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Pharmocognostical and Physicochemical Investigation on Local Stingless Bee Honey

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Background:
Stingless bee, *Trigona* spp. is commonly cultivated in farming area for pollination and honey production in Malaysia. To date, information about the antibacterial, antioxidant and physicochemical properties of Trigona honey or locally known as Kelulut honey is still limited. Hence, this study was carried out to study the bioactivities and physicochemical properties of local stingless bee honey.

Methods:
Trigona honey samples harvested from jungle and secondary forest were tested in this study. The antibacterial properties of honey samples were assessed by using agar well diffusion assay. The total phenolic content was quantified. ABTS and DPPH free radical scavenging activities, and ferric reducing antioxidant power were determined as well. Physicochemical parameters including color, pH, moisture content, water activity, total sugar and reducing sugar contents, hydrogen peroxide level, proline level, hydroxymethylfurfural (HMF) content, mineral content and diastase number were also evaluated.

Results:
Generally, tested honey samples were found to be effective in inhibiting both Gram-positive and Gram-negative bacteria. S*taphylococcus aureus* was found to be more sensitive towards the antibacterial effect of honey as compared to *Escherichia coli*. Honey samples contained total phenolic content of 97.18±4.30 mg_{GAE}/kg, exhibited potent scavenging activities against ABTS and DPPH radicals (56.41±0.98 % and 32.16±3.63 %, respectively) with ferric reducing value of 1.90±0.138 mM Fe (II) /kg. The color intensity of tested honey was 260 mAU with color difference value of 53.4±0.04. The honey was tested to be acidic (pH 3.18±0.01) with moisture content of 27.5±0.01% and water activity of 0.682±0 a_w. The honey samples comprised of total sugar (72.48±0.01%) and reducing sugar (50.76±1.44%), proline (244.98±2.22 mg/kg), HMF (27.23±1.99 mg/kg), hydrogen peroxide (195.6±5.68 µmol/L) and diastase (1.69±0.28 Schade value/g). The main minerals found in the honey were calcium (70024±8.07 ppm), sodium (56376±6.39 ppm), iron (51003±2.76 ppm), potassium (40977±5.19 ppm) and magnesium (4277±0.48 ppm).

Conclusion:
In summary, the physicochemical parameters of tested honey samples were found to be compliance with the standards. With the potent pharmacognostical value, Trigona honey can be recommended as a health promoting food.

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CHARACTERIZATION OF POTENTIAL GLUFOSINATE DEGRADING ENTEROBACTERIA ISOLATED FROM COW DUNG SAMPLE IN KAMPAR, PERAK.

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Background:
Herbicides are widely used in controlling weeds in crops. Many herbicides are non-selective which kill the weeds including the crops. One of the broad-spectrum herbicides is glufosinate. Glufosinate is an ammonium salt (D,L-homoalanine-4-yl-methylphosphonic acid), containing the active ingredient phosphinothricin, which kills plants by inhibiting glutamine synthetase and nitrogen metabolism in plants. The residue of glufosinate can be found in the leftover weeds and slowly dissolved into soil and water due to its high solubility. This can cause environmental pollution and also health impacts to humans and animals. One of the herbivores that might in contact with glufosinate is cow, which accidentally consumes the weeds that exposed to glufosinate. Therefore, the main objective of this study is to isolate and identify the potential glufosinate degrading Enterobacteria from cow dung sample.

Methods:
Cow dung sample was collected from Kampar, Perak and incubated for enrichment of bacterial cells. Spread plate was done to isolate the glufosinate tolerant bacteria. Gram's staining was performed on the isolated bacteria and gram negative bacteria were further tested on tolerance capability in different glufosinate concentrations, 0 g/L to 64 g/L. Four bacterial isolates with great glufosinate tolerant capability were biochemically identified by VITEK 2 system and genetically identified by 16s rRNA gene sequencing. High Performance Liquid Chromatography was further performed on the most glufosinate tolerant bacteria to determine the glufosinate degrading capability.

Results:
16S rRNA gene sequencing showed that the four gram negative bacteria isolates were *Klebsiella variicola* (99%), *Escherichia coli* (99%), *Enterobacter ludwigii* (99%) and *Escherichia fergusonii* (99%). *Enterobacter ludwigii* has the highest glufosinate tolerance level, up to 64 g/L, and showed most stable trend in the reduction of cells when exposed to different glufosinate concentrations. HPLC data showed that glufosinate was degraded by *E. ludwigii* after 7 days incubation of the bacteria with 8 g/L of glufosinate.

Conclusion:
Overall, *E. ludwigii* is the most stable bacteria among the four bacterial isolates that tolerate to glufosinate and able to degrade glufosinate in extended incubation time.

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The Effect of Office Ergonomic Interventions on Reducing Musculoskeletal Symptoms among Computer Users in IIUM.

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Background:
Musculoskeletal disorder (MSDs) or known as cumulative trauma disorders (CTDs) is an occupational illness related with jobs included repetitive movements, forceful movements and long-time of static postures that can injure the tendons, bones, nerves and other soft tissues. The aims of this study are to measure the effect of office ergonomic interventions on reducing musculoskeletal symptoms, study the office ergonomics risk factors and musculoskeletal symptom, conduct ergonomic intervention programs for staff with ergonomics risk factors and musculoskeletal symptoms and measure the effect of office ergonomic interventions on reducing musculoskeletal symptoms among computer users of IIUM staff.

Methods:
This study will conduct a cross-sectional and a self-modified Cornell musculoskeletal disorder questionnaire will be distributed to all IIUM staff through email. Within two weeks after the questionnaires distributed, the identified staff with high score of MSD invited to join an intervention programme. The ergonomic risk factors associated with MSD observed using initial ERA observation list (ergonomic risk assessment).

Result:
A total of 108 respondents answered the questionnaires. 81 of the respondents were female while male only 27 respondents. A total of 20 (18.5%) respondents had been identified with high score of MSD. They will join an intervention programme and observed the associated ergonomic risk factors.

Conclusion:
It can be observed the pain score were different according to the body parts. This finding of the research can be used in the planning of prevention of MSD among office workers that using computer. Good ergonomic practices also can ensure a healthy working style.

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THE INVESTIGATION OF THE PROTEIN CONTENT IN MEAT OF LOCAL CROSSBRED CHICKENS FED BY BLOOD MEAL AND FISH MEAL

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Background:
The study was conducted to investigate the protein content in meat of local cross-bred chicken fed by blood meal and fish meal. Protein content in animal products is higher as compared to the plant-derived products. Therefore, the ingredients and nutrition values of the poultry feed are important to produce high quality of meat. Blood meal is one of the animal-based poultry diets that contain high value of crude protein as compared to fish meal.

Methods:
For the blood meal, it was prepared by collecting the blood from the chicken during slaughtering process and the blood has been boiled at 100°C before being placed into the oven at ±55°C for 6 days for drying process. Twenty four three-day-old chickens were dividing into two groups which are blood meal and fish meal. The body weight for each chickens have been recorded weekly. Chickens were slaughtered during week 4 and week 6 in which six chickens from blood meal group and six chickens from fish meal group were randomly selected to be slaughtered for each week. After slaughtering, the weight of each chicken's liver was recorded. Four different parts of the chicken meat (drumstick, wing, breast and liver) were taken to be analyzed for protein content. All samples were wrapped with aluminum foil and labeled before being stored in liquid nitrogen tank for transportation. The samples were put into -80°C before conducting a protein extraction. Protein quantitation were conducted by using two methods which are Bradford protein assay and SDS-PAGE. Bradford protein assay is used to determine the protein concentration in meat, whereas SDS-PAGE is conducted to separate and analyzed the characteristics of the protein.

Results:
The expected result from the study is the meat of local cross-bred chickens fed by blood meal will have higher protein content as compared to the local cross-bred chickens fed by fish meal due to high percentage of protein in blood meal. The different parts of the chickens are expected to show different measurement of protein content.

Conclusion:
If chicken meat fed by blood meal show higher protein content as compared to the fish meal, this may benefit the poultry industry as the blood meal can decrease the cost of the poultry feed and it might also valuable to the consumers as the chicken meat able to provide more protein to their diet.

Keywords: *blood meal, fish meal, protein content, Bradford protein assay, SDS-PAGE, chicken meat*

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METHOD OPTIMIZATION FOR THE DETERMINATION OF NUCLEUS DIAMETER AND DENSITY OF VENTRICLE MYOCYTES DURING DEVELOPMENT OF OSTEOARTHRITIS IN DUNKIN HARTLEY GUINEA PIGS

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Background:
The heart plays the most crucial role in the body as it pumps blood throughout the circulatory system. Conditions such as hypertension or obesity may contribute to pressure overload resulting in left ventricle hypertrophy (LVH). LVH is a maladaptive response involving an enlargement and thickening of heart wall. Though previous studies have suggested osteoarthritis (OA) patients are susceptible to develop cardiovascular diseases, its association with the LVH is yet to be established. Hence, the proposed study aims to determine the changes of nucleus diameter and density of ventricle myocytes during the development of OA in Dunkin Hartley (DH) guinea pigs. To achieve this aim, stereology method will be used. As stereology technique involved in counting and measuring cardiomyocytes nucleus in a series of look-up and reference histological sections, the tissue processes, sectioning and staining methods are crucial steps to be optimised in order to obtain the desired presentation of nucleus morphology.

Methods:
Six guinea pig hearts were obtained at 10, 20 and 30 weeks old from previous study (Yusof et al., 2017). The hearts were then cut frontally, processed and embedded in paraffin wax. The heart tissue blocks were sectioned at 5μm and 6μm in thickness. Afterwards, these sections were floated in dilute alcohol before afloat in warm water bath and later, stained with Haematoxylin and Eosin (H&E) at different duration (i.e. 15 minutes, 20 minutes and 25 minutes). The stained sections were observed under a light microscope and microscopic images of cardiomyocytes were captured by using camera (Leica lCC50). The microscopic images were analysed qualitative by comparing its quality between different thicknesses and staining durations.

Results:
The cardiomyocytes have one or sometimes two nuclei located centrally in the cells. These nuclei contain granular chromatin pattern and are more elongated. The quality of 6μm-section appears better than 5μm-section in terms of tissue morphological features and section quality. In addition, sectioning with 5μm thickness proved to be tricky as the sections produced are thin making it hard to handle and may easily lead to shattering of tissues. In terms of duration of staining, 20 minutes in haematoxylin and a single dip in 1% acid alcohol give a better view of cardiomyocyte's nucleus. Under 15-minutes of haematoxylin immersion, the blue colour of nucleus is not obvious whereas under 25-minutes, the blue colour is dark. Furthermore, the used of floatation on dilute alcohol helped in removing fine wrinkles or fold from paraffin section.

Conclusion:
Hence, the most suitable thickness of section and duration of staining need to be optimised in order to produce a high quality histological section that suit the purpose of intended study.

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The Effect of 21 Days of Practicing Qailullah on Oxidative Stress and Psychological Problem: A Preliminary Study

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Background:
Short afternoon nap or also known as Qailullah was practiced by the Prophet Muhammad SAW thousand years ago and Islam recommended its followers to do the same as a way to gain blessing from Allah. Previous scientific studies done showed that different length of day napping has different influence on the psychological and physiological of an individual. Thus, in this study, we aimed to investigate the effect of Qailullah on the psychological and oxidative stress of its practitioners.

Method:
The study design for this study is Quasi-Experimental Study. All of the subjects were asked for their consent before proceeding with the experiment. 13 subjects were recruited in this study. After consent was obtained, the subjects were required to fill up a questionnaire which asked about short demographic information, history of food consumption, and day and night sleeping pattern. Besides, the researcher recorded the subjects' anthropometric measurement (weight, height and blood pressure) twice– both during the pre-qailullah (0^{th} day) and post-qailullah (22^{nd} day) blood collection session. The subjects were then requested to fill in the DASS-21 questionnaire and about 10ml of blood were drawn on the 0th day and 22th day of Qailullah practice. The subjects were asked to qailullah for 21 days about 20 minutes before Zuhr prayer. The blood samples are used to measure the amount of Malondialdehyde (MDA) using the TBA colorimetric assay. The DASS-21 questionnaire is the questionnaire used to assess the stress, anxiety and depression level of the subjects before and after the Qailullah intervention.

Result:
Based on the data obtained, it was found that there is no significant different in MDA level between before and after 21 days of qailullah (Z= -1.059, Asymp Sig 2-tailed= 0.289). All of the subjects show positive result for their psychological changes.

Conclusion:
Our data preliminary data suggested that qailullah has no significant effect on oxidative stress level. However, positive effect was observed on the psychological aspect of the subjects.

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Knowledge, Attitude and Practice on Postpartum Psychiatric Disorders among Malay Mothers in Kuantan, Pahang

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Background:
Postpartum psychiatric disorders are one of the major concerns in emotional and mental health division. The mothers may experience crying episodes, depression and unbalance state of mind which could harm others. These psychological disturbances are classified as postpartum blues, postpartum depression and postpartum psychosis. However, in Malaysia, the Malays perceptions about emotional and mental problems are related to spiritual possession. A few studies suggested the thoughts as culture bound syndrome which associated to ethnicity beliefs. The Malay ethnic also referred the problems during postpartum known as *meroyan.* Therefore, this study was designed to determine the level of knowledge, the attitude and practice among mothers about postpartum psychiatric disorders in Kuantan, Pahang, and relates the factors such as cultural background and demographic elements which may affect the results.

Method:
A questionnaire was developed in Malay language based on materials collected from literature reviews and consultations with a psychiatrist. This questionnaire represented a community survey tool for evaluating the knowledge, attitude and practice on postpartum psychiatric disorders among Malay mothers who lived in Kuantan, Pahang. The validation of questionnaire was subjected to a number of clinical experts for reliability. Participants for this study involved 172 mothers who had any experience of miscarriage or childbirth at least once. The final version of questionnaire was prepared in both online digital and paper forms and distributed via convenient sampling.

Result:
Majority of mothers have moderate knowledge about postpartum psychiatric disorders. For attitudes, high number of votes strongly agreed to seek for their partners and rely more on families if any emotional disturbance occurred. A significant result on practice displayed that these mothers preferred to find other alternatives for emotional therapy before consulting a physician due to lack of time and financial support. However, there were no association between the level of knowledge, attitude, and practice which related to cultural and demographic factors.

Conclusion:
Generally, majority of mothers have general knowledge about postpartum psychiatric disorders. However, their attitude and practice showed that they chose to handle emotional problems in their preferred ways rather than seek help from medical experts. This study suggested for further approach to give an urge to front line of healthcare management to change the poor perception about psychological therapy and the use of antipsychotic drugs.

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THE ASSESSMENT OF IRON (Fe) BIOAVAILABILITY IN CROSS-BREED BROILERS FED WITH BLOOD AND FISH MEAL

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Background:
Iron is a micro-mineral that is needed by fast growing organisms, including chicken. It is important for their productivity and to prevent them from numerous health problems. Therefore, poultry nutritionists have done many formulations to introduce additional minerals into commercial chicken feed recipe. The inclusion of essential minerals in the ingredient was implemented because it was said to improve the well-being of poultry chicken. However, not much information was known regarding the bioavailability of Iron in the chicken after being fed with formulated feed. Thus, this study is aimed to determine Iron bioavailability in the chicken as the insight to the targeted consumer.

Methodology:
A total of 24 cross-breed chickens were divided into two groups (Blood and Fish meal), 12 chickens were fed with 3% of blood meal and the other half were given the fish meal. The chickens were slaughtered by batch on the 4th and 6th week. Blood samples were collected in EDTA tubes during slaughtering process and the liver samples were taken via dissection process. The samples then analysed using Atomic Absorption Spectrometry (AAS) for Iron (Fe) analysis. In addition, the growth performance was measured to determine the growth performance of the chickens in both groups. The parameters for growth performance tested are the body weight, the meat pH and the water holding capacity.

Result:
The bioavailability of Iron (Fe) in blood and liver samples of the chicken fed with blood meal is higher as compared to the chicken of the fish meal group. For growth performance, the fish meal has better performance than the blood meal group.

Conclusion:
The inclusion of blood meal to the poultry chicken might help in providing more alternatives of Iron (Fe) sources besides supplementation for patient with Iron-Deficiency Anemia or for a pregnant mother.

Keywords: *Iron, bioavailability, micro-nutrients, chickens, blood meal, fish meal, metal analysis.*

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THE INFLUENCE OF EXERCISE MODES ON CARDIOVASCULAR REACTIVITY INDUCED BY ACUTE MENTAL STRESS AMONG UNTRAINED INDIVIDUALS

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Background:
Stress has been shown to have negative effects on cardiovascular reactivity which put affected individuals at risk for cardiovascular disease. However, exercise can potentially reduce cardiovascular reactivity in response to stress. The aim of the present study was to investigate the effects of exercise modes (HIIT vs. aerobic exercise) on cardiovascular responses (i.e. heart rate and blood pressure) in the presence of acute mental stressor in untrained individuals.

Methods:
Three, male subjects (mean age: 22.7 ± 1.5 years, mean BMI: 21.7 ± 3.2 kg/m^2) participated in a randomised, cross-over study consisting of three intervention: control (CON), high-intensity interval training (HIIT), and aerobic exercise (AEX). HIIT consisted of a series of high intensity body weight exercises (65% of heart rate reserve) lasting 22 min, while in AEX subjects performed a 30-min jog on a treadmill at moderate intensity (65% of heart rate reserve). Subjects rested for 30 min in CON. All interventions were followed by a 30-min recovery rest and subsequently performing a cold-pressor test involving immersing one hand in ice bath for two minutes. Heart rates and blood pressure responses were calculated as area under the curve against time (AUC).

Results:
The following findings are reported as descriptive statistics. Compared to CON (37.6 bpm.sec^{-1}), AUC for heart rate responses during the cold pressor test both were 21.5% and 37.2% higher in AEX (45.7 bpm.sec^{-1}), and in HIIT (51.6 bpm.sec^{-1}) respectively. Heart rate responses were 11.4% lower in AEX (45.7 bpm.sec^{-1}) compared to HIIT (51.6 bpm.sec^{-1}). AUC values for mean arterial pressure were 5.0% higher and 17.2% lower in AEX (85.7 mmHg.sec^{-1}) and HIIT (67.6 mmHg.sec^{-1}) respectively compared to CON (81.6 mmHg.sec^{-1}). Mean arterial pressure were 26.8% higher in AEX (85.7 mmHg.sec^{-1}) compared to HIIT (67.6 mmHg.sec^{-1}).

Conclusion:
The present finding is showing a trend of greater heart rate but a lower blood pressure responses following HIIT exercise compared to AEX. No conclusion can be drawn at this point as the study is still ongoing.

Keywords: exercise, heart rate, blood pressure, high intensity, stress, cardiovascular.

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HEALTH STATUS ASSESSMENT OF TRAFFIC POLICE IN KUALA LUMPUR EXPOSED TO AIR POLLUTION

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Background:
The occupational environment is an important part of total individual's environment. Thus, the environment plays a major role to give effect to the individual's health. Traffic police face too many occupational hazards such as safety hazards, physical hazards, work stress and the most important is chemical hazards. They always exposed to vehicular emissions and polluted environment. Therefore, this study is conducted to assess the health status of traffic police in Kuala Lumpur.

Methods:
A cross sectional study was conducted using universal sampling on the Jalan Tun H.S. Lee traffic police personnel. The study group is classified into two groups which are control (A) and exposed group (EA) depending on their work placement either in the office or outside. The subjects were 80 traffic police personnel which has working experience one year and above. Questionnaire was used to collect demographic data. The parameter that was assessed was body mass index (BMI), blood pressure, blood glucose, cholesterol, uric acid level and urinalysis.

Results:
The findings indicated that 36.8% of the traffic police have normal BMI range, 47.4% overweight and 15.8% classified as obese. Majority of them have normal blood pressure (71.5%) while 25.7% falls under pre hypertension and then, 2.9% have hypertension. Only 3% of them are diabetic, 12.1% showed hyperuricemia condition and a total of 46.9% are hypercholestrolemic. Most of the traffic police have normal urinalysis test. Moreover, 45.8% showed that the traffic police are smoker whereas the rest (54.2%) are non-smoker. There was no significant differences ($p>0.05$) of BMI, blood pressure, blood glucose, uric acid, cholesterol and urinalysis between control and exposed.

Conclusion:
In conclusion, besides environment there are many factors that also can give effect to health status of traffic police.

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EVALUATION OF OXIDATIVE STRESS STATUS AMONG TRAFFIC POLICE OFFICERS IN FEDERAL TERRITORY KUALA LUMPUR

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Background:
Oxidative stress is a harmful process that occurs when there is excess of free radicals and a decrease in antioxidant defences in our body. It could be caused from many factors such as air pollutants, smoking and work stress. Traffic police officers are at particular risk, since they are frequently exposed to emissions from the vehicles. Increase the level of oxidative stress in the body can cause oxidative damaged to the biological molecule and body tissue such as lipid and protein. Therefore, a cross sectional study was conducted to evaluate the oxidative stress status among traffic police officers in Kuala Lumpur.

Methods:
A total of 100 subjects were taken for this study. The control group consists of 50 subjects who were working in office while the experimental group consists of 50 traffic police officers who were doing their duty in traffic. Questionnaires on demographic data were distributed among subjects and blood samples were collected to measure oxidative stress biomarkers such as malondialdehyde (MDA), protein carbonyl (PC), superoxide dismutase (SOD), catalase (CAT) and glutathione peroxidase (GPx).

Results:
The results were expected to show the reading of MDA and PC level for traffic police officers (experimental group) were slightly higher compared to the control group. While, the reading of SOD, CAT and GPx level for experimental group were expected to be slightly lower compared to the control group. The low level of SOD, CAT and GPx activity and elevation of MDA and PC level indicate that lipid peroxidation and protein oxidation process were enhanced by oxidative stress. This could contribute to physiological and psychological problems to the traffic police officers.

Conclusion:
Oxidative stress status of traffic police officers in Federal Territory Kuala Lumpur is in moderate level.

Keywords: Oxidative stress, Traffic police officers, MDA, Protein carbonyl, Antioxidant enzyme

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EVALUATION OF BONE MARROW-DERIVED MESENCHYMAL STEM CELLS GROWTH ON ALKALINE WATER TREATED THREE DIMENSIONAL NANOBIOCOMPOSITE BONE SCAFFOLD

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Background:
The self-renewing, multipotential characteristic of bone marrow-derived mesenchymal stem cells (BM-MSc) enables them to differentiate into several cell types including osteocytes that could be exploited for therapeutic use. The dire need of alternative means of bone treatment pushes the discovery and use of bone scaffolds with or without cell seeding. Alteration in environment of the scaffold towards alkalinity has been postulated to improve osteogenic response and bone regeneration. Therefore, this study aims to investigate the effect of alkaline water on BM-MSc growth, proliferation and possible osteogenic effect when seeded on three dimensional nanobiocomposite bone scaffold previously fabricated with alginate and nano-cockle shell powder.

Methods:
The scaffolds composed of alginate/nano-cockle shell were pre-treated with alkaline water with a pH of 7.8 and 8.4 for 24 hours. The scaffolds were seeded with BM-MSc at the density of $1x10^4$cells/scaffold and cultured for 7 and 14 days respectively. Scaffolds pre-treated with culture media were used as controls. Growth, proliferation and osteogenic activity of BM-MSc on the scaffolds were evaluated through MTT assay, histology, Scanning Electron Microscope (SEM) observation and biochemical activity of ALP enzymes. Results from the study were analysed using One-way Analysis of Variance (ANOVA) with significant values of $p<0.05$.

Results:
For the MTT assay, there was no significant difference in the level of the proliferation and osteogenic activity of BM-MSc on scaffolds from both test groups. Through the Masson Trichrome staining, the presence of extracellular matrix; as in the collagen was detected in all scaffolds from all groups. ALP enzyme activity as an early biomarker of osteoblast growth was significantly higher in all groups at Day 7 compared to Day 14 at $p<0.05$. Morphology study of the scaffolds using SEM showed presences of collagenous fibers on the surface of the scaffolds.

Conclusion:
Findings from this study indicate a stimulatory effect of alkaline water towards the growth and proliferation of BM-MSc on the scaffold.

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THE EFFECT OF PALM OIL TOCOTRIENOL RICH FRACTION (TRF) AS AN ANTIOXIDANT IN ISOPRENALINE-INDUCED MYOCARDIAL INFARCTION

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Background:
Palm oil tocotrienol rich fraction (TRF), a form of vitamin E, is widely known to possess powerful antioxidant activity. Many studies have shown its potential in protecting and alleviating freeradical damage in various pathological conditions such as cardiovascular, metabolic and neurodegenerative diseases as well as cancer. The proposed mechanism is by reducing oxidative stress through inhibition of free radical production and enhancing the antioxidant activity. Therefore, this study was aimed to investigate the effect of palm oil TRF as an antioxidant agent on oxidative stress in isoprenaline-induced myocardial infarction.

Methods:
A total of 36 male Wistar rats (200-250g) were randomly divided into six groups (n=4~8) namely control, myocardial infarction (MI), TRF (20 mg/kg), TRF (200 mg/kg), TRF (20 mg/kg) plus MI and TRF (200 mg/kg) plus MI. Control and MI rats were administered with stripped oil (1 ml/kg, p.o.), while the remaining rats were divided into two groups to receive TRF (Gold Tri E 70, Sime Darby) at dose of 20 mg/kg and 200 mg/kg (p.o.). The stripped oil and TRF were given for 84 consecutive days. On the 83rd and 84th of the treatment, the rats that allocated for MI group were injected with isoprenaline (ISO, 85 mg/kg, s.c.) with the interval of 24 hours to induce MI condition. After 24 hours of the last ISO injection, all the rats were sacrificed and the hearts were isolated for biochemical and histology study.

Result:
The heart and left ventricle weight of three groups: MI, 20 mg/kg TRF+MI and 200 mg/kg TRF+MI showed significant increase ($p<0.0001$) when compared with the other groups: control, 20 mg/kg TRF and 200 mg/kg TRF. Diagnostic markers for lipid peroxidation, malondialdehyde (MDA) did not demonstrate any significant difference between all the groups, except for 200 mg/kg TRF group that showed significant increase ($p<0.05$) when compared with 200 mg/kg TRF+MI. Glutathione (GSH) level raised significantly in 200 mg/kg TRF group compared to control, MI and both of the TRF-treated groups. However, no significant difference ($p>0.05$) was found in superoxide dismutase (SOD) level in all groups.

Conclusion:
These findings suggest that TRF at doses of 20 mg/kg and 200 mg/kg did not show its effect in reducing oxidative stress in isoprenaline-induced myocardial infarction.

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COGNITIVE FUNCTION ASSESSMENT OF POLICE TRAFFIC OFFICERS IN KUALA LUMPUR

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Background:
Cognitive function is greatly influenced by one's occupation. Police traffic officers have training and everyday tasks that might increase their cognitive function. Purpose of this research is 1) to assess the cognitive function among police traffic officers in Kuala Lumpur 2) to determine the serum level of Dopamine and Brain-derived Neurotrophic Factor (BDNF).

Methods:
A total of 42 subjects were tested, 13 control (administration officers) and 27 test (police traffic officers). *Wechsler Adult Intelligence Scale fourth Edition* (WAIS-IV) test has employed to determine the Working Memory (WM) and Processing Speed (PS) scales. The WM scale includes two core subtests which are Digit Span (DS) and Arithmetic (AR). The PS scale includes two core subtests which are the Symbol Search (SS) and Coding (CD). We identified the two scales by processing the score of the subtests. The serum Dopamine and BDNF levels were determined by using Enzyme-Linked Immunosorbent Assay (ELISA) kit.

Results:
Index Classification for Working Memory (WMI) and Processing Speed (PSI) consists of Extremely Low (*ELi*), Borderline (*Bi*), Low Average (*LAi*), Average (*Ai*), High Average (*HAi*), Superior (*Si*), and Very Superior (*VSi*). For WMI, 6 (14.3%) polices were classified as having *Bi*, 23 (54.8%) were *LAi* and 13 (31.0%) get *Ai*. Meanwhile for PSI there were 6 (14.3%) polices got *LAi*, 20 (47.6) as *Ai*, 9 (21.4%) as *HAi* and 7 (16.7%) were classified as *Si*. Independent sample t test showed that WMI of test group ($M = 3.00$, $SD = 0.62$) was significantly different, with 0.54 score lower than control group ($M = 3.54$, $SD = 0.52$), t (38) = 2.07, $P < 0.05$. There was a significant difference of PSI between control group ($M = 4.92$, $SD = 0.95$) which had 0.74 score higher than exposed group PSI ($M = 4.19$, $SD = 0.88$), t = (38) = 2.42, $P < 0.05$. Dopamine does have effect on cognitive. Whereas BDNF function is to regulate neuronal survival and influence cognitive processes. There should be a significant different in serum BDNF and Dopamine levels in subjects with cognitive impairments.

Conclusion:
Cognitive function of police traffic officers is affected.

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RELATIONSHIP BETWEEN PHYSICAL ACTIVITY, SLEEP QUALITY AND FATIGUE AMONG STUDENTS IN UNIVERSITI KEBANGSAAN MALAYSIA, KUALA LUMPUR

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Background:
The recommended physical activity by World Health Organization act as guidelines to the public for stay healthy and increase quality of life. Physical activity plays important roles in improve sleep quality and fatigue. The aim of this study is to determine the relationship between physical activity, sleep quality and fatigue among students of Universiti Kebangsaan Malaysia, Kuala Lumpur Campus.

Methods:
A cross sectional sample of 120 students consists of 50% of male and 50% of female students were recruited for this study. Physical activity, sleep quality and fatigue level was measured by using reliable and validated questionnaire which were International Physical Activity Questionnaire, Pittsburgh Sleep Quality Index and Patient-Reported Outcomes Measurement Information System Fatigue Short Form respectively. Anthropometric measurement including BMI and waist circumference together with blood pressure was measured to interpret student's health status.

Results:
Findings show that the MET value 2430.37 ± 2509.16 MET-minutes per week. The Physical Activity Guidelines proposed 500-1,000 MET-minutes per week for significant health benefits while 3000-4000 MET minutes per week for reduce weight. However, there is significant difference between year of study and transportation to campus towards physical activity ($p=0.007$, $F=3.392$). Interaction between gender and year of study against physical activity shows significant difference ($p=0.02$, $F=3.404$). The relationship between physical activity towards sleep quality and fatigue level among students showed a significant difference ($p<0.05$). BMI and waist circumference and blood pressure do not show significant differences against year of study, transportation to campus and gender. Body Mass Index 22.63 ± 4.60 kg/m^2, waist circumference
77.83 ± 10.19 cm, systolic blood pressure 112.76 ± 11.19 mm/Hg and diastolic blood pressure 67.98 ± 9.51 mm/Hg. These results revealed that the data obtained are in normal range.

Conclusion:
These studies revealed that physical activity in students can be beneficiary in improving sleep and reduce fatigue.

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ANTIMICROBIAL CONTENT IN WET TISSUE: THE TECHNIQUE AND ACTIVE COMPOUNDS DETERMINATION

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Background:
Commercially available wet tissue is used for disinfection as it is easy way of getting rid the skin microbes that tend to be the root of skin diseases. Wet tissue acts as decontaminant by combining both physical and chemical means. The wet wipes consist of different types of active ingredients that relates to efficacy of the disinfectant such as benzalkonium chloride, hydrogen peroxide, citric acid and sodium hypochlorite.

Methods:
The tissue extract obtained through three methods. Firstly, cut the tissue by 0.5x0.5cm using a pair of sterile scissors. Secondly, one sheet of tissue put into the syringe and tissue extract squeezed out by force pressure. Thirdly, the homogenizing method where wet tissue soaked in the distilled water and ethyl acetate respectively before blend to obtain the extract. The extract then impregnated on empty sterile disc of 0.6mm. All the wet tissue extract was tested for antimicrobial sensitivity towards skin infection causing bacteria and fungus. Microorganisms used were *Staphylococcus aureus*, *Pseudomonas aeruginosa*, *Klebsiella pneumoniae*, five hand isolates that comprises of gram positive rod and cocci, *Candida albicans* and *Aspergillus fumigatus*. The active ingredients in wet tissue determined by High Pressure Liquid Chromatography (HPLC).

Results:
The zone of inhibition was used as measure of sensitivity test. The sensitivity test results were significant with extraction method, but not significant with different temperature with 1 minute and 5 minutes of exposure time. Both first and second method complimentarily gives equal outcome in chi-square test, p=0.993 and has not influenced by other parameters while third method does not give any significant result in sensitivity test. The HPLC showed peak chromatogram with benzalkonium chloride.

Conclusion:
The extraction technique of both direct-cut-use and squeezing the wet tissue are both equally good than homogenizing method and active compound contributes to antimicrobial activity of wet wipes is benzalkonium hypochlorite.

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Scanning Electron Microscopy of *Anopheles dirus* and *Anopheles cracens*

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Background:
Plasmodium knowlesi a simian malaria, is found to be naturally infecting humans especially in Malaysia. The vectors that transmit *P. knowlesi* is known to be *Anopheles* mosquitoes, which belongs to Leucosphyrus group. There were many vector studies focusing on adult mosquito and larvae of *Anopheles* species, but there are only a few describing mosquito eggs. In this study, we aim to study the ultrastructure of *An. dirus* and *An. cracens* eggs, which both belongs to Leucosphyrus subgroup Dirus Complex, under Scanning Electron Microscope (SEM).

Method:
An. dirus mosquito eggs were washed and fixed in ethanol or glutaraldehyde, to compare whether there is any difference in ultrastructure between these 2 processes. *An. cracens* was not available in the laboratory, thus, we used eggs preserved in ethanol. All samples were fix in glutaraldehyde, postfixed with Osmium Tetroxide, dehydrated in ethanol and rehydrated with acetone. The samples then undergo Critical Point Drying, mounted, coated with gold and examined using SEM.

Results and Discussion:
There were no differences between mosquito eggs kept in ethanol before fixing in glutaraldehyde and eggs directly fixed in fixative. Floats, frill and outer chorion cells were having similar structure in eggs of both species. In *An. dirus,* ventral deck is covered with large irregular globose tubercles at the center, with larger size, longer, feathery tubercles and less indentation at both ends; oval-shape lobed tubercles with 6 or 7 lobes extend from midline. In *Anopheles cracens* egg, irregular shape ventral deck tubercles at the centre, with coarser and longer (but shorter than *An. dirus)* tubercles with sharp and less prominent indentation at both end; 8 to 9 lobes are extended from each lobed tubercle. Both species has outer chorion with smaller plastron which were surrounded by bigger plastron, forming distinct boundaries.

Conclusion:
We have shown that it is possible to differentiate the eggs using SEM. However, it is still not a cheap method for identification and many laboratories do not have expertise or equipment to conduct this kind of work.

Link:

Validation of A_2 Subgrouping using Genetic Analysis Sequencing

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Background :

ABO blood group system is an important antigenic blood system in blood transfusion and organ transplants. This study was conducted to identify the blood group distribution and prevalence of A_2 subgroup among the new student intake in Universiti Selangor

Methods:

We applied two blood grouping techniques as tool for blood group identification and A subgrouping. The technique used are serology and molecular technique. Monoclonal antisera A, B, AB, D, A_1 lectin and H lectin were used to identify the antigen on erythrocyte and known cell A, B and O were used to detect the antibody on plasma. DNA Sequencing analysis was used to examine Single Nucleotide Polymorphism (SNPs) at position 467 (substitution of C>T) and 1061 (deletion of C) on coding region of ABO gene. These SNPs found on A201 allele.

Results:

A total of 656 student participate in this study with age range between 17 to 27. The participants are among Malay, Chinese, Indian and Other ethnic group with frequency of 571 (87.0%), 4 (0.4%), 75 (11.4%) and 6 (0.9%) respectively. Our Findings shown from 656 blood samples, 256 (39.0%) were blood group O, 190 (29.0%) were blood group B, 179 (27.3%) were blood group A and 31(4.7%) were blood group AB. The statistical analysis revealed that there is no significant relationship between blood groups and ethnic group with chi-square (0.438), P-value (8.991). The frequency of A_1 subgroup is 177 (99.0%) and A_2 subgroup is 2 (1.0%). From 179 A blood group only 2 samples are negative with Anti-A_1 lectin. DNA sequencing analysis revealed the SNPs at nucleotide 1061 region.

Conclusion:

We concluded that, the molecular technique provides a precise and high accuracy in identification of A subgroups. The correct identification of blood groups and subgroups are essential to ensure a safe blood transfusion.

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Link:

EVALUATION OF SECRETOR STATUS AMONG PEOPLE WITH DENGUE HISTORY BY ABSORPTION INHIBITION METHOD

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Background, Methods, Results, Discussion and Conclusion. Length of abstract must not exceed 350 words.

Background:
ABO blood groups can be said as the most common and easily detected blood group systems. ABO blood group can be identified in blood circulation and also other body fluid such as saliva, sweat, and even semen which is called as secretor status. Secretor status has been related to various type of infections or diseases as host susceptibility. As dengue infections become the most prevalence mosquito-borne viral disease in the world as the disease have been spreaded in all regions, many researches have been done to study host susceptibility towards dengue fever. Thus, the aim of this study to detect the association between secretor status and dengue infections.

Methods:
Absorption inhibition method is the method used in this study to detect salivary blood group antigens among people with dengue history. This method is the gold standard to detect secretor status.

Results:
The results from 60 samples collected among A, B and O blood group individuals showed that 49 of them were secretors which was 81.7%. Meanwhile 11 were non-secretors that was 18.3%. O blood groups showed 100% of secretors, A blood groups consisted of 60% of secretors and B blood groups resulted in 85% of secretors.

Conclusion:
This study concluded that secretors are higher among the people with dengue history thus in general prove the association between the secretor status and dengue infections as the results showed statistically significant difference because p-value < 0.05.

Link:

EARLY DETECTION OF SUSPECTED PAEDIATRIC PATIENTS WITH CLINICAL SYMPTOMS OF PSORIASIS USING ELISA TECHNIQUE

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Background, Methods, Results, Discussion and Conclusion. Length of abstract must not exceed 350 words.

Background:
Guttate Psoriasis is a second and third higher incidents of skin disease influence on children with poor hygiene reported in Malaysia and universe. In Malaysia, the diagnosis performed based on the clinical presentation and fewer studies are being conducts. In this study, we are investigates the involvement of IL-5 and 6 levels, which act as a biomarker.

Methods:
The plasma samples collected from 46-suspected (24 male; 22 female) hospitalised patients and two healthy controls with age range of 1 to 12. The patients selected based on the clinical symptoms and readings of Differential Counts (DC) analysis. We analysed the plasma by using quantitative Sandwich Enzyme Immunoassay method according to manufacturer. This method was capable in capturing and detecting the amount of antigen presents in between two layers of antibody. The Minimum Detectable Dose (MDD) of IL-5 and 6 were ranges from 0.06-1.08pg/mL and lesser than 0.70pg/mL.

Results:
Our findings shows that, levels of IL-5 and 6 were classified into acute (n=11) and chronic (n=35) stages. The mean values of IL-5 and 6 were 0.121pg/mL and 0.061pg/mL. The IL-5 levels were increases four times higher than the controls; however, the IL-6 levels shows infinite on controls. The data analysed by using T- Test and ANOVA. The p-value was 0.001, our findings were significant in classifying the stages. The DC analysis has a significant role in supporting the clinical diagnosis.

Conclusion:
It is complements on the plasma in serology diagnosis when the clinical features and DC remain abnormal. The measurement of cytokines was useful in diagnosis and further studies will be performing on molecular level for better prognosis in future.