncovered. 'Local, sequential and superposition reasonings' are the most common misconceptions. By focusing on the areas of misconceptions and allocating more time to these issues, proper instruction could be planned in improving the students' weaknesses. In addition, these findings also provide some guidance for research directions into local and international students' common areas of misconceptions.

the critical success factors (CSFs) for SCM, the performance measurement systems (PMS) used to evaluate supply chain performance and the role of management accountants in facilitating SCM processes. These issues are examined using a multiple case study approach on two leading automotive manufacturing firms operating in Malaysia. Drawing from the literature, a proposed framework of integrated SCM which consist of four fundamental SCM practices for value creation is used to interpret the case evidence. The results show that these SCM practices, viz. logistics, information technology, supply chain integration and networking and relationship management promotes value creation within both case firms as measured by cost, quality, speed and flexibility. The thesis next explores the critical success factors for SCM practices and the results demonstrated that control, of which PMS is an element, is one of several CSFs for SCM success. The results further reveal that the case firms' operational PMS in the form of SQCDM (safety, quality, costs, delivery and morale) performance framework provides a continuous alignment with strategic SCM requirements. Finally, drawing on Institute of Management Accountants' Statements on Management Accounting (SMAs) the thesis argues that despite recommendations from professional accounting bodies, the role of management accountants in SCM processes is still limited. The results of this study provide additional insights into how value-creating SCM is practiced within the automotive manufacturing industry in Malaysia. Thus, this research provides an opportunity to the practitioners to gain a better understanding of how SCM could be leveraged to enhance firm performance. For academicians, insights from this study will add to the body of knowledge particularly on the integration of MA with SCM.

Faculty of Accountancy

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Name :
Lukman Ibrahim

Title :
Six Sigma For Value Creation: An Interventionist Approach

Supervisor :
Prof. Dr. Normah Hj. Omar (MS)
Prof. Dr. Hj. Ibrahim Kamal Abd Rahman (CS)
Associate Prof. Dr. Nagarethnam A/P Sithambaram (CS)

The literature of Six Sigma mainly concerns with its underlying concepts and success stories written by consultants or people with vested interests, which raises questions about their validity. Hence, there is a genuine need to conduct a study to investigate the extent to which Six Sigma influences organizational performance and to document the details of Six Sigma implementation empirically. As with other innovations that diffuse through time, this study of Six Sigma implementation in a Malaysian automotive company was carried out using a longitudinal case study method in order to investigate the reasons for adopting it, how it was implemented and what the consequences were for the company. This interventionist research, in which the researcher was an active participant in finding solutions to the case organization's problems, used the theory of diffusion to provide the necessary theoretical framework to conduct the study. The objective of this paper was to examine the extent of Six Sigma implementation and value creation for the organization and for customers. The study also identified the key factors that influenced or impeded the implementation of Six Sigma in the case organization. An in-depth mixed research method was adopted: the research began with a qualitative

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Name :
Saunah Binti Zainon

Title :
Assessing Stakeholders' Needs For Information From Charity Organisations

Supervisor :
Associate Prof. Dr. Ruhaya Atan (MS)
Associate Prof. Dr. Yap Bee Wah (CS)

Studies examining the extent of disclosure of NPOs remain sparse, yet it is essential to ensure accountability to stakeholders. This study was initiated to elicit stakeholders' information needs from charity organisations. The research objectives include: to measure the extent of disclosure of information by charity organisation in Malaysia; to understand the motivating factors that drives the donors to donate; to determine reasons charity organisations disclose information about their organisation and to examine the organisational-specific attributes affecting the extent of information disclosed. A **C**harity **O**rganisations **R**eporting Index (ChORI) instrument was developed to reliably measure the extent of information disclosure. Stakeholder theory and resource dependence theory were used in the development of the index. A complete set of ChORI items were compiled and used in a survey involving 117 institutional donors. The objective of the survey was to obtain the weight of importance of the items. The extent of disclosure was then measured by using both the unweighted and weighted index of the information items. A content analysis of each organisation's annual returns resulted in a disclosure score for each organisation. The annual returns for the financial year 2009 of 101 charity organisations were examined in order to identify the extent of disclosures

Faculty of Business Management

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Name :
Abdul Aziz Karia

Title :
Forecasting Crude Palm Oil Prices : Statistical Versus Artificial Inteligence Approaches

