

Prevalence of Panton-Valentine Leukocidin *Staphylococcus aureus* among Patients and Healthcare Workers in Malaysian Public Hospital

hassanainiy@yahoo.com

Syahirah Samsudin

Institute for Medical Molecular Biotechnology
Faculty of Medicine Universiti Teknologi MARA
Sungai Buloh, Selangor
syahirahkpk93@gmail.com

Alyaa Al-Khateeb

Biochemistry and Molecular Medicine Discipline
Faculty of Medicine Universiti Teknologi MARA
Sungai Buloh, Selangor
alyaa_1974@yahoo.com

Zaini Mohd Zain

Microbiology and Parasitology Discipline
Faculty of Medicine Universiti Teknologi MARA
Sungai Buloh, Selangor
zainimz@salam.uitm.edu.my

Norliana Dalila Mohamad Ali

Radiology Discipline
Faculty of Medicine Universiti Teknologi MARA
Sungai Buloh, Selangor
lianadalila@yahoo.co.uk

Hassanain Al-Talib

Microbiology and Parasitology Discipline
Faculty of Medicine Universiti Teknologi MARA
Sungai Buloh, Selangor

Abstract—*Staphylococcus aureus* (*S. aureus*) carrying Panton-Valentine leukocidin (PVL) has become a worldwide threat to public health. Recent reports showed an increasing numbers of *S. aureus* infections caused by PVL-positive organisms worldwide which explain the need to carry out this study in Malaysia. The objective of this study was to determine the prevalence of PVL-positive *S. aureus* among patients and healthcare workers in Malaysian Public Hospital. Collectively, 230 swabs were collected from the anterior nares of inpatients and healthcare workers at Sungai Buloh Hospital. The isolates were identified and characterized using conventional and molecular methods. From 230 samples collected, 23% (53/230) were detected as *S. aureus* isolates. Out of the 53 *S. aureus* isolates, 2 (3.8 %) were found to be PVL positive *S. aureus* (from patient's sample) and the remaining 51 (96.2 %) isolates were PVL negative *S. aureus*. Out of 53 *S. aureus* isolates, 38 (71.7%) were methicillin-sensitive and 15 (28.3%) were methicillin-resistant *S. aureus*. The finding of the prevalence of PVL-positive *S. aureus* among patients and healthcare workers will provide awareness to the hospital authority to take action for prevention and control.

Keywords—*S. aureus*; PVL

Modelling of Ostrich Egg Using Cubic Hermite Curve

Fatin Nadiah Hamdan¹, Nur Afiqah Meor Ahmad², Nurul A'qilah Mohd Hariri³,
Suziana Aida Othman⁴, Masnira Ramli⁵

Department of Mathematics, Faculty of Computer & Mathematical Sciences,
Universiti Teknologi MARA Cawangan Kelantan, Bukit Ilmu,
18500 Machang, Kelantan, Malaysia

⁴suziana554@kelantan.uitm.edu.my, ⁵masnira@kelantan.uitm.edu.my

Abstract—Cubic Hermite Curve is applied to calculate the volume of the ostrich eggs. Twelve different sizes of ostrich were used as samples to get the volume. Length, width and actual volume are the input measured to generate the calculated volume. Vernier caliper and measuring cylinder are used to get the measurement of the input. Archimedes Principal method has been used to measure an actual volume of eggs. In order to generate calculated volume, the best fitted curve of the ostrich eggs was obtained by using the best fitted point in Cubic Hermite Curve equation. Besides, another way to determine the best fitted curve is by comparing the relative error of the three different gradients between calculated volume and actual volume.

Keywords—*Cubic Hermite Curve; volume of ostrich eggs; gradient*

Development of E-Procurement System To Reduce The Non-Compliant Work Behaviour in Purchasing

¹Nur Munira Hanis Mokter, ²Siti Nurul Hayatie Ishak

^{1,2}Faculty of Computer and Mathematical Sciences
Universiti Teknologi MARA (UiTM) Terengganu
Terengganu, Malaysia

¹missmunira95@gmail.com

Abstract—E-procurement has been widely used as a tool to manage purchase and sale of goods or services between the company and the suppliers among multinational companies and government sectors. But, there are many small and medium enterprise companies still uses traditional procurement method to manage their suppliers. Maverick buying issues had been a major concern among business and the solutions for it is not clear enough. Therefore, the aim of this project is to identify the current process and system requirements in the procurement activities and to design and develop an e-procurement system to reduce maverick buying. This system has been developed in accordance to Rapid Application Development (RAD) methodology which consists of four phases; requirements planning, user design, construction and cutover. After that, functionality and usability testing were conducted with three (3) experts and thirty (30) respondents evaluated the system based on the interface design, usability, efficiency, ease of use, user experience and satisfaction. As a result, the construct with the highest mean of 4.5 (SD = 0.57) whereby the user is satisfied with the interface of the system. To sum up, this system simplifies the traditional procurement process especially on the acquisition of suppliers and helped reduced maverick buying in terms of purchasing power.

