

ASASI



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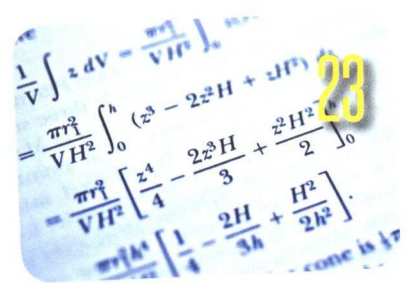


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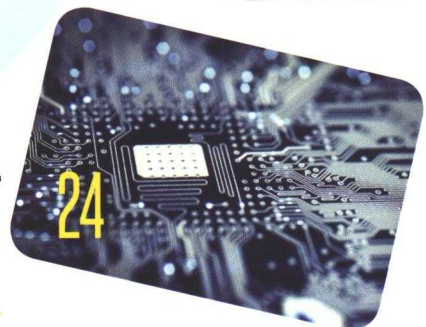
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Director's Message



Assoc. Prof. Ahmad Kamil Hussain
Director, Centre of Foundation Studies

By Assoc. Prof. Ahmad Kamil Hussain

I feel proud and happy that the Research Bulletin Committee has managed to publish the second edition of the Asasi Newsletter in such a short time. I'd like to take this opportunity to say a big 'Thank You' to those involved. I can see that our lecturers are slowly but surely immersing themselves into research as can be seen by the number of research papers and the emergence of new researchers as compared to the last newsletter. It is by no means, an easy task to do research especially so when here, in Centre of Foundation Studies (CFS), we do not have our own research facilities. So, congratulations to lecturers who managed to continue to be involved with research and hopefully inspire others to do so.

I am also pleased to see two new sections in the bulletin: achievements of lecturers and a feature on our alumni. I really appreciate the good work done by our lecturers to uphold the good name of CFS and the feature on achievements of our lecturers is a small way of showing that appreciation. Just like our motto: Apresiasi Sahabat, Selami Impian or Appreciating Friends, Together We Dive for Dreams.

It is good to be able to produce the newsletter in the early part of the semester so that the feature on the alumni and news of student's activities can also be shared with the present batch of students. Hopefully, one day, the students can review their activities in the bulletin before they leave CFS.

Last but not least, 'Our greatest weakness lies in giving up. The most certain way to succeed is always to try just one more time' (by Thomas A. Edison)

Assoc. Prof. Ahmad Kamil Hussain

Director,

Centre of Foundation Studies

An interview with Prof. Madya Dr. Rozana Abd Razak, Head of the Asasi Science programme



The Centre of Foundation Studies (CFS) is one of the quality and innovative programmes in UiTM aimed at providing maximum opportunities for bumiputera SPM leavers to adequately equip themselves academically for their further endeavour in local and international universities. In line with this noble objective, the Organizing Committee took this opportunity to interview the head of the Asasi Science programme, Prof. Madya Dr Rozana Abd Razak, on her thoughts and memories regarding the Centre of Foundation Studies (CFS).

Q: Could you please describe yourself and anything that you feel is important for us to know about you as Head of the Science Program in CFS?

A: Thank you for giving me this opportunity to recollect some memoirs about my life as an educator, particularly at CFS, UiTM, and specifically in the Asasi Sains program.

I started my career as a Science (Chemistry) Instructor in the mid-70s, lecturing the pioneer batch of Matriculation students at UKM. After a few years, this program was taken over by the Ministry of Education.

The UKM instructors became coordinators who handled curriculum matters, prepared all materials including common standardized tests, lab manuals, tutorials and examination questions for the three premier schools viz. Sek. Men. Seri Puteri, Sek. Men. Alam Shah and Sek. Men. Sultan Ab. Halim in Jitra which were the pioneers in this programme. Besides, the UKM instructors were required to invigilate public examinations. Later, more schools joined in and this programme continued for about 15 years before it was taken over completely by the Ministry of Education

After completing my Ph.D. in 1991, I was accepted as a Chemistry lecturer in the American Degree Program, Pusat Pendidikan Persediaan (PPP) in Section 17 Shah Alam. Due to the 1998 economic downturn, a number of the science academic staff was absorbed into FSG in 1999. I taught basic Chemistry for the Diploma of Engineering and Diploma of Science courses. In 2002, when FSG started the Bachelor of Science (Hons.) degree (AS202); I was appointed as the Head of this program.

The first batch of Pra-Ijazah students enrolled in UiTM at around 2004. They were excellent SPM holders who were interested to enter the newly set-up UiTM Medical Faculty. After about 3 years, the Pra-Ijazah program was renamed Asasi Sains, Asasi Kejuruteraan, and Asasi Farmasi. I taught in both the Asasi Sains and Asasi Farmasi programs. However, the Asasi Farmasi ended after a few years. As we know, the Asasi programs moved to Puncak Alam campus in 2010. I thank the CFS Pengarah, PM Dr. Rosli, who gave me the opportunity and responsibility to act as the Head of Asasi Sains. However, I give credit for the generally smooth and efficient handling of the administrative and academic matters to the excellent job done by the Administration office of CFS, and the various committees in CFS. The committees include the Examination Committee, the Timetable Committee, the Mentor-Mentee system etc. Actually, the Asasi Sains Program Head is there mainly to coordinate, while all the hard work is done by the Administrative staff, the committees and their Heads. Thank you everyone, our beloved CFS could not be in its current state without your input.

Q: What is the one most important thing for people to know about CFS Uitm?

A: I believe the product of CFS, that is our students, is the most important factor for parents and stakeholders. As of now, some IPTAs do give good reviews of our ex-students.

Key Feature

Q: As the head of the Asasi Science programme in CFS, what is your opinion on the new lecturers (those who joined CFS in the year 2010) concerning their integrity, teaching capability, commitment and attitude towards the duties assigned to them?

A: I believe all the academic staff or lecturers at Puncak Alam who reported in the year 2010/ 2011 show a high level of work-related commitment. A small number may initially lack confidence, however, in time everyone has improved. They also have excellent attitude toward the duties assigned to them. Personally, it is a pleasure to work among such a dedicated group. I believe the Course Heads play an important role too in managing the daily academic activities for each subject.

Q: The Asasi Programme has been on since 2005 until now. Can you comment on the quality (the attitude towards their studies, mannerism, maturity of their thinking etc) of the students and the performances of the students in general?

A: The examination and overall results for Asasi Sains have been generally good throughout the last five years. In my opinion, everyone, academic as well as administrative staff, has done his/her best to produce quality students. Some, unfortunately not all of the students have developed maturity in thinking. Generally, excellent students usually get their first choice of degree programs in IPTAs in Malaysia and continue to excel in their studies.

Q: What is your opinion regarding the 1st issue of Asasi Newsletter?

A: An excellent move indeed to produce the Newsletter. I hope all staff will support it.

Q: What was the most challenging part you've encountered as the head of the Asasi Science Programme and how did you handle it?

A: Challenges are around us every day. I am blessed that there are no challenges that cannot be handled or cause extreme stress! Or maybe I have forgotten about such challenges since I have only good memories of CFS! Anyway, frank discussion with colleagues definitely diffuse some of these stresses.

Q: Where do you expect CFS to be in five years' time?

A: Insyallah, CFS will be the chosen pre-university program for SPM leavers.

An interview with Assoc. Prof. Dr Sim Lai Har



Assoc. Prof. Dr Sim Lai Har

In line with the quality objectives set by UiTM, one of which is to promote a marked increase in research, paper writing and publication by lecturers. In accordance with this objective, the Organizing Committee took this opportunity to interview Assoc. Prof. Dr Sim Lai Har for her thoughts and views with respect to the Centre of Foundation Studies (CFS).

Q: Could you describe yourself and anything that you feel is important for us to know about you as a senior lecturer and researcher in CFS?

A: I started my career in 1976 as a lecturer in the Institute of Technology Mara (ITM), Shah Alam with a BSc degree in Chemistry. Since then, I served faithfully throughout all my thirty-nine golden years as lecturer, academic adviser, mentor of young lecturers and author of laboratory manuals and text books both in Bahasa Malaysia and English in the early part of my career. Within these 39 years, ITM was transformed into Universiti Teknologi MARA (UiTM) in 1999 and I too have advanced academically in obtaining my MSc degree in analytical chemistry, and then a PhD degree in polymer technology. From 2005 onwards, in addition

to teaching and mentoring both students and young lecturers, I have been actively involved in supervising undergraduate and postgraduate research students from the Faculty of Applied Sciences (FSG), publishing refereed journal papers, proceedings and book chapters.

Q: Could you give a brief description of your field of research?

A: My field of research is on advanced material specialising in polymer blending. I work together and share a research laboratory with two colleagues, Associate Professor Dr Chan Chin Han and Dr Winie Tan from FSG. In 2009, we established a polymer blending research group in FSG. Our first research interest is to prepare new industrial materials with desired properties such as thermal properties, conductivity, morphology and mechanical properties tailored for specific applications via polymer blending which is a cost effective and convenient preparation method. The second focus of interest is to get a deeper insight into the solvation of inorganic salts by various types of synthetic polymers, biopolymers and polymer blends aiming to produce free standing solid polymer electrolytes with good conductivity and desirable mechanical properties. The polymers currently used in this group are poly(ethylene oxide), poly(methyl methacrylate), polyacrylate, poly(methyl acrylate), epoxidised natural rubber, methyl-grafted natural rubber, Poly(3-hydroxybutyrate-co-3 hydroxyhexanoate) and hexanoyl chitosan. Apart from investigating the properties of polymer blends, single polymer and polymer blend-based electrolytes, polymer composite electrolytes (adding nanoparticles to the polymer-salt complex) are also part of our research interests. Besides, we hold research group meetings once every two to three months with the objective to provide a platform for our postgraduate students not only to present their research progress but also to share their research experiences. In the course of discussions among students and supervisors, both the postgraduate as well as the undergraduate students learn a lot in problem solving, designing experimental processes, handling equipment, analysis of experimental data etc.

Q: Are there any lecturers from CFS involved in your field of research?

A: Pn Nurul Fatahah Asyqin Zainal and Cik Hairunnisa Ramli from Pusat Asasi are the latest members of the polymer blending research group. I would like to take this opportunity to sincerely invite Asasi lecturers who share the same research interest to join us so that we can pool our resources in terms of grants and ideas together to achieve our goal in producing new and applicable materials for the electrochemical and engineering industries in view of the rapid development of high technology devices for use in these industries.

Q: What is your opinion regarding the 1st issue of Asasi Newsletter?

A: As chief editor of this Newsletter I was very grateful to Assoc Prof Dr Muhamad Rosli Sulaiman, the Director of CFS who successfully obtained the budget for the publishing of the first issue of the Newsletter. The publication of the first issue reflects real team effort of all the committee members, each with his/her expertise, has contributed to the success of this project. The first issue of Asasi Newsletter has been distributed to most of the science and technology based faculties as well as to the Chancellery and Research Management Institute (RMI). I hope through the publication of this Newsletter, the authority concerned will take note of the lack of facilities especially laboratory equipment in CFS which in one way or another hinders the lecturers' involvement in research and consequently not able to publish refereed journal articles.

Q: What was the most challenging part you've encountered as Chief Editor of Asasi Newsletter and how did you handle it?

A: The most challenging task is to get enough extended abstracts from each field of study for each issue of publication. Owing to the constraints of finance and research facilities which result in the minimal research outputs that can be published. One way to solve this problem is to encourage our lecturers to collaborate with experienced researchers from other faculties like FSG, TMSK and engineering faculties.