Supervisor :
Dr. Imbarine Bujang (MS)
Prof. Dr. Ismail Ahmad (CS)

An accurate prediction of crude palm oil (CPO) prices is important especially when investors deal with ever-increasing risks and uncertainties of the businesses in future. Observation on the movement of CPO prices suggests an inconsistent trend as the CPO prices fluctuate from time to time. With regard to this, there is need for a development of an accurate model CPO prices prediction to facilitate efficient decision making from investors, businesses and policy makers. This prediction will at least provide a time lag between the decision making and the time at which the situation reaches the market place. Therefore, the main objective of this study is to determine the most appropriate model for the prediction of CPO prices in Malaysia. Empirical evidence from the literature suggests that the statistical forecasting approach is the most widely used model to forecast CPO prices. In contrast, there is limited number of literatures on CPO prices prediction using artificial intelligence (AI) forecasting approach. Therefore, there is no clear indications on which of the

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method using an interventionist approach involving a detailed description drawn from participant observations, interviews with selected informants, and review of documents and archival records. This was followed by a quantitative method through an industry survey to confirm and further extend the findings from the qualitative study. The findings have provided insights into how Six Sigma was diffused through the case company and later was used together with other best practices to transform the case company from the worst performing vendor to the best performing one. This study also provided a detailed account of how the case company deployed Six Sigma principles to achieve a breakthrough and sustainable performance improvements. Most importantly, this study has shown how Six Sigma was implemented in a simple, practical and yet economical way with a relatively small amount of investment. The implementation and practice of Six Sigma has created considerable value to the stakeholders of the case company and to the company itself extending beyond the tangible benefits that were derived from its implementation. The findings of the case company will provide important insights for organizations which are contemplating how to introduce new ideas or initiatives like Six Sigma into their social system in order to enhance cost and quality competitiveness. The findings from the industry study, however, revealed low level of Six Sigma adoption within the automotive industry at the time the study was carried out. The findings also showed that Six Sigma practice is very much at the infancy stage in the Malaysian automotive industry. Perhaps, other companies within the industry require more time and motivations such as demand from customers to implement Six Sigma or other innovations.

provided by each organisation. The dependent variable of the study, extent of disclosure, was the ratio of an organisation's total disclosure score to the organisation's total possible disclosure score. Through semi-structure interviews, it was found that motivating factors that drive the donors to donate are the altruism and strategic profit maximisation motivating factors. On the other hand, accountability, transparency and legitimacy appeared to be the upmost reasons for disclosure of information from the perspective of the charity. Hierarchical regression analysis was used to determine the effect of organisation-specific attributes which include internal and external governance mechanism, financial and non-financial performance, and organisational type, i.e. funded or non-funded charity organisations. The empirical results of the study revealed that external governance mechanism and financial performance have significant positive effect on the extent of disclosure. Moreover, external governance mechanism variable was found to be a more important determinant of information disclosure. Results also revealed that public-funded charity organisations were more likely to disclose more information. This is most probably due to more stringent disclosure requirements imposed by the resource providers to public-funded charity organisations. A major contribution for future research in the field is the disclosure index instrument, ChORI which was developed in this study to measure the extent of disclosure. This study also provides a guide for best practice in charity reporting. Recommendations are made in terms of ways to improve charity disclosure for better accountability and transparency. Both managerial and policy implications are also discussed.

particular models are associated with the CPO prices in Malaysia. As a result, the following questions are raised in this study: (1) what are the best estimation models to predict CPO prices? (2) Is statistical forecasting approach applicable in predicting CPO prices? (3) Does the CPO prices model prediction degrade the level of accuracy if the time series display a strong persistence level towards the nonstationarity? In this study, the uses of two different types of forecasting approaches were proposed in the prediction of CPO prices. The models from the statistical forecasting approach which were used in this study include the autoregressive integrated moving average (ARIMA), autoregressive fractionally integrated moving average (ARFIMA) and exponential smoothing (ES). In addition, the AI models which were utilized in this study include the artificial neural network (ANN) and adaptive neuro fuzzy inference system (ANFIS). This study employed in-sample forecasting on daily free-on-board CPO prices in Malaysia and the series data stretching from a period of January first, 2004 to the end of December 2011. In an effort to demonstrate the predictability power of the applied models, a comparison was made with regard to three-day and five-day basis CPO prices. The general findings demonstrated that the ANN model is superior in predicting daily, three-day and five-day basis CPO prices compared to the ARIMA, ARFIMA, ES and ANFIS models.

