



11TH AMDI POSTGRADUATE SCIENTIFIC SEMINAR

Date

27 July 2016

Venue

Advanced Medical
and Dental Institute

WELCOME TO AMDI USM POSTGRADUATE SCIENTIFIC SEMINAR

The scientific seminar is held once a year with the aim to foster research presentation skills among postgraduate students at AMDI, Universiti Sains Malaysia. It is also a platform for everyone to meet and share research ideas. The seminar is conducted after the students have completed their dissertations. Therefore, this will indirectly assist the students to prepare for their *viva voce* examination.

This seminar involves participants comprising of lecturers, staff and postgraduate candidates. The participants are from AMDI Master of Science (mixed-mode) courses which include Transfusion Science, Medical Research, Oral Science and Health Toxicology. Each student will present their research findings which will be assessed by a panel of jury. The best presenters will be awarded.

The committee would like to take this opportunity to thank the Director, AMDI PPKT and all AMDI staff who have been involved in organizing the 11th AMDI Postgraduate Scientific Seminar.

**The Organizing Committee of the 11th AMDI Postgraduate Scientific Seminar
Academic and Student Affairs Division
Advanced Medical and Dental Institute
Universiti Sains Malaysia**

27 July 2016

PREFACE BY DIRECTOR

Being a postgraduate research institute, Advanced Medical and Dental Institute (AMDI) Universiti Sains Malaysia (USM) aims to promote research that emphasizes on quality and excellence. In view of this, AMDI always encourages active involvement among its staff and students in high-impact fundamental and applied research projects that will not only generate new knowledge but benefit the local community and society at large. I am very pleased that many of the Institute's staff have managed to secure national and university research grants in important fields including oncology.

I believe that the 11th AMDI Postgraduate Scientific Seminar will be a good platform for students and other researchers to share their research findings and seek potential collaboration for future research ventures. Congratulations to the committee members who have worked very hard on ensuring the success of this event.

Thank you.

Dr. Norehan Mokhtar
Director
Advanced Medical and Dental Institute
Universiti Sains Malaysia

**PREFACE BY DEPUTY DIRECTOR
(ACADEMIC AND STUDENT AFFAIRS)**

Postgraduate Scientific Seminar is an annual event held by AMDI. Apart from being a platform for postgraduates to disseminate their research findings, it inculcates the skills in public speaking, presentation, audiovisual techniques and communication with the audience. This is an excellent learning platform for further professional development.

I would like to extend my heartiest congratulations to the organizing committee in their efforts to organize this seminar. I would also like to thank all the participants for presenting their research findings.

Thank you.

**Prof. Madya Dr. Bakiah Shahrudin
Deputy Director (Academic & Student Affairs)
Advanced Medical and Dental Institute
Universiti Sains Malaysia**

CLOSING CEREMONY

VENUE : Director's Meeting Room (Lot 45B)

DATE : 27 July 2016

Time	Activity
12.30 pm – 12.35pm	Closing speech : Prof. Dr. Narazah Mohd Yusoff Deputy Director Research and Networking Division, AMDI
12.35 pm	- Prize Giving Ceremony - Best Presenter Award - Certification to All Presenters
12.40 pm	End of Session

11th AMDI Postgraduate Scientific Seminar 27 July 2016

Programme : MEDICAL RESEARCH (5 candidates)
 Chairperson : Dr. Shahrul Bariyah Sahul Hamid / *Dr. Rafidah Zainon
 Fellow/GA : En. Nor Hussaini Abdul Hapit