Staff Achievements

An interview with Zaid Mujaiyid Putra Ahmad Baidowi (Computer Science Lecturer)

The Centre of Foundation Studies (CFS) is a full time preparatory pre-degree programme emphasizing more on Teaching & Learning. However, in accordance with the projected vision of our Vice Chancellor, Tan Sri Dato' Sri Prof Ir Dr Sahol Hamid Abu Bakar to propel UiTM as a research university, most of the academics in CFS do involve themselves in research and publication. Apart from presenting their research findings in local and international conferences and seminars, some academics also participate in competitive events like the Invention, Innovation and Design (IID) exhibitions. To commemorate the success and the achievement of two of our academic staff members Zaid Mujaiyid Putra Ahmad Baidowi (Computer Science) and Aida Fazliza Mat Fadzil (Physics) in these competitive events, the Asasi Newsletter committee took the opportunity to interview them so that they can share their experiences and challenges to inspire others in CFS.



Zaid Mujaiyid Putra Ahmad Baidowi

Q: Could you please tell us a little bit about your background?

A: I worked in the government and private sectors before joining UiTM in 2011 as a Computer Science lecturer in the CFS in Puncak Alam. Teaching is my passion and therefore, I love to be a part of CFS family.

Q: What drives you to be active in research?

A: My wish to pursue my studies to the highest academic level of obtaining a PhD degree has motivated me to get involved in research. Therefore, before I register as a PhD candidate, I try to familiarize myself with various research projects. As a result, more than four research

papers have been presented in various conferences. Being able to present my research results to others is a motivation to me. Recently, one of my research papers which I wrote together with my research team members was accepted for publication in the special issue of an international journal. Besides, four products of innovation were sent for competition.

Q: Can you tell us more about your achievements in the Invention, Innovation & Design (IID) exhibitions which you participated in 2014?

A: My team members and I enrolled in three IID exhibitions with four entries. We won one Gold award and one Silver award from the International Exposition on Syariah Compliant Idea, Invention, Innovation and Design (ISSCIID 2014) held in Shah Alam. Our second Silver award comes from the 2nd International Innovation, Design and Articulation (i-IDEA) 2014 held in Perlis and the last award is a Bronze from the Penang Invention, Innovation and Research Design Platform 2014 (PIID 2014) held in Penang.

Q: What were the challenges that you encountered during the preparation for the IID exhibitions?

A: The challenging part that I could never forget is the time constraint. It was really a challenge to work simultaneously on 4 products in a short period of time. As a lecturer, I need to have the right balance juggling between my research and my teaching and other administrative duties. I was fortunate to have very supportive team members who were very committed to ensure that the research products could be accomplished on time. Therefore, I would like to take this opportunity to thank them for their support.

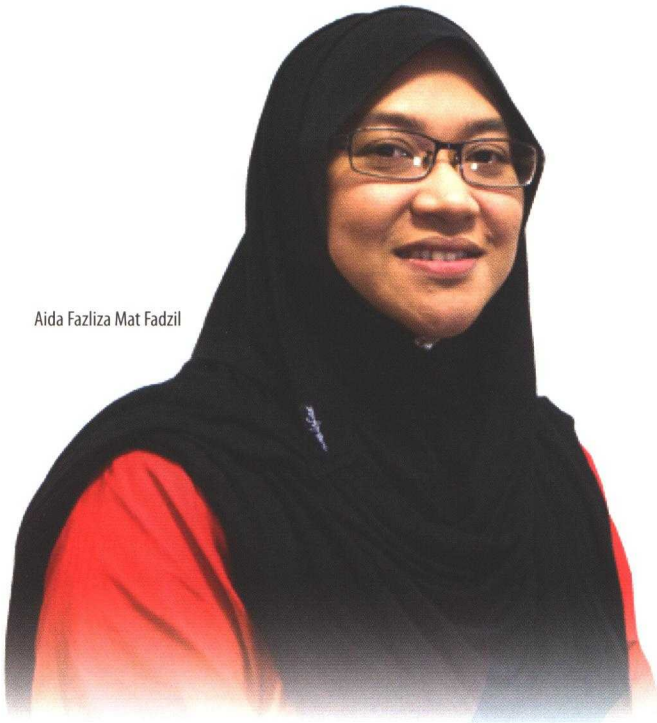
Q: Did your participation in IID bring any impact to you, CFS as well as UiTM generally?

A: Definitely. The experience makes me more confident than before and I am really up to the challenge for any other competitions. CFS is also getting familiar among other UiTM branches and other universities in Malaysia.

Q: What is your advice to your colleagues concerning being active in research and yet not neglecting their duty as a lecturer?

A: In the Al-Quran, as quoted in surah Al-Asr, Allah reminds us about time. Proper time management is the key to success. Always set in your mind to work smart, be diligent and be responsible for whatever you do. These good attributes have been applied in developed countries such as Japan, UK and Germany. Last and not the least, I would like to encourage all my colleagues to get involved at least once in any IID competitions in Malaysia to get the experience.

An interview with Aida Fazliza Mat Fadzil (Physics Lecturer)



Aida Fazliza Mat Fadzil

Q: Could you please tell us a little bit about your background?

A: I obtained my first degree in Nuclear Science from Universiti Kebangsaan Malaysia (UKM) followed by a Master's Degree in 2007 from Universiti Teknologi MARA (UiTM) majoring in Advanced Material and Nanotechnology. I joined the Centre of Foundation Studies (CFS) UiTM Puncak Alam in 2011 as a Physics lecturer. Currently, I am pursuing a PhD degree in Advanced Material and Nanotechnology on part-time basis.

Q: Could you give a brief description of your field of research?

A: My current research focuses on cathode materials for lithium-ion batteries. I chose this field because it has great potential for further development. I thank my supervisor, Prof Dr Norlida Kamarulzaman for her guidance which enables me to understand the basic knowledge of my field. Besides, from her experiences which she generously shared with me, I learnt how to handle challenges and problems encountered in my research work. Everything she shares with me means a lot to me. As my guru, I really adore and respect her. Deep in my heart, I hope that I can do the same with my students in CFS.

Q: What drives you to be active in research?

A: The motivation behind being active in research is my interest and my hunger for knowledge. As we know, doing research needs a lot of

sacrifices in terms of time and energy, as well as moral support from the family. I believe that by attending conferences and seminars, I can share and expand my knowledge as well as interact with researchers from other research institutions locally and internationally, very often renowned researchers and sometimes even Nobel Laureates. My ultimate goal is to be able to have research collaboration with these renowned scientists.

Q: Can you tell us more about your achievements in the Invention, Innovation & Design (IID) events which you participated in 2014?

A: My greatest achievement so far was winning a first place and becoming the champion in the Innovation Category of the Selangor Excellent Young Scientist Award 2007 held in Shah Alam. Subsequently, I won a Bronze award in the International Innovation, Invention and Design competition (IID 2008) organized by IRDC, UiTM Shah Alam and another Bronze award in the International Innovation and Design competition (RIID 2013) organized by UiTM Malacca. Last year, I participated in the International Innovation, Invention and Design Competition and Conference (ICON 2014) organized by UiTM Terengganu and I finally managed to win a Silver award. So far, I have co-supervised 4 final year project students from the Faculty of Applied Sciences, UiTM Shah Alam. My first final year project student managed to get the Best Thesis Award in 2012 awarded by the faculty. I have to date published close to 10 refereed papers in international journals and presented in more than 30 national and international conferences and I am looking forward to do more.

Q: What were the challenges that you encountered in your journey in research and what is your advice to your fellow colleagues in CFS?

A: In everything that we do, there will be challenges and obstacles. It would be a great lie if my research journey till today has been a smooth one. However, as a Muslim, we have to face all the challenges with patience and look at them with a positive attitude. Joining competitions and attending conferences, both national and international did bring lots of positive impact on me. Therefore, I would like to encourage my colleagues to get involved in research, join IIDs and attend conferences. My advice to them is not to be afraid of any obstacles because it is part of life experiences. Last words from me, find the good in everything, and cherish while you still can.

Students Achievements

ALUMNI'S FINEST

The Centre of Foundation Studies is committed to producing students who will excel in their tertiary education and become graduates who are adequately prepared to join the local as well as global workforce. The editorial board took the opportunity to feature two alumni who shined throughout their degree years. We hope their success will inspire the present students. They are Fatimah Nabilah Al-Fadhli bt Kamaruddin (batch of 2010) and Siti Wahidah bt Nazari (batch of 2011).



Fatimah Nabilah Al-Fadhli Kamaruddin

Family and Education Background

Fatimah is the second out of five siblings. Born in Kelantan but was raised in Selangor for the past two decades. She received her preschool education in Northern Ireland, United Kingdom. She came back to Malaysia when she was seven and continued her primary education in Sekolah Rendah Ibnu Khaldun, Klang before finishing high school at SAMBESTARI Subang Jaya. She obtained 11 A1's for her SPM and upon completing Foundation in Science at UiTM Shah Alam, she was accepted to the Faculty of Medicine, UiTM. She has completed her Bachelor of Medicine and Surgery (MBBS) and is currently waiting for her job placement.

Siti Wahidah was born on the 24th of February 1992 in Kuala Langat, Selangor. She is the seventh of 11 siblings. Her parents run their own commercial fruit orchard in Banting. She had her early education in SRK Olak Lempit, before starting her secondary education at SMK Sungai Manggis and finishing off at SBP Integrasi Sabak Bernam. She obtained 8A's in her SPM and was accepted into UiTM's Centre for Foundation Studies at its Puncak Alam campus. She has completed her Bachelor of

Science (Honours) degree in Industrial Physics at the Faculty of Applied Sciences, UiTM Shah Alam and is currently doing her M. Sc at the same faculty.

Life and Memories during Foundation Studies and advices to present students...

Fatimah was not a perfectionist but a person who 'goes with the flow'. There were lots of studying to do but she found it manageable. She had fun and enjoyed her stay during the foundation studies. She worked and focused very hard to get A's for her Mathematics to make up for her failure to get an A for Additional Mathematics during her SPM. She has a few tips for Foundation students:

'First is teamwork. As the Malay proverb goes "berat sama dipikul, ringan sama dijinjing". So, you will feel less burdened especially when you do lab projects and tutorial together. Second is sharing. Sharing is caring. Always share and teach others what you know. Third, study smart. Do not apply the study method used during secondary school because studying at tertiary level is totally different. Think of a study method that suits you best and do not just follow others blindly. Last but not least, praise God for everything. When we are thankful, He will definitely, surely add on our blessing.'

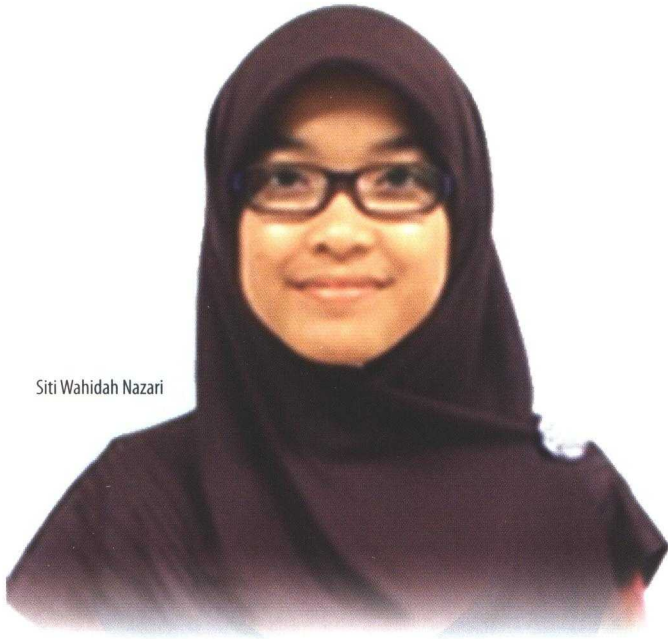
On the other hand, Siti Wahidah found the foundation studies to be quite tough due to the short duration of time to study. She found it necessary to manage her time properly. Even her leisure time was used to do revision and assignments. She did not perform well for the first semester due to high fever during the finals. However, she never gave up and bounced back with a GPA of 4.0 for her second semester to complete her studies with a CGPA of 3.78. Her advice to present students:

'Do not cheat during quizzes, test and examination and do not copy assignments. It is better to get a low score for a test as long as you get God's pleasure for not cheating. As busy as you may be, never forget to spend time to pray on time, recite Quran every day and perform the Qiamullail (late night prayer) for they will give you the internal strength. You should know and identify the best time for you to study. (Siti Wahidah starts her day as early as 4.30 am as she feels this is the best time to study).'

