Health and the Environment Journal, 2017

Vol 8, Supplement 1

"Improving Societal Health and Wellbeing Through Translational Research and Education"

ABOUT US

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Vol 8, Supplement 1 2018

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The Association Between Oral Health Knowledge, Attitude and Practice and Dental Plaque Maturity Status among 13- to 14-year-old School Students in Kota Bharu, Kelantan

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Abstract

Introduction: Oral health knowledge is considered to be an essential prerequisite for health-related practices and better oral health. This study assessed the association between oral health knowledge, attitude and practice of school students and their dental plaque maturity status.

Methods: A cross-sectional study was carried out among 167 school students aged 13 to 14 years who were randomly selected from four different secondary schools in Kota Bharu, Kelantan. The oral health knowledge, attitude and practice was assessed by face-to-face group interview whilst the dental plaque maturity status was evaluated using GC Tri Plaque ID Gel™ (TPID). The dental plaque maturity score (DPMS) was recorded as 'No plaque : 0', 'Fresh plaque : 1', 'Matured plaque : 2', or 'Acid-producing plaque: 3'. TPID was applied to all tooth surfaces and missing teeth were not substituted. The data was analysed using IBM SPSS Version 22. The analysis used were independent t-test and one way ANOVA.

Results: 64% of the students were female. About half (50.3%) of them are 14 years old. Mean oral health knowledge was moderate, 4.70 (SD = 1.442), oral health attitude was good, 3.63 (SD = 0.624) and DPMS indicates fresh plaque, 1.02 (SD = 0.543). Mean DPMS difference, -0.371 (95%CI: -0.688, -0.054) were significant between students who had correct response on the role of sugar (p = 0.022), positive attitude on the importance of self-care in preventing caries (p = 0.009) and practice toothbrushing at least twice daily (p = 0.016).

Conclusion: School students had moderate knowledge and good attitudes towards oral health. Students who practice toothbrushing twice daily had better dental plaque maturity status than others who practice toothbrushing less frequent. There was no significant association between oral health knowledge and attitudes with dental plaque maturity status.

Keywords: oral health; oral hygiene; adolescent; health knowledge, attitudes, practice; dental plaque

Dose Verification of Interstitial brachytherapy in homogeneous and inhomogeneous medium: Single catheter study

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Abstract

Introduction: Interstitial brachytherapy method is utilize high dose rate radioactive source (either afterloading or permanent) directly into the tumor site using special design catheter. Due to complex dose calculation and dose delivery in brachytherapy, computer based treatment planning systems (TPS) has been introduced using TG-43U1 formalism. The objectives of the study were to verify the dose calculation of TG-43U1 based treatment planning system in the homogeneous and inhomogeneous phantom setup (water, lung and bone).

Method: The single 6F catheter was sandwiched inside 14 cm of solid water phantom to create homogenous condition and scanned with computed tomography (CT) simulator. The CT images were transferred into the brachytherapy TPS. The plan was prescribed with 100 cGy at 3.5 from the Iridium-192 source and the dose distribution calculated. The same procedures were repeated for inhomogeneous condition by replacing solid water slab with lung phantom and bone phantom respectively. Then, the calculated doses were evaluated using 0.6 cm^3 farmer ionization chamber and gafchromic EBT 3 films.

Result: The maximum dose deviation between calculated and measured dose using ionization chamber in the homogeneous medium, lung and bone was less than 2 cGy, 4 cGy, and -9 cGy respectively. While using EBT3, the dose deviation measured in homogeneous medium, lung and bone was less than 9 cGy, 8 cGy and -3 cGY respectively. Maximum standard error of measurement using ion chamber was 0.06 in comparison with EBT 3 film was 0.34.

Conclusion: In conclusion, there was significant different between calculated and measured doses in TG-43U1 calculation in inhomogenous condition. The measurement using ion chamber was more accurate compared to EBT3 film measurement.

Keyword: Interstitial brachytherapy, Iridium-192, single catheter, phantom, inhomogeneity.

The Malay version of Athletic Coping Skills Inventory-28: A confirmatory study

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Abstract

Introduction: The study aimed to determine the validity and reliability of the Malay version of Athletic Coping Skills Inventory-28 (ACSI-28) using confirmatory approach.

Methods: There were total 258 athletes competed in Silat sport completed the ACSI-28. The ACSI-28 consists of seven factors (i.e., goal setting, confidence, coachability, concentration, coping with adversity, peaking under pressure, freedom from worry) and 28 items. Each item of ACSI-28 was measured at 4 likert scale rating from 0 (almost never) to 4 (almost always). The confirmatory factor analysis (CFA) was used to examine the construct validity of ACSI-28 and composite reliability (CR) was used to measure the reliability of each factor. Data analyses of CFA were conducted using Mplus 7.4. The initial hypothesized model of ACSI-28 did not fit the data well (RMSEA = 0.069, SRMR = .072).

Results: The results of CFA were inspected and there were seven low loading items (<0.4) which were removed from the model iteratively. Some modifications were made that included adding an items' residual covariance and combining several highly-correlated factors (Goal setting-confidence-concentration and coping-peaking) as single factor. The final stage of model re-specification produced best fit model (RMSEA = 0.053, SRMR = 0.054). In the final model, 18 items were remained and four main factors were identified. The CRs for all three factors were moderate to acceptable, ranged from 0.57 to 0.71.

Conclusion: The revised version of ACSI-28 based on these confirmatory results could be used for future applied setting in measuring athletes' coping in sport competition.

Keywords: Sports, coping, Confirmatory factor analysis, reliability

Interleukin-17A Promotes Osteogenic Differentiation through Upregulation of MAP Kinase Signalling Pathway in Stem Cells from Human Exfoliated Deciduous Teeth (SHED)

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Abstract

Introduction: Interleukin 17A belongs to a family of pro-inflammatory cytokines, is not only involved in the immune response of tissues but also plays a role in bone metabolism. The present study evaluated the role of interleukin-17A on osteogenic differentiation of multipotent stem cells derived from human exfoliated deciduous teeth (SHED) and its effect on MAPK signalling pathway.

Methods: SHED were cultured in 2 different conditions; one in complete alpha minimum essential medium (α-MEM) and the other in complete α-MEM medium supplemented with osteogenic reagents. SHED in both conditions were cultured in the presence or absence of 50 µg/ml rIL-17A. The effect of IL-17A on MAP kinase signalling pathway was quantitatively assessed by RT^2 profiler PCR array, which profiles the expression of 42 genes related to the pathway. For osteogenic differentiation analysis, expressions of the specific proteins ALP, COL1A1, RUNX2, OCN, OPN, OPG and RANKL were analyzed by Western blot.

Results: We demonstrated IL-17A upregulated MAP Kinase signalling pathway in SHED cultured in both culture conditions by the significant upregulations of all upstream activators and downstream targets of ERK, P38 and JNK pathways. In addition, western blot analyses demonstrated increase expression levels of osteogenic markers i.e. ALP, COL1A1, RUNX2, OCN, OPN, OPG in rIL-17A-treated SHED as compared to the untreated cells ($p<0.01$). Interestingly, SHED-treated with rIL-17A demonstrated increase OPG/RANKL ratio in both culture conditions.

Conclusion: These findings demonstrate for the first time that IL-17A promotes osteogenic differentiation of SHED by activating MAPK and OPG/RANKL signalling pathways; thus suggest the important role of IL-17A in bone formation.

Keywords: Interleukin-17, MAP kinase, OPG, RANKL, SHED

Association between Stress and Dietary Intake among Adult Population in Kuala Terengganu

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Abstract

Introduction: Stress is one of the leading causes of obesity as it had been shown to alter dietary intake. Obesity serves as a risk factor for the development of chronic diseases. A cross-sectional study was conducted to determine the association between stress and dietary intake among the adult population in Kuala Terengganu.

Methods: This study was conducted from December 2016 to January 2017 in Gong Badak Campus and Kota Campus of Universiti Sultan Zainal Abidin (UniSZA), SJK (C) Chung Hwa Wei Sin and Sekolah Menengah Agama Sultan Zainal Abidin (SMASZA). A total of 100 respondents aged 19 to 59 years old, literate Malay language and healthy were recruited. Weight and height were measured using calibrated weighing scale and stadiometer to calculate body mass indices. The stress level was measured using 21-item Depression, Anxiety and Stress Scale (DASS-21), while dietary intake was assessed using Food Frequency Questionnaire (FFQ). Both parameters were self-reported by the respondents.

Results: The prevalence of stress among the adult population in Kuala Terengganu was 19.0% which was categorised as non-stress as the mean stress score was 5.01 ± 2.89. There were 47.0% and 24.0% respondents reported as overweight and obese respectively. The median (IQR) daily energy intake of the study population was 2228.15 ± 599.62 kcal/day, while daily carbohydrate, protein and fat intake were 284.52 ± 101.58 g/day, 94.19 ± 43.33 g/day and 74.93 ± 34.48 g/day respectively. There was no significant difference between stress score and sex ($p = 0.861$) using independent t-test. The energy, protein and fat intake of males were significantly higher than females ($p < 0.05$). The energy and carbohydrate intake of stress group were significantly higher than normal group ($p < 0.05$).

Conclusion: There was a fair positive association between stress score and energy intake among the adult population in Kuala Terengganu ($p = 0.047$). As stress increases, energy intake increases. This implies that stress did affect dietary intake of the adult population. This data may serve as a database for monitoring population stress level and dietary intake as well as to facilitate intervention programs.

Keywords: Association, stress, dietary intake, adult population.

Characterization Of Bacterial Strains Isolated From Meat Contact Surfaces In Meat Processing Environment And Its Ability To Form Biofilm

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Abstract

Introduction: Meat contamination by microorganisms from the meat-processing environment is a major challenge in the meat industry. Bacterial attachment and biofilm formation at the meat processing environment can occur due to several factors such as ineffective cleaning procedures, improper handling of meat and poor personnel hygiene. Cross contamination can occur at any stage during the various steps of meat processing in the abattoirs. High level of contamination at meat contact surface reflects poor sanitation level and ineffectiveness of cleaning procedures of the abattoir. The aims of this study are to identify the species of bacterial strains isolated from the meat-processing environment and its ability to form biofilms.

Methods: Twenty-three (23) bacterial strains isolated from meat contact surfaces (knives, splitting tools and air curtains) from two selected abattoirs in Selangor were tested in this study. All isolates were identified using 16s rDNA. Biofilm formation ability by the bacterial strains was evaluated using the standard microtiter plate assay. Biofilm production at three different temperatures (4°C, 25°C and 37°C) were also tested in this study.

Results: Bacterial genera isolated from the meat contact surfaces were dominated by *Acinetobacter* sp., *Bacillus* sp., *Cronobacter* sp., *Empedobacter* sp., *Enterococcus* sp., *Escherichia* sp., *Glutamicibacter* sp., *Kurthia* sp., *Macrococcus* sp., *Microbacterium* sp. and *Staphylococcus* sp.. Whereas, for the comparative ability of biofilm formation, results showed that biofilm formation of *Escherichia coli* at all tested temperatures were very strong. Results also showed that *Staphylococcus saprophyticus* and *Proteus mirabilis* formed biofilm at 4°C and 25°C while *Macrococcus bovicus, Microbacterium esteraromaticum* and *Bacillus flexus* only form biofilms at 37°C. The other species of bacteria only form weak biofilm or show zero ability in biofilm formation.

Conclusion: From these results, pathogenic bacteria were found in the meat processing environment and were found to have biofilm forming ability. This study revealed that the hygiene level of the abattoir is low and requires extra deliberation from related authority. It is suggested that a regular monitoring programme should be implemented to further improve the hygiene level in the abattoir and thus maximise our local beef quality.

Keywords: Meat contamination, abattoirs, 16s rDNA, biofilm formation, temperature.

The Perspective of Macro Algae as Functional Food

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Abstract

Introduction: Marine macroalgae are natural geochemical signatures seaweeds of global distribution. Various divisions of macroalgae flora such as Chlorophyta, Phaeophyta and Rhodophyta flourish. However, although active ingredients; polysaccharides, lipids factions, and carotenoids have been purported linked, and for more than 2000 years exploited in Traditional Chinese Medicine (TCM), for a variety of diseases and now aquaculture able, its biomass remained poorly extrapolated as functional food. The aim of this review is to cross check the potential of macroalgae as functional food.

Methods: A systematic search of all recorded macroalgae species (available in scientific manuscripts) published since 2007 of pertinent as functional food was retrieved (from the World Wide Web: Pub Med, Web of Knowledge, and SciFinder Scholar). From the retrieved knowledge, taxonomic classification (i.e., family, genus, and species) was recorded. The spread sheet of nutritional values and bioactive compounds (activities) of each spp was also analysed and tabulated.