Faculty of Business Management

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Name :
Ahmad Suffian Mohd Zahari

Title :
Customer Knowledge Management In The Insurance Industry In Malaysia. The Role Of Knowledge Sharing, Market And Technology Turbulence

Supervisor :
Associate Prof. Dr. Baharom Abdul Rahman (MS)
Dr. Abdul Kadir Othman (CS)

Customer Knowledge Management (CKM) is derived from the knowledge management concept, which can be applied by organizations strategies to satisfy their customers' needs and wants. The dimensions of customer knowledge management are developed from the knowledge flow perspectives such as knowledge for customers, knowledge about customers and knowledge from customers. In this manner, CKM refers to the management of knowledge for customers, knowledge about customers and knowledge from customers to improve organizational performance. This study examined the effects of CKM dimensions in influencing organizational performance in insurance industry in Malaysia. This study also investigated the influence of moderating effects of market and technology turbulence in the relationship between knowledge sharing and organizational performance and between CKM and organizational performance. This study also examined the mediating effects of knowledge sharing in the relationship between CKM and organizational performance. A total of 180 managers from various insurance companies in Malaysia are involved in this study by voluntarily completing the survey questionnaires. A series of statistical analyses were applied including descriptive analysis, factor analysis, reliability analysis, correlation analysis and multiple regressions analysis using

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Name :
Ehsan Fansuree Mohd Surini

Title :
Moderating Role Of Human Capital On The Relationship Between Social Network And Business Performance Of Established Manufacturing Small And Medium Enterprises

Supervisor :
Prof. Dr. Hj. Ismail Ab. Wahab (MS)
Associate Prof. Dr. Zainab Ahmad (CS)

Entrepreneurs and social network theory is an emerging area despite having grabbed most attention of the researchers in last three decades. Social network is important to the entrepreneurs to gather the important resources from the alter/s. Drawing from the social network theory and resource-based view (RBV), the purpose of this study is to investigate the relationship between social network and business performance in the established manufacturing SMEs in Malaysia. The current study also will examine the moderating role of human capital on the relationship between the social network and business performance. The research data were collected through mail and self-administered questionnaire sent to owner-manager around Malaysia. A stratified random sampling was used which elicited 226 useable responses for data analysis. Twenty hypotheses were tested in this study. First, the direct effect between the social network and business performance variables. Second, the moderating effect of human capital on the relationship between

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Name :
Khalizani Binti Khalid

Title :
The Synthesis Of Ethical Decision Making For Business Professionals In Small And Medium Sized Enterprises (Smes)

Supervisor :
Prof. Dr. Maznah Wan Omar (MS)
Associate Prof. Dr. Yap Bee Wah (CS)

The new approach to the field of ethical decision research deals with integrating moral philosophy theories into moral development theory, theory of reasoned action, stakeholder theory, and ethical leadership theory to study ethical decision making among business professionals in Malaysian. This study aims to examine the factors influencing ethical decision making in SMEs that has received almost no attention and failed to be addressed in previous studies. To ensure the compatibility and relevancy of the survey items, cognitive interviews with SMEs business professionals and focus groups discussions with relevant stakeholders were employed to determine significant design problems, to reduce inherent problems, and to reduce social-desirability bias before the survey is finalized. 340 responses from SMEs business professionals were tested using structural equation modelling to determine the best fit model. It is known that utilitarianism, deontology and virtue ethics, and

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Name :
Qistina Donna Lee Abdullah

Title :
Event Management Knowledge Domains As The Antecedents For Successful Cultural Events In Malaysia

Supervisor :
Associate Prof. Dr. Hjh. Ferida Mohd Nadzar (MS)
Associate Prof. Dr. Hjh. Haslina Ahmad (CS)
Associate Prof. Dr. Norehan Hassan (CS)

Event management is currently becoming a blooming industry in the world. It has been recognized as a new dimension in business network for funds exchange and capital income apart from generating vast career opportunity in the market. The revenue collected from events are various according to its category such as events in the tourism industry, destination attractions, cultural and festivals, MICE industry, national and international events. In Malaysia, cultural events and festival have be converted into a prospect developing area for government, agencies and private sectors to engage. Apart from formulate earnings, this sector also help to secure and preserve the authenticity of Malaysian arts, cultural and heritage. Acknowledge the significant of event management existence, therefore this study is establish to investigate the practice of event management knowledge domains as the antecedents for successful cultural events in Malaysia. The objectives of this research is to identify current management strategies used in conducting cultural events in ten government cultural agencies, fourteen government state