Extra-curricular activities and achievements

When Fatimah was in her fourth year in medical school, she and her friends had to organize a health carnival of their own. Her team decided

to raise awareness in helping blind people. They did a fun walk with the blind, in which they will pair a normal sight person with a blind person. Participants were taught on how to approach the blind and how to help them if they meet the blind in public. The health carnival was a success and her team was given high marks for the project.



Siti Wahidah Nazari

In her fifth year in medical school, during her psychiatric posting, her group had to do a video showing the stigma of the society towards psychiatric patients. Her group was given a topic on narcissistic personality, i.e. personality that has a number of characteristics. Her group went out to the public and acted the different characteristics. A video was captured to show the society's perception towards a person with narcissistic personality. For all the hard work, humiliation and making a few enemies along the way, her group won the first place with a perfect score of 10 from their lecturer.

Fatimah always keeps herself busy. During semester break, she worked as a clinic assistant. During her second year, she worked as a clerk at a football club every Saturday and Sunday for two hours daily. When she was in her third year, she worked as a research assistant.

Siti Wahidah joined UiTM's Reserve Officer Training Unit (ROTU) as a cadet navy officer in 2011. She spends her weekend doing the Navy's training and used the weekdays to complete her assignments and study. She was commissioned as Second Lieutenant RMNVR by the Yang Di-Pertuan Agong in August 2014 along with the other cadets during a ceremony held at the Sultan Idris University of Education (UPSI) in Tanjung Malim. She is also one of the Navy's volleyball player and long distance runner. She was also actively involved in college activities such

as SUKOL (Sukan Antara Kolej) where she competed in mountain bike, volleyball, basketball and volleyball.

In the third semester of her degree study, she was selected for a stint at IC Microsystems Sdn. Bhd, Cyberjaya, under HEIGIP, an undergraduate training program initiated by the Ministry of Education in collaboration with selected companies throughout the country. She did her internship there every semester break. Even during this internship she still continued her annual navy training.

On her convocation day, Siti Wahidah, who was among UiTM's best students, was awarded the Budiman Foundation Gold Medal. She had the honour to be the first amongst navy cadet officers to receive the award besides being the first also to get the Vice Chancellor Award. She was also awarded as the best student of the faculty and program.

Reason for choice of degree and university

Fatimah's dream and ambition is to be a leader in medical profession. She chose to do a medical degree at UiTM because the degree program offered an integrated system of learning medicine. The facilities were new and readily available. Besides, the residential college was very comfortable and the college fees were very reasonable. One of the most important factors was also the fact that the program's final year student got their job placement before they even graduated.

Siti Wahidah wants to fulfill her mother's desire for her to become a lecturer. She chose UiTM as her platform to study because of the university's relatively low fees. She also believes that she can develop her soft skills at the university.

Goals and aspiration

Fatimah wants to be a specialist in tafsir (interpretation of) Al-Quran and medical sciences. She plans to complete her houseman ship while saving part of her salary to pay for her tuition fees to do a Master's program related to Al-Quran and medical sciences. After getting her permanent medical license, she plans to take study leave for one year to do her Master's. She then plans to become a specialist in medicine while continuing doing research on Quranic medical sciences.

Siti Wahidah plans to do her PhD in United Kingdom in order to fulfill her goal of becoming a lecturer.

Students Events

Mentor- Mentee

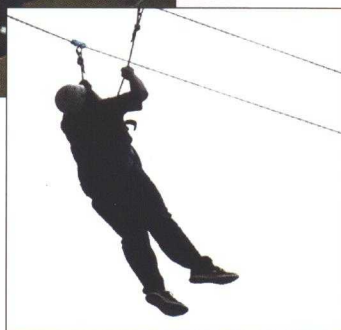
The purpose of the mentor-mentee programme is to provide guidance, motivation, emotional support, and role modelling. The lecturer who plays the role of a mentor may help with matters related to academic, exploring careers, setting goals, and developing soft skills. The role of the mentor may change according to the needs of the mentee. Engagement of the mentor with his/her mentee is not restricted to classroom environment. Hence, activities outside the class or even campus are done such as visits, hiking, and camping. Among the objectives in mentor-mentee events conducted inside/outside the class are to:

- foster positive relationship between mentor and mentee through mentoring sessions that fall within the programme parameters,
- provide continuous support, supervision and monitoring of mentees' academic and personal development, and
- identify and appreciate the contributions of members of the mentor-mentee group

The following are some of the mentor-mentee activities:

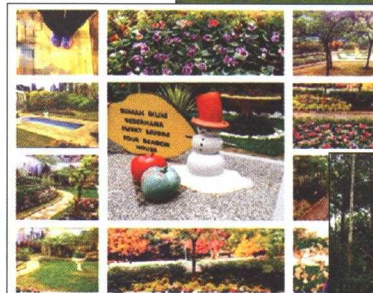
Caving Gua Tempurung, Perak.

This place has attracted many groups of students to explore it. Groups that have chosen to explore this cave were E5, G10 and M2. Each group of about 32 students explored the cave and saw the beauty of nature that has existed for thousands of years. Besides, they also did some extreme activities such as flying fox and abseiling. At the end of this trip, students were able to appreciate nature more.



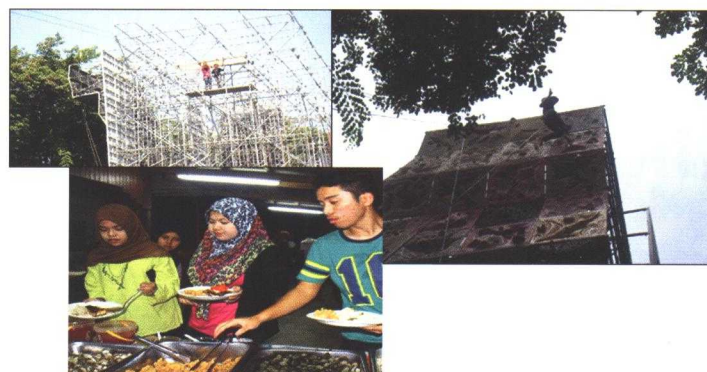
Jungle trekking activity at Botanical Garden Shah Alam, Selangor.

Three groups A5, D2 and M5 which organized this activity were accompanied by their mentor Pn Fatahah, Cik Hairunnisa and Pn Aishah, respectively. The activities for the one day trip began at 8 a.m in which the students explored the garden and enjoyed the view of the forest. The students also ventured into some extreme activities such as flying fox and climbing trees with multiple heights at the Skytrex adventure park. In the evening, all students entered a building that simulated the climate of countries experiencing four seasons i.e fall, winter, spring and summer. Through these activities, students were able to build up positive characters such as the courage to face height. The activities also fostered close relationship between students and their mentors/lecturers.



Visits to Melaka, the Historic City.

These visits were organized by students from groups D9 and C10 who went to Bandar Hilir and Ayer Keroh respectively. Group D9 who was accompanied by their mentor Cik Siti Noorfarhana Idris chose to go to Bandar Hilir and stayed at Darul Ashlah Chalet, Pengkalan Balak. After a long day visit to historical places in Melaka, they gathered together at night and had a barbeque session. Activities such as karaoke and treasure hunt were conducted to make the night merrier. In contrast, group C10 chose to do activities such as rock climbing and cycling at Ayer Keroh, Melaka. At night, they had barbeque and other activities that enabled them to know each other better.



Camping at Janda Baik, Pahang

The programme was held on the 30th of August 2014 by group members of E4 whose mentor was En. Megat Mohd Izhar. They departed at 1 p.m by bus and arrived at Janda Baik at 4 p.m. Since the concept of the activity was outdoor, students challenged their perseverance by building their own tent using equipment given by the organiser. The objectives of the activity were to cultivate teamwork and unity among the group and to strengthen ties between students and their mentor.



Jungle Trekking at Forest Research Institute (FRIM), Kepong

The activity was led by Pn. Teh Faradilla on the 7th of September 2014. Participated by 25 members of the R3 group, they began with nature trekking in the morning and ended up with canopy walking in the evening. The activity was fun and adventurous because they had to walk in the jungle for almost three hours. Overall, all the members were very happy and excited.



Ice Skating at Sunway Pyramid, Subang

After spending days and long hours of studying, students from group F4, accompanied by their mentor Dr. Nor'aini Mohd Fadzillah, chose to release their stress at Sunway Pyramid, Subang. They chose to do ice skating and laser tags activities. The ice skating activity was fun. After that, they played laser tag game which was similar to paintball game. They were divided into small groups and had to shoot their opponents to defend their flag. In this activity, team work was very important and they had to plan and strategize in order to win.



Exploring Science at Petrosains, KLCC

'Gain knowledge and have fun'. With that concept in mind, group A3 led by Pn Aishah Salihah chose to spend their time at Petrosains. After arriving at KLCC, they headed to Petrosains and learned about fuel processing. The visit improved their basic knowledge about physics and chemistry while having fun exploring all the experiments conducted. At the end of the trip, they were allowed to test drive one of the racing cars that had been used in the Formula 1 race rally.



News & Events

CO-CURRICULAR ACTIVITIES

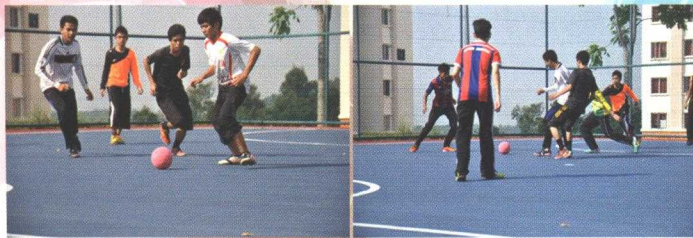
The Co-curricular Activities is mandatory for students admitted to the Centre of Foundation Studies and there are a list of activities offered ranging from sports, recreation, community services, domestic science and more for students' participation. Co-curricular activities aim at rendering additional values and helping students to broaden their horizons and inspiring them to achieve all-round development outside the classroom. The following were some of the co-curricular activities conducted in 2014/2015.



Tennis Club



Netball Club



Futsal Club



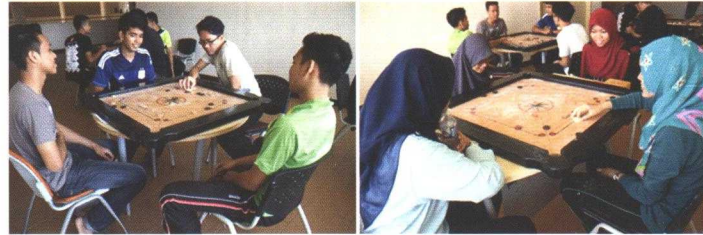
Karnival Usahawan Asasi



Gym & Aerobic Club



Table Tennis Club



Carrom Club



Modern Music Club

The Grand Annual Tournament: Asasi Sports Day

In order to encourage students' participation in all the club activities, most of the sports clubs organized their respective grand tournaments during Asasi Sports Day. This event was conducted in cooperation with the Student Representatives Committee or Sekretariat Mahasiswa Asasi (SMA) supervised by Mr Zaidi Yaacob and Mdm Nurkhaizan Zulkepli.



Netball Tournament

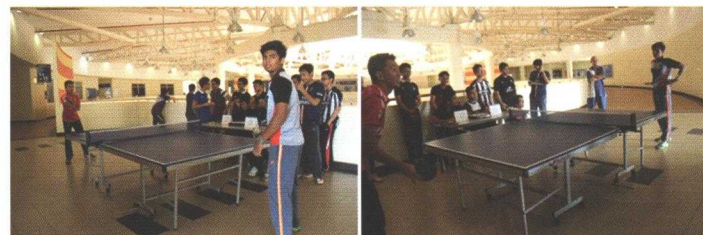


Table Tennis Tournament



Tennis Tournament

Asasi Events

Expo UiTM Destinasi Ku

This event was held on the 24th January, 2015 at the Dewan Serbaguna in Puncak Alam. The main objective of this event was to give students who were graduating from the Asasi programme an overview on the courses that they could pursue for their degree level studies in UiTM. Most of the faculties participated in this event. Apart from setting up booths to attend to enquiries from students, most faculties gave talks to promote the courses and programmes that they offered. In addition, a session on how to fill the UPU forms and advice on the choice of courses were conducted.