Keywords—*e-procurement; maverick buying; Rapid Application Development (RAD)*

Transesterification of refined palm oil using Na metal supported on activated carbon catalyst and NaOH catalyst

Ezzanie Balqhis Basir
Faculty of Chemical Engineering
Universiti Teknologi MARA
Terengganu, Malaysia
norphysics@gmail.com

Norkamruzita Saadon
Faculty of Chemical Engineering
Universiti Teknologi MARA
Terengganu, Malaysia
noork0069@gmail.com

Halimatun Nor Ashikin Mohd Yusof
Academy of Language Studies
Universiti Teknologi MARA
Terengganu, Malaysia

Nabilah Huda Hasmalsah
Faculty of Chemical Engineering
Universiti Teknologi MARA
Terengganu, Malaysia

Abstract— Due to the decrease supply of resources for fossil fuel, the search for alternative fuel has been carried out. As a result, biofuels have been discovered, which includes Fatty Acid Methyl Ester (FAME). Hence, there is a need to discover more on the production of FAME. This research is aimed to determine the effects of the percentage yield of FAME and the effects of heating temperature on the mass loss of sodium (Na) supported on activated carbon catalyst. In this study, transesterification of refined palm oil with methanol was experimented with the help of catalyst to improve the rate of reaction. Two types of catalyst were used, which were homogeneous and heterogeneous. Heterogeneous catalysts were formed using Na supported on activated carbon from palm kernel shells. These activated carbons were prepared using two different activation temperatures, i.e. 700°C and 800°C. The Na supported on activation carbon catalyst was prepared using wet impregnation process of aqueous NaOH at different weight ratio of activated carbon and sodium metal. It is then calcined in the furnace at a constant temperature of 500°C for 3 hours. The results showed that for heterogeneous catalyst, the ratio of metal to carbon, 4:1 with 2 wt% of catalyst produced the highest yield of FAME and as for homogeneous catalyst, the best result for the percentage of yield is 1 wt% of catalyst with the ratio of 3:1.

Keywords— *Transesterification, FAME, homogeneous catalyst and heterogeneous catalyst.*

Terengganu State Decision Support System for School Leavers (TeSDeSS)

Amrina Rasyada Zuhaidi^a, Rajeswari Raju^a, Sharifah Nurulhikmah Syed Yasin^a, Hayati Adilin Mohd Abd^a Majid, Siti 'Aisyah Sa'dan^a, Zawawi Ismail Abd Wahab^a, Nasiruddin Mohamad^b

Abstract— Years after years, the number of school leavers increase significantly. Some of them continue their journey by furthering their study in higher education. The one that can further their study usually is the one that knows their interest and has a good result in government examination, so they are qualified to apply Government University or some other institute such as Matriculation, Polytechnic, and others with their targeted or desired academic degrees. But, it differs for school leavers that got a low grade in government examination (dropout student), most of them just give up on their first application to government institute. Terengganu government wants to come out with the system that can help minimize this problem. In this proposed project, was found that Terengganu school leavers are not aware of the existing opportunities to further their study with moderate or low grades and currently there is no platform that unites all education and skills institutes in one single platform. This proposed project will cater all the identified problems, to ease this project, and the rule-based system will be used as the theory.

Keywords—*matching; rule-based system; SPM leavers; school leaver; student dropout; decision support system; IPTA; IPTS; skills institute*

Electronic Voting Machine (EVM) using infrared detection technique

M.Amirul Hafiz M. Amri, M.Zamri Ismail, Nik Nabilah Nik Mahamad Zaki, Syila Izawana Ismail, Zulzilawati Jusoh, Rina Abdullah

Faculty of Electrical Engineering
Universiti Teknologi MARA,
Terengganu, Malaysia.
syila5416@tganu.uitm.edu.my

Abstract— The voting system is a set of rules that determine how people's intentions may be manifest and how decisions can be achieved. Normally, vote papers are placed in the voting box and then will be sorted and calculated manually. But the problem is the use of manpower in calculating the vote manually may lead to error in the counting of votes and it takes a long time to complete the calculation process. For this purpose, an electronic voting machine (EVM) is introduced, where in this work it replace the conventional voting method in which the vote card will be calculated automatically. This paper focusing on implementation of embedded system which will help in the election process, where the Arduino UNO uses as a controller. This system uses a simple counting system based on the detection of black mark on the vote card using infrared (IR) sensor. Then, LCD 16x2 will display the number of votes for the respective candidate and the servo motor will activate to sort the valid and invalid vote card into 2 compartments in the voting box.