Results and discussion: Natural bioactive compounds associated with macroalgae includes sulfated polysaccharides, peptides, phenols, terpenes, chlorophyll, carotenoids, lipids and fatty acid all with a wide range of physiological and biological activities to serve as therapeutic agents.

Conclusions: Biological activities such as anticoagulant, antiviral, antioxidative, antitumor, immunomodulating, antihyperlipidemic and antihepatotoxic activities are associated to this marine macroalgae. Sulfated polysaccharide is also an interesting entity of its biomass. The results of this review are highly suggestive especially for a country like Malaysia, that with the said characteristic nutritional features and biological activities, macroalgae is thus an important topic for functional food research.

Keywords: Marine macroalgae, seaweeds, functional food and sulfated polysaccharides (SPs)

Noise Exposure and Hearing Symptoms among Supporting Group Workers at a Public Hospital

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Abstract

Introduction: Noise-induced hearing loss (NIHL) is considered as the major preventable cause of hearing loss at workplace. Workers involved with mechanical equipment in hospital may be exposed to high noise level. Hence, the aim of this study was to investigate the noise exposure level and hearing symptoms among supporting group workers at Laundry Unit (LU), the Department of Asset and Operation Office and the Development Department (PAO/DD) in a Public Hospital.
Methods: Using cross sectional study design and convenience sampling method, 20 workers from the LU and 15 workers from PAO/DD participated in the study. Each worker's noise exposure levels were measured using noise dosimeter (Spark Larson Davis 703, Sweden) worn for 8 hours during the working time. Hearing symptoms was determined using a modified and translated questionnaire adapted from the American Speech-Language-Hearing Association (ASHA).
Results: Workers at LU had significantly longer duration of noise exposure per week compared to PAO/DD (28 hours per week vs 20 hours per week, P=0.009). However, workers at PAO/DD were exposed to significantly higher mean noise level (85.3± 2.0 dBA) compared to workers at LU (80.1± 3.4 dBA), P=0.001. The Lpeak for both LU and PAO/DD was more than 130dBA which exceeds the Factories and Machinery Act 1967. Regarding hearing symptoms, 70% (n=14) workers at LU and 35% (n=6) workers at PAO/DD have trouble hearing in noisy background, respectively.
Conclusions: LU workers have lower noise exposure level but at longer duration while PAO/DD workers have higher noise exposure level with short duration. Hearing symptoms was detected in both groups and this warrants further actions from the management.

Keywords: Noise exposure, Hearing symptoms, Public Hospital

A Study of Flavonoids Content from *Passiflora Foetida L.* Plant in Kelantan

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Abstract

Introduction: *Passiflora foetida* L. or passion flower is a fast growing spreading vine located near hamlets, top thorny shrubs and human settlements riverbeds. This plant medicinal purpose has been widely purported in countries such as India, Vietnam, Bangladesh, Thailand and Nigeria. In tandem to this, plant medicinal uses are strongly associated with its phytoconstituents content. Thus scientific studies are needed to harness exploitation and outsourcing with well taxonomied plant. One widely known phytoconstituents is the flavonoids. *Per se,* flavonoids have received a lot of attention in many plant research purposes especially in outsourcing for therapeutic phytoconstituents. Hence this study was carried out to quantify the total flavonoids content in geochemical localized *Passiflora foetida* L. leaves and stems extract outsourced form two different GPS location within the state of Kelantan.
Methods: Chemical characterizations are essential to validate the pharmaceutical use of the plant raw materials. Hence the objective of this work was to optimize a UV/Vis spectrophotometrically method, based on flavonoid-aluminum chloride ($AlCl_3$) complexation to determine the total flavonoid content (TFC) in leaves and stems extract of *Passiflora foetida* L.
Results: There was significance different of total flavonoids content in leaves extract between Kampung Kenali and Kampung Pulau Pasir. Flavonoids content in stems extract are suggestively influenced by soil-type and water distribution into the stems structure.
Conclusion: The quantification differences can be a bench mark for the optimization of *Passiflora foetida* L extract.

Keywords: Flavonoids, aluminium chloride, *Passiflora foetida* L.

Adherence to Insulin Therapy in Type 2 Diabetes Mellitus Patients Treated at The Government's Primary Health Care Centers in Klang, Selangor

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Abstract

Introduction: Insulin therapy is necessary for Type 2 Diabetes Mellitus (T2DM) patients to accomplish targeted glycaemic controls and prevent diabetes-related complications.

Method: This study aimed to determine the proportion of adherence to insulin therapy and to determine the association between adherence level and glycaemic controls (HbA$_{1C}$, Random Blood Sugar, Fasting Blood Sugar) in patients who attended Ministry of Health primary care centers in Klang, Selangor. This cross-sectional study was conducted among T2DM patients who were on insulin therapy for at least two months. A purposive sampling method was used. Patients were interviewed, and records were accessed to collect data on socio-demographic characteristics. A self-administered validated questionnaire was used to measure the adherence level to insulin therapy.

Result: This study involved 249 subjects from five Ministry of Health's primary care centers in Klang, Selangor. The proportion of adherence to insulin therapy was only 8.43% (95% CI: 0.05, 0.12) and there was no association between adherence level to insulin therapy and glycaemic controls.

Conclusion: Adherence to insulin therapy was poor. In addition, the adherence level to insulin therapy was found to be not associated with glycaemic controls. T2DM patient's adherence level could be improved through a better and specific identification of factors that could lead to the adherence to insulin therapy. There might be other confounding factors that was associated with glycaemic controls.

Keywords: insulin, adherence, diabetes mellitus, glycaemic control

Effect of Minocycline and Ifenprodil on Oxidative Status and Pro-inflammatory Markers in Spinal Cord of Streptozotocin-induced Painful Diabetic Neuropathy Rat Model

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Abstract

Introduction: Hyperglycaemia in diabetes mellitus (DM) patients leads to the excessive production of oxidative stress. Inhibition of microglia and NR2B subunit NMDA receptor has been shown to reduce the painful diabetic neuropathy (PDN) in the diabetic rat model. This study was conducted to investigate whether the administration of microglial inhibitor (minocycline) and NR2B subunit NMDA receptor inhibitor (ifenprodil) can change the level of oxidative stress and pro-inflammatory markers in the spinal cord of painful diabetic neuropathy rat's model.

Methods: Fifty-six male Sprague-Dawley rats were randomly allocated into seven groups: non-diabetic control (S+CB), diabetic control (S+STZ), non-PDN, diabetic rats received minocycline at 80µg (M80) or 160µg (M160) and diabetic rats receiving ifenprodil at 0.5µg (I0.5) or 1.0µg (I1.0). All rats were fasted for 14 hours prior to STZ injection (60mg/kg) to induce diabetes. The diabetic status was confirmed at three days post-STZ injection. Intrathecal administration of the treatment was given on Day 15 to 22 (seven days) post-STZ injection. On Day 23, the rat's hind paw was injected with 5% formalin and sacrificed at three days after formalin injection. Spinal cord tissue was removed and homogenized (10% homogenate). Enzyme-linked immunosorbent assay for antioxidant (catalase and superoxide dismutase), oxidative stress markers (MDA) and pro-inflammatory markers (TNF-α and IL-1β) were carried out.

Results: (S+STZ) group had demonstrated significant reduction in catalase and SOD activities accompanied by the increased in TNF-α and IL-1β levels compared to the (S+CB) group (p<0.05). An administration of higher dose of minocycline (M160) and ifenprodil (I1.0) had shown an improvement in catalase and SOD activities compared to the other groups (p<0.001). Minocycline and ifenprodil treated groups independent to dose given also had demonstrated a marked suppression in MDA levels compared to the other groups (p<0.001). Both minocycline- and ifenprodil-treated groups had reduced TNF-α level especially minocycline at higher dose (p<0.001) but cannot prevented the increase on IL-1β level especially ifenprodil-treated group (p<0.05) compared to the other groups.

Conclusion: Minocycline and ifenprodil administration can reduce the level of oxidative stress and pro-inflammatory markers in the spinal cord of painful diabetic neuropathy rat's model but probably through different pathway and mechanism.

Keywords: Minocycline, ifenprodil, malonylaldehyde, superoxide dismutase, catalase, interleukin-1β

Study on Indoor Air Quality (IAQ) at Selected Workshop toward Health Effects to Workers

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Abstract

Introduction: This study attempted to examine the indoor air quality at selected workshop towards health effect to workers at high risk industry workplace were they exposed to poor indoor air quality (IAQ) environment. The indoor air concentration of particulate matter was usually high in industrial area due to work process that release heat and contaminants.
Method: Indoor air parameters including PM_{10}, $PM_{2.5}$, relative humidity and temperature were collected in three selected workshop at RWNA Engineering Sdn. Bhd using Lighthouse Handheld 3016. These parameter was collected to compare it with available standards and guidelines. An IAQ checklist were used for walk through survey to support and strengthen result obtain from this study. While the evaluation on health symptoms was collected using questionnaire. Chi-square test was performed for all of the adverse health analysis.
Result: The highest PM_{10} concentration were recorded in blasting workshop which was 83.20 µg/m^3. There was statistically significant differences for proportion of dry throat at selected workshop (p=0.036).
Conclusion: Regular maintenance of indoor air quality and outdoor air monitoring of IAQ parameter need to be done to control the exposure towards air contaminant from the right sources and as to minimise IAQ problems for healthier indoor environment.

Keywords: Indoor Air Quality (IAQ), Particulate Matter, Health Effect

Validation of Malay Version Body Self-Image Questionnaire Among Malaysia's Young Adults

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Abstract

Introduction: It is undeniable that how an individual perceive their appearance brings substantial impact on their quality of life, in terms of their social life, self-esteem and others. The problem has increased the awareness of researchers worldwide to further explore in this area. Body Self-Image Questionnaire is developed to measure body image perceptions; nonetheless, due to the cultural, language and environmental differences between western and eastern population, the validity and reliability need to be established before it can be used in these setting.

Objectives: To determine the validity and reliability of the Malay version Body Self-Image Questionnaire among young adults in Malaysia using Exploratory Factor Analysis.

Methods: A cross-sectional study involved web-based survey was employed in this study among young adults in Malaysia. Participants were recruited using snowball sampling method. Descriptive and Exploratory Factor Analysis were applied in the statistical analysis.

Results: A total of 188 respondents participated in this study. Majority of the respondents were female (67%), Malay (93.6%), single (80.9%) and students (56.4%). Results for Exploratory Factor Analysis showed factor loading of all the items ranged from 0.329 to 0.921, and communalities ranged from 0.338 to 0.780. The items were re-grouped from nine factors to 4 factors namely: negative affect, positive affect, own body perception and height dissatisfaction.

Conclusion: The results for Exploratory Factor Analysis retained all the items and re-grouped them into 4 factors. The questionnaire is valid and reliable to be used to measure body image perceptions among young adults in Malaysia in future.

Keywords: Body Self Image Questionnaire, young adults, Malaysia, validity, reliability

ICAM-1 Expression in Triple Negative Breast Cancer (TNBC)

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Abstract

Introduction: The major cause of mortality from breast carcinoma is due to dissemination of the primary tumor to the other part of the body through the lymphovascular invasion (LVI). Studies have proven that intercellular adhesion molecule-1 (ICAM-1) and tumor cell invasion were associated with metastases, however the relationship between LVI with ICAM-1, the adhesion molecule in breast carcinoma remained unclear. Therefore, the aim of this study was to investigate the role of ICAM-1 in influencing LVI in breast carcinoma patients. Additionally, the topography and characteristic of lymphatic and blood vessels and the association of these characteristics with clinicopathological criteria of breast carcinoma was also been studied. Lastly, the association between conventional assessments of lymphovascular invasion by using haematoxylin and eosin (H&E) staining with those assessed in (IHC) staining with specific endothelial markers was investigated.
Methods: H&E and immunohistochemical IHC staining on consecutive section of 37 formalin fixed-paraffin embedded (FFPE) breast invasive carcinoma samples were carried out to investigate the characteristic of lymphatic and blood vessel with clinicopathological criteria. D2-40, CD34, CD163, and ICAM-1 antibodies were used to stain lymphatic vessel, blood vessel, macrophage, and ICAM-1 receptor respectively. Stimulated MCF-7 and MDA-MB-231 cell lines with D2-40 and CD34, followed by flow cytometry reading were done to study ICAM-1 expressions on breast carcinoma models.
Results: Total lymphatic vessel density (LVD) was significantly increased with larger tumor size ($p=0.045$). Intra-tumoral LVD and lymphatic vessel invasion (LI) were significantly increased with HER2/neu status, $p=0.022$ and $p=0.05$ respectively. The percentage of LI was higher than blood vessel invasion (BI) in 16.79%. LVI detected in H&E was missed in 50.24% compared with those detected in IHC-stained tissues. ICAM-1 scores were significantly increased in triple negative breast cancer (TNBC) ($p=0.008$). Expression of ICAM-1 was significantly higher on treated MDA-MB-231 with D2-40 and CD34 compared to MCF-7 ($p<0.001$).
Conclusion: ICAM-1 expression in TNBC model shows the potential role of this molecule in the aggressive nature of TNBC. This finding provides an important foundation for pre-clinical and clinical evaluation for the possible alternative therapeutic target of TNBC treatment.