Expo Selangkah ke UiTM

Expo Selangkah ke UiTM was held at DATC, UiTM Shah Alam on the 14-15 Mac 2015. This event aimed to publicize the various faculties and academic centres which were available in UiTM to the Public. Most of the faculties participated in this event decorated their booths with posters to promote the programmes or courses that they offered. The Centre of Foundation Studies (CFS) booth was popular among the SPM leavers who eagerly came to seek advice concerning their opportunities of getting a place in the Asasi programme as well as the course structure of the programme. For the second time, CFS bagged The Best Booth Award in this event.



Asasi Grand Dinner

Asasi Grand Dinner is an annual dinner organised by the student representative committee or Sekretariat Mahasiswa Asasi (SMA). This dinner is a get together for lecturers, administrative staff and students to celebrate the completion of the Asasi course. The Grand dinner for the Academic Year 2014-2015 was held on the 14th February, 2015 at the SACC, Shah Alam with the theme 'Bold and Elegance'. All who attended the dinner dressed up at their best in line with the theme of the event. The main entertaining events for the dinner were the performances put up by the students who demonstrated their talents in singing, acting, dancing and playing musical instruments. Besides, there were lucky draws to create exciting moments among all who attended the dinner. At the end of the dinner, each lecturer and administrative staff received a surprised gift. We thank the SMA and their overseers, En Zaidi Yaacob and Puan Nurkhaizan Zulkefli who had put in so much effort, hard work and creative ideas to enable us to enjoy such a wonderful and entertaining dinner.



News & Events

Staff Events

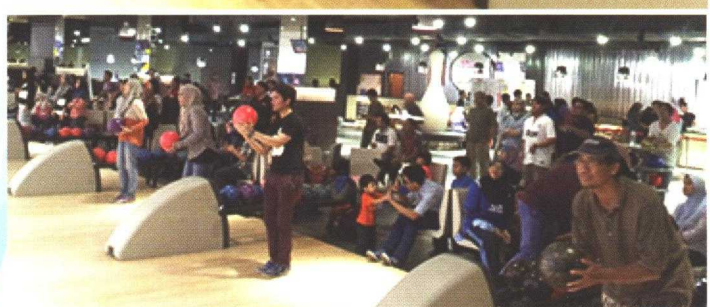
Staff events in CFS are organized to create an opportunity for all academic and administrative staff members to relax and to release the stress and pressures of work. In these events, all staff members and their families get together to interact with one another, thus, foster closer relationships among staff members. The following are some of the events that were organized from January 2014 till June 2015.

- Majlis makan malam held on the 11 January 2014
- Sambutan Hari Raya Aildil Fitri 2014 held in BRP
- Family Day – Go-Cart in Stadium Shah Alam (5 December 2014)
- Bowling Tournament (Wangsa Bowl Setia City Mall on 12 April – 17 May 2015)

Asasi's Family Day- Go-Cart and Bowling Tournament 2014



Bowling Tournament



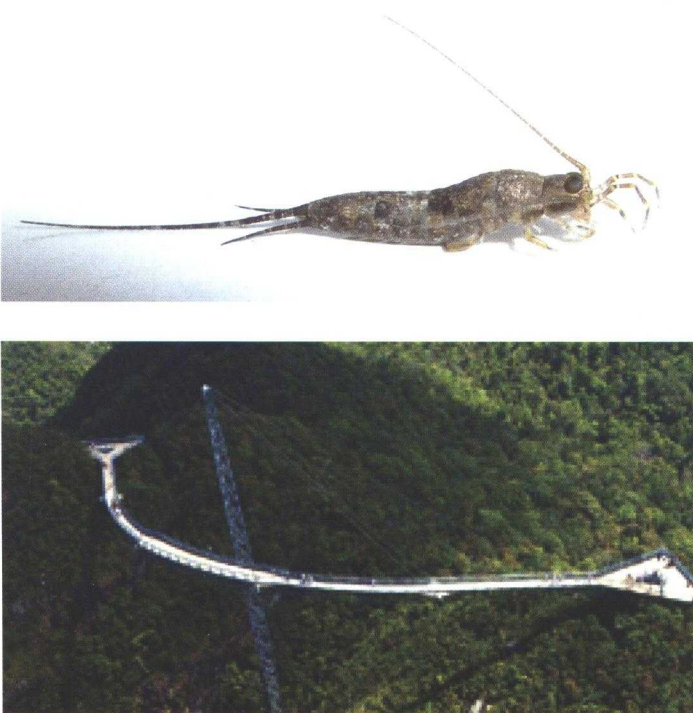
DIVERSITY AND ABUNDANCE OF CLASS INSECTA AT PULAU LANGKAWI

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Insects are the most abundant animals in the world where two – thirds of these insects inhabit in the tropical rain forest. Insects are the largest contributor to the animal size that occupies lowland forests. In addition, insects are considered as successful arthropods due to the presence of their wings which helps in aerofoil and allow them to disperse for large distances resulting in immense coverage of their habitat. This study was conducted in Gunung Mat Chincang and Gunung Raya at Pulau Langkawi from October 2012 to April 2013. 1538 specimens that belong to 16 orders and 90 morphospecies were collected by using malaise trap. The orders of Archaeognata, Blattodea, Coleoptera, Collembola, Dermaptera, Diptera, Grylloblattodea, Hemiptera, Hymenoptera, Lepidoptera, Mantodea, Odonata, Orthoptera, Raphidioptera, Sinaphanoptera and Thysanoptera were collected. Order Hymenoptera was the most abundant, whereas order Dermaptera, Odonata, Orthoptera, Raphidioptera, Siphonoptera and Thysanoptera appeared to be the least abundant. As a whole, Gunung Mat Chincang had a higher number of individuals collected (1261) compared to Gunung Raya (277). The Shannon-Weiner diversity index value (H') for Gunung Mat Chincang ($H'=1.48$) is higher as compared to Gunung Raya ($H'=1.32$). The Evenness Index for Gunung Mat Chincang ($E'=0.34$) is lower than that for Gunung Mat Raya ($E'=0.42$). The Margalef's Richness Index for Gunung Mat Chincang ($R'=1.67$) is higher compared to that for Gunung Mat Raya ($R'=1.42$). Paired t-Test value ($P<0.05$) indicates that the diversity of insects is different significantly between the two sites. Overall study shows that the diversity and abundance of insects in the two study sites are low. The diversity and abundance of Class Insecta in Gunung Mat Chincang is higher compared to that in Gunung Raya, Pulau Langkawi. This research provides a documented reference and proper information regarding diversity and abundance of insects in Gunung Mat Chincang and Gunung Raya. The documented reference can be used for future study in entomology. The complete checklist can be used by Langkawi Authority Development (LADA) for conservation purposes.



Keywords: entomofaunal, diversity, abundance, Insecta, forests, Pulau Langkawi.

SILENT PEST IN PADDY AGROECOSYSTEM

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Golden Apple Snails (GAS), *Pomacea spp.* from the family Ampullariidae are the biggest freshwater snails on earth (Pablo, 2003). They were introduced to Asia from South America in the 1980s (Mochida, 1991) as potential food for human consumption. Unfortunately, they become a major pest of rice (Teo, 2001). Golden apple snails eat young and emerging rice plants by cutting the rice stem at the base, thus, destroying the whole plant. If no control is taken, they can completely destroy 1 sq m of the paddy field overnight. This damage could lead to more than 50% yield loss. Golden Apple Snail has high reproduction rate and is extremely tough. They can estivate up to 5 months which means they are likely to survive through drought or imposed dry conditions. Furthermore, their tolerance to pollution and low oxygen levels is high.

The present study focuses on the distribution of Golden Apple Snails (GAS) in the paddy agroecosystem at the MARDI station, Bertam and Penang. This study was carried out by quadrat method sized 1m² at paddy field and by net pulling method at waste-out channel and water-in channel. The sampling was done according to the season and the duration of paddy aged, namely, the 'padi masak' season, the harvest season, the first stage plough season, the second stage plough season, the paddy aged duration of four weeks and seven weeks. To investigate the factors contributing to the GAS distribution, rain overflow was monitored throughout the duration of the study and the data was obtained from MARDI. Besides, the temperature and the pH of the water at all sampling location were measured during each sampling time. During sampling, we managed to find two GAS species namely, the *Pomacea insularum* and the *Pomacea canaliculata* but the dominant species was the *Pomacea insularum*.

The result of the study depicts that the GAS numbers and the life stage time analyzed using ANOVA test with 0.05 significant levels are approximately the same at all the three sampling locations. Pearson correlation test shows a positive correlation between GAS number and rain overflow and water temperature. However, a negative correlation is obtained between the GAS number and the pH value of the water.



Keywords: *Pomacea insularum*, *Pomacea canaliculata*, paddy, density

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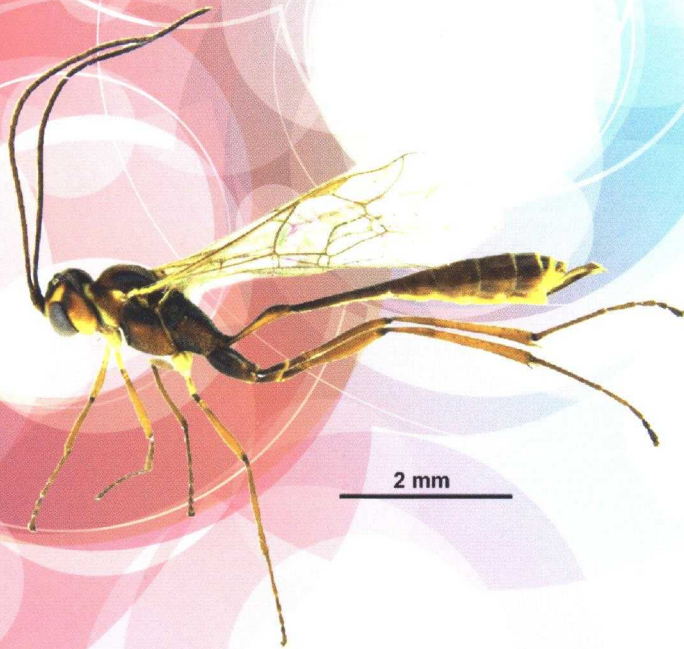
ABUNDANCE AND DIVERSITY OF ICHNEUMONIDAE AT GUNUNG MAT CHINCANG, PULAU LANGKAWI

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The Ichneumonidae is the largest family within the Order Hymenoptera, probably the most diverse order in the world. Ichneumonidae can be found all over the world, with more species in countries with moist and cool climates than in warm dry one. Ichneumonidae can be recognized by their characteristics such as the filiform antennae, usually with 16 or more segments, two-segmented hind trochanters, with the costal cell being absent at their wing and having two recurrent veins that form a cell in the lower part of the wing. Besides, the pronotum in lateral view is somewhat triangular. A study on the abundance and diversity of Ichneumonidae was conducted in Gunung Mat Chincang, Langkawi islands. Samplings were conducted in October 2012 until March 2013 using Malaise traps. Three traps were installed at one kilometre from the forest edge. One census line was horizontally constructed where each trap was laid 500 meters apart. A total of 95 ichneumonids comprising seven subfamilies and 20 morphospecies were collected. Campopleginae was found to be the most abundant subfamily in the study area with 56 individuals collected while Acaentinae was the least abundant subfamily with only one species and one individual. The diversity of Ichneumonidae at the study site is described by the following data: Shannon Diversity Index (H') of 2.07, the Shannon-Weiner Evenness Index of 0.40 and the Margalef Richness Index of 4.17. The above data reflect that the family Ichneumonidae has low diversity at Gunung Mat Chincang. This study provides a lot of knowledge and information in order to increase awareness in preventing the reduction of the Ichneumonidae since they play an important role in the ecosystem and in economic terms. Moreover, this study provides new data as reference to the Langkawi Development Authority (LADA) for conservation purpose in order to protect these valuable insects.