Keywords— *Electronic voting machine, embedded technology, infrared detection, counting algorithm*

Mobile Based Word Matching Detection using Intelligent Predictive Algorithm

Nurul Aisyiah Baharudin

Faculty of Computer and Mathematical Science
Universiti Teknologi MARA (UiTM)
21080 Kuala Terengganu, Terengganu, Malaysia
nurulaisyiah93@gmail.com,

Siti Eshah Che Osman

Faculty of Computer and Mathematical Science
Universiti Teknologi MARA (UiTM)
40450 Shah Alam, Selangor, Malaysia
sitieshahco@gmail.com

Hamidah Jantan

Faculty of Computer and Mathematical Science
Universiti Teknologi MARA (UiTM)
21080 Kuala Terengganu, Terengganu, Malaysia
hamidahjtn@tganu.uitm.edu.my

Abstract—Word matching is one of the text processing techniques that has been used in various areas and applications. There are several common string search algorithms are used in word matching such as Boyer Moore, Knuth Morris Pratt and Horspool. Currently, these algorithms have some issues in string searching such as the efficiency for searching small alphabets, time taken in processing the pattern of the text and also extra space to support a huge table or state machines. Intelligent Predictive (IP) algorithm is used as an alternative algorithm that could provide a good result in searching process. IP capable to solve the word matching problems that were faced in other algorithms as it skips the pre-processing of the pattern, uses simple rules during matching process and does not involve complex computations. This project aims to implement the IP algorithms to find a keyword using word matching application in our mobile devices. This IP algorithm will combine with the Optical Character Recognition (OCR) software which was used in data pre-processing phase. The efficiency of the proposed algorithm will be evaluated based on the execution time of searching process by comparing with Boyer Moore algorithm. The result shows that by using IP algorithm, the searching process is more efficient and the execution time has improved. In future, this project can be proceeded by implementing a new enhanced algorithm using bio-inspired algorithms such as Genetic Algorithm, Particle Swarm Optimization, Ant Colony and etc. to improve the searching process in word matching.

Keywords—*Intelligent Predictive; word matching; optical character recognition;*

Synthesis and Fabrication of Polyaniline/Eggshell Composite in Ammonia Detection

Nurul Aqilla Mazlan, Jamil Mohamed Sapari, Kavirajaa Pandian Sambasevam

School of Chemistry and Environment, Faculty of Applied Sciences,
Universiti Teknologi MARA (UiTM) Negeri Sembilan, Kampus Kuala Pilah,
Pekan Parit Tinggi, 72000 Kuala Pilah, Negeri Sembilan.

Email: kavirajaa@live.com

Abstract—This study focus on the measurement and performance of bio-filler composite based on polyaniline (PANI)/chicken eggshell (CES). The composite films were prepared via ex-situ polymerization using DBSA as its dopant. The PANI solution was distributed equally before mixing it with three different mass of CES powder. Characterization of all the composites films were analyzed by using Fourier Transform Infrared Spectroscopy (FTIR) and Ultraviolet-Visible Spectroscopy (UV-Vis). PANI film that contain 20mg CES filler possessed the highest conductivity and the fastest time to achieve 90% sensitivity. The film also very selective towards ammonia gas and can be reused up to eight cycles. All data reported in this study proved that PANI film with 20mg CES filler can act as a sensitive sensor with 6 ppm limit of detection.

Keywords—*conducting polymer; bio-filler composites; hybrid material; sensor; toxic gas detection*

Determination of Sustainable Heritage Preservation Zone Using Multi-Criteria Analysis in Taiping City

Muhammad Anis Ismail

Faculty of Architecture, Planning and Survey
University Technology MARA Perak
Perak, Malaysia
muhammad_anis90@ymail.com

Noradila Rusli@Ruslik

Faculty of Architecture, Planning and Survey
University Technology MARA Perak
Perak, Malaysia
noradilarusli@perlis.uitm.edu.my

Salbiah Mokhtar

Faculty of Architecture, Planning and Survey
University Technology MARA Perak
Perak, Malaysia
Salbi694@perak.uitm.edu.my

Mohd Najib Husain

Faculty of Architecture, Planning and Survey
University Technology MARA Perak
Perak, Malaysia
najib1979@perak.uitm.edu.my