Keywords: Breast carcinoma; Lymphovascular invasion; D2-40; CD34; ICAM-1

Fruits and Vegetables Intake Among Preschoolers in Taska Permata Keluarga, Kuala Nerus, Terengganu.

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Abstract

Introduction: Fruits and vegetables are important in health promotion and they are crucial for the growth of children because they contain essential nutrients such as vitamins, minerals, fibers and bio-functional components. Worldwide, fruits and vegetables intake was inadequate and continue to drop. This study anticipate the comparison of fruits and vegetables intake among preschoolers with the recommended daily servings of fruits and vegetables based on Malaysian Dietary Guideline for Children 2013. Besides, this study determines the association between fruits and vegetables intake and macronutrients and miconutrients intake of preschoolers.

Methods: This cross sectional study was designed to determine the daily fruits and vegetables intake among preschoolers in Taska Permata Keluarga, Kuala Nerus. A total of 131 preschoolers aged four to six years old from Taska Permata Keluarga, Kuala Nerus were included in this study. Anthropometric measurements included weight, height and body mass index were reported. Preschoolers' dietary intake was assessed using food frequency questionnaire and nutrient intakes were compared with Recommended Nutrient Intake (RNI).

Results: The median weight for boys and girls were 14.23 kg and 14.30 kg respectively, whereas the median height for boys was 98.18 cm and 97.70 cm for girls. The median BMI for boys was 15.00 kg/m^2 whereas for girls was 14.70 kg/m^2. Overall, preschoolers' median intake of fruit serving (0.76 for boys and 0.61 for girls) and vegetable serving (1.02 for boys and 0.64 for girls) failed to meet Malaysian Dietary Guidelines (MDG) of 2 servings of fruit and 2 servings of vegetable per day. Only 4 (3.1%) preschoolers met the MDG recommendation. There was no significant differences in fruit and vegetable intake and fiber intake between boys and girls ($p>0.05$). Total fruit serving intake was positively correlated with energy intake, fiber intake, macronutrient intake (carbohydrate), and micronutrients intake (iron, beta carotene, vitamin C). Total vegetable serving was positively correlated with fiber intake, macronutrient intake (protein, carbohydrate) and micronutrients intake (calcium, iron, potassium, vitamin A, beta carotene, vitamin C).

Conclusion: Most of the preschoolers failed to meet MDG 2013 recommendation of two servings of fruit and two servings of vegetable per day. Total fruit and total vegetable was associated with macronutrients and micronutrients intake among preschoolers. The data provide baseline information for further research purpose.

Keywords: fruits and vegetables intake, fiber intake, preschoolers

D2 Dopamine Receptor (DRD2) Taql A and Dopamine Transporter (SLC6A3) Gene Polymorphisms among Mixed Amphetamine-Type-Stimulant and Opioid Dependence Subjects

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Abstract

Introduction: The polymorphism (RS1800497) in the dopamine D2 receptor and the polymorphism (RS27072) in the dopamine transporter have previously been linked to a drug addiction behaviour. Opioids and amphetamine-type stimulant (ATS) are the main drugs abused by the drug abusers in Malaysia. The objective of this study is to determine the possible association between the DRD2 Taq1A and dopamine transporter (SLC6A3) gene polymorphisms with the subjects of co-occurring amphetamine-type stimulants (ATS) and opioid dependence.

Methods: A total of 50 Malay male subjects with dependence to two drugs, amphetamine-type-stimulant and opioid and 188 control subject were recruited. The polymorphism of the DRD2 and SLC6A3 were determined by using a standard PCR procedure.

Results: The frequencies of DRD2 genotype for the normal group for the A2/A2= 23.94% (45), A1/A2= 45.74% (86) and A1/A1= 30.32% (57), while the frequencies for the SLC6A3 genotypes were TT=12.24% (23), CT= 61.70% (116) and CC= 26.06% (49). The frequencies for the DRD2 genotype for the drug abuse group are A2/A2= 24% (12), A1/A2= 48% (24) and A1/A1= 28% (14). For SLC6A3 genotype of the drug abuse group, TT=10% (5), CT= 82% (41) and CC= 8% (4). There were a significant difference in frequencies of DRD2 polymorphism ($X^2 = 9.160$, P<0.01) and SLC6A3 polymorphism ($X^2 = 104.160$, P<0.012) observed between the drug abuse and normal group. There is an association between polymorphism of dopamine receptor D2 (DRD2) and dopamine transporter (SLC6A3) and the Malay male subject with co-occurring amphetamine type stimulant and opioid dependence.

Keywords: SLC6A3 polymorphisms, DRD2 polymorphism, opioid, Amphetamine-type-stimulant (ATS), drug addiction

Organic Solvents Exposures and Neurobehavioral Performances among Car Spray Painters in Kota Bharu

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Abstract

Introduction: The increase demand in car usage do led to the increase number of car spray painting premises that have capabilities to cause adverse health effects on human health and environment. Organic solvents used in car spray paint is neurotoxic and can affect central and peripheral neurobehavioral system.

Methods: This comparative cross sectional study design aimed to determine the association between exposures of organic solvents found in chemical toward the neurobehavioral performances of car spray painters. This study was conducted among 47 car spray painters at thirteen car spray painting premises at Kota Bharu for exposed group and among 47 administrative workers at Universiti Sains Malaysia as control group. Questionnaires and Neurobehavioral Core Test Battery (NCTB) consist of seven series of test were used as the research instrument.

Results: There were a significant difference in neurobehavioral symptoms of fatigue after finished working session (χ^2=11.525, p=0.001), often having fever (χ^2=4.029, p=0.045), irritability edge (χ^2= 6.114, p= 0.013), lack hand coordination (χ^2=3.887, p=0.049), numb at the part of the body (χ^2=7.982, p=0.005) and impaired vision (χ^2=8.340, p=0.004) reported among exposed group. NCTB scores were significantly lower among the exposed group compared to non-exposed group in all seven series of tests; Simple Reaction Time, Minnesota Dexterity (Dominant and Non Dominant), Digit Span (Forward and Backward), Digit symbol, Pursuit Aiming and Trail Making which are p=0.001.

Conclusion: Exposed subjects score poorer than non-exposed subject in most of the neurobehavioral symptoms and all neurobehavioral score.

Keywords: Neurobehavioral performance, Neurobehavioral Core Test Battery, Car spray painters

Occurrence of *Salmonella* spp. in Local Abattoirs located in Selangor, Malaysia

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Abstract

Introduction: *Salmonella* spp. is one of the emerging food borne pathogens of worldwide importance that contaminating a wide range of meat products. Poor biosecurity and improper processing of the meat products are likely the cause of human illnesses due to this pathogen. **Methods:** In this study, the contamination of beef carcasses and meat contact surfaces with *Salmonella* spp. in local abattoirs was evaluated. A total 152 swab samples were tested for the presence of *Salmonella* spp., where both beef carcasses and meat contact surfaces were collected from two local abattoirs that located in Selangor, Malaysia. Total viable counts were also recorded. **Results:** A total of 28 samples were found to be *Salmonella* positive. These samples have been confirmed with conventional biochemical methods and PCR. The results showed that all samples contained an average viable count of 4.56 ± 1.23 Log CFU/cm^2 **Conclusion:** The findings reinforce the importance of hygienic practices in the abattoirs, as the occurrence of *Salmonella* spp. in the local abattoirs poses a risk for cross-contamination in beef products which could possibly transfer to consumers.

Keywords: *Salmonella,* beef carcass, meat contact surfaces, abattoir.

Phytochemical Screening and Cytotoxic Effect of Tiger Nut *(Cyperus Esculentus)* Milk and The Aqueous-Ethanol Extract on Some Selected Cancerous Cell Lines

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Abstract:

Introduction: Tiger nut is an underutilized crop that has been studied for its nutritional value to increase its potential. Researches have shown that it contain compound such as Quercetin, beta-sitosterol that are known to have anti-cancer properties. Thus this study sought to find its antioxidant ability and cytotoxic effect on few cancer cell lines.

Results: All extracts contained flavonoids but no phenols could be detected. BDTe extract gave the highest percentage inhibition of 48.52% followed respectively by SRTe (9.61%), SRTm (2.2%) and YDTm (0.3%). It was observed that the % inhibition observed is due to the total flavonoids and phenolic content with respect to the milk extract, but only the flavonoids content can be attributed to that of the ethanol extract. MCF7 and HT29 are mostly affected by the milk extract compare to the other cell lines, with a % cell death between 35-45%. But in general, the extract show anti-proliferative activity on the cell lines investigated.

Conclusion: The data obtained from this work showed that Tiger nuts milk can be used in the management of MCF7, and HT29 cell lines. The presence of flavonoids and sterols may be involved in the cytostatic effect observed. Also the cells are mostly affected at 48hr incubation period.

Keywords: Anti-proliferative, cancer, cytotoxicity, total flavonoid content, antioxidant activity.

Effects of Tualang Honey on Brain Oxidative Stress Markers of Male Rats Exposed to Hypoxia

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Abstract

Introduction: This study investigated the effects of Tualang honey on brain oxidative stress markers in adult male Sprague-Dawley rats exposed to hypoxia.
Methods: The rats were divided into four groups (n=12 per group); i) non-hypoxic treated with sucrose, ii) non-hypoxic treated with Tualang honey, iii) hypoxic treated with sucrose, iv) hypoxic treated with Tualang honey. Oral Tualang honey (0.2 g/kg body weight) and sucrose (1 mL of 7.9%) supplementations were given to the rats daily for 14 days. Then, the rats were subjected to ~11% continuous hypoxia for 7 days. The rats were anaesthetised with thiopental sodium (i.p. at a dose of 30 mg/kg body weight). The left brain hemispheres were homogenised and centrifuged. The levels of oxidative stress markers in the brain homogenate were determined by ELISA methods.
Results: The hypoxic rats treated with sucrose showed a significant increase in malondialdehyde (MDA) level when compared to sucrose non-hypoxic and both honey-treated groups ($p < 0.01$). Significant increase in total antioxidant capacity (TAC), catalase (CAT), superoxide dismutase (SOD), and glutathione peroxidase (GPx), and significant decrease in MDA were observed in honey-treated groups when compared to those treated with sucrose ($p < 0.05$).
Conclusion: The results suggest that Tualang honey has *antioxidant activities* that can suppress hypoxia-induced brain oxidative stress.

Keywords: hypoxia, Tualang honey, sucrose, brain, oxidative stress

Investigating Archery Stance Performance Based On Geometric Morphometrics

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Abstract

Introduction: Geometric morphometrics (GMM) is a method to quantify the size and shape of organisms with the application of multivariate statistics. In this project, the participants' archery stance was examined by landmark-based GMM analysis. The goal of this study was to correlate demographic factors of participants' archery stance in related to score. The factors that had been explored in the study was age, height, hand strength as well as back and leg strength.
Methods: Two cameras were utilised to record video of 20 participants' archery stance and take picture of the target board, separately. Still screenshots images of participants' archery stance analysed using three available softwares: tpsUtil, tpsDig2 and MorphoJ.
Results: The result of this project suggests that GMM assessment of archery stance by hand strength as well as back and leg strength are more reliable indicator compared to score, age, height and weight. However, the level of significance is not really high at only 33.1% for hand strength and 23.1% for back and leg strength. The results from Principle Component Analysis suggest that the total variance of five axes: PC1, PC2, PC3, PC4 and PC5 summarises 84.7% of the observed shape variation.
Conclusion: Therefore, it can be concluded that GMM can be utilised in archery studies as to provide better understanding and information on archery. It is recommended for other scholars or researchers to conduct a study of sport science by employing GMM as their method of analysis.

Keywords: geometric morphometrics, archery performance, biomechanic

The Effect of Minocycline on Spatial Learning and Memory Performances and c-Fos Protein Expression in Hippocampus of Lipopolysaccharides-Induced Neuroinflammation Rat Model

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Abstract

Introduction: Minocycline is a semi-synthetic second generation of tetracycline antibiotics. Recent studies found that it has anti-apoptotic and anti-inflammatory functions by modulating the action of microglia cells activation and subsequent release of cytokines.
Methods: Thirty-five adult male Sprague-Dawley rats were used and divided into five groups; GC group (control group, n=7), LPS group (LPS-treated only, n=7), LPS + 50MN group (50 mg/kg of Minocycline, n=7), LPS + 100MN (100 mg/kg of Minocycline, n=7) and LPS + 2MM group (2 mg/kg of Memantine, n=7). After single dose infusion of 5 mg/kg of LPS, the rats were treated with their respective drugs for seven consecutive days. Then, all the rats were tested their spatial learning and memory performance using Morris water maze apparatus, for five acquisition days and followed by probe test on the next day. Twenty-four hours after the test, all rats were euthanised and heart perfusion and fixation technique was performed. The collected brain sample was proceeds with immunohistochemistry analysis for c-fos protein expression measurement in CA-1 hippocampus area.
Result: Statistically significant difference on travelled distance, escape latency and average swimming speed in all five days of acquisition within all the respective groups ($p < 0.05$). The comparison between groups showed that rats from LPS + 100MN group exhibited shorter travelled distance compared to rats from LPS group ($p < 0.05$) and faster average swimming speed compared to rats from LPS + 50MN group ($p < 0.05$). For escape latency, rats from GC group performed better compared to rats from LPS group ($p < 0.05$) and LPS + 50MN group ($p < 0.05$). The number of site of platform crossovers and percentage time spent in the target quadrant showed statistically not significant differences between all the groups ($p > 0.05$). C-Fos protein expression found not significantly difference in rat's hippocampus between all groups.
Conclusion: Higher dosage of Minocycline gives positive effect on spatial learning and memory performances compared to lower dosage and standard dosage of Memantine drug. There were no associations between the effect of Minocycline on expression of hippocampus c-Fos protein in LPS-induced neuroinflammation in rat model.

Keywords: Minocycline, Spatial learning and memory, Alzheimer's disease

Evaluation of Dose Volume Histograms Parameters of Organ at Risk in Breast Cancer Generated by Two Different Techniques in Three Dimensional Conformal Radiotherapy

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Abstract

Introduction: This study compared the radiotherapy techniques for left-breast irradiation: tangential beam (TB) versus half-beam (HB) and tangential-wedged beam (TWB) versus half-wedged beam (HWB). The radiation toxicity of the critical organs (ipsilateral lung and heart) were evaluated based on QUANTEC (Quantitative Analyses of Normal Tissue Effects in the Clinic) summary.

Method: Five patients with intact breast (Group 1) and five patients underwent mastectomy (Group 2) were retrospectively planned using Oncentra Treatment Planning System (TPS) version 4.3. The prescription dose was 40.05 Gy in 15 fractions using 6 MV photons. The dose-volume-histograms (DVHs) generated from each plan were evaluated based on the dose-volume parameter in consideration.

Results: For Group 1, the average heart volumes receiving 25Gy (V_{25}) were reduced to 1.77% (HB) from 2.04% (TB). As for TWB versus HWB, the average V_{25} reduced from 2.35% to 1.92% respectively. Meanwhile, the average ipsilateral lung volumes receiving 20Gy (V_{20}), the recorded value reduced from 10.11% (TB) to 9.81% (HB). For TWB versus HWB it is 10.69% and 10.27% respectively. The same pattern were observed in group 2 for both critical organs, whereby the average V_{25} of heart reduced to 2.42% (HB) from 2.69% (TB). Meanwhile, it is reduced from 2.77% (TWB) to 2.62% (HWB). For ipsilateral lung, the average V_{20} is 7.91% (TB) to 7.73% (HB). Whereas, it is reduced from 8.31% (TWB) to 7.92% (HWB).

Conclusion: All reported value on average lung V_{25} and heart V_{20} including other dose-volume parameter were revealed as to not exceed the dose constraints reported by QUANTEC. Of all plan, half-beam (HB) seem to be the best treatment plan. It is crucial to reduce unnecessary dose to critical organs so that the probability event of radiation pneumonitis and cardiotoxicity in long-term could be avoided.

Keywords: Left breast cancer, beam planning, dose-volume parameter, radiotherapy toxicity

Significantly High Level of Soluble Receptor for Advanced Glycation End Product (sRAGE) in Serum: A Prophetic of Acute Coronary Syndrome

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Abstract

Introduction: Biomarker plays a crucial role in discriminating coronary heart disease patients into two groups of Acute Coronary Syndrome (ACS) and Chronic Stable Angina (CSA). The circulating soluble Receptor for Advanced Glycation End Product (sRAGE) is reported to have discriminative role as a potential diagnostic marker of ACS. This study was aimed to investigate the difference in serum level of sRAGE in ACS and CSA patients and also to determine the association between serum level of sRAGE with plaque instability biomarker [myeloperoxidase (MPO), placenta growth factor (PIGF), soluble CD40 ligand (sCD40L)] as well as several clinical and biochemical parameters [triglyceride, total cholesterol, HDL cholesterol, LDL cholesterol, C-Reactive Protein, number of lesion at coronary artery] in these patients.

Methods: A total of 13 ACS [age in median 47 years (IQR 26)] and 19 CSA patients [51 years (IQR 26)] were recruited from Hospital Universiti Sains Malaysia and National Heart Institute, Kuala Lumpur. The peripheral venous blood was withdrawn from antecubital fossa prior to the angioplasty procedure. The serum concentration of sRAGE was measured using quantitative sandwich enzyme immunoassay technique.

Results: Mann Whitney analysis showed that serum level of sRAGE was significantly higher ($p = 0.0001$) in ACS cases [median 3541 pg/mL (IQR: 2153.8) pg/mL] as compared to CSA patients [1268 (1510) pg/mL]. The Spearman rank correlation test revealed that sRAGE was positively correlated with sCD40L (Spearman's $\rho = 0.383$, $p = 0.031$) and PIGF (Spearman's $\rho = 0.629$, $p = 0.0001$).

Conclusion: This study proves that serum level of sRAGE is elevated in patients with ACS, suggesting that it could be related to plaque instability in ACS.

Keywords: acute coronary syndrome, chronic stable angina, coronary heart disease, biomarker, soluble receptor

Effects of Ripe and Unripe *Musa acuminata* AA Pulp Extracts Towards MCF-7 Breast Cancer Cells

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Abstracts

Breast cancer is the most commonly diagnosed cancer and a leading cause of death in females around the world. Treatments for breast cancer require sophisticated and expensive approaches including medical, surgical and radiological treatment, where the result is still not promising. Banana is a tropical fruit cultivated in more than 120 countries including Malaysia. It is a source of important phytochemical compounds, including phenolic compounds, vitamins and minerals such as sodium, potassium, calcium and iron. Therefore, it has been targeted for various *phytomedicine researches including for* cancer. Although many studies have reported the effects of banana extracts on proliferation as well as protein profiling of cancer cell lines, however data related to *Musa acuminata* AA extracts are very limited. In this study, the cytotoxic effects of ripe and unripe *Musa acuminata* AA pulps extracted using Soxhlet extraction method and n-hexane as a solvent on MCF-7 breast cancer cell lines and NIH 3T3 normal cell lines were determined using Methylene Blue Assay (MBA). Both ripe and unripe extracts *failed to show* any significant *inhibitory effect on* MCF-7 breast cancer cell lines with the highest inhibition of only 31.24% and 22.18% respectively. However, the extracts showed poor cytotoxicity effects on normal cell lines. The effects of the extracts on the morphology as well as the protein profiling of the MCF-7 breast cancer cell lines were determined using inverted microscope and SDS-PAGE respectively. The result showed that both extracts have no effects on morphology and protein profiling of the cells. In conclusion, this study indicates that ripe and unripe banana pulp extracts have no inhibition effect on MCF-7 cell lines. However, future study using other extraction method should be conducted to support this finding.

Keywords: *Musa acuminata* AA; MCF-7 cell lines; Protein Profiling

A Review of the Nutritional and Health Benefits of Goat's Milk in Comparison with Cow's Milk

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Abstract

The objective of this article is to review a number of published articles on the potential nutritional and health benefits of goat's milk compared to cow's milk. A number of studies had demonstrated that goat's milk has a vast potential of health benefits particularly due to their uniqueness of fatty acid compositions such as the smaller size of fat globules. Goat's milk also contains more short and medium chain triglycerides (MCT) that make it easier to digest. Apart from that, the health beneficial reported by these studies are the roles of goat's milk in reducing malabsorption syndromes, as a treatment of cholesterol problems, anaemia, anti-cancer, minerals utilization, improves immune function and digestibility and malnutrition. Nevertheless, additional researches are required in order to explore the benefits of goat's milk in human nutrition compared to cow's milk with special attention to its medium chain triglycerides (MCT) properties.

Keywords: goat's milk, cow's milk, nutrition, health benefits, medium chain triglycerides (MCT).

Detection of Colistin and Extended-Spectrum Beta-Lactamases (ESBL) Resistant *Escherichia coli* (*E.Coli*) in Raw Chicken Meat and Bean Sprouts (*Vigna radiata*) in Kota Bharu, Kelantan

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Abstract

Introduction: Antimicrobial resistance (AMR) in food-borne pathogens especially *E. coli*, is of a serious concern in recent years. Although AMR is rising and has become a global problem, there is scarcity of data and updates pertaining to the prevalence of Colistin-resistant and Extended Spectrum Beta-Lactamases (ESBL)-resistant *E. coli* in Malaysia. Hence, this study was conducted to detect the presence of Colistin- and ESBL-resistant *E. coli* in raw chicken meat and bean sprouts in Kota Bharu, Kelantan.

Methods: A total of 100 samples, comprised of 50 raw chicken meat and 50 bean sprouts were collected and processed to isolate *E.coli* and to determine its antimicrobial resistance patterns towards Colistin and ESBL antibiotics. Antibiotic sensitivity test (AST) was conducted following Kirby-Bauer methods.

Results: Out of 100 food samples, 31% (31/100) *E. coli* were identified phenotypically. However, based on PCR results, 93.5% (29/31) of the isolates were confirmed as *E. coli*. The antimicrobial resistance pattern towards Colistin by PCR showed that 52.1% (12/23) of the *E. coli* isolated from raw chicken meat were positive for the Colistin resistance-encoding gene, MCR-1. Meanwhile, no MCR-1 genes were detected in *E. coli* isolates from bean sprouts. As for the detection of another Colistin resistance-encoding gene, MCR-2, both chicken and bean sprouts samples were found to be negative. Based on the results from AST, *E. coli* isolated from raw chicken meat showed the highest percentage of antimicrobial resistance, 95.7% (22/23) against amoxycillin/clavulanic acid, followed by enrofloxacin 60.9% (14/23), colistin 39.1% (9/23) and gentamicin 30.4% (7/23). Besides that, ESBL resistances genes of the family bla_{TEM} and bla_{CTX} was conducted. Results showed that 62.1% (18/29) of *E. coli* isolates from both food samples were positive for bla_{TEM} gene and all the isolates were negative for bla_{CTX}. In conclusion, both Colistin and ESBL resistant *E. coli* were detected in the food samples collected from local markets.

Conclusion: These findings show the potential of such contaminated food stuffs to pose public health risk to the consumers. Hence, prudent usage of antibiotics and hygienic handling of food items, especially chicken meat during processing helps to prevent and combat the risks of spreading of multidrug-resistant and the associated health risks in humans. Finally, comprehensive and large scale studies by considering all the possible sources of Colistin and ESBL resistant bacteria, particularly *E. coli* are recommended.

Keywords: Antimicrobial resistance, bean sprouts, Colistin, E. coli, Extended Spectrum-Beta Lactamases (ESBL), multidrug-resistant, raw chicken meat

Prevalence of Metabolic Syndrome and its Association with Physical Activity among Breast Cancer Survivors

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Abstract

Introduction: Breast cancer survivors have a high prevalence of metabolic syndrome. Physical activity is imperative to prevent metabolic syndrome. This cross-sectional study was conducted at East Coast Malaysia to investigate the prevalence of metabolic syndrome and its association with physical activity among breast cancer survivors. **Methods:** In this study, there were 84 breast cancer survivors with a mean age of 53.0 ± 7.6 years. The diagnostic criteria for metabolic syndrome was based on Harmonized definition . Blood samples were drawn for glucose and lipid analysis. Physical activity levels were objectively measured by using activPAL3^{TM} physical activity monitor. The sitting/lying, standing and stepping time were measured during waking hours (6am-12am).
Result: Prevalence of metabolic syndrome among breast cancer survivors was 51.2% (95 % CI: 37.9, 59.7). The median step counts of breast cancer survivors were 7208 steps (5894-9132). The median sitting/lying time of breast cancer survivors was 10.9 hours/day (9.7-12.0). The median standing and stepping time of breast cancer survivors were same, which was 1.7 hours/day (1.4-2.1). There was no significant difference between physical activity levels among breast cancer survivors in groups with and without metabolic syndrome. Step counts >7500 steps were not significantly associated with metabolic syndrome [OR = 1.77, 95% CI (0.75, 4.21)]. Sitting time >6 hours/day was not significantly associated with metabolic syndrome [OR = 1.03, 95% CI (0.06, 17.51)].
Conclusion: The study findings demonstrated that there is no association between the prevalence of metabolic syndrome and physical activity among breast cancer survivors.

Keywords: Metabolic syndrome; Physical activity; Breast cancer survivors.

Disordered eating behavior, depression, anxiety and stress among UNISZA students

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Abstract

Introduction: Prevalence of disordered eating behavior is on the rise in both western and Asian countries. The objective of this study was to determine the perception of *Universiti Sultan Zainal Abidin* (UniSZA) students on their eating behaviors, and its influence on their depression, anxiety and stress levels.

Methods: Sociodemographic information was collected using self-administered questionnaire. Data on height and weight were collected using SECA 217 portable stadiometer and SECA 813 weighing scale. Disordered eating behavior was measured using Eating Attitude Test -26 (EAT-26) questionnaire. Depression, anxiety and stress was measured using Depression, Anxiety and Stress Scale -21 (DASS-21).

Results: A total of 116 respondents involved in this study. The finding shows that 74.1 % of subjects have no risk of disordered eating while 25.9% were at risk. 65.5% of respondents did not show any stress while 34.5% of respondents were stressed. 25.9% of respondents did not have anxiety while 74.1 % do have anxiety. 65.5% of respondents did not have depression while the other 34.5% were depressed.

Conclusion: The study found no association between disordered eating behavior and depression, anxiety and stress among UniSZA students. The finding suggests that depression, anxiety and stress did not influence disordered eating behavior.

Keyword: Disordered eating behavior, depression, anxiety, stress, university students

Retrospective Study on Tinnitus in Tinnitus Clinic Universiti Sains Malaysia

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Abstract

Introduction: Tinnitus is a chronic condition experienced by approximately 10 percent of the adult population and almost five per cent of this population report troublesome tinnitus. The aim of this study was to analyze the clinical characteristics, main risk factors, psychological status, assessment and management in tinnitus.

Methods: This retrospective study involved a total of 54 medical records of tinnitus patients who attended Tinnitus Clinic, Hospital Universiti Sains Malaysia (USM) starting from 1st October 2015 until 30th September 2016.

Results: The prevalence of tinnitus increased with increasing age and adults above the age of 55 years old have shown the highest prevalence at 74% (n=40). Sensorineural hearing loss was the most common associated with tinnitus (n=62, 79%) and presbycusis was the highest risk factor leading to tinnitus (n=14, 26%). The highest dominant tinnitus pitch matching at 8000 Hz (n=10) and lateralized to the right ear (n=29). By using Spearman's Rank-Order Correlation test, the result showed there was no correlation between the total Borang Evaluasi Soal selidik Tinnitus (BEST) score and four frequencies average of Pure Tone Audiometry (PTA) in the better ear (r=0.030, p>0.05). In contrast, there was a significant correlation between the total BEST score and loudness matching (r=0.461, p<0.05). Twenty-six percent (n=26) of tinnitus patients received hearing aids and counselling for tinnitus treatment.

Conclusion: In conclusion, the findings of present study can serve as a reference for establishing a standard guideline to assess and manage tinnitus patients.

Keywords: Borang Evaluasi Soal selidik Tinnitus, Pure Tone Audiometry, tinnitus

Association of Traumatic Head Injuries and Maxillofacial Fractures Among Patients Treated by Oral & Maxillofacial Surgery Unit, Hospital Universiti Sains Malaysia

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Abstract

Introduction: The association between traumatic head injury (THI) and maxillofacial fractures (MFF) is a controversial health concern worldwide in spite of the close anatomical proximity of maxillofacial bones to the cranium.

Objectives: To assess the association between THI and MFF. Other factors associated with THI in patients with MFF were also investigated.

Methods: A hospital-based retrospective study was conducted at the OMFS Unit, Hospital USM, Kelantan, Malaysia. From June 12, 2013, to December 31, 2015, a total of 473 patient records with MFF were reviewed to evaluate the association of THI and MFF. The factors associated with THI were determined by using multivariable logistic regression analysis. The Chi-squared test was used for determining the association of GCS score

Results: A total of 331 patients (69.98%) presented with concomitant THI. The most common associated THIs were cranial bone fractures (68.6%) followed by intracranial injuries and concussion. A significant association existed between the Glasgow coma scale (GCS) score and the presence of THI concomitant MFF. The multivariable logistic regression analysis revealed that the cause of the injury (RTA) and MFF types (nasal bone, zygomatic complex, zygomatic arch, orbital, maxillary sinus wall, and the alveolar process of mandible fractures) were statistically significantly associated with THI in patients with MFF.

Conclusion: A high prevalence of THI among patients with MFF (69.98%) considered as one of the highest percentages worldwide. Although the majority of patients sustained mild head injuries of GCS score (13-15), the chance of THI still strongly suspected in those patients independent of GCS scores. The RTA, nasal bone, zygomatic complex, zygomatic arch, orbital wall, maxillary sinus wall and mandibular alveolar process fractures significantly associated with THI in the patient sustained MFF.

Keywords: maxillofacial fractures; association; facial fracture; traumatic head injuries.

The Application of Mindfulness-Acceptance-Commitment (MAC) Intervention on Athletes' Anxiety Level and Martial Art Aerobic Performance

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Abstract

Introduction: The Mindfulness-Acceptance-Commitment (MAC) is a new approach in psychotherapy for enhancing individuals' performance, has been recently gaining interest among sport psychologists. The MAC suggests that mindfulness is important for the management of thoughts and feelings, and it promotes the awareness and acceptance of internal experiences while focusing on athletes' external contingencies and behavioural responses to navigate situations effectively in order to achieve success in competition. The aim of this study was to evaluate the effectiveness of MAC intervention on 31 females martial arts aerobic athletes on anxiety level and sports performance.

Methods: Participants, aged between 18-26 years old ($M= 22$, $SD= 1.29$), volunteered to participate in this study. Anxiety was evaluated using the Spielberger's State-Trait Anxiety Inventory (STAI), and athletes' performance errors evaluated by two experienced coaches. Paired samples *t*-test was used to identify the mean differences between pre-test and post-test on anxiety, and performance scores. Pearson correlation was used to examine the relationship between changes in anxiety scores and gain scores on performance from pre to post-test.

Results: It was revealed that the level of anxiety reduced significantly ($t_{30} = 14.96$, $p < 0.001$) and performance enhanced as well ($t_{30} = 20.04$, $p < 0.001$). Also, there was a significant correlation between the changes of anxiety level and gained scores on performance ($r = 0.36$, $p = 0.047$).

Conclusion: These findings suggest that the MAC approach could be considered as an effective intervention for optimising sports performance and decreasing the anxiety level of female martial arts aerobic athletes.

Keywords: mindfulness, MAC, performance anxiety

A Comparative Dosimetric Study for Post-Mastectomy Breast Cancer Treated with Tangential Photon Beam and Static Electron Beam

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Abstract

Introduction: Mastectomy is a surgery to remove the entire breast and one of the main options in the treatment of breast cancer. The purpose of this study is to compare two treatment planning techniques which are tangential photon beam and static electron beam dosimetrically based on Quantitative Analysis of Normal Tissue Effect in The Clinic (QUANTEC) for OAR (lung and heart) and dose coverage at the target.

Method: In this study, 10 patients with left-sided breast cancer who already undergone mastectomy surgery without breast reconstruction selected. The patient positioned in supine position on the breast board, scanned through CT-simulation. The image acquired then contoured and transferred to the Oncentra 3-dimensional conformal radiotherapy (3D-CRT) planning Version 4.3 for planning. OAR which are the left lung and heart contoured and the target defined. Two radiation techniques used, tangential photon beam (TPB) and single static electron beam (SEB). The patients were prescribed with 4005 cGy for 25. Based on QUANTEC, the V20 for left lung and V25 for heart is measured and compared for both of the planning while for target, the volume of coverage at V36, V38 and V40 is measured and compared.

Result: There was significant reduction of dose for left lung and heart using SEB technique compared to the TPB. For average heart volume which receive 25Gy (V25) for planning using SEB (0.057%) show 98% reduce of volume compared to TPB (3.443%). While for left lung, the average of volume which receive 20Gy (V20) for SEB (2.119%) shows 77.09% reduce of volume which receive 20Gy compared to planning using TPB (9.25%). But TPB have better dose coverage at the target compare to the SEB. For TPB, the average volume of target which receive 40Gy is 91.79% while for SEB only 39.09% of volume receive 40Gy.

Conclusion: Based on both of the treatment planning techniques, static electron beam (SEB) show better dose contribution at the organ at risk (OAR). The tangential photon beam (TPB) have better dose coverage.

Keywords: Post-mastectomy radiotherapy, tangential photon beam, electron beam, comparative dosimetric study

Assessment of Heat Exposure on Acute Physiological Changes among Palm Oil Mill Workers in Rompin, Pahang

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Abstract

Introduction: Extreme temperature is a problem in hot working environment. This can lead to health problem such as fatigue, lethargic and dizziness. Continuous exposure to the high temperature can cause the negative respond to the body. The objective of this study is to investigate the relationship between the heat monitoring level and the acute physiological changes among palm oil workers.

Methods: A cross-sectional study was carried out in a palm oil mill in Rompin, Pahang. QUESTEMP˚ 36 was used to measure the environmental heat. Physiological parameter such as body core temperature, blood pressure and heart rate were measured before the shift, after 2 hours of shift and after 8 hours of shift. Respondent also was given questionnaire to determine their sociodemographic information.

Results: The WBGT in results for the workstation in the palm oil mill was between 27.52˚C to 31.26˚C. The boiler has the highest value of WBGTin (31.26˚C) while the lowest value of WBGTin workstation is workshop (27.52˚C). Four out of seven workstation monitored were exceeded the Threshold Limit Value. The highest prevalence of acute health symptom is fatigue (96.7%) followed by heat cramps (77.0%), dizziness (75.4%) and heat rashes (65.6%). There were significant differences of body core temperature between before shift and after 2 hours of shift (p<0.001) and between before shift and after 8 hours of shift (p<0.001).

Conclusion: The palm oil mill factory is considered as hot workplace since most of the workplaces were exceed the Threshold Limit Value (TLV), 28˚C by American Conference of Governmental of Industrial Hygiene (ACGIH)

Keywords: Heat Exposure, Physiological Changes, Palm Oil Mill

Knowledge, Attitude and Practice (KAP) Regarding Organic Solvent among Automobile Spray Painters, Kota Bharu, Kelantan

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Abstract

Introduction: Organic solvent is one of the chemical hazards exposure faced by automobile spray painters. Automobile spray painters usually were exposed to xylene and toluene which the major components in combination with other solvents in the paint product. Organic solvent can affect spray painters by dissolving fats in several body system including respiratory system, nervous system and skin. The aim for this study was to access the level of knowledge, attitude and practice of organic solvent among automobile spray painters.
Method: This cross-sectional study was conducted at automobile spray workshop at Kota Bharu and 67 male automobile spray painters were randomly selected. The KAP Questionnaire was used to determine the score for knowledge, attitude and practice.
Result: The percentage of mean score for knowledge was 70.6, with standard deviation (15.2). The percentage of mean score for attitude and practice were 60.7 and 52.7, with standard deviation 9.0 and 16.1. The study also found fair significant relationship between knowledge and attitude score ($r = 0.272$, $p = 0.026$). However, there was no significant relationship between knowledge and practice score ($r = 0.154$, $p = 0.212$) among automobile spray painters.
Conclusion: This study was essential in the determination the level of knowledge of automobile spray painters as well as their attitude and practice. Findings showed that knowledge was not significantly correlated with practice; however, it was associated with attitude.

Keywords: Knowledge, Attitude, Practice, Organic Solvent, Automobile Spray Painter.

Surgeon Perception on Handling Improved Preservation Method of Fresh Human Head in Surgical Training

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Abstract

Introduction: In learning surgical skills, appropriately preserved tissues that closely resemble living human tissues in their appearance will provide greater acceptance and enhanced surgical training activities. It will not only ensure that the knowledge could be transferred effectively but also contribute to an engaging atmosphere of teaching and learning activity.

Method: The improved preserved method introduced by Norhana M.A. and the Anatomy Department Medical Laboratory Technologist was used to preserve 9 fresh frozen human heads before it was handled to Otorhinolaryngology-Head and Neck Surgery (ORL-HNS) department for their surgical training workshop. The head was used for 2 days of surgical training with approximately 8 hours of usage each day. At the end of the workshop,15 participants were given a set of questionnaire to acquire their perception on the preserved head they were using. The questionnaire was focused on the quality of preserved tissue, any unpleasant or disturbing smell that could affect their surgical training and ability to complete the training objective with the preserved head.

Results: Most of the participant was satisfied with the quality of the preserved head. The preserved tissues and muscles of the head had a close resemblance to real or living tissues. There was no foul smelling detected during the procedure and the participants strongly agreed that the preserved head had helped them in completing the training objectives. They also thought that the preserved method could be used for other fresh frozen tissue.

Conclusion: Based on the feedback by the participant it is shown that the preservation technique has provided acceptable cadaver and tissue quality for the use in surgical training. However, more variety of tissue and trial should be done before it can be concluded as one of the best methods in preserving fresh frozen tissue in surgical training.

Keywords: Surgical training, preservation method, well preserved tissue, fresh frozen tissue, acceptable tissue quality

Comparison of Liver SPECT Image Quality by using Digital and Physical Filter

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Abstract

Introduction: The poor image quality limits the accuracy in SPECT interpretation and diagnosis. Noise is one of the factors that leads to SPECT image quality degradation. Proper selection of filter can reduce noise and eventually improves the image quality. Filters with a high cut-off frequency are recommended in liver SPECT study due to the high-count rate and high signal-to-noise ratio (SNR). Therefore, this study aims to determine the optimum filtering for SPECT liver imaging by using the physical and digital filter.

Methods: In this study, we assessed the impact of the digital and physical filter to the SPECT image quality. Three filters were selected during the pre-processing steps in this study, which include Butterworth, Metz, and Wiener filter. Meanwhile, physical filter refers to a metal sheet mounted on the collimator. This physical filter is responsible for reducing the scattered photons during the data acquisition. The physical filters tested in this study are Aluminum (Al) 0.2 mm, Al 0.3 mm, and Zinc 0.2 mm. The image acquisition was performed by using a multi contrast liver phantom filled with ^{99m}Tc radionuclide. A Discovery NM/CT 670 gamma camera mounted with a Low Energy High Resolution (LEHR) collimator, 20% energy window, centered at 140 keV was used during the data acquisition. Finally, the image was reconstructed by using filtered back-projection algorithm and the image quality was analyzed by SNR and contrast of the cold spot image. Digital, physical and combination of physical and digital filter reconstructed image were assessed in this study.

Results: For individual filtering, Al 0.2 mm and Wiener filter gave the highest SNR and contrast. The combination of Al 0.2 mm and Wiener filter nevertheless led to better SNR but lower image contrast to Wiener and Metz individual filter. This combination improves the image quality up to 81% of SNR but decease image contrast up to 45% compares to the single filtering.

Conclusion: Combination of physical and digital filters (Al 0.2 mm and Wiener filter) improves the SPECT image quality for liver imaging.

Keywords: SPECT, digital filter, physical filter, SNR, contrast

Evaluation of Heat Exposure and Physiological Changes among Sawmill Workers in Kelantan

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Abstract

Introduction: **S**awmill workers are highly exposed to heat during working process of debarking and sawing the log. Continuous exposure to heat can caused physiological changes of increasing blood pressure, heart rate and body core temperature. This study was conducted to determine heat exposure and physiological changes among sawmill workers in Kelantan.
Methods: This cross-sectional study was conducted using the probability sampling method recruiting a total of 62 sawmill workers from three selected companies. A tripod mounted of Wet Bulb Globe Temperature (WBGT) QuestTemp^{0}36 (3M QUESTemp Technologies, USA) was used to measure ambient heat exposure level that was placed near at workplaces. A questionnaire that consists of four sections which were; basic information, health history, work description & signs of acute health problems in the workplace was distributed among sawmill workers. The physiological changes like blood pressure, heart rate and body temperature were measured before working hours, after two hours working and after working hours.
Results: The average WBGT index in Company A, Company B and Company C recorded were 27.11^0C, 27.66 ^{0}C and 27.48^0C respectively. Although such level were below the Permissible Exposure Limit (PEL). The mean WBGT between these three companies was significantly different (p=0.023). One-way repeated measures ANOVA was conducted and found that there was significant mean difference of physiological changes before working hours, after two hours of working and after completed work among sawmill workers (p<0.001). A weak and significant correlation was found between body core temperature after completed work and age (r=-0319, p=0.353). There was significant correlation between heart rate before working and body core temperature before working (r=0.301, p=0.018).
Conclusion: In this study, significant difference in physiological changes were found among the sawmill workers. Such physiological changes cannot be associated with heat exposure. Moreover, the heat area level at sampling sites did not exceed the PEL. Therefore, it may be contributed by other factors thus further research need to be conducted.

Keywords: Sawmill, WBGT index, Physiological Changes

Knowledge, Attitude and Practice on Ergonomic and Symptoms of Musculoskeletal Disorder among Construction Workers in Hulu Terengganu, Terengganu

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Abstract

Introduction: Construction is one of the most dangerous and hazardous industries that expose workers to the many type of ergonomic risk factors which contribute to musculoskeletal disorders. The objective of the study was to evaluate on ergonomic awareness and symptoms of musculoskeletal disorder among workers at selected construction site. The specific objectives for this study were to identify the knowledge, attitude and practice level of ergonomic, to determine the relationship between knowledge levels with their attitude and practice level on ergonomic and to determine the association of ergonomic knowledge, attitude and practices with musculoskeletal disorder symptoms present among workers.
Methods: A total of 52 respondents were involved in this research. A cross –sectional study design was used. The study instruments was questionnaire comprised of five sections; basic demographic factor, knowledge, attitude, practice on ergonomics and symptoms of musculoskeletal disorders. Data obtained was analyzed using descriptive statistics, Chi square and Spearman Correlation test.
Results: Majority (51.9%) of the construction workers were in a low knowledge level, moderate attitude level (51.9%) and (67.3%) with poor ergonomic practice level. There were significant relationship between knowledge level with the attitude (p=0.004) and practice (p=0.007) level on ergonomic. There was a significance correlation between knowledge (p=0.006) and attitude (p=0.014) on ergonomic with symptoms of musculoskeletal disorders among workers and no significance correlation between practice and symptoms of musculoskeletal disorders.
Conclusion: Therefore, the appropriate educational program and training on ergonomic should be planned accordingly to the needs. This should be done frequently to increase their awareness level and reduce the present of the symptoms of musculoskeletal disorder among workers.

Keywords: Knowledge, Attitude, Practice, Ergonomic, Musculoskeletal disorder

Cognitive Functioning, Knowledge and Attitude in Drug Addiction

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Abstract

Introduction: Studies on the relationship between knowledge and attitude (KA) and cognitive status of drug addicts are generally still limited in Malaysia. This study aimed to 1) determine the cognitive status and KA among drug addicts and 2) compare the KA of drug addicts with different cognitive status.

Methods: Cognitive status was re – grouped into two groups; lower and higher (median $\geq$ 66.7). Drug addicts who were undergoing Inabah Therapy Module were enrolled from Pusat Rawatan Baitul Taubah in Pasir Puteh, Kelantan. The Malay Sahlgrenska Academy Self – Reported Cognitive Impairment Questionnaire (SASCI – Q) and Drug – Related Knowledge, Attitudes and Belief (KAB) Questionnaire were administered (higher scores indicating favourable cognitive and KA status). Data was analysed using SPSS 23, employing descriptive and non-parametric techniques.

Results: Thirty – seven male Muslim participants were recruited (age = 28.1 $\pm$ 6.9 years; single = 81.1%; PMR/SRP/LCE qualification = 45.9%; self-employed = 62.2%). Both cognitive status and KA were moderate with mean 66.1 $\pm$ 13.0 and 53.8 $\pm$ 11.5 respectively. With regard to KA, no significant difference was detected between respondents possessing different cognitive status (all p > 0.05). Nonetheless, the overall trend demonstrated that those with higher cognitive status reported relatively favourable in knowledge (62.6 $\pm$ 9.2).

Conclusion: The overall knowledge and attitudes profiles were also dominated by the group with higher cognitive status.

Keywords: Cognitive functioning, knowledge, attitude, drug addiction.

Drug Use and Health Status of Drug Misusers: An Insight into Participants of Inabah Programme

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Abstract

Introduction: Drug addicts often suffer from the negative impacts of health consequences. With the increasing number of synthetic drugs lately, little is known about drug usage pattern and the misusers' health condition especially those seeking traditional treatment (Inabah). This study set out to examine the quantity, type and frequency of drug use and the current health status of participants.

Methods: A cross-sectional study was conducted. The number of drug use days in the past 4 weeks and current health status were assessed using the Opiate Treatment Index (OTI). Data was analysed descriptively using IBM SPSS 23.0. Higher OTI scores signified higher greater health problems.

Results: Thirty-four Malay male Inabah respondents were enrolled (age of starting drug addiction = 21.2 ± 6.21; no history of drug addiction treatment = 70.6%; preferred traditional treatment = 79.4%). Nicotine (cigarette-smoking) was the most commonly utilized substance – "more than once in a day". Amphetamine derivatives - ecstasy (MDMA) and methamphetamine were the most commonly-abused drugs with "more than once a week" usage. Heroin was next - "once a week or less". The current health status of most participants was satisfactory as low mean scores were assigned to many body systems (range = 0.06 – 2.56). However, fatigue (44.1%), weight loss (35.3%), coughing with phlegm (38.2%) and headache (35.3%) were still reported.

Conclusion: Cigarette-smoking continued to be common habit among drug misusers. However, less frequent use of MDMA, methamphetamine and heroin as well as the absence of use for cannabis, cocaine, transquilizers, etc. were encouraging although health conditions were only satisfactory. Our findings may have indirectly indicated the promising effects this drug rehabilitation programme in maintaining health status.

Keywords: Drug use, health status, drug misusers, Inabah programme.

Psychosocial Profiles among Drug Addicts Undergoing Islamic-Based Inabah Programme in Kelantan

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Abstract

Introduction: The deterioration of psychological well-being and social support systems are common problems encountered by drug addicts. This study intended to determine psychosocial profiles among drug addicts currently undergoing Islamic-based Inabah programme and to compare of these profiles based on their socio-demographic variables.

Methods: This cross-sectional study utilised convenience sampling. Psychosocial profiles were measured using the Psychological Measure of Islamic Religiousness (PMIR). Descriptive and non-parametric tests were applied. For *Positive Relations with Others, Purpose in Life* and *Social Desirability,* higher scores indicated better psychosocial profiles while for *Anger Trait* and *Depression Symptomatology* subscales, higher scores indicated less favourable psychosocial profiles.

Results: A total of 37 Malay Muslim participants were recruited (age = 28.1 ± 6.97; married = 81.1%; SPM = 51.4%; employed = 78.4%). *Positive Relations with Others* emerged as the best-scored subscale (median = 62.50; IqR = 13.07). Conversely, *Anger Trait* (median = 33.00; IqR = 16.80) and *Depression Symptomatology* (median = 19.95; IqR = 18.25) exhibited low scores respectively. Single and divorced participants demonstrated significantly higher score for *Purpose in Life* as compared to their married counterparts (p = 0.019). Better *Social Desirability* was exhibited by participants with no history of treatment compared to those who had (p = 0.009).

Conclusion: Participants continued to be burdened by anger and depression despite undergoing religious therapy. Socio-demographic variables seemed influential in determining their psychosocial well-being. Thus, efforts should be escalated to continuously improve psychosocial status of drug addicts in Malaysia.

Keywords: Psychosocial, drug addiction, Islamic-based programme, Inabah.

Symptoms of Craving and Withdrawal among Drug Addicts Undergoing an Islamic Therapy

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Abstract

Introduction: Withdrawal and craving are the two important clinical presentations among drug addicts which could potentially complicate the process of rehabilitation and also contribute to relapse. The purpose of the current study was to; 1) determine the level of craving and frequency of withdrawal symptoms, 2) examine the most common withdrawal symptom and, 3) compare both the levels of craving and frequency of withdrawal symptoms by socio-demographic factors.

Methods: In this cross-sectional study, the level of craving was assessed via Brief Craving Scale (BCS). The list of withdrawal symptoms was adopted from Methadone Treatment Programme Guidelines (2016). Descriptive analysis and Mann-Whitney U test were applied in analyzing the data (IBM SPSS 23.0). Higher scores indicated higher level of craving and more frequent occurrence of withdrawal symptoms.

Results: A total of 34 Muslims male participants of an Islamic Therapy (Inabah) Programme were recruited (age = 29.8 ± 7.26; duration at Inabah centre ≥ 3 months = 79.4%; poly-drug users = 55.9%). Outcomes demonstrated that majority of participants did not crave for drugs in past 24 hours. However, they had craved for drugs "a few times" before they underwent this therapy (n = 14; 41.2%). Similarly, withdrawal symptoms were not reported except for fatigue - "once in a while" (n = 14; 41.2%). Seventy-five percent admitted ever trying to discontinue abusing drugs. Participants opined that the current environment was supportive for their rehabilitation (82.4%). By socio-demographic comparisons, there were no significant differences in terms of craving level and withdrawal symptom frequency (p > 0.05).

Conclusions: The minimal report of craving and withdrawal symptoms could be indicative of a positive recovery process. These findings will serve as a base for future study on the effectiveness of Inabah programme as one of the psycho-spiritual approaches in treating drug addiction.

Keywords: Craving, withdrawal, drug addicts, Islamic therapy, Inabah programme.

Prevalence of Dizziness Patients in Emergency Department, Hospital Universiti Sains Malaysia (HUSM): A Retrospective Study

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Abstract

Introduction: Dizziness is a general term that is used to describe spinning sensation, light-headedness, off-balance and postural instability. Dizziness is common complaint during healthcare visit in emergency department and outpatients clinic. Many patients are affected by dizziness as it reduces the quality of life by having an impact in their well being and work productivity. There are four types of dizziness which are vertigo, presyncope, disequilibrium and others.

Methods: This retrospective study was carried out to evaluate the prevalence of dizziness patients in emergency department, HUSM for 3 months (June –August 2016) duration. The findings were obtained by reviewing the medical records of dizzy patients who came to emergency department HUSM, which will eventually be used as a preliminary data that would establish a better awareness and management in handling dizzy patients.

Results: We managed to recruit 106 subjects that comprises of female gender, that was dominating the number of dizzy patients by 60 (57%) cases, compared to male with 46 (43%) cases. The subjects are from two races, which are Malay(96%) and Chinese (4%). The age group of 50 until 60 years old had the highest number of dizziness cases with the percentage of 35%. Vertigo has the highest percentage(63%), followed by presyncope(30%), disequilibrium(6%) and lastly, others(5%). The result also showed that both recent Upper Respiratory Tract Infection (URTI) and positional related was the most factor that aggravate dizziness. Majority of the dizzy patients do not experience falls by 74% from the overall subjects.

Conslusion: In summary, this study is parallel with other research and a bigger sample size in the future would be better result.

Keywords: Dizziness, Disequilibrium, Emergency department, Prevalence, Presyncope, Vertigo

Exploring coping strategies among survivors of breast cancer: A qualitative approach

ABSTRACT

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Breast cancer survivors face many challenges which include coming to terms with the diagnosis, managing treatment regimens, dealing with the side effects of treatment, conducting self-care and rehabilitation. Each individual may use differ coping strategies in order to cope with their challenges. The aim of this study is to identify coping strategies experienced by breast cancer survivors. Breast cancer survivors who attended the Oncology Clinic, Hospital Universiti Sains Malaysia, Kubang Kerian, Kelantan, Malaysia February 2015 to February 2016, were recruited based on the inclusion criteria. Selected respondents were interviewed face-to-face at least three times or until saturation were achieved and data were tape-recorded and transcribed verbatim. Nvivo 10.0 software was used for data management and facilitates thematic analysis. Descriptive analysis was performed using SPSS version 22. A total of 34 patients were took part in the in-depth interview. Majority of them were married (85.3%), Malay (88.2%), secondary school education (73.5%), housewife (61.8%), in stage 2 (32.4%) and diagnosed with right breast cancer (52.9%). Several coping strategies were identified including emotional-focused coping, problem focused coping and spiritual-based coping. This study concluded that the coping processes used by breast cancer survivors enables them to draw upon various strengths and strategies to develop particular attitudes and skills to assist them to live with cancer.

Key words: Coping behaviour, breast cancer and qualitative

Knowledge, Attitude and Practices among Workers of BERNAS Rice Mill in East Regional on Respiratory Protection

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Abstract

Introduction: With regards to rice mill manufacturing, agricultural respiratory diseases are also an important public health problem due to exposure to rice mill dust. The major dust hazards for workers in the rice mills are the dust which is emitted from different section of working station.

Methods: The aims of the study were determine the association of knowledge, attitude and practices among workers of BERNAS rice mill in East regional on respiratory protection. A cross sectional study was conducted, recruiting 51 workers from all East regional BERNAS rice mill. A walk through checklist and questionnaire were used for data collection and all the data were analysed by using Chi square test.

Results: There was significant associations between knowledge on handkerchiefs are more effective than the proper mask with variable of practices on subjects often do have medical checked-up (p=0.020). There were also significant associations between knowledge on handkerchiefs are more effective than the proper mask variable of attitude on subjects have been informed with the dust content in their workplace with (p=0.013) and variable of respiratory symptom on subjects experienced breathing problem when walking fast and lifting (p=0.013). There was a significant association on practices on during working, subjects often wear the respiratory protection and respiratory symptom on subjects experienced breathing problem before, during and after working (p=0.010). For variables subjects have respiratory problem caused by the workplace and subjects always cough followed sputum, both showed significant association with practices on subjects change the respiratory protector after using it (p=0.039, p=0.007; respectively.

Conclusion: There is average association between knowledge, attitude and practices among workers of BERNAS rice mill in East regional on respiratory protection.

Keywords: Knowledge, Attitude, Practices, Respiratory protection

Knowledge Awareness and Practice towards Dengue Prevention among the Community in Kinta, Perak: A Cross Sectional Study

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Abstract

Introduction: Dengue is one of the most important vector-borne diseases in Malaysia. It poses threat to the community with the increasing trend each year. Government efforts alone are not sufficient and in fact will be in vain if people continue to allow the widespread mosquito breeding in their housing compound. Good knowledge on dengue which then translated into practice therefore is important. This research was carried out, aimed at assessing knowledge, awareness, and practice related to dengue and dengue prevention among the community in Kinta, Perak.

Method: This cross sectional study involved 1350 respondents from 27 towns in Kinta, Perak using multistage sampling technique. A pretested and validated questionnaire was used to collect the data on socio-demographic and socioeconomic background, knowledge on dengue, awareness of dengue, and practice of dengue prevention. Data were analyzed using Statistical Packages for Social Studies (SPSS) version 18.0.

Results: Majority of the respondents (96.3%) had heard about dengue. Only 44.1% of the study respondents considered dengue as severe. More than half of the respondents had good knowledge (73.9%) on causes, breeding sites, active biting time, signs and symptoms, and preventive measures for dengue. A total of 62.3 percent respondents have a high level of awareness, and 61.4 percent possessed good practice towards dengue prevention. The important sources of information on dengue were mass media (95.0%), banners (70.3%), and health pamphlets (53.9%).

Conclusion: Knowledge, awareness, and practice among the community in Kinta ranged from moderate to good. Effort must be put in order to increase awareness and good practice in dengue prevention. Dengue programs aiming at the community level involvement are important to cultivate sense of responsibility toward governing community's own housing compound and the neighbourhoods' so that they are free from *Aedes* breeding site.

Keywords: Dengue, prevention, knowledge, awareness, practice

The Use of Ionic Solution in Preserving Fresh Frozen Human Tissue for Surgical Training

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Abstract

Introduction: Surgeons are obviously required to undergo surgical skill training in order for them to become competent in performing any surgical procedures. Nowadays, a fresh frozen human tissue which is not altered by any preservation method is preferred more by surgeons as a specimen in surgical training. However, decaying process would naturally occur and this would become a problem when the specimen is repeatedly used over a period of time. A new method of preservation is therefore required in order to delay the decaying process. The use of ionic solution is one of the preservation techniques introduced in order to overcome this.

Methods: Nine fresh frozen human head specimens were immersed in warm ionic solution for a few minutes. Then, the heads were covered with course table salt and wrapped with gauze. The specimens were then kept in the refrigerator overnight at 4°C to 8°C. On the following day, the gauze was unwrapped and the heads were washed again in warm ionic solution and wiped dry. The specimens were then used in surgical training.

Results: Minimal amount of blood was observed seeping out from the open wound of the specimens during the surgical training. The skin colour and texture were well preserved and closely resembled a fresh specimen. The muscle tissues and mucous membranes in the internal cavity were easily identified. There was neither unpleasant nor irritating odor detected. There was no presence of flies due to presence of decayed human tissues.

Conclusion: Excessive blood from the specimen would stimulate the decomposition process by bacteria. Introduction of hypertonic ionic solution would force the remaining blood out from the specimen by osmotic pressure. The absence of blood would delay the decaying process. Introduction of water just before the training resulted in the specimens becoming fresh again through osmotic process. This technique would be suitable for the use of surgical training using fresh frozen human tissues.

Keywords: ionic solution, specimen preparation, fresh frozen specimen

An Assessment of The Breastfeeding Practices and Infant Feeding Pattern Among Mothers in UNISZA

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Abstract

Introduction: Breast milk is rich with various nutrients that are prominent for infants' growth and development. Nonetheless, the rate of breastfeeding is yet low in Malaysia. The main purpose of this study is to assess the breastfeeding practices and infant feeding pattern among mothers in UniSZA.

Methods: A cross-sectional study was conducted by using stratified sampling method. 85 mothers were involved in this study from Gong Badak Campus and Medical Campus of Universiti Sultan Zainal Abidin. The mothers were required to answer questionnaires which include socio-demographic, breastfeeding and weaning questions. Interview sessions were conducted simultaneously.

Results: The prevalence of ever breastfeeding among mothers in UniSZA is 100%. The prevalence of the initiation of breastfeeding within one hour is 64.7% (95% CI: 55.3%, 74.1%). The prevalence of exclusive breastfeeding among mothers in UniSZA is 43.5% (95% CI: 33.8%, 53.2%). Lastly, the prevalence of continuation of breastfeeding up to two years and more is 32.9% (95% CI: 23.7%, 42.1%). Majority of mothers initiated weaning after six months of infants' age and used partial weaning. Most of them provided various types of complementary foods to their infants in between the ages of six to twelve months. Furthermore, there was no significant association between infant birth weight and time of weaning initiation. Besides, there was a significant association between mode of delivery and breastfeeding initiation.

Conclusion: Some mothers in UniSZA failed to practice breastfeeding according to the recommendation. Optimum encouragement and support can change the current trend of breastfeeding practice in UniSZA and also worldwide.

Keywords: Breastfeeding, weaning, infant feeding pattern, method of delivery, infant birth weight.

Knowledge, Attitude and Practice Towards Exclusive Breastfeeding Practice among Lactating Mothers in University Sultan Zainal Abidin (UniSZA)

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Abstract

Introduction: Exclusive breastfeeding brought beneficial impact to both mother and infants, however prevalence of exclusive breastfeeding in Malaysia remain low. Adequate knowledge and positive attitude are essential to promote exclusive breastfeeding practices. The aim of this study was to identify the current knowledge, attitude and practice towards exclusive breastfeeding among lactating mothers in University Sultan Zainal Abidin (UniSZA).

Method: This was a cross-sectional study carried out among lactating mothers in UniSZA. There were 81 respondents participated in this study. Data on socio-demographic, knowledge, attitude and practices towards exclusive breastfeeding were collected using questionnaire.

Result: The result showed that 69% of respondents practiced exclusive breastfeeding, 54% of respondents had high knowledge and 70% of respondents had positive attitude towards exclusive breastfeeding. There was a significant association between knowledge and attitude score. Besides, there was a significant difference between knowledge and practice, attitude and practice, educational level and attitude, and income level and attitude.

Conclusion: These results clearly demonstrate that lactating mothers in UniSZA have high knowledge, positive attitude and performed well exclusive breastfeeding to their infants. Hence, knowledge and attitude are the key concept to successfully practice exclusive breastfeeding. Accurate knowledge and information should be delivered to mothers to promote exclusive breastfeeding practices.

Keywords: Knowledge, Attitude, Practice, Exclusive breastfeeding

Cytotoxicity effect of *Catharanthus roseus* leaves extract on glioma cells

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Abstract

Background: *Catharanthus roseus* (*C.roseus*), also known as Madagascar periwinkle and Kemunting Cina, is a well-known plant that contained potent anticancer agent which has been used in research and clinical trial for various cancer types. However, its effectiveness in treating aggressive and deadly Grade IV brain tumor; Glioblastoma multiforme (GBM) remains unclear. Despite advanced treatments of GBM, the patient's survival rate is dismal; with median survival is below a year. Therefore, in this study we are aimed to evaluate the cytotoxicity effect of *C. roseus* leaves extracts on the GBM cells.

Methods: Extraction of *C. roseus* leaves was done using percolation method to obtain crude *C. roseus* extract (80% methanolic extract) and followed by acid-base extraction to obtain Vinblastine (VBL) rich-fraction extracts. GBM cells (DBTRG-05MG) were treated with gradient concentrations (0, 12.5, 25, 37.5, 50, 62.5, 75, 87.5 and 100 µg/mL) of 80% methanolic *C. roseus* extract, VBL rich-fraction and two synthetic drugs as positive controls; VBL sulfate and Tamoxifen, respectively, for 72 hours. Cell proliferation was measured using MTT assay. Effects of the extracts or synthetic drugs were expressed by IC50 values.

Results: VBL rich-fraction (IC50: 6.2 µg/mL) showed effective reduction of glioma cells compared to crude extract (IC50: 9.0 µg/mL) and VBL sulfate (IC50: 8.0 µg/mL) respectively. However, there is no significant difference (p> 0.05) of IC50 between the samples.

Conclusion: VBL rich-fraction of *C. roseus* extract is effective in killing the glioma cells *in vitro* which depicted natural derived active compound is a potent anticancer agent.

Keywords: *Catharanthus roseus, Glioblastoma multiforme, Vinblastine*

The Potential of *Passiflora foetida* L. As A Therapeutic Agent for Skin Infection

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Abstract

Introduction: Skin infections are commonly implicated by many pathogens including *Staphylococcus aureus, Staphylococcus epidermidis, Pseudomonas aeruginosa, Tricophyton rubrum* and *Candida albicans*. Increasing antimicrobial resistance has raised the concerns of the scientific community. Natural products such as plant including *Passiflora foetida* L. has been widely used as an alternative medicine as it contains various compounds with therapeutic values. In order to evaluate the antimicrobial activity of this species, it is important to correctly identify the species to avoid any adverse effect. Hence, this study aims to enrich the taxonomical update of *Passiflora foetida* L. pertaining to its macromorphology and microscopic features, so that a novel antimicrobial agent can be elucidated to meet needs of bottom million population agenda.

Method: The organoleptic evaluation and anatomical study of leaf and stem was carried out via stereomicroscopy technique. The antimicrobial activity was assessed by disc diffusion assay. The Minimum Inhibitory Concentration (MIC) and Minimum Bactericidal Concentration was determined following a potential effect exhibits during disc diffusion assay.

Result: The anatomical inspection evidenced some distinguishing features of leaf despite the typical similarities of the genus in terms of leaf shape, colour, venation pattern, and stomata distribution. *Passiflora foetida* L. leaf extract demonstrated a significantly lower activity as compared to control, Ciprofloxacin and Amphotericin B ($p < 0.001$), and there is no significant difference of antimicrobial potential of extract from two different locations, Kg. Kenali and Kg. Pulau Pasir ($p > 0.05$), tested using One-way Anova analysis. The MIC and MBC of both extracts are 125 mg/ml and 500 mg/ml respectively. The MBC:MIC ratio is 4.

Conclusions: The taxonomical update may act as a diagnostic parameter and aid in correct identification of *Passiflora foetida* L. This plant species may be exploited as a bactericidal antimicrobial agent, thus providing a better healthcare to the human population globally.

Evaluation The Effect of *Azadirachta Indica* A. Juss Crude Extract on Drug Resistant *P. falciparum* Growth

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Abstract

Introduction: Malaria is a mosquito-borne disease caused by *Plasmodium* species which become the leading cause of morbidity and mortality worldwide. Among all *Plasmodium* species, *P. falciparum* is the most prevalent and highly pathogenic malaria parasite. The upsurge growth of *P. falciparum* resistance strain toward current antimalarial drugs, artemisinin and partner drug (ACT) has been reported in certain parts of world cause urgency in discovering of new promising alternative antimalarial drug. The widely use of *Azadirachta indica* A. Juss (Neem) leaves as alternative malaria treatment in different countries lead to increasing number of research involving investigation of antimalarial effect of Neem had been conducted throughout the world. However, currently there have no such a study found in Malaysia. Thus, evaluation the antimalarial properties Malaysian *Azadirachta indica A. juss* (Neem) leaves crude extract has been carried out in this current study.

Methods: The crude water extract of Neem leaves was prepared through soxhlet extraction technique. The 96-well microplate assay was performed to determine the total phenolic content and flavonoid content of Neem. This extract also was testing for its cytotoxicity activities using brine shrimp lethality assay. The antimalarial effect of Neem was evaluated by peforming SYBR Green I fluorescent based drug sensitivity assay in order to determine 50% inhibitory concentration (IC_{50}) of the parasite growth.

Results: The final product for Neem water extraction gave low percentage yield of crude extract which is 5.54%. High phenolic content (51.2620 mg/g GAE) and flavonoid content (805.00 mg/g of QAE) of Neem has been successfully quantified from the extract. The water extract from Neem showed no cytotoxicity effect on the brine shrimp after been tested for 24 hour. The water extract was considered as inactive toward drug resistant *P. falciparum* (Dd2) due to high value of IC_{50} (1225.2 + 4.60 µg/ml) was obtained from this study in comparison with other Neem study for malaria.

Conclusion: Finding from this study help in reveal the potential of Malaysian Neem leaves crude water extract in malarial treatment and suggest the use of other possible extraction solvent for future study.

Bone Health Status, Isokinetic Muscular Peak Torques and Power, and Body Composition of Young Female Silat and Taekwondo Practitioners

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Abstract

Objective: This study investigated differences of bone health status, isokinetic muscular strength and power, and body composition of young female silat and taekwondo practitioners. **Methods:** A total of 36 participants (mean age: 17.31 ± 1.6 years old) were recruited in this study. They were divided into three groups, i.e. sedentary control, silat and taekwondo groups with 12 participants per group. Participant's percent body fat and fat-free mass were measured. BIODEX isokinetic dynamometer was used to measure participant's knee and shoulder extension and flexion muscular peak torque (strength) and power at 3 angular velocities, i.e. $60°.s^{-1}$, $180°.s^{-1}$and $300°.s^{-1}$. The quantitative ultrasound measurement of bone speed of sound (SOS) (an indicator of bone mineral density) of participants' legs and arms were measured.
Results: There were no statistically significant differences in percent body fat and fat free mass among sedentary control, silat and taekwondo groups. Additionally, there were no significant differences in bone SOS among these three groups. Silat and taekwondo groups showed statistically significant higher values in most of the muscular peak torque and power measurements compared to sedentary control group. Silat group exhibited statistically higher values of knee extension and shoulder extension peak torque and power measurements compared to taekwondo group. However, taekwondo group showed statistically significant higher values of shoulder flexion peak torque and power measurements than silat group.
Conclusion: The results of the present study can be applied and help to facilitate the development of specific training programmes for optimal performance of martial arts in silat and taekwondo practitioners.

Concentration of Heavy Metals in Cooked Rice and Their Potential Health Risk

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Abstract

Introduction: Heavy metals in the environment become worldwide great concern due to their adverse effects to human health. The contamination of heavy metals in soil resulted from anthropogenic rather than natural activities. Anthropogenic activities is one of a factor that contribute to the elevated concentration of heavy metals such as cadmium, copper, lead and arsenic in soil that possibly up to the harmful levels. Therefore, high concentration of heavy metals in soil would increase the potential uptake of these metals by plants and crops which are more or less can interrupt the quality of food chain. This study was conducted to determine the concentration of cadmium, lead and copper in cooked rice from local production and imported from Thailand, Pakistan and India. Cooked rice were used because rice ingestion in one of the major pathway for heavy metals to accumulate in human body. The analysed heavy metals concentrations were utilized to measure, Total Hazard Quetient (THQ) and Hazard Index (HI) to determine health risk assessment as indicator risk associated with the consumption of heavy metal in contaminated rice.
Method: The method used was according to The United State Environmental Protection Agency (USEPA) to evaluate the potential health risk of heavy metals. In this study, three stages were involved; cooking process, acid digestion and and lastly analysis of samples using Atomic Absorption Spectrometry (AAS).
Result: The mean concentration of heavy metals in cooked rice samples were 0.357 mg/kg for Cd, 0.428 mg/kg for Pb and 0.226 mg/kg for Cu. The heavy metal concentration in cooked rice samples were in the following order, Pb > Cd > Cu. There were no significant different for mean heavy metal concentrations from different countries. Beside, the THQ values and the HI value from different countries were less than 1, indicating there were no adverse health effect to human.
Conclusion: In conclusion, all cooked rice samples were safe for consumption as the THQ values and the HI values for all samples gives a value less than 1 implicating no carcinogenic health risk present.

Keyword: Cd, Pb, Cu, Cooked rice, Health Risk Assessment

TITLE: STUDY OF NECROPHAGOUS FLY SPECIES IMPORTANT FOR POSTMORTEM IDENTIFICATION AROUND THE WORLD

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ABSTRACT

Intro? Methods? Results? Conclusion?

Necrophagous species can be defined as species that eat the corpses and essential for estimating post mortem interval (PMI) in forensic entomology. Post mortem interval is significant in forensic entomology as it can determine the time a person died. In this research, fly species were studied because it is one of the first species to populate a cadaver. The adult flies will lay their eggs on the corpses within minutes to hours after the death. Their eggs hatch into a maggot and the PMI is determined from the maggots size. The research was carried out by reviewing papers which is related with necrophagous fly species. Data mining research methods including the use of Google Scholar and literature review from books. From the literature review, each country has its own species of necrophagous flies and the variation is due to the different climates. For tropical climate, the dominant fly species are the *Chrysomya Megacephala* and *Chrysomya Rurifacies*. In cold climate, the most dominant necrophagous fly is the *Lucilia Vicina* while in continental climate, *Lucilia Albiceps* is the most abundant fly species. There is also a rare species from family *Sarcophagidae*. Adult *Sarcophagidae* only lay a few of eggs on corpses. It is hoped that this study aides researchers to identify the different types of necrophagous flies around the world.

* Please follow guidelines for abstract submission

Noise Exposure and Hearing Symptoms among Quarry Workers in Bukit Buloh, Kelantan

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Abstract

Introduction: Noise is one of the hazards faced by quarry workers. Quarries with loud deafening sounds from machineries and trucks create the risk of hearing loss to workers. This study was designed to determine the noise exposure and hearing loss symptoms among quarry workers.

Methods: A cross-sectional study was conducted at a selected quarry in Bukit Buloh, Kelantan. Using purposive sampling method, questionnaires were distributed among 40 quarry workers to obtain their socio-demographic data, employment information, factors associated with hearing symptoms and related hearing symptoms. Area and personal monitoring were conducted to measure noise exposure level for 8 hours using sound level meter (Bruel & Kjaer, Denmark) and noise dosimeter (Larson Davis Spark 706 RC, USA).

Results: The result of area monitoring showed that the highest noise exposure level was 98.1 dBA at Secondary Crusher Plant which exceeded the Permissible Exposure Limit (PEL) of 90 dBA. The median of personal noise exposure level among workers was 81.6 dBA (IQR: 74.48-85.05 dBA). It was found that the median noise exposure level were significantly different between Primary Crusher Plant and Secondary Crusher Plant (p=0.005), Primary Crusher Plant and Grading Bunker Plant (p=0.009), Primary Crusher Plant and Premix Plant (p=0.024) and Primary Crusher Plant and Weighing Section (p=0.012). Significant association was found between usage of Personal Protective Equipment (PPE) and difficulties in understanding conversation symptoms reported by the quarry workers (p=0.027). However, there was no significant association between noise exposure levels and hearing loss symptoms among them.

Conclusion: Although there was no established significant association between noise exposure levels and hearing loss symptoms, the result of noise level at Primary Crusher Plant was found to exceed the PEL. Therefore, it is highly recommended that the hearing protection programme is conducted to educate the workers and to provide the PPE in to prevent the hearing loss problems among the quarry workers.

Keywords: Noise Exposure, Hearing Symptoms, Quarry Workers

Investigation of Antimalarial Activity of Crude Stingless Bee Propolis

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Abstract

Introduction: Malaria is mosquito-borne disease that cause by plasmodium species and killed nearly 429 000 people in 2016. With the emergence of plasmodium resistant, many studies are conducted to find alternative drug to treat malaria. In addition, with the resurgent of traditional medicine that are uses to treat various diseases nowadays, the propolis is one of the traditional medicines that possess many medicinal values including anti-malarial properties. Propolis is the resinous mixture that is produced by bees from the resin that collected from the surrounding plants. Bees use propolis to protect its hives from the external intruder by patching the propolis on the crack or the opening of hive. There were very few studies on the Malaysian stingless bee propolis (*Trigona itama*), therefore the aim of this study was to investigate the properties and the ability of Malaysian stingless bee propolis as antimalarial agent.

Method: The propolis was macerated using water and 70% ethanol. The total phenolic and flavonoid were identified using Folin-Ciocalteau reagent and aluminium chloride method respectively. The toxicity of propolis extracts was determined using Brine Shrimp Toxicity Assay and the antimalarial activity was determined by spectrophotometric method using SYBR 1 Green dye.

Results: The ethanol extract propolis, EEP showed higher extraction yield (3.64%) and total phenolic content (31.3 ± 0.004 mg GAE/g EEP) compared to water extract propolis, WEP (0.9%; 16.4 ± 0.001 mg GAE/g WEP). In contrast, the total flavonoid content of WEP was higher than EEP. The preliminary study of toxicity for both extracts, showed the LC50 of WEP and EEP were LC50 > 1000µg/ml and were consider non-toxic. In correlation with phenolic content, the study showed EEP (352.3 µg/ml) exhibited more potent anti-plasmodium activity compared to WEP (1691 µg/ml).

Conclusion: Malaysian stingless bee propolis shows inhibition to *P. falciparum* (3D7). Further investigations need to be done to investigate the phenolic compound that responsible to the antimalarial activity of propolis.

Keywords: Antimalarial, Brine shrimp toxicity assay, propolis, total phenolic content, total flavonoid content