Keywords: Diversity, abundance, Ichneumonidae, Gunung Mat Chincang, Langkawi Islands

TRANSPORT PROPERTIES OF HEXANOYL CHITOSAN-LiClO₄-TiO₂ COMPOSITE POLYMER ELECTROLYTE

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Solid polymer electrolyte (SPE) is a complex polymer-salt formed by dissolving an inorganic salt in a polymer matrix. Rapid segmental motions of polymer chain in the amorphous phase increases the mobility of charge carriers. Increment in the number of charge carriers could be achieved by increasing salt concentration. However, the mechanical property is often sacrificed by increasing salt concentration. Dispersion of nano-sized inorganic filler such as Al₂O₃, SiO₂ and TiO₂ is one of the approaches to increase the mechanical property as well as the ionic conductivity of a SPE. This is known as composite polymer electrolyte (CPE).

The aim of this work is to develop hexanoyl chitosan-based CPE. The use of hexanoyl chitosan is attributed to the presence of lone pair electrons at the nitrogen and oxygen atoms where inorganic salt can be solvated. The effect of TiO₂ nanofiller on the transport properties of hexanoyl chitosan-LiClO₄ will be investigated and discussed in this study. Fig. 1(a) shows the effect of TiO₂ on the conductivity of the highest conducting hexanoyl chitosan-LiClO₄ electrolyte. The conductivity increases to 3×10^{-4} S cm⁻¹ at 6 wt% of TiO₂ and then decreases beyond this optimum content. The variation of dielectric constant with filler content is shown in Fig. 1 (b). The initial increase of conductivity with increasing TiO₂ content is due to the increase in the number of free ion. Interaction between Lewis acid-base sites of TiO₂ with ionic species of LiClO₄ leads to greater salt dissociation and hence greater number of free ions.

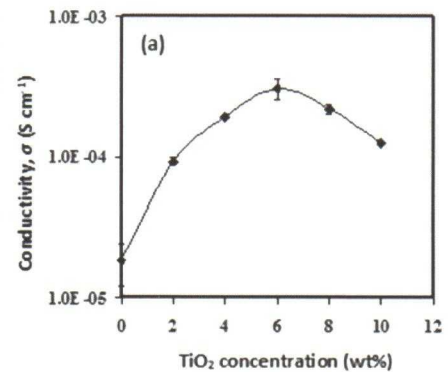
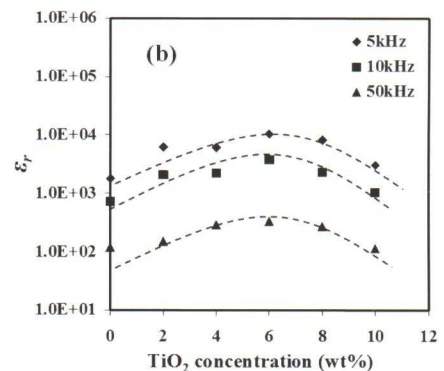


Fig. 1: (a) Ionic conductivity at room temperature for hexanoyl chitosan-LiClO₄ with various concentrations of TiO₂.



(b) TiO₂ concentration dependence of dielectric constant, ϵ_r at selected frequencies.

Keywords: Hexanoyl chitosan; LiClO₄; TiO₂

NOVEL BLEND OF BIOPOLYMER FROM KAPPA-CARRAGEENAN AND CELLULOSE-KENAF DERIVATIVES FOR ELECTROLYTES APPLICATION

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In this research, the properties of a biopolymer blend, kappa-carrageenan and cellulose derivatives, were investigated in order to identify the best blend composition for use as host of biopolymer electrolytes. The biopolymer blend system was prepared using solution casting technique. The cellulose derivative, carboxymethyl cellulose (CMCE), was produced from cellulose extracted from kenaf fibres and carboxymethyl kappa-carrageenan (CMKC) was synthesized from kappa-carrageenan.

The cellulose derivative was blended with different weight percent (wt %) of kappa-carrageenan derivative and was subjected to fourier transform infrared spectroscopy (FTIR) characterization, dynamic mechanical analysis (DMA), electrochemical impedance spectroscopy (EIS) and linear sweep voltammetry to investigate their structural, viscoelastic and electrical behaviour. DMA results showed a depression of the glass transition temperature of CMKC/CMCE blend indicating enhancement of segmental motion of polymer chains. The film containing 40 wt % of CMCE had the lowest glass transition temperature of -13.5 °C. DMA result also showed single damping for all blend compositions which suggested that the two polymers are miscible. This was further supported by the results of FTIR study. The interactions between the two polymers were expected to occur between hydroxyl groups of the polymers. EIS results showed that the conductivity of CMKC/CMCE blend films increased with increasing CMCE content. The polymer blend system containing 40 wt % of CMCE was found to be the highest conducting among all the polymer blend films. Therefore, this film is expected to be the most suitable blend to be explored for polymer electrolytes application.



Figure 1. Figure of Kappa carrageenan, kenaf fibre and CMKC/CMCE blend film

Keywords: Carboxymethyl kappa-carrageenan, carboxymethyl cellulose, polymer blend, polymer electrolytes

OXYGEN SENSING BEHAVIOUR OF EU123 CERAMIC RODS WITH HOT-SPOT.

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The hot spot phenomenon when external voltage is applied to RE123 (RE = Gd, Sm) ceramics was found by Takata et. al. (1999) The constant current produced after the appearance of the hot spot depends on the oxygen partial pressure in ambient atmosphere and can be used to sense oxygen without the need of an external heater.

We studied the Eu123 (Eu = Europium) system doped with praseodymium, Pr i.e. $\text{Eu}_{1-x}\text{Pr}_x\text{Ba}_2\text{Cu}_3\text{O}_{7-\delta}$ ($x=0.0, 0.05, 0.15, \text{ and } 0.20$). Ceramic rectangular rods were prepared by the solid-state reaction method to investigate the effect of Pr doping on oxygen sensing behaviours. A relatively constant output current after the appearance of hot-spot was observed for all samples. The magnitude of the constant output current was observed to be decreasing with increasing Pr doping which indicates possible reduction in intrinsic hole concentration. Similar sudden drop of the output current upon the appearance of hot-spot, as seen with Takata's work, was observed for rods with $x=0.0, 0.05$ and 0.10 due to the sudden increase in hot-spot temperature, before becoming slightly constant. However, the sudden drop of output current upon appearance of hot-spot was not observed when Pr was increased to $x=0.15$ and 0.20 but instead a stable output current was observed.

Interestingly, the output current after appearance of hot-spot for all rods showed strong dependency on ambient oxygen concentration. The sensitivity for each rod however, reduces with increasing ambient oxygen concentration. The doping seems to prevent the sensitivity from dropping to almost zero as was previously reported for other Eu123 rods probably due to existence of Cu-O chains in the orthorhombic structure. Pr doping (for $x=0.10$) has also resulted in better oxygen absorption response time and better output current stability compared to other rods.

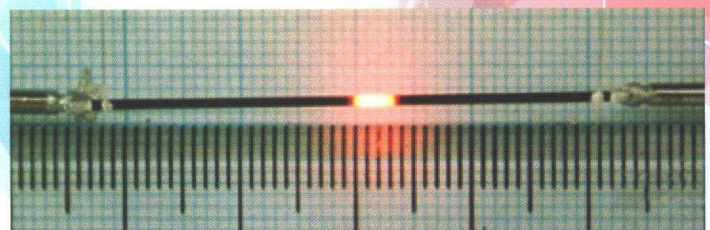


Fig. 1. Photograph of a hot spot appearing on a $\text{GdBa}_2\text{Cu}_3\text{O}_{7-\delta}$ ceramic rod. Figure taken from article by T. Okamoto, M. Takata, Ceramics International, 30 (2004) 1569–1574

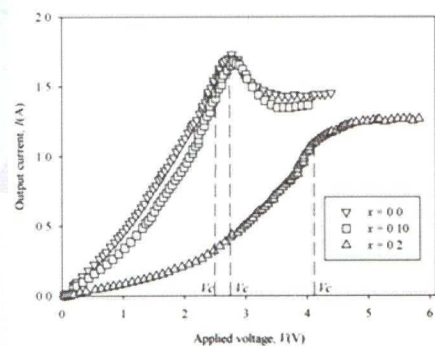


Fig. 2 I-V curve measurement for $\text{Eu}_{1-x}\text{Pr}_x\text{Ba}_2\text{Cu}_3\text{O}_{7-\delta}$ ($x=0, 0.10, \text{ and } x=0.20$) in ambient concentration of oxygen, $p\text{O}_2$. The dashed line indicates the hot-spot starts to be visible at applied voltage, V_c .

Keywords: Hot-spot rods, Eu123, Pr substitution, Oxygen sensors

STRUCTURAL STUDIES OF POROUS GaN FOR GAS SENSING APPLICATION

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Gallium nitride, GaN received attention from researchers as an ideal material to fabricate chemical sensing devices due to its excellent properties such as high thermal conductivity, mechanical stability and large band gap. Since porous GaN has a higher surface/volume ratio than crystalline GaN, it could also function as a gas sensor based on changes in photoconductivity during exposure to analytes.

Samples used for this experiment are commercial GaN grown on sapphire (Al_2O_3). The samples were cleaned in 1:20 $NH_4OH:H_2O$ for 15 seconds, followed by a second cleaning in 1:50 $HF:H_2O$ and a third cleaning 3:1 $HCl:HNO_3$ for 5 minutes. Samples with Pd contact sputtered are placed into a solution with ratio of $CH_3OH:HF:H_2O$ 1:4:1 under UV illumination by using Electroless Chemical Etching to produce porous GaN.

The surface morphology of the porous GaN samples were investigated by using scanning electron microscope, SEM. Figure 1.0 shows the SEM morphology of the sample before and after the etching process. From Figure 1(a), the surface of the as grown GaN sample is smooth while for porous GaN sample in Figure 1(b), the surface of the sample viewed at 25k magnification is uneven. A further investigation on the surface using 10k magnification as shown in Figure 1(c) infers that the surface of GaN sample after etching consists of repeating structure. We can see that on the porous GaN, it is made up of ridges and trenches. In all cases, the electroless deposition of metals on porous GaN is extremely sensitive to the conditions of the surface and plating bath. By using UV light, the absorption of incident radiation greatly increases the supply of holes available at the surface to participate in the oxidation reaction. The palladium contact sputtered onto the surface of porous GaN take the physical structure of the GaN surface.

From the figures of SEM images shown below, it can be concluded that the structure of porous GaN that has been coated with palladium contact will have an important role in gas detection mechanism which is suitable for gas sensing application.

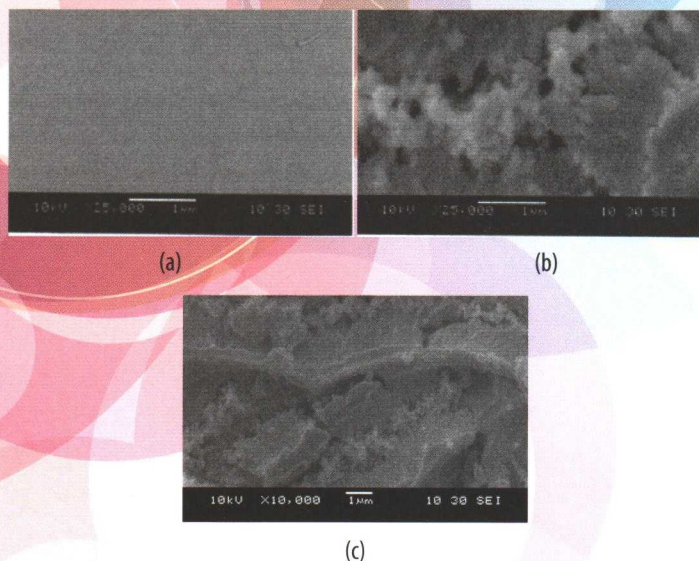


Figure 1.0: SEM images of (a) as grown sample at 25K (b) porous GaN at 25K (c) porous GaN at 10K magnification.