* (MS) = Main Supervisor (CS) = Co Supervisor

the SPSS software. The finding of this study contributed to advance understanding of CKM and organizational performance in a number of important ways. First, the results of the study indicate support for the relationship between CKM dimensions and organizational performance. Knowledge for customers, knowledge about customers and knowledge from customers were found to have significant influences on organizational performance. Second, the results reveal that CKM dimensions have significant influence on knowledge sharing. With regard to the relationship between knowledge sharing and organizational performance, the results show that knowledge sharing was found to be significantly associated with organizational performance. Furthermore, the results also indicate that knowledge sharing as a mediator significantly mediated the relationship between CKM and organizational performance. Looking at the moderating effect of technology turbulence, the results show that technology turbulence significantly moderated the relationship between knowledge sharing and organizational performance. In contrast, market turbulence did not moderate the relationship between knowledge sharing and organizational performance. Finally, regarding the moderating effect of market turbulence on the relationship between CKM dimensions and organizational performance, the study revealed that market turbulence did not moderate the relationship between CKM and organizational performance. Furthermore, technology turbulence also did not moderate the relationship between CKM dimensions and organizational performance. The findings of this study contribute to knowledge management and marketing literature by adding new empirical evidence on the relationship between CKM, organizational performance, knowledge sharing, market and technology turbulence. In terms of managerial implications, the findings help insurance companies in organizing CKM dimensions, particularly in strategizing, marketing, decision making and positioning themselves in the insurance industry.

social network and business performance. The direct effect was analysed by using the hierarchical multiple regressions meanwhile the hierarchical moderated regression was used to analyse the moderator effect. Results of hierarchical multiple regressions revealed that (1) network centrality has significant positive relationship with both financial and non-financial aspects of business performance; (2) network size, family members networking and network density do not affect significantly both financial and non-financial aspects of business performance. Results from hierarchical moderated regression have shown that (1) age of entrepreneurs moderates the relationship between network centrality and non-financial aspect but not financial aspect of business performance; (2) gender moderates the relationship between network size and financial aspect but not the non-financial aspect of business performance; (3) no moderating effect of education level and work experience on both financial and non-financial aspects of business performance were found. This study enriches the body of knowledge in the area of entrepreneurship by providing the information as the use and impact of social network and human capital in Malaysian SMEs. The findings can be used also by the entrepreneurs in shaping their strategic decision for better business achievement. It is hoped that, this study will attract the attention of academicians to make further research in the social network theme especially in a developing country like Malaysia.

ethical awareness, ethical judgment, and ethical intention are inter-related within the scope of moral philosophy and ethical decision making respectively. Additionally, this study found that moral philosophy, normative commitment, ethical leadership, perceived organizational support, and ethical work climate are positively and significantly influence ethical decision making. Hence, the findings provide greater insights into how moral philosophy determines the ethical values of business professionals with the influence of normative commitment, ethical leadership, perceived organizational support, and ethical work climate during the ethical decision making process.

offices under MICC and forty one SMEs event management companies nationwide, to determine the relationship between dimensions of event management domains and event success factors and to verify the moderating influence of expert event manager on the relationship between event management knowledge domains and event success. This exploratory study employed quantitative survey with structured questionnaire in an effort to examine the theory and acquire new knowledge by utilizing the statistical methods to validate results. This study generally has successfully answered all the three (3) research objectives, and three (3) research questions. Several hypotheses were supported and others were not indicating that three (3) EMBOK domains (Functional Administration, Operation Network and Organizational Resources) are significant to influence the event success on Return on Objectives, meanwhile all four (4) EMBOK domains (Functional Administration, Operation Network, Risk Management, and Organizational Resources) are significantly influence the event success in terms of Event Recognition. On the other hand, it also proven that the employment of expert event manager moderates the relationship between three (3) EMBOK domains (Functional Administration, Operation Network and Organizational Resources) and the event success in terms Event recognition. The findings serve as supplement to the existing Event Management Body of Knowledge with the additional new sphere of expert event manager in the framework.