Urban sustainable heritage preservation is not just seen as a heritage building only, but also the factors that influence the building that should also be considered so that any changes in any part of the urban will not change the urban fabrics. Therefore, the relationship between heritage buildings with other planning information can be seen in creating integrated area sustainable preservation plan. The aim of this research is to analyze the Geography Information System application in upgrading the existing information together with the urban sustainable heritage preservation information in developing an integrated area sustainable preservation plan. Geography Information System was chosen as tools because of its significant data manipulation, higher efficiency in generate many alternative scenario and accessible to the data. The question is what are the sustainable criteria to selecting of areas heritage preservation? The objective for this study is to produce sustainable criteria in determining the selection of area for action based on the difference information land use and visual quality heritage preservation. The second question in this study which is how to determine the heritage preservation action based on sustainable criteria? The second objective in this study is to design and developing a Geographical Information System database than can be used in the determination analysis heritage preservation area. The third question in this study where are the sustainable area for heritage preservation in Taiping City? the third objective in this study to produce the result analysis of the analyzing pattern and the thematic maps to identify area of action for preservation zone in Taiping City. This study employed the qualitative approach with the application of document analysis as the research design. Data collection was divided into two groups that is primary data and secondary data. Primary data were obtained through interview with several respondents and secondary data were obtained through documents, books, articles, journals and other sources of reading material. The data of heritage building and planning information the basic in the stage of designing the heritage databases for Taiping. The design of the databases considers all needs in area sustainable preservation. There are two type of analysis model designed based on the integrated conservation actions. The first model is about to determination the threat area and need for conservation. The factors that be considered for this analysis consist land use, visual and location factors. While the second model analysis is about the action control for building sustainable preservation that consists of the history, architectural style and building condition to ensure the appropriate history action through the preservation heritage building. The final output for this research is the area sustainable heritage preservation management plan with the proposal of preservation guidelines for the specific area sustainable preservation in Taiping City. This output where is area and building sustainable heritage preservation plan could help the local authority to determine the suitable preservation for their administrative area.

Keywords- Sustainable; Heritage Building; Preservation; Geographical Information System.

Modelling of Ostrich Egg Using Cubic Hermite Curve

Fatin Nadiah Hamdan¹, Nur Afiqah Meor Ahmad², Nurul A'qilah Mohd Hariri³,
Suziana Aida Othman⁴, Masnira Ramli⁵

Department of Mathematics, Faculty of Computer & Mathematical Sciences,
Universiti Teknologi MARA Cawangan Kelantan, Bukit Ilmu,
18500 Machang, Kelantan, Malaysia

⁴suziana554@kelantan.uitm.edu.my, ⁵masnira@kelantan.uitm.edu.my

Abstract—Cubic Hermite Curve is applied to calculate the volume of the ostrich eggs. Twelve different sizes of ostrich were used as samples to get the volume. Length, width and actual volume are the input measured to generate the calculated volume. Vernier caliper and measuring cylinder are used to get the measurement of the input. Archimedes Principal method has been used to measure an actual volume of eggs. In order to generate calculated volume, the best fitted curve of the ostrich eggs was obtained by using the best fitted point in Cubic Hermite Curve equation. Besides, another way to determine the best fitted curve is by comparing the relative error of the three different gradients between calculated volume and actual volume.

Keywords—*Cubic Hermite Curve; volume of ostrich eggs; gradient*

The Comparison of Active Compound Presence in *Citrus Aurantifolia*(Lime) Seed & *Momordica Charantia* (Bitter Melon) in Reducing Blood Glucose

Mohamad Azizul bin Mohamad Azmi, Awang Harun Al-Rashid bin Hamzah, Muhamad Alim Adha bin Makhtar,
Nurul Najihah binti Fadzin, Noor Izzah Nadhirah binti Muhamad Zahidi
Faculty of Chemical Engineering, Universiti Teknologi MARA Cawangan Terengganu Kampus Bukit Besi
23200 Dungun Terengganu

Abstract

Background/Objectives:

Momordica Charantia (Bitter Melon) and Citrus Aurantifolia (Lime) seeds have been used as a traditional remedy in diabetics due to its hypoglycemic activity. However, its anti-hyperglycemic effect and anti-glycation activity has been demonstrated in vitro and for type-1 diabetics patient, but not in long term clinical study The study aimed to develop plant based insulin from Momordica Charantia (bitter melon) and Citrus Aurantifolia (lime) seeds in reducing blood glucose. To determine the active compound presence in the both plant based insulin, a qualitative study using Fourier-transform infrared spectroscopy (FTIR) was conducted. To compare the effectiveness of Citrus Aurantifolia(Lime) Seed and Momordica Charantia(Bitter Melon) compare with Insulin(Biphasic Isophane), an observation on blood glucose level based on patient's dietary for a period of time had been carried out.

Methods: Dried Citrus Aurantifolia (Lime) seeds and Momordica Charantia (Bitter Melon). Then, milled and soaked in ethanol for 3 days. Lime seed and bitter melon were filtered and evaporated to get extract product. Both product was run into FTIR to identify the qualitative of active compound. For patient diet, the patient had Citrus Aurantifolia (Lime)