Keywords: Porous GaN, Pd contact, Gas Sensing, Electroless Chemical Etching.

SUPERCONDUCTING MATERIAL WITH MAGNETIC DYSPROSIUM NANOPARTICLES

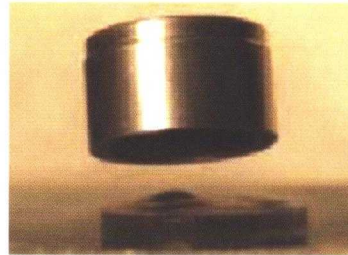
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This study presents the superconducting properties of a $Bi(Pb)$ -2223 crystal system when small weight percent of magnetic dysprosium nanoparticles, Dy_2O_3 was added to the system, i.e $Bi_{1.6}Pb_{0.4}Sr_2Ca_2Cu_3O_{10+\delta} - (Dy_2O_3)_x$ (for $x = 0.0$ to 0.10). It is hoped that by inducing magnetic nanoparticles, Dy_2O_3 into the $Bi(Pb)$ -2223 crystal structure, the superconducting

properties will be enhanced. The characterization on critical temperature (T_c) and transport critical current density (J_c) were done to prove this. J_c is the maximum value of the electric current per unit of cross-sectional area, (I_c/A) that a superconductor material will carry current without reverting to the normal (non superconducting) state. To produce homogenous powder composition such as $Bi(Pb)$ -2223, the powder was prepared by co-precipitation (COP) method. The mixture of chemicals containing Bi, Sr, Ca, Cu, and Pb acetate undergo the co-precipitation process and the precipitate was filtered and metal oxalate was formed. The compound formed was then heated at $730^\circ C$ for 12 hours in air. The second calcination was at $845^\circ C$ for 24 hours and in the final step, the powders were ground and added with the magnetic Dy_2O_3 nanoparticles by solid state reaction method. The maximum T_c achieved was at 109 K for the $x = 0.04$ sample. Although the T_c obtained is not very high, it is an achievement to found the relatively high T_c with addition of magnetic nanoparticles Dy_2O_3 compared to other studies. However, with further addition of Dy_2O_3 , T_c shows a decreasing trend. This is probably due to over doping. The defects in the crystal caused by over doping could have totally block the supercurrent and the size of nano-scaled Dy_2O_3 could also be associated to crystal defects such as dislocation and stacking faults that would lower down the T_c .

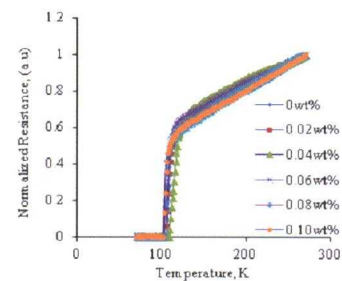


Figure 1: Normalized resistance ($R/R_{T=270K}$) as a function of temperature for samples sintered in air at $850^\circ C$ for 48 hours added with magnetic nanoparticles Dy_2O_3

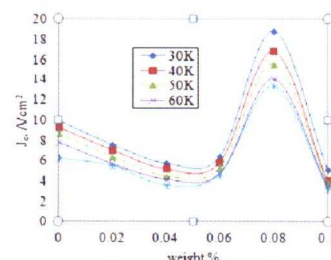


Figure 2: J_c as a function of various amount wt% magnetic nanoparticles Dy_2O_3 samples added in $Bi_{1.6}Pb_{0.4}Sr_2Ca_2Cu_3O_{10} - (Dy_2O_3)_x$ sintered in air at $850^\circ C$ for 48 hours

Keywords: J_c (critical current density), T_c (Transition Temperature), ξ (coherence length), COP (Co - Precipitation Method)

A STUDY OF $\text{LiMn}_{1.5}\text{Fe}_{0.5}\text{O}_4$ CATHODIC NANO MATERIAL FOR LITHIUM-ION BATTERIES

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Lithium – ion battery is a well-known rechargeable battery type that is commonly used in portable electronic devices. $\text{LiMn}_{1.5}\text{Fe}_{0.5}\text{O}_4$ was synthesized using the sol-gel method. Tartaric acid was used as the complexing agent. The precursor was then annealed at 850°C for 24 hours. It was then characterized using X-ray diffraction (XRD) as to check its purity and charge discharge analysis was done as to determine its performance. The bulk materials were then processed to become nanosized by grinding them using planetary ball milling PM200. Dry grinding process was done by optimizing the parameters as to minimize the damage of the samples grinded and to maintain its purity. The nano sample is then characterized using XRD and charge discharge performance, and the specific capacities of the two materials are compared.

Fig. 1 shows the XRD patterns of $\text{LiMn}_{1.5}\text{Fe}_{0.5}\text{O}_4$ with LiMn_2O_4 as the reference material. It shows that $\text{LiMn}_{1.5}\text{Fe}_{0.5}\text{O}_4$ sample is identical with that of LiMn_2O_4 having a spinel framework structure. Substitution did not appear to change the basic LiMn_2O_4 structure, but slightly change the lattice parameters due to the atomic size effect. Compared to XRD of sample $\text{LiMn}_{1.5}\text{Fe}_{0.5}\text{O}_4$ shown in Figure 2, the peaks were broad for nano sample. These indicate the characteristics of the nanocrystalline nature of the oxides. The diffraction patterns are nearly identical suggesting that the original crystallite size is small enough not to be crushed by ball-milling.

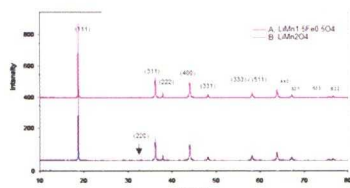


Figure 1 XRD patterns of sample A and B annealed at 850°C for 24 hours

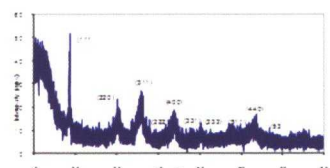
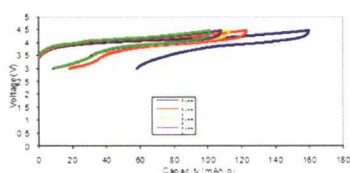


Figure 2 XRD pattern of nano $\text{LiMn}_{1.5}\text{Fe}_{0.5}\text{O}_4$ sample

Nano sample of $\text{LiMn}_{1.5}\text{Fe}_{0.5}\text{O}_4$ shows higher specific capacity which is 160.16 mAhg^{-1} compared to the bulk which gives only $128.663 \text{ mAhg}^{-1}$. The ungrounded materials for bulk sample of $\text{LiMn}_{1.5}\text{Fe}_{0.5}\text{O}_4$ showed much lower capacities compared to the nano sample for the first cycle. The grounded materials reacted with lithium at a voltage significantly higher than the ungrounded ones. Capacity plateaus are observed at 4.0 V until maximum 4.5 V. The materials prepared by ball milling are well suited for use as electrode materials, giving high utilization and good cycling performance for future battery developments. This shows that with smaller particle size, the battery performance has improved in terms of its capacity.



Charge-discharge curve of nano sample $\text{LiMn}_{1.5}\text{Fe}_{0.5}\text{O}_4$

keywords: sol-gel, nano material, lithium-ion battery, LiMn_2O_4

THERMAL AND CONDUCTIVITY STUDY ON BLENDS OF POLY(ETHYLENE OXIDE), POLYACRYLATES AND LITHIUM SALT

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A great demand for light, stable and high energy density batteries has stimulated the search for new generation electrolytes to replace the liquid electrolytes. Solid polymer electrolyte (SPE) has many advantages because they have better mechanical stability, flexibility for certain polymer hosts and the ease of fabrication into desirable sizes [1] that can be applied not only in lithium-ion rechargeable batteries but also in fuel cells, electro-chromic windows, super-capacitors and sensors [2-4].

Two types of poly(ethylene oxide) (PEO)-based blends, one with a non-commercial polyacrylate (PAC) and another with poly(methyl methacrylate) (PMMA) were prepared with and without the addition of lithium perchlorate (LiClO_4) using solution casting technique. Thermal analysis by differential scanning calorimetry (DSC) shows one single glass transition temperature (T_g) for the salt-free system of both the PEO-based blends, thus, affirms the miscibility of the blends. Fig 1 depicts that upon addition of 1-12 wt% of LiClO_4 , a single T_g higher than that of the pristine salt-free blend prevails throughout all the compositions of the marginally miscible PEO/PAC and PEO/PMMA blends investigated except for the PEO/PMMA 50/50 blend which phase separated when the LiClO_4 concentration ≥ 10 wt% is added, probably caused by the stronger $\text{Li}^+ \cdots \text{O}$ interaction that weakens the dipole-dipole interaction between the blending components. Besides, while the variation of the single T_g with blend composition of PEO/PAC blends corresponds closely to that of the Fox equation, the single T_g data of PEO/PMMA fits the Gordon-Taylor equation.

Concomitantly, ion conductivity (σ) determined by impedance spectroscopy (IS) shows that blend composition with 75 wt% PEO for both the PEO/PAC and PEO/PMMA blends exhibit the highest σ value in the order of 10^{-5} and 10^{-7} S/cm , respectively. The presence of the glassy PMMA amorphous region in the PEO matrix results in the lower σ value of the PEO/PMMA 75/25 blend as compared to that of the PEO/PAC. In addition, higher storage modulus and elasticity of the PEO/PAC 75/25 blend reveal by dynamic mechanical analyser (DMA) results coupled with the adhesive characteristic of PAC making it a potential polymer electrolyte with good mechanical property and enhanced electrode-electrolyte interfacial contact.

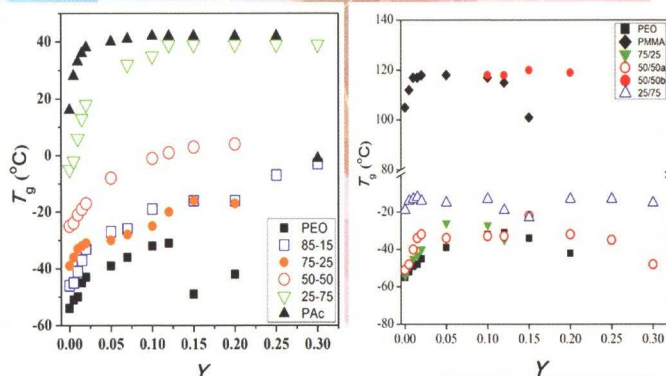


Fig 1. Variations of glass transition temperatures of (a) PEO/PAC and (b) PEO/PMMA of different blend compositions with different salt concentrations. The symbol Y is the ratio of the weight of salt to that of the polymer or polymer blend.

Keyword: poly(ethylene oxide), polyacrylates, glass transition temperature, conductivity, polymer electrolyte

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STRUCTURED LIPIDS FROM VIRGIN COCONUT OIL AS PERMEATION ENHANCERS AND EMOLLIENTS IN COSMETICS

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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 active ingredients 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 on 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), via lipase catalysed acidolysis of caprylic acid and the virgin coconut oil (VCO). The percentage of caprylic acid finally incorporated 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 applying caprylic acid to VCO ratio of 1.70 (w/w) with an enzyme loading and water content of 22.60% and 3.53%, respectively. Besides, the suggested temperature of the reaction is 63.4°C for a duration of 96 h. Using the predicted optimum conditions, pentaplicate experiments gave a good result ($64.11 \pm 1.14\%$) that coincided with the predicted value and the model was deemed to be adequate. The third part of the study was to examine 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 with shorter carbon chain was significantly a better permeation enhancer than VCO. The final part of the study was to evaluate the emollient properties of the newly developed enhancers 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 were conducted to human healthy respondents. Both SVCO and VCO creams have significant emolliency effect as compared to the skin before cream application.