Faculty of Business Management

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Name :
Mohd Rahim Khamis

Title :
An Analysis Of The Factors Determining Compliance Behavior Of Business Zakat Among Owners Of Smes In Selangor

Supervisor :
Associate Prof. Dr. Ariffin Md Salleh (MS)
Associate Prof. Dr. Abdol Samad Nawi (CS)

The total number of business zakat payers among Muslim business entrepreneurs is still small despite numerous efforts undertaken by the zakat authorities and the government to encourage Muslim entrepreneurs to pay business zakat. This has been the subject of much research and investigation in recent years and has led to the issue of compliance behavior of business zakat among Muslim entrepreneurs. Specifically, the small number of payers impacts the collection of zakat on business since business zakat has a huge potential as the main contributor in the total zakat collection. As such, the overall aim of this study is to analyze the factors determining compliance behavior of business zakat among owners of SMEs in Selangor. The analysis covers the measurement of the factors determining compliance behavior and the relationships between these determinant factors (religious practices, level of knowledge, length of business operation, organizational factors, government

Faculty of Hotel & Tourism Management

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Name :
Norwahidah Abd Wahid

Title :
An Empirical Analysis Of Leadership Styles And The Role Of Organizational Culture On Employees' Satisfaction In Malaysian Hotel Industry

Supervisor :
Associate Prof. Dr. Artinah Zainal (MS)
Associate Prof. Dr. Salleh Mohd Radzi (CS)

The topics of leadership and organizational culture have fascinated considerable awareness from both academics and practitioners. The study examined the relationship of leadership style and organizational culture with employee satisfaction in the Malaysian hotel industry. As leadership style is a critical element in the success of an organization, organizational culture is also a crucial factor influencing the competitive strength of an organization. A large amount of the interest in the two areas is based on explicit and implicit claims that both leadership and culture are linked to employees' satisfaction. Although the links between leadership and performance and between culture and job satisfaction have been looked into separately, few studies have examined the correlation between the three concepts. The research also examined the leadership style used by hotel managers and the perceptions of that leadership practices by the employees relative to their job satisfaction. As for this research, two leadership style were studied (transactional and

Faculty of Information Management

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Name :
Che Zainab Haji Abdullah

Title :
E-Book Selection Practises And Initiatives Planning Towards Return On Investment In Malaysian Academic Libraries : Moving Into Patron-Driven Acquisition

Supervisor :
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Associate Prof. Dr. Wan Abdul Kadir Wan Dollah (CS)

This study investigates the e-book selection practices pertaining to patron-driven acquisition and library's initiatives planning on providing e-book services toward return on investment in selected Malaysian academic libraries. This research employs a concurrent mixed-method through semi structured interviews and a survey. Ten experienced acquisition librarians informed in this interview. The qualitative data were transcribed and analysed manually. The common purchasing models of e-book in Malaysian academic libraries are subscription, packages, pick and choose and one-time purchase. None of the libraries adopts the patron-driven acquisition model as being investigated. The questionnaire used as an instrument in a quantitative approached to determine librarian perception on common e-book selection practices (resource sharing, accessibility, support distance education, sustainability, collection features, cataloguing e-structure and user friendliness) and library initiatives planning (technical support, personnel and training). The relationship between e-book selection practices, library initiatives planning and return on investment was further examined. Using stratified sampling, questionnaires were distributed to 150 librarians who are handling e-book in either acquisition, automation

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Name :
Irwan Kamaruddin Abd Kadir

Title :
Electronic Records Management (Erm) Practices At The Malaysian Federal Ministries: Exploring The Fundamental Organizational And Professional Issues

Supervisor :
Associate Prof. Dr. Rusnah Johare (MS)
Dr. Hjh. Siti Arpah Noordin (CS)

This study is an attempt to gain greater understanding of the importance of departmental records officers' (in Malaysian Government they are called 'Pegawai Rekod Jabatan' (PRJ)) roles and responsibilities on electronic records (e-records). The study adopted a case study approach that combined both quantitative and qualitative data. Quantitative data were gathered in the first phase of the study from 45 agencies under the Prime Minister's Department. In the second phase of the study, qualitative data were gathered from face-to-face interviews with three PRJs from three agencies under the Prime Minister's Department. To verify data gathered in the second phase of the study, four focus group (FG) discussions with 120 PRJs from 24 ministries and related agencies were conducted in the third phase of the study. The data derived from the PRJ have fulfilled the objectives of the study which are: To identify the record managers' perspectives with regard to their responsibilities