Time & Venue		Student Name	Title	Supervisors	Jury
9.30 am – 9.45 am		REGISTRATION			
Director's Meeting Room 10.00 am – 12.30 pm	10.00 – 10.30	*Athirah Abdul Sani	Study On Apoe Gene Polymorphism And Coronary Artery Disease In Diabetic Patients	Dr. Shahrul Bariyah Sahul Hamid (MS) Dr. Nor Hazwani Ahmad (CS)	1. Dr. Khadijah Abdul Hamid 2. Dr. Shazril Imran Shaukat
	10.30 – 11.00	Benjy Tan Jek Yang	Effect Of CRISPR-mediated tat knockdown on HIV-1 provirus gene expression	Dr. Kumitaa Theva Das (MS) Dr. Tan Jun Jie (CS)	1. Dr. Leow Voon Meng 2. Dr. Nurulisa Zulkifle
	11.00 – 11.30	Muhammad Hasnor Ja'afar	Host-guest inclusion complex between anti cancer agents and beta cyclodextrin.	Dr. Muggundha Raoov Ramachandran (MS) Dr. Nik Nur Syazni Nik Mohamed Kamal (CS)	1. Dr. Noorfatimah Yahaya 2. Dr. Doblin Sandai
	11.30 -12.00	Norshuhaida Abdul Rahim	Study on the role of sea cucumber infused mosquito repellent cream in the abrasion wound healing activity of sprague dawley rats.	Dr. Jahangir Kamaldin (MS)	1. Dr. Rafidah Zainon 2. Wong Pak Kai
	12.00 - 12.30	Nur Habibah Abdul Razak	A Novel Aptamer-Based Capturing Assay Of Total Erythropoietin (Epo) Using Streptavidin-Coated Microtiter Plate As The Platform	Dr. Citartan Marimuthu (MS) Prof. Dr. Tang Thean Hock (CS)	1. Dr. Ch'ng Ewe Seng 2. Dr. Nurulisa Zulkifle
12.30 pm		CLOSING CEREMONY			

***Chairperson for Athirah Abdul Sani presentation**

Note :

1. Main Supervisor (MS)
2. Co-Supervisor (CS)
3. Students are given 15 minutes for presentation and 10 minutes for Q & A.
4. Fellow/GA : Time keeper and calculation of marks

11th AMDI Postgraduate Scientific Seminar 27 July 2016

Programme : TRANSFUSION SCIENCE (4 candidates)
 Chairperson : Dr. Nur Arzuar Abdul Rahim
 Fellow/GA : Cik Nur Ainina Abdollah

Time & Venue		Student Name	Title	Supervisors	Jury
9.30 am – 9.45 am		REGISTRATION			
Academic Meeting Room 10.00 am – 12.00 pm	10.00 – 10.30	Elaine Lim Siew Lee	Knowledge of blood transfusion among nurses in Hospital Pulau Pinang: Nursing responsibilities and patient management related to transfusion reactions.	Dr. Sharifah Azdiana Tuan Din (MS) Dr. Nur Arzuar Abdul Rahim (CS)	1. Dr Siti Salmah Noordin 2. Dr Wong Mung Seong
	10.30 – 11.00	Mirashini Gunendren	<i>In vitro</i> effect of <i>Ocimum sanctum</i> (Tulsi) leaf extract on prothrombin time (PT), activated partial thromboplastin time (APTT) and thrombin time (TT) in human plasma.	Dr. Siti Salmah Noordin (MS) Dr. Muggundha Raoov a/l Ramachandran (CS)	1. Dr Abdul Rahim Hussein 2. Dr Ida Shazrina Ismail
	11.00 – 11.30	Mohd Faizal Mohamed Yusuf	Prevalence of NS1 dengue antigen viruses among blood donor in Perak and Penang.	Prof. Dr. Narazah Mohd Yusoff (MS) Dr. Hafizuddin Mohamed Fauzi (CS)	1. Dr Tan Kok Leng 2. Dr Muhammad Amir Yunus
	11.30 -12.00	Nur Yuzaiza Yusoff	Determination Of Blood Coagulation Factors Level Using Malaysian <i>Mikania Cordata</i> Leaves	Dr. Hafizuddin Mohamed Fauzi (MS) Prof. Madya Dr. Badrul Hisham Yahaya (CS)	1. Dr Emmanuel Jairaj Moses 2. Dr Wan Adnan Wan Omar
12.30 (Director's Meeting Room)		CLOSING CEREMONY			

Note :

1. Main Supervisor (MS)
2. Co-Supervisor (CS)
3. Students are given 15 minutes for presentation and 10 minutes for Q & A.
4. Fellow/GA : Time keeper and calculation of marks

11th AMDI Postgraduate Scientific Seminar 27 July 2016

Programme : ORAL SCIENCE (2 candidates)
 Chairperson : Dr. Siti Noor Fazliah Mohd Noor
 Fellow/GA : En. Adebayo Ismail Abiola