THE OPTIMUM OPERATING CONDITION OF THE EXTRACTION OF PHENOLIC COMPOUND FROM PINEAPPLE SKINS USING MICROWAVE-ASSISTED EXTRACTION (MAE)

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A new method of extraction, which is Microwave-Assisted Extraction, has been widely used in the extraction of bioactive compound from plants. A great concern about the environmental problem nowadays has led the researchers and scientists to extract the bioactive compounds such as phenolic from fruit wastes. In this research, pineapple waste (namely skin) was chosen as the pineapple itself contains a very high phenolic compound and provide a good source of antioxidant to human's health. The two parameters varied were the microwave power and the extraction temperature. Each of the samples (pineapple skin) was evaluated for the Total Phenolic Compound and Antioxidant Activity. The aim of this study was to obtain the optimum operating condition of Microwave-Assisted Extraction in the extraction of phenolic compound from pineapple wastes. From the result, it was found that the optimum condition was at 750W microwave power and 60°C operating temperature. At this optimum condition, the Total Phenolic Compound observed was 207.72 mg GAE/g dry weight, whereas for the EC_{50} the DPPH value obtained was the lowest, 13.2 mg/mL. The higher the phenolic compound, the lower will be the EC_{50} value, and the better will be the antioxidant property. Therefore, the optimum condition to extract the phenolic compound from pineapple wastes by using the Microwave-Assisted Extraction has been achieved and thus it is proved that pineapple is one of the best sources of natural antioxidant which give benefits to mankind generally.



Keywords: Pineapple, Microwave-Assisted Extraction, Microwave Power, Operating Temperature, Total Phenolic Compound, Antioxidant Activity, Optimum Condition

ELECTRODEPOSITION OF METAL OXIDE SEMICONDUCTOR PHOTOCATALYSTS ON SUPPORT FOR DEGRADATION OF BENZENE-TOLUENE-XYLENE

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For decades, water pollution has been a serious environmental problem to the agriculture industry, the ecosystem and human health. Nowadays, after many studies done by researchers globally, the theory of photocatalysis achieves acceptance internationally due to its ability to degrade organic contaminants such as benzene, toluene and xylene (BTX). Photocatalysis is defined as the acceleration of a photoreaction process in the presence of a catalyst.

The first objective of the study was to evaluate the photodegradation efficiency of the recycled Zn/ZnO/TiO₂ on BTX as compared to the pristine material. The second objective was to compare the catalytic activity of two semiconductor materials namely Zn/ZnO/TiO₂ and Al/Al₂O₃/TiO₂ on the photodegradation of BTX in aqueous system under UV-light irradiation. The photocatalyst plates of Zn/ZnO and Al/Al₂O₃ were prepared by electrodeposition process using sodium hydroxide, NaOH and sulfuric acid, H₂SO₄, respectively. The optimum applied voltage used in the preparation of the Zn/ZnO and Al/Al₂O₃ plates via anodic oxidation process carried out on the Zn and Al plates was 12 V. Both the photocatalyst plates were coated with TiO₂ using cathodic electrodeposition method. The results depicts that the recycled or spent Zn/ZnO/TiO₂ photocatalyst exhibits a drastic decrease in photodegradation efficiency of 61.49% on BTX as compared to 88% for the freshly prepared Zn/ZnO/TiO₂. For the comparative study on the photocatalytic activity between Zn/ZnO/TiO₂ and Al/Al₂O₃/TiO₂ towards UV-induced photodegradation of the BTX compound, Zn/ZnO/TiO₂ demonstrates a higher percentage of BTX degradation (91.54%) after four hours of UV irradiation. The surface morphology of Zn/ZnO and Al/Al₂O₃ as shown in Figures 1 (a) and (b), respectively displays that the Zn/ZnO photocatalyst plate has fine surface with extremely small pores which gives the photocatalyst plate a high degree of porosity as compared to that of Al/Al₂O₃ plate. Large surface porosity of the prepared Zn/ZnO plate enhanced the deposition of larger amount of TiO₂ particles on the photocatalyst surface. This observation supported the photocatalytic activity of Zn/ZnO/TiO₂ photocatalyst which gave better performance and high efficiency on UV-induced degradation of BTX as compared to the Al/Al₂O₃ plate.

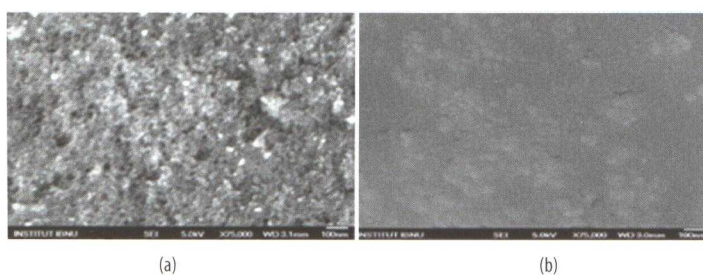


Figure 1. FESEM images at magnification 75.0 kx. (a) Zn/ZnO and (b) Al/Al₂O₃

Keywords: photocatalyst, degradation, electrodeposition, Al₂O₃, ZnO, TiO₂.

REUSABILITY OF IRON-CONTAINING SLUDGE IN THE SOLAR PHOTO-FENTON OXIDATION

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Solar photo-Fenton oxidation process is one of the advanced oxidation processes that have been proposed as an alternative in wastewater treatment. Chemical treatment methods based on this process involve the production of hydroxyl radicals (OH⁻) by catalytic decomposition of hydrogen peroxide (H₂O₂) and ferrous ion (Fe²⁺) in acidic condition. The presence of solar light helps in increasing the production of hydroxyl radicals. These radicals which have high standard oxidation potential act as catalyst in solar photo-Fenton process resulting in high rate of reaction compared with other conventional oxidants. Thus, it has the capability of reducing the Chemical Oxygen Demand (COD) and color in wastewater.

However, Fenton sludge produced after oxidation is potentially hazardous and requires further treatment. Considering the high efficiency of Fenton oxidation process and its limitation to the generation of scheduled sludge, a study was conducted to investigate the efficiency of recycled iron-containing sludge as a source of Fe²⁺ in the Fenton process to remove COD and color in waste water. Three initial samples were prepared by mixing 1000 mL palm oil mill secondary effluent (POMSE) with 22.34 g of Fe as FeSO₄·7H₂O for dissolution of catalyst at pH 3 with H₂SO₄ for a few minutes. Then, the Fenton process was initiated by adding H₂O₂ according to 2.12 of COD/H₂O₂ ratio. The three samples were subjected to three different reaction times of 15, 30 and 60 min with continuous stirring under sunlight. The oxidation was halted by neutralizing process with NaOH to pH 7-8 followed by decanting process. Finally, the supernatant was collected for analysis of COD and color by COD meter and Hach DR2800 spectrophotometer, respectively. While, the Fenton sludge separation from its solution was performed by centrifugation (3 min, 2500 rpm). The sludge collected after centrifugation in the first cycle (F1) was reused as the Fe²⁺ source (catalyst) and added to 1000 mL POMSE and 2.12 of COD/H₂O₂ ratio before going through the solar Fenton process as the second cycle (R1). The capability to reuse the iron-containing sludge in this study was determined by repeating the process for five times (R1-R5) at the three different reaction times using the sludge produced in the previous cycle as iron source without adding any more FeSO₄·7H₂O.

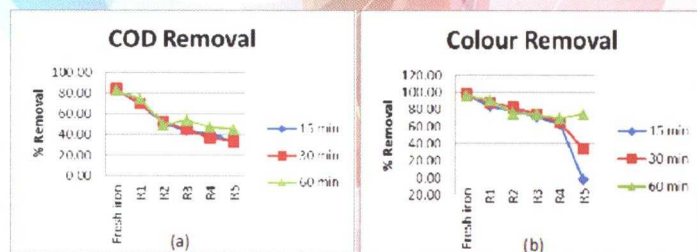


Figure 1: The percent removal of (a) COD and (b) color in the supernatant as functions of different cycles of treatment at three different reaction times.

Figures 1 (a) and (b) show that the percent removal of COD and color at the three reaction times investigated decrease with increasing number of recycle of the Fe²⁺-containing sludge. It is noted in Fig 2 that the recycled Fe²⁺-containing sludge is the most efficient in removing COD and color even after five times of recycling at the reaction time of 60 min. Furthermore, the removal of COD is still efficient at the first recycle process (R1) but drops by ~20% subsequently due to large amount of untreated of organic content in the sludge from the previous treatment. However, the percent removal of color is fairly satisfactory, above 60% at the fifth cycle of wastewater treatment.

Keywords: Fenton sludge, sludge reuse, waste water treatment

POTENTIAL ANTIOXIDANT FROM *VATICA PAUCIFLORA*

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Free radicals or reactive species (RS) are generated due to pollution, radiation, toxins as well as in deep fried and spicy foods. They are constantly produced in cells through normal metabolic processes. Many RS are powerful oxidizing agents capable of damaging DNA and other biomolecules [1]. On the other hand, antioxidants are known to reduce oxidative damage of human body by RS including reactive oxygen species (ROS) and retard the progress of many chronic diseases. Oxidant or oxidative stress occurs when the amount of RS within the cells exceeds the level of antioxidant present. This situation may lead to injury or killing of cells, atherosclerosis, cancer, stroke and other age related diseases [2]. Therefore, through the efforts of researchers, many synthetic antioxidants such as butylated hydroxy anisole (BHA), butylated hydroxy toluene (BHT) and gallic acid esters have been produced to curb with these diseases. Unfortunately, these synthetic antioxidants often contribute to liver damage and carcinogenesis [3]. Henceforth, extensive studies on natural antioxidants are carried out in search for safer antioxidants.

Dipterocarpaceae is a family of tropical rainforest trees which are well-known in the timber industries for construction purposes. The species of *Shorea* (Meranti), *Neobalanocarpus* (Chengal) and *Dipterocarpus* (Keruing) are among the most valuable woods while *Vatica* (Resak) is less important commercially in timber production because it is a soft wood. Apart from its contribution to the timber industries, this family is known to contain abundant sources of phenolic compounds mainly the oligostilbenoids (oligomer stilbenoids). Early phytochemical studies on the stem bark of Indonesian *Vatica pauciflora* revealed the presence of bioactive oligostilbenoids [4,5]. In our work, we discovered the potential benefit of Malaysian *V. pauciflora* (twigs) in the prevention of oxidative damage. The Ferric Reducing Antioxidant Power (FRAP) assay is conducted on the crude extract of the twigs with and without Chang liver cell, firstly, to measure its antioxidant capacity and secondly, to determine the possibility of the crude extract in stimulating the production of endogenous antioxidant in the body. The results show that the crude extract of the twigs (without Chang liver cells) exhibits antioxidative property with a FRAP value of ~22.24 ~M. Interestingly, when treated with Chang liver cells, the crude extract displays a significant increase in FRAP value to 116.47 ~M implying that the crude extract has the ability to enhance the production of antioxidant in Chang liver cells.



Keywords: free radicals, timber, oligostilbenoids, *Vatica pauciflora*

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GP APPROACH IN FINANCIAL DISTRIBUTION OF ASSOCIATION/ CLUB ACTIVITIES

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Student's involvement in the association/club activities is one of the colleges/universities goals in order to produce graduates with high self-esteem and good leadership and social skills in addition to other soft skills. Financial controls are necessary to ensure that all programs and activities are carried out efficiently and effectively. Based on the above scenario, lexicography goal programming (GP) approach has been used to produce a model for the optimal solution to financial distribution problem in implementing student's activities. A total of 22 associations/clubs under the management of HEP INTEC were selected as a case study involving activities conducted within and outside the campus. In 2009, the management has allocated a total budget of RM 200,000.00 to support the student's activities. Funds allocated are based on the average cost of execution and the number of activities that have been carried out earlier.