*** (MS) = Main Supervisor (CS) = Co Supervisor**

incentives, law enforcement and business profile i.e. business location and business category) with compliance behavior of business zakat. To this end, data collected from the 276 SMEs entrepreneurs was analyzed through two statistical methods; Rasch Measurement Model and logistic regression analysis. Summary statistics, item polarity, item and person fit and unidimensionality analysis revealed that the measurement instrument used was deemed acceptable after the removal of several item measures and person responses. Response behavior among the SME entrepreneurs was represented by two groups; those who complied with business Zakat payment and vice versa as shown through the Person Item Distribution Map (PIDM). Besides, logistic regression analysis was employed to test the eight formulated hypotheses. The analysis revealed that religious practices, level of knowledge, organizational factors, government incentives, business location and business category have significant relationships with compliance behavior of business zakat while, length of business operation and law enforcement were rejected. Finally, the theoretical, practical and methodological implications of the findings of this study are also discussed.

transformational leadership style) and organizational culture will be mediating the relationship between leadership style and employees' satisfaction. Organizational culture in the research perspective is defined as a common set of values and beliefs that are shared by members of an organization which influences how people perceive, think, and act. The independent variables are transactional and transformational leadership style was measured using an adapted Multifactor Leadership Questionnaire , the organizational culture as the mediating variable was measured using adapted Denison Organizational Culture Survey. The dependent variable, employees' satisfaction, was also measured using the adapted Multifactor Leadership Questionnaire. Data were collected from 300 employees from 4 and 5 star rating hotels in Klang Valley and Selangor. Four research questions along with six hypotheses were tested. The finding of this research indicated that employees' satisfaction is significantly related to the transactional leadership style used by the hotel manager. Furthermore, the research also identify that the nature of this relationship and presents empirical evidence indicated that the relationship between leadership style and employee satisfaction is mediated by the form of organizational culture that is present. Finally, the basis of this research was supported through an extensive literature review, followed by a statistical analysis to suggest conclusion and recommendation for future research.

or reference department. The statistical analyses include descriptive statistics, independent-samples t-test, the one-way analysis of variance (ANOVA), Pearson's coefficient of correlation and Simple Regression analysis. The various analyses were undertaken using SPSS. The findings indicate that the *collection feature of e-book selection practices* is perceived by the librarians involved in the study as being relatively the most dominant dimension. This is followed by *technical support*, a dimension of *library initiative planning*. Fourteen dimensions (of e-book selection practices, library initiative planning and return on investment) are perceived to be important. The *accessibility* and *training* are perceived to be moderately important. Six dimensions of *e-book selection practices* (accessibility, support distance education, sustainability, collection features, cataloguing e-structure and user friendliness) are positively correlated in varying strengths with *return on investment.* Three dimensions of *library initiatives planning* are positively correlated with *return on investment.* Female respondents had better perceptions on *resource sharing* and *support distance education* than male respondents; respondents in the youngest age group (21-29 years) had a poorer perception on *collection features* and *user friendliness* than those from the other two age groups; perceptions on *e-book selection practices* are the same regardless of respondents' grades, *levels of education and lengths of service.* Methodologically, the research illustrates the effective use of the mixed-method approach within the pragmatic research paradigm. The findings of the study are useful for the top management of libraries to realise that purchasing e-book would consequently contribute to the library's *return on investment* (librarian's time saving, cost saving, job commitment and increase in quality). The insight thus gives a better understanding of e-book selection practices within the context of Malaysian academic libraries.

in managing e-records within the context of fundamental organizational requirements; To find out the record managers' perspectives with regard to their responsibilities in managing e-record within the context of professional requirements; and To ascertain factors that contribute to the surveyed records managers' perspective about the fundamental organizational and professional issues that limit the implementation of their responsibilities on e-records as required by the "Elektronik-Strategi Pemeliharaan Arkib dan Rekod Kerajaan" (e-SPARK) project deliverables. Overall the data suggested that the PRJs' perspectives on their roles and responsibilities which relates to the fundamental organizational and professional issues were influenced by the larger policy, organizational and professional context in which they function. Powerful forces from the top affected ERM practices by giving limited focus on PRJs' roles and responsibilities and providing limited resources to PRJs for their career development on ERM as required by the e-SPARK project. Therefore, understanding on how PRJs work on e-records require an understanding how contextual factors shape and constrain PRJs' practices based on the fundamental organizational and professional issues surrounding their roles and responsibilities on ERM in the Malaysian Federal Government agencies.

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