Time & Venue		Student Name	Title	Supervisors	Jury
9.30 am – 9.45 am		REGISTRATION			
ARC Meeting Room(1)	10.00 – 10.30	Dr. Rasha Ibrahim Sasi Al Ghali	Dental Age Estimation: Comparison Of Two Methods	Dr. Anis Farhan Kamaruddin (MS) Dr. Norehan Mokhtar (CS)	1. Dr. Sa'adiah Shahabudin 2. Dr. Khoirulzariah Ismail
10.00 am – 11.00 pm	10.30 – 11.00	Nurfariana Farah Abdullah	Knowledge, attitude and practice of tooth wear among adults in North Seberang Perai.	Dr. Husniyati Roslan (MS) Dr. Siti Noor Fazliah Mohd Noor (CS)	1. Dr. Sa'adiah Shahabudin 2. Dr. Khoirulzariah Ismail
12.30 (Director's Meeting Room)		CLOSING CEREMONY			

Programme : HEALTH TOXICOLOGY (1 candidate)
 Chairperson : Dr. Fatanah binti Mohamad Suhaimi
 Fellow/GA : En. Adebayo Ismail Abiola

ARC Meeting Room(1)	11.00 – 11.30	Nur Aisyah Mohd Yusoff	Comparison of cytotoxicity between aqueous extract of green and red <i>Christia vespertilionis</i> .	Dr. Nor Aini Saidin (MS) Dr. Lim Vuanghao (CS)	1. Dr. Nor Hazwani Ahmad 2. Dr. Nozlana Abdul Samad
12.30 (Director's Meeting Room)		CLOSING CEREMONY			

Note :

1. Main Supervisor (MS)
2. Co-Supervisor (CS)
3. Students are given 15 minutes for presentation and 10 minutes for Q & A.
4. Fellow/GA : Time keeper and calculation of marks

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Note :

1. Main Supervisor (MS)
2. Co-Supervisor (CS)

**STUDY ON *APOE* GENE POLYMORPHISM AND
CORONARY ARTERY DISEASE IN DIABETIC PATIENTS**

ABSTRACT

Apolipoprotein E (*APOE*) gene plays a major role in lipoprotein metabolism and lipid transport. Various studies on the association of the *APOE* gene polymorphism among diabetes patients with coronary artery disease (CAD) also has been investigated in the last few years. However, there is no report among the Malaysian population in regard to the association of *APOE* gene polymorphism among patients with T2DM and CAD patients. Thus, the objective was to study role of *APOE* gene polymorphisms in development of CAD among type 2 diabetes mellitus (T2DM) patients in Hospital Kuala Lumpur (HKL). Total of 45 T2DM patients (21 men and 23 women) was investigated in which 11 of them had complications with CAD. Biochemical analyses included glucose, HbA1c and lipid profile which consists of total cholesterol (TC), triglycerides (TG), low density lipoprotein (LDL-C) and high density lipoprotein (HDL-C). Data were obtained from the Hospital Kuala Lumpur Pathology Laboratory database. Genotyping of *APOE* was done by using polymerase chain reaction-restriction fragment length polymorphism (PCR-RFLP). The PCR product was digested with restriction enzymes. Fragments were separated agarose gel electrophoresis. The T2DM with and without CAD subjects had significant differences in glucose and TG plasma levels ($p = 0.048$ and $p = 0.019$). The *APOE* genotypes detected in this study were of $\epsilon 3/\epsilon 3$, $\epsilon 3/\epsilon 4$, $\epsilon 2/\epsilon 3$, $\epsilon 2/\epsilon 4$ and $\epsilon 4/\epsilon 4$ except for $\epsilon 2/\epsilon 2$ genotype. Research finding showed, frequency of $\epsilon 3/\epsilon 4$ genotype was higher among T2DM with CAD compared to T2DM no CAD. However, there was no significant difference in distribution of the *APOE* genotype and alleles among both groups. Study showed there was a significant difference of HDL-C level between *APOE* genotype ($p = 0.004$) and alleles ($p = 0.001$). It was noted only T2DM patients with no CAD were affected with allele's variation and HDL-C levels. Further analysis on the association of the *APOE* gene polymorphism and lipid profile showed there were no significant difference for TC, TG and LDL-C with genotypes and alleles. In conclusion $\epsilon 4$ higher in CAD and reduces HDL-C.

**EFFECT OF CRISPR-MEDIATED TAT KNOCKDOWN ON HIV-1
PROVIRUS GENE EXPRESSION**

ABSTRACT

Human immunodeficiency virus (HIV) is the known causative agent of acquired immunodeficiency syndrome (AIDS) which is one of the most devastating infectious diseases in the history of mankind. Despite the use of highly active antiretroviral therapy (HAART) to control viral replication, it is unable to fully eradicate HIV from the body. This is attributed to latent HIV-1 provirus which hides and stays dormant in the host cell genome, thus evading detection and destruction. Nevertheless, novel genome editing tools offer an exciting solution to address this issue by disrupting latent HIV-1 provirus. In this study, the latest genome editing tool, CRISPR/Cas9 system, is used to demonstrate its potential in disrupting the expression of latent HIV-1 provirus by targeting *tat* gene, one of the regulators of HIV latency. Two out of the three *tat*-targeting CRISPR nucleases tested were found to be not cytotoxic. Transfection of the *tat*-targeting CRISPR nucleases into activated ACH-2 cells brought about a reduction in p24 expression. DNA sequencing of the transfected cells showed that the target sequence was disrupted with mutations. When two different CRISPR nucleases targeting the *tat* and LTR regions were used in combination, a further reduction in viral expression was observed. These results showed that the CRISPR/Cas9 system can be a promising tool to cure HIV-1 infection.

HOST-GUEST INCLUSION COMPLEX BETWEEN ANTI CANCER AGENTS AND BETA CYCLODEXTRIN

ABSTRACT

The aim of the study was to determine the host-guest inclusion complexes between β -cyclodextrin with phytol and curcumin using chemical characterizations and their effect on the cytotoxicity in MCF-7 cell line. The anti-proliferative effect was determined using the 3-[4,5-dimethylthiazol-2-yl]-2, 5-diphenyltetrazolium (MTT) assay while the chemical characterization were determined using Fourier Transform Infrared spectroscopy (FTIR), proton Nuclear Magnetic Resonance (^1H NMR), X-Ray Diffraction (XRD) and surface morphology from a Scanning Electron Microscope (SEM).

Based on the MTT result, the formation of β -cyclodextrin-curcumin inclusion complex improves the anti-proliferative effect of curcumin on the MCF-7 cancer cells at the 24h incubation period. On the other hand, the formation of β -cyclodextrin-phytol inclusion complex does not improve the anti-proliferative effect of Phytol on the MCF-7 cancer cells. The IC₅₀ value of curcumin and phytol at the 24H incubation period was 211.61 μM and 144 μM respectively.

Furthermore, the chemical characterization confirmed that a host-guest inclusion complexes were formed between β -cyclodextrin with curcumin and phytol. The ^1H NMR spectroscopy suggested that the inclusion complexes were formed through alteration in the H-3 (3.643 ppm) and H-5 (3.606 ppm) which were located inside the cavity of β -cyclodextrin. The FTIR analysis showed changes in the spectroscopy of β -cyclodextrin (3333.4 cm^{-1} , 2921.69 cm^{-1} , 1153.87 cm^{-1} , 1025.21 cm^{-1}) indicating the formation of an inclusion complex. The XRD analysis showed that β -cyclodextrin has a crystal-like structure while the inclusion complexes have slightly more amorphous structure. SEM analysis confirmed the formation of the inclusion complexes through the changes in surface morphology. Therefore, it was suggested that the β -cyclodextrin-curcumin inclusion complex improved the anti-proliferative effect of curcumin at 24h incubation period compared to β -cyclodextrin-phytol inclusion complex in MCF-7 cancer cell.

**STUDY ON THE ROLE OF SEA CUCUMBER INFUSED
MOSQUITO REPELLENT CREAM IN THE ABRASION WOUND
HEALING ACTIVITY OF *SPRAGUE DAWLEY* RATS**

ABSTRACT

The study aim to evaluate the effect of base natural cream formulation, sea cucumber infused natural cream formulation and DEET in sea cucumber infused natural cream formulation in comparison to normal saline on the healing process of abraded wound. For topical application on skin, the study employed method described in the OECD Test Guideline 402, Acute Dermal Toxicity Test. Whereas, for the abrasion wounding and dosing was based on published method by Bhagavathula *et al.*, (2009) and Lateef *et al.*, (2005). Result showed that healing process can be segregated into several phase which are reddish-phase, opaque-phase, sticky-phase, dry-phase and hairy-phase. At the end of ten days of observations, base natural cream formulation, sea cucumber infused natural cream formulation and DEET in sea cucumber infused natural cream formulation showed insignificant difference in performance of epithelization process in comparison to normal saline ($P \geq 0.05$). However, sea cucumber infused natural cream formulation showed significant difference on day-2 as compared to normal saline ($P \leq 0.05$). Hair budding process showed significant delayed for the base natural cream formulation and DEET in sea cucumber infused natural cream formulation compared to normal saline ($P < 0.05$). Meanwhile sea cucumber infused natural cream showed insignificant delayed in hair budding process in comparison to normal saline ($P > 0.05$).

A NOVEL APTAMER-BASED CAPTURING ASSAY OF TOTAL ERYTHROPOIETIN (EPO) USING STREPTAVIDIN-COATED MICROTITER PLATE AS THE PLATFORM

ABSTRACT

Recombinant human EPO (rHuEPO), a mimetic of endogenous EPO that were illegally preferred by the athlete's for blood doping to enhance their stamina. Recent method in detecting EPO abused is isoelectric focusing (IFE) double-immunoblotting and the method was approved by World Anti-Doping Agency (WADA). Besides that, usage of Sarcosyl-PAGE (SAR PAGE) and lateral flow test in detection of EPO has been considered more sensitive than IEF. As for immunocomplexing method that that depends on usage of antibodies which can be very defective due to cross reactivity and affinity issues. Aptamer, a class of small nucleic acids ligands with great advantages over antibodies can be used in detecting EPO abused. The purpose of the study is to use previously isolated REPORA-6 RNA aptamer in aptamer based capturing assay in detection of EPO. The REPORA-6 RNA aptamer was amplified and verification of poly-A tail REPORA-6 RNA aptamer with 96-114 bp was proved by agarose gel electrophoresis. Duplex assay was also done to verify the binding capabilities between REPORA-6 RNA aptamer and Biotin dT₃₀. The bp of REPORA-6 RNA aptamer and Biotin dT₃₀ was 120 bp and only REPORA-6 RNA aptamer shows 96 bp. REPORA-6 RNA aptamer was bond with biotin and immobilized the streptavidin coated microstrip plate. Epoetin- α was used as the target protein and added into streptavidin coated microstrip plate, to allow the binding with REPORA-6 RNA aptamer. Epoetin- α was eluted using RNase T1 and detection limit of EPO eluted was determines using aptamer-based capturing assay. The detection limit of aptamer-based capturing assay is 0.0625 ug of EPO. Hence, the REPORA-6 RNA aptamer-based capturing assay can be a new prospect and future assay for capturing and concentration EPO besides IEF-double immunoblotting.

KNOWLEDGE OF BLOOD TRANSFUSION AMONG NURSES IN HOSPITAL PULAU PINANG: NURSING RESPONSIBILITIES AND PATIENT MANAGEMENT RELATED TO TRANSFUSION REACTIONS

ABSTRACT

Blood is precious and unique products, derived from human being. It is essential in saving lives and improve human health. Results from Serious Hazards of Transfusion (SHOT) reported that approximately one wrong blood transfusion occur in every 13, 000 transfusions. Most errors of wrong blood transfusion occurred at clinical area. Failure to perform positive patient identification, either during pre-transfusion sampling or final bedside checking, remains as the leading cause of major transfusion related morbidity and mortality. Hence, this study aims to determine the knowledge level of one of the major role in blood transfusion service, the nurses and associate this knowledge with their socio-professional details.

Knowledge is the fundamental that drives our practice and to perform well, one must equip himself with sufficient knowledge. To assess the knowledge, a cross sectional, questionnaire based study was carried out. The research tool was designed, validated and pilot-tested to ensure its validity and reliability. The finalised questionnaire consisting of 22 knowledge items and 8 socio-professional items was then distributed to the nurses at Hospital Pulau Pinang. Data analysis was done with SPSS. 185 subjects participated in this study.

The overall knowledge score was moderate, with the mean score of 70.44% (SD = 11.35). None of the nurses was able to answer all the items right. The knowledge in blood bag collection and patient preparation, pre-transfusion nursing activities, during and post transfusion nursing responsibilities and management of transfusion reactions were 72.29%, 71.75% and 67.14%, respectively. Factors such as age, years of service, departments and availability of policy at wards had significant difference in the mean knowledge scores. Knowledge deficits were identified in basic blood group terminologies, validity duration of GXM sample, skipping of blood checking steps, bacterial contamination following prolonged transfusion and common cause of fatal transfusion reactions. In conclusion, there is a need for continuous training and education to the nurses to improve their knowledge.

***IN VITRO* EFFECT OF *OCIMUM SANCTUM* (TULSI) LEAF EXTRACT ON PROTHROMBIN TIME (PT), ACTIVATED PARTIAL THROMBOPLASTIN TIME (APTT) AND THROMBIN TIME (TT) IN HUMAN PLASMA**

ABSTRACT

Even though, the conventional anticoagulant therapy proven to be effective in deep vein thrombosis and pulmonary embolism but there are several drawbacks such as bruises, pain, swelling or coughing blood. Therefore, the search for novel anticoagulant derived from natural substances like plants are demanded nowadays. *Ocimum sanctum* also known as *Ocimum tenuiflorum* (OT), tulsi or holy basil from the family of Lamiaceae has been widely used for thousands of years in Ayurveda and Unani system to cure or prevent a number of illness such as headache, malaria fever, ulcers, bronchitis, cough, flu, sore throat and asthma. The aim of this study is to investigate *in vitro* effect of *Ocimum sanctum* (Tulsi) leaf extract on prothrombin time (PT), activated partial thromboplastin time (APTT) and thrombin time (TT) in human plasma. The coagulation activity of *O. sanctum* was measure via PT, APTT and TT assay in citrated plasma collected from thirty-six healthy regular blood donors. The plasma was tested against different concentration of *O. sanctum* aqueous extract as follows 0.1mg/ml, 0.5mg/ml and 1.0mg/ml. As a result, the aqueous extract of *O. sanctum* prolonged the PT and APTT assays ($p < 0.05$) but no affect on TT assay ($p > 0.05$). The GCMS analysis has identified the linolenic acid at 1-10% of ethanol and aqueous concentration at different retention time which is responsible for the coagulation activities of *O. sanctum* in human plasma. In conclusion, this study suggests that *O. sanctum* does affect coagulation activity in human plasma and can be potentially used as naturally derived anticoagulant products in future.

PREVALENCE OF NS1 DENGUE ANTIGEN VIRUSES AMONG BLOOD DONOR IN PERAK AND PENANG

ABSTRACT

Dengue virus is one of the emerging agents that can be transmitted via blood transfusion from infected blood donors to recipients. In Malaysia, the increase in dengue infection may contribute to the existence of asymptomatic blood donors and increase the risk of blood transfusions contaminated with this virus. Thus, the objectives of this study were to investigate the prevalence of NS1 dengue antigen among blood donors and ascertain the demographic data of blood donors in Penang and Perak. A total of 374 voluntary blood donors were recruited from two blood donation campaigns organised by Hospital Pulau Pinang, Penang and Hospital Raja Permaisuri Bainun, Ipoh, Perak from April to May 2016. From each centre, 187 voluntary blood donors were enrolled, blood was collected and Dengue NS1 Ag was screened on all the samples. All the 374 samples were found to be negative for the Dengue NS1 antigen. The mean age for blood donors was 36 years. Blood group O Rh positive blood group was the common (42%, 157 of the total blood donors) followed by B Rh positive blood group (29.7 %, 111 of the total blood donors), A Rh positive (23.5%, 88 of the total blood donors) and AB Rh positive (4.8%, 18 of the total blood donors). There were more male blood donors 64.7% compared with female blood donors (35.3%). The majority of these blood donors were Chinese (338 blood donors), followed by Malays (27 blood donors) and Indians (9 blood donors) out of the total 374 donors. In conclusion, there is no NS1 dengue antigen detected among blood donors in two blood collection centres in Penang and Perak. This indicates that none of the blood donor at the time of donation was in viraemic stage which translates that the established donor screening program has ensured that dengue transmission through transfusion is minimal. Demographic data of these blood donors show that the most common blood group is O Rh positive, men donate more than women and Chinese blood donors are the commonest. Commonly these blood donors are young adults. Data collected in this study may be useful to ascertain the safety aspects of clinical transfusion and in the planning of blood donation activities, donor recruitment and blood inventory management.

**DETERMINATION OF BLOOD COAGULATION FACTORS
LEVEL USING MALAYSIAN *Mikania cordata* LEAVES**

ABSTRACT

Current anticoagulant agent such as warfarin and heparin have demonstrated life-threatening side effect and its efficacy also been doubted. So, exploration of herbal plant been done and one of them is *Mikania cordata*. *Mikania cordata* (Bum. F.) B.L Robinson or commonly called selaput tunggul, in Malaysia, belongs to family of Asteraceae. Early *in vitro* study claimed that leaves of *M. cordata* able to prolonged PT (prothrombin time), APTT (activated partial thromboplastin time) and TT (thrombin time). Aims of this study were to determine level of factors IX, VII, X, II and Fib in plasma treated *in vitro* with 12.5 and 25.0 mg/ml of *M.cordata* aqueous leaves extract. Therefore, factor assay and GCMS analysis were adopted. As a result, significant reduction of factors level can be observed which were in factor IX by 104.26%, factor X by 94.63%, factor VII by 83.74%, factor II by 84.96% and finally Fib by 3.17% in 25.0 mg/ml of *M. cordata* extract. This was supported by the presence of active component through GCMS analysis which was believed to possess anticoagulant effect in previous study. Reduction percentage of factors level in plasma also was happened depends on the treated concentration of *M. cordata* extract. Hence, 25mg/ml concentration was chosen as the best concentration. As a summary, it was confirmed that *M. cordata* is an anticoagulant agent which reduce factors level in blood coagulation system and further study need to be done to elucidate its mechanism as a whole and thus may be used to treat thrombotic diseases.

COMPARISON OF CYTOTOXICITY BETWEEN AQUEOUS EXTRACTS OF GREEN AND RED *CHRISTIA VESPERTILIONIS*

ABSTRACT

Christia vespertilionis (CV), a perennial and ornamental herbs of the *Leguminosae* family which originated from tropical Southeast Asia region. It is commonly identified by its local name, red butterfly wing or daun rerama (Malay) by its leaves appearance that similar to butterfly. There are several varieties of CV but there are two most encountered varieties which are red and green CV. In Malaysia, this plant has created outstanding phenomenon among researchers due to its anti-inflammatory and anti-cancer cure properties. However, those available studies were majorly done on green CV. To date, there is little cytotoxicity data about red CV. Cytotoxicity testing plays major role in determining safety basis of herbal medicine. Thus, the general aim for this study is to align any differences or similarities between both varieties and provide very fundamental cytotoxicity data for both varieties. Therefore, comparison of cytotoxicity between green and red varieties were determined *in vitro* via trypan blue exclusion assay and clonogenicity assay utilizing human breast cancer cell line, MCF-7 and normal cell line, mouse fibroblast cells L929. The chemical profiling for both varieties was also conducted to determine the differences and similarities of phyto-compounds present in the plants by using Gas chromatography mass spectrometry (GC-MS). Trypan blue exclusion assay results revealed that green CV appeared to exhibit time and dose-dependent inhibition of cell proliferation in MCF-7 at concentration > 100 µg/mL with substantial cell death at 1000 µg/mL. Red CV also shown time and dose-dependent inhibition of cell proliferation at concentration of >500 µg/mL. Both varieties showed low cell death percentage (<20 %) on MCF-7 even at highest dose tested, 1000 µg/mL. Interestingly, the percentage of cell death was higher in normal cells, L929 (>90 %) at 1000 µg/mL. For clonogenicity assay, the colony forming capacity was inhibited in non-dose dependent manner. The irregular colony formation with ascending treatment concentrations was noticed at concentration level of 100 µg/mL and 1000 µg/mL in both varieties in MCF-7. Notably, there was extreme loss of ability to form colony in L929 cells at concentration level of 0.1 µg/mL, 100 µg/mL and 1000 µg/mL. Interestingly, the percentage of toxicity is seen to be prominent in normal cells line, L929 compared to MCF-7 at highest dose, 1000 µg/mL. Gas Chromatography Mass Spectrometry (GCMS) analysis revealed that there are total of 32 known phyto-compounds in green CV whereas there are 26 compounds identified in red CV. Collectively, these preliminary findings elicited that green CV may provide more cytotoxicity effects compared to red CV. Precautions should be noted as green CV may cause harmful effects to the normal cells.

KNOWLEDGE, ATTITUDE AND PRACTICE OF TOOTH WEAR AMONG ADULTS IN NORTH SEBERANG PERAI

ABSTRACT

Introduction: Tooth wear may result from multifactorial aetiology including socio-demographic factors, education background and behavioural actions. Subsequently, research on knowledge, attitude and practice with regard to tooth wear are limited in Malaysian scenario. **Objective:** The main purpose of this study is to determine the level of knowledge, attitude and practice of tooth wear and compare the findings on the level of knowledge, attitude and practice with the socio-demographic factors and age among adults in North Seberang Perai. **Materials and Methods:** A cross-sectional study using modified self-administered questionnaires were distributed among 390 adults (aged more than 18) recruited from three institution in North Seberang Perai. Samples selections were based on the inclusion and exclusion criterias. Data were analysed using SPSS version 22.0 employing simple descriptive analyses, One-way ANOVA test, Chi-square test and Independent T-test. **Results:** The questionnaires were subjected to a pilot trial on 10 to 30 subjects aged more than 18 years old to assess the reliability, and the results showed moderate agreement (Cronbach's Alpha 0.7). Modification of the questionnaires were performed and tested again on a pool of different subjects. A total of 349 (89.5%) subjects with age range from 18 to 64 years old had participated in this study. About 55.3% of the subjects were males and 44.7% were females. Most of the subjects were Malays (88.8%), followed by Indian (9.2%), Chinese (1.7%) and others (3%). Only 35.5% of the subjects stated they heard about tooth wear from multiple sources. About 58.2% of the subjects had low level of knowledge with mean score at 20.8. However, majority (93.4%) of the subjects had positive attitude. Approximately, 84.2% has fair level of practice on oral hygiene. About 78.8% subjects used Colgate® as their choices of tooth paste product. As for comparison between the cognitive and behavioural factors with the socio-demographic and age, no significant differences were observed. **Conclusions:** Research using questionnaires as tool for assessments must suit the subject under study and examination of the internal validity of each item within the questionnaire construction is important. Despite, the low mean score of knowledge among the adults for tooth wear, the subject indicated positive attitude which may suggest that subjects are practising fairly good oral hygiene habits.

DENTAL AGE ESTIMATION: COMPARISON OF TWO METHODS

ABSTRACT

Introduction: The assessment of age and sex of the body can be vital to the investigator, whereas gender today can be determined with DNA methods, age determination is not as straightforward. Dental age estimation has gained acceptance because it is less variable and less invasive when compared to other methods. Age estimation is an important aspect of researches as every individual matures according to his/her own biological clock. Variety of theories using dentition were conducted to estimate age using teeth. The original methods found to be unreliable method among other ethnics' populations. Therefore, many modification were developed for variety of theories for different populations.

Objective: The main purpose of this study to determine dental age according to Demirjian method Malay formula and dental age using Cameriere (open apex) method Malay formula among Malay children in North Seberang Perai Utara.

Methodology: A retrospective cross-sectional study was conducted using 126 DPTs of healthy Malay children aged 8-16 to determine dental age according to Demirjian method Malay formula and dental age using Cameriere (open apex) method Malay formula among Malay children in North Seberang Perai Utara, all radiographs were taken in Orthodontic Specialist Clinic, Advanced Medical and Dental Institute, Univirsti Sains Malaysia. Two dental age estimation methods, Malay formula of Demirjian method and Malay formula of Cameriere method were applied and compared with chronological age of the patients, in order to evaluate the validity of both methods among North Seberang Perai Utara population.

Result: 49 boys and 77 girls (aged 8-16) DPTs were assessed to determine the validity of new Malay formula of both methods (Demirjian and Cameriere). Total of 126 patients were recruited in this study. From the correlation results, shows that Cameriere has a better correlation (89%) compared to Demirjian (84.1%). However, using Wilcoxon Signed Rank and Interclass Correlation Coefficient, Demirjian has a higher and better reliability compared to Cameriere.

Conclusion: Thus, Results suggest that, modified Demirjian method is more accurate than modified Cameriere method among North Seberang Perai Utara population. Further studies with larger sample size for same population should be conducted.

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