The collected data considers the types of associations/clubs available, the list of activities within and outside the campus and the number of financial revenues allocated. The construction of the basic model consists of three steps which are determining the decision variables, formulating objectives and defining constraints. Decision variables are representative of the number of activities within and outside the campus that can be carried out by each type of association/club. There are four priority levels involved such as limiting the total cost for the entire activities, carrying out at least 108 to 262 activities of the associations/clubs, limiting the use of financial resources for activities within the campus by 60% of the total allocation being used and maintaining the percentage of maximum and minimum number of activities that can be carried out to obtain the amount of funds. Goal programming that was modeled was tested using the full version of LINGO software (LINGO extent) that does not limit the number of variables and constraints.

From the solution of the model, the amount of funding can be reduced by RM 7,756.29 to RM 192,243.66 while the amount of financial provision for activities within the campus on the other hand can be limited to as much as RM 8,472.93 from 60% of the total allocation of RM 115,346.2 used to be RM 106,873.28. The total number of activities can be raised to 163 compared to the number of current activities of 154. However, there are a number of associations/clubs that have to reduce the number of activities undertaken to ensure that the provision received does not exceed the acceptable amount.

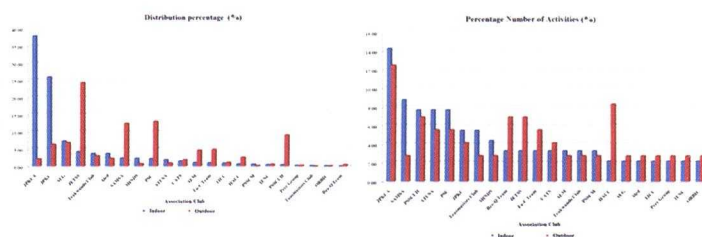


Figure 1:
Percentage of the total allocation for each association/club

Figure 2:
Percentage of activities that can be carried out for each association/club

Keywords : goal programming, financial distribution, student's activities

PRELIMINARY STUDY OF ONLINE INTERACTION FACTOR IN BLENDED LEARNING MODE AT CENTRE OF FOUNDATION STUDIES, PUNCAK ALAM

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Malaysian Higher Education Blueprint 2015 – 2025 (Higher Education) has outline '10 Shifts' to ensure continued excellence in higher education system in Malaysia. The '10 Shifts' address the issues in education system in terms of the quality, efficiency and global trends [1]. The 9th Shift caters to the issue of Globalised Online Learning where it specifies that 'Blended learning models will become a staple pedagogical approach in all higher learning institutions [1]. Thus, this research is done to look at the student's attitude towards online interaction in blended learning mode between students of foundations in science and students of foundations in engineering at the Centre of Foundation Studies (CFS), UiTM Puncak Alam. The survey's questionnaire were randomly distributed among students and 323 completed questionnaire were received; 84 from engineering students and 239 from science students.

This study was conducted by using questionnaire from Tang [2] and Suhail [3]. Likert scale 5-point was used for items in the questionnaire. Online interaction factor defined by Tang is a collaboration platform for group-based learning as an asynchronous web-based discussion forum. Our study showed that the overall mean percentage towards online interaction factor were 69.4% and 74.8% for science and engineering students respectively. This showed that both sets of students were ready for blended learning. In terms of using web technologies in exchanging knowledge with others, only 65% of science students showed positive feedback compared to 90.4% positive feedback for engineering students. As for online communication, 86.6% of science students and 94% of engineering students gave positive respond.

The result of this study showed different outcomes from these two sets of students due to the exposure towards technology and the subjects taken by the students, where engineering students take IT as one of the subjects for the engineering foundation program. In general, students prefer to use technology as a medium of social interaction and communication but uncomfortable in receiving knowledge using web technologies.



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MEASUREMENT OF STUDENTS UNDERSTANDING ON C PROGRAMMING: RASCH ANALYSIS

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Measuring students' performance is vital in education as it monitors the learning pattern of the students (Aziz, et. al, 2013). Students' performance will indicate how far the learning objective of the subject has been achieved. Students of the Foundation in Engineering program need to complete four core subjects; Mathematics, Physics, Chemistry and Computing. For the Computing subject, students learn the basic C programming language. Students were taught the theoretical and practical basic concepts of C programming language. They were required to write a code of this programming language so that lecturers could evaluate their understanding of this subject. However, it is important that a suitable assessment method is used to properly evaluate the student's understanding. In this study, Rasch analysis is used to measure the student's understanding of the C programming. The analysis will enable the researcher to determine the suitability of the assessment method used. The reason for choosing Rasch Measurement Model is because the model moves the concept of reliability from creating "best fit line" of the data into constructing reliable measurement instrument. Rasch focuses on constructing the measurement instrument to fit the model and, unlike statistical modeling; it creates a model to fit the data (Aziz, et.al, 2013). Thus, an appropriate measuring instrument is vital to ensure quality information can be generated for significant use (Ghulman, et.al, 2009). The sample of this study consisted of 75 Foundation in Engineering students from Universiti Teknologi Mara (UiTM). The instrument used was C Programming Language final examination paper which carried 40% of the total marks for the subject. The final examination paper comprises of various topics in C programming language which was developed according to Bloom's Taxonomy level of mastery. Marks from each student for each question, or referred to as items, are tabled accordingly before running it in the Rasch Measurement Model software, Ministeps. Figure 1 showed that students had good understanding on all 'Application' type of questions. Thus, all 'Application' type of questions fall under the easy category. However, students had low ability to understand the 'Knowledge' and 'Understanding' type of questions. Hence, both 'Knowledge' and 'Understanding' type of questions were considered as difficult questions. From the Rasch analysis, students were classified according to their achievement in answering questions ranging from hard to easy levels. It definitely reflects their learning abilities and level of understanding in this subject.

Keyword: C Programming, Foundation Studies, Rasch

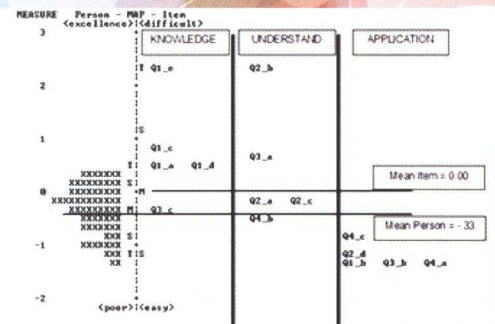


Figure 1. Wright Map

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Sudoku Puzzle & Quotes

			4			3		
3	4	5			8	7	6	9
	1	8	9		3			
					1		9	
4	8			6			7	2
	9		3					
			6		5	2	1	
9	5	2	8			4	3	6
		7			4			

2	7	1		4		9		
4					8			
		8			1			
	8		5	2			9	
6								4
	2			6	4		5	
			4			8		
			6					2
		5		3		6	4	7

		8	9				1	
2					7		3	
1								4
		9		7				1
	8	1		6		9	5	
4				3		6		
8								5
	2		4					7
	6				3	1		

Quotes

We didn't lose the game; we just ran out of time.

~ Vince Lombardi ~

The highest reward for man's toil is not what he gets for it,
but what he becomes by it.

~ John Ruskin ~

Nothing great was ever achieved without enthusiasm.

~ Ralph Waldo Emerson ~

Life's tragedy is that we get old too soon and wise too late.

~ Benjamin Franklin ~

Ilmu itu lebih baik daripada harta. Ilmu menjaga engkau dan engkau menjaga harta. Ilmu itu penghukum (hakim) dan harta terhukum. Harta itu kurang apabila dibelanjakan tapi ilmu bertambah bila dibelanjakan.

~ Saidina Ali bin Abi Talib ~

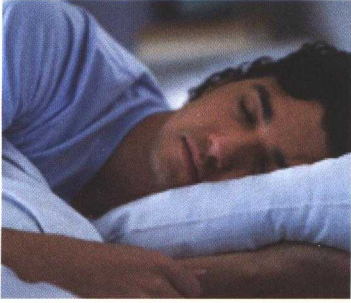
Orang yang paling aku sukai adalah dia yang menunjukkan kesalahanku.

~ Saidina Umar al-Khattab ~

Hal-hal yang bisa menyebabkan badan lemah antara lain sebagai berikut: Banyak makan makanan yang rasanya masam, sering bersedih, banyak minum air tetapi tidak makan sesuatu, serta sering melakukan hubungan seksual.

~ Imam Ghazali ~

1. Some studies suggest women need up to an hour's extra sleep a night compared to men, and not getting it may be one reason women are much more susceptible to depression than men.



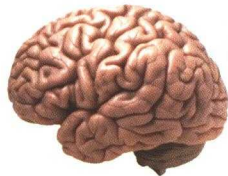
2. Phone service was established at the White House one year after its invention. President Rutherford B. Hayes was the first to have phone service (1877-81).



3. According to the latest Japanese Scientific Research, a full ripe banana with dark patches on the yellow skin produce a substance called TNF (Tumor Necrosis Factor) which has the ability to combat abnormal cells. The more dark patches it has higher its immunity enhancement quality. Hence the riper the banana the better the anti-cancer quality. A yellow skin banana with dark spots on it is 8 times more effective in enhancing the property of white blood cells than a green skin version.



4. Your brain makes seemingly conscious decisions 7 seconds before you are consciously aware of them.



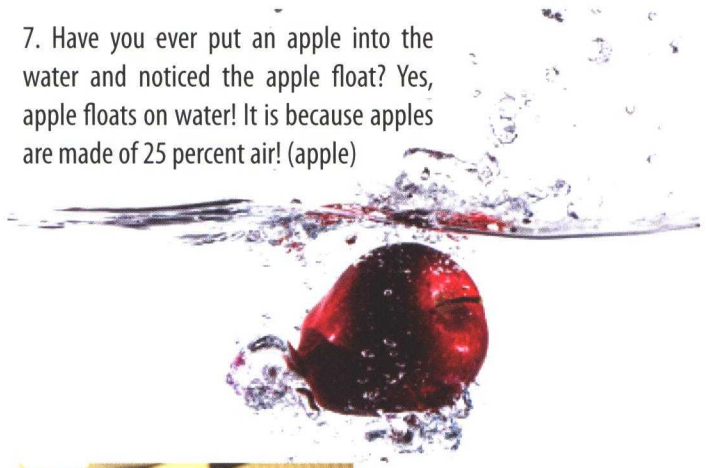
5. Healthy eyes are so sensitive to light that a candle burning in the dark can be detected 1.6km (1 mile) away. Furthermore, the human eye can distinguish about 10 million different colours. Surprisingly, there is currently no machine that can achieve this remarkable feat.



6. JK Rowling intended the 't' at the end of 'Voldemort' to be silent, as in the French word 'mort' meaning 'death'. It was read this way in the first four US audio books but had to be changed after the first film released because the actors pronounced it incorrectly.



7. Have you ever put an apple into the water and noticed the apple float? Yes, apple floats on water! It is because apples are made of 25 percent air! (apple)



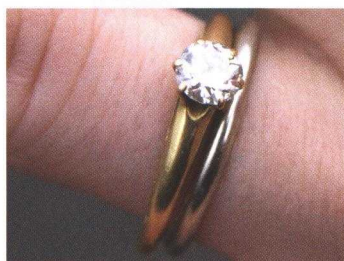
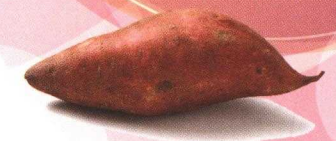
8. Did you know; you can't talk when you inhale. When you speak you won't be able to inhale. Give it a try.

9. Did you know, if you share your goals with others, there is a 50 percent chances that you may not achieve it. Sharing the goals and objectives reduces the motivation, says the studies about motivation.



10. Your fingernails grow faster in cold weather.

11. Kidney beans actually heal and help maintain kidney function. While sweet potatoes look like the pancreas and actually balance the glycemic index of diabetics



12. The wedding ring goes on the left ring finger because it is the only finger with a vein that connects to the